National Environmental Education Action Plan for Sustainable Development in Jamaica

(1998 - 2010)

December 1997
ACKNOWLEDGEMENTS

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The National Environmental Education Action Plan for Sustainable Development is an NEEC document, written by Communications Consultant Suzanne Francis Brown, who has been involved with the process since preparations began for the initial Vision-Setting workshops in February 1997. Chapters Four and Five of the Plan draw extensively on baseline research into areas of Formal Education and Non-Formal Learning identified during these workshops and subsequent NEEC deliberations, as important to Environmental Education for Sustainable Development. Research was undertaken by Marcelline Collins-Figueroa & Joyce Glasgow (Teacher Professional Development), Pam Morris (Curriculum Development & Implementation), Susan Otuokon (National Awareness & Attitudes), Valerie Gordon (Community Learning), and Christine Scott Dunkley & Janet Bedasse (Resources & Practices). Working Groups which interacted with the Researchers and analyzed their findings, were another important resource. Thanks are also due to Novlette Douglas (title) and other involved staff of the Natural Resource Conservation Authority (NRCA), to which the NEEC is affiliated; and to the NEEC Secretariat within the NRCA.
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GOVERNOR-GENERAL'S MESSAGE

The concept of putting environmentally sustainable development into practice, involves challenges that are as diverse as the make-up of our population.

It is stated in the National Action Plan, that the production of this document is guided by a vision of a future for Jamaica in which social, economic and environmental components of sustainability are harmonized. The key element in bringing this vision to reality is through education.

I wish to congratulate the National Environmental Education Committee (NEEC) which was formed in 1993 by the Natural Resources Conservation Authority to focus specifically on environmental education, for their enthusiasm and commitment in producing the National Action Plan. I envisage that the same enthusiasm will evolve from every citizen and organizations, as they become more environmentally responsive in every community.

It cannot be denied that protecting the environment is a complex issue but as we seek to stimulate economic regrowth, we are faced with the challenge of stimulating the minds of our people to create an interest in exploring solutions to environmental issues.

I pray that Jamaica will continue to achieve its goals in adopting the right approach for the ongoing interdependence of the environment and the economy, as we seek to protect our precious natural resources in the 21st century and beyond.

Howard Cooke
GOVERNOR-GENERAL

Mosaic of Voices for the National Environmental Education Action Plan for Sustainable Development in Jamaica
The importance of a healthy environment for the sustainability of life has been increasingly recognized as one of the most critical factors confronting people everywhere in the world today. In Jamaica, the gifts of our natural environment provide us with one of the mainstays of our economy. For it is on the resources provided by our seas, beaches, climate and countryside that our tourism industry has been built.

As people we have to learn how to manage our environmental resources better than we have done so far. We must prevent them from being seriously depleted - as our forests are in danger of becoming - or polluted. As is threatening our harbours and rivers. If these trends continue, our options for future development will be considerably reduced.

All Jamaicans, therefore, have a responsibility to protect the environment and both our public and private sectors should institute wise environmental practices in their own spheres in order to secure for all a sustainable future.

For these reasons, the Private Sector Organisation of Jamaica (PSOJ) has placed a high priority on environmental education, through our Environment Committee. We are seeking to inform and advise our members on how successful environmental management can be achieved in their businesses.

The PSOJ is therefore pleased to participate in and support the wider effort of the National Environmental Education Committee in preparing and implementing an Action Plan for the nation. We regard such a plan as being urgently needed.

Clifton Cameron  
President  
Private Sector Organization of Jamaica

The enabling values and attitudes for achieving the sustainable lifestyles we must seek, have to be learned through a radical, dynamic education process, which prepares citizens for change and action - in sum, Environmental Education for Sustainable Development (EE for SD).

Our formal education sector constitutes a mighty vehicle for EE for SD. This Plan offers the sector, at a particularly timely point of review, an orderly framework within which to evaluate past and present efforts, and provide vision and guidance for the future.

Joyce Glasgow  
(Retired) Senior Lecturer,  
Science Education,  
School of Education, UWI, Mona.

The real test of any model of development is its capacity to eradicate or significantly ameliorate poverty and prevent its transmission from one generation to the next. Three and a half decades after its independence, Jamaica has not been able to break the cycle of poverty. An unacceptably large number of Jamaicans still live below the poverty line and the depletion of the environment and the country's natural resources continue unchecked. This Action Plan is therefore not only important but timely.

Members of the Association of Development Agencies (ADA) have committed themselves to a people-centered and democratic approach to sustainable development which complements very well the shared stakeholder vision which this Action Plan embodies and promotes. The successful implementation of this Environmental Education Action Plan is one important way of ensuring that the path that the country follows in the future will lead to sustainable development, characterized not only by increases in material wealth, but also by decreasing social alienation, and by the balanced utilization and protection of our environment and natural resources.
Judith Wedderburn  
Deputy Chairperson  
Association of Development Agencies

In light of our present state of environmental decay, this plan is just in time to cure the Environmental illiteracy of another generation. Environmental education is most important to the youth of Jamaica, because we are the ones who need to be educated, and who will inherit Jamaica. This plan will help ensure that we are properly tooled and equipped to make the best environmental decisions. Education will also help us to have a stronger voice in the environmental struggles of today. Education is the main KEY that can be used to turn the lock of environmental ignorance and open the door to an environmentally active and literate Jamaica.

Nadiya Figueroa  
5th form student, Campion College  
Jamaican delegate to First International Children's Conference on the Environment  
Eastbourne, England, 1995  
Member of “Green Generation” environmental club, Campion College

To ensure a viable, responsive, dynamic and results driven education system a National Environmental Education Action Plan for Sustainable Development is not only timely but also indispensable. The reason is not far-fetched. Learning and outcomes based education as required for a knowledge based economy are dependent on the existence of a conducive social and physical environment that is self-renewing and that generates and maintains growth. The plan assures such a situation.

Wesley Barrett  
Chief Education Officer  
Ministry of Education, Youth and Culture

The National Environmental Societies Trust welcomes the National Environmental Education Action Plan for Sustainable Development.

The plan comes at a time when Environmental Non-Government Organizations (ENGOS) and other agencies, having worked assiduously to create a climate of awareness of the need to protect and conserve the environment, are committing themselves to the creation of a future which will ensure the availability of the resources required to sustain all life forms.

Because ENGOS have been in the forefront of environmental education in Jamaica, this plan can but build on their achievements, and because the process of developing the plan has been a participatory one, it can only extend and support their efforts.

The plan seeks to increase the participation of all sectors of the society in environmental education activities for sustainable development and that is a most welcome approach. The members of the Trust look forward to working in partnership with all parties as we strive to develop our country without destroying our resources for lack of vision and planning. The Environmental Education Action Plan for Sustainable Development provides a framework, which will help us to achieve our goal.

Maureen Rowe  
Executive Director  
National Environmental Societies Trust

"People's relationship to nature is the greatest issue
facing the world at the turn of the millennium, and all over the world young people have shown enormous enthusiasm for environmental action. Jamaica is no exception, and we in ICWI Group Foundation are committed to the development of young Jamaican leadership. We support children's involvement in shaping their own and their communities' futures through the environmental education-for-action-now. The Foundation's Science Learning Centre, along with teachers and generous donors, has published a resource manual - "The Environmental Action Now Cookbook". The Cookbook encourages the participation of young people in decision-making regarding Jamaica's resources. Hopefully, it will enrich education for sustainable development.”

Hon. Dennis Lalor
Chairman
ICWI Group

"In order to take advantage of rapid technological changes and achieve economic growth and prosperity, many nations have recognised that education is a priority. The educational process must include a component on environmental education for sustainable development. Environmental education would not be limited to just the school system, but must reach the policy and decision makers, the implementers of policies and plans as well as the communities at large. If this approach is not taken, then in a very short time the limited resources of a small island state such as Jamaica will be rapidly depleted, with no hope for resuscitation.”

Sonia D. Gatchair (Miss)
Executive Director (Acting)
National Commission on Science and Technology
Secretariat

1) The Plan is important and timely because Jamaica is at a very critical juncture in terms of environmental awareness. Environmental destruction is ongoing, and only heightened awareness will arrest it.

2) In our sector, a Plan is important because environmental awareness is still poor and an Action Plan, to focus and increase awareness, is desperately needed.

3) Environmental education has a vital role to play in preparing Jamaica for sustainable development. Without proper environmental education awareness will continue to be low, environmental degradation will proceed as usual, and sustainable development will continue to be a dream.

Mike Laris
It has become essential that our people acquire the culture of Sustainable Development if Jamaica is to participate successfully in the global community of the 21st century. Instilling such a cultural outlook requires an educational thrust extending from early childhood onwards. Within this scheme, the University of the West Indies has an commitment to prepare and equip our young men and women with the most appropriate education and tools to take leadership positions in making sustainable development work.

Kenneth 0. Hall
Principal
The University of the West Indies

As mayor of black river in the parish of St. Elizabeth, which possesses the longest river in Jamaica with its many tributaries and which has been subjected recently to serious degradation, I am duty bound to take note of the preparation of National Environmental Education Action Plan for Sustainable Development in Jamaica (1998 - 2010) as this is the only way forward for sustainable development. Such development plan will have far reaching impact upon not only the farming community but the development of South Coast tourism.

The National Environmental Education Action Plan will have unlimited sources of development, particularly in respect to the southern section of the parish of St. Elizabeth, which has been described as the bread basket of Jamaica and which can become the bread basket of the Caribbean if we are able to articulate and devise innovative ways of bringing not only irrigation but potable water without degradation of the environmental.

Environmental education must inevitable integrate the concept of human development, socially and economically with sustainable natural resource use and environmental protection in a holistic and interdisciplinary conceptual framework.

J.A.G. Myers O.D., J.P.
Chairman Parish Council and Mayor of Black River

"Degradation! Dirt! Drought! Disease! Disaster! all around I see
My soul feels no refreshing breeze
Prevention education it must be
Man is the hope to make the difference
Empowerment the goal for changes immense"

Mrs. Pearlene Lee
Director
Bureau of Health Education

A National Environmental Education Action Plan for Sustainable Development is of paramount importance as the action of every sector of the society impinges on the nation’s development. This plan is timely because Jamaicans currently need to be more cognizant of international standards if they are to ensure the country’s economic development and the preservation of its natural and human resources.

The Plan is of great importance to workers because they are central to the development process of the country. If they fail to access training or re-training they could easily be left behind.
With the focus on widespread development, increased productivity and the enrichment (through training) of the human resources, the Environmental Education for Sustainable Development has significant role to play in preparing the country for a sustainable future.

Pearlie Esteen  
Chairman  
Joint Trade Unions Research Development Centre

The Environmental and Sustainable Development are priority issues for youths throughout Jamaica. Environmental education is lacking with respect to increasing the awareness and understanding of critical issues; environmental legislation, as it stands, is not tight enough to significantly impact on the way we live our lives and sustainable development and the state of the environment are directly linked to the economic and social well-being of young people throughout the world.

Unless these issues are placed at the centre of all our agendas then they will continue to be ignored until the state of our planet has been destroyed beyond repair.

George Cooke  
Chairman – National Youth Service  
Past & Present Volunteers Associations
Chapter One  
Why we must have a National Environmental Education Action Plan for Sustainable Development

A healthy, natural environment is the fundamental pre-requisite for sustainable human development – and human survival. This must become a basic understanding among Jamaican citizens of all ages and stages, and their counterparts across today’s heavily populated, increasingly industrialized, consumption oriented, globalized world.

The process of empowering Jamaicans towards this awareness, and preparing for the next step – action in support of this understanding – is termed Environmental Education for Sustainable Development, and is the subject of this National Plan.

Environmental Education for Sustainable Development embodies the elements of knowledge, attitudes, skills, and an orientation which encourages action to achieve improved environmental health in the cause of sustainable human development.

The term, Environmental Education for Sustainable Development, is unwieldy, but reflects current thinking, which has moved beyond education on protecting and conserving the environment for its own sake, virtually as a laboratory exercise; to embrace the context of sustainable development – society, economy and environment inextricably interwoven.

Jamaican society, and the economy which is an integral part, continues to rely on the bounties of the natural environment. But this Land of Wood & Water, reverenced by Taino predecessors and rapsodized by European adventurers, is increasingly seared by drought and mired in pollution. The path signposted ‘development’ along which Jamaicans have eagerly walked, has been paved with environmental degradation based on the conspicuous, unconsidered and unsustainable consumption of our natural resources. Jamaicans have impacted on the environment and, increasingly, the environment is impacting on our society.

To be sustainable – to have long-term viability – development must harmonize the needs and wants of human society and economy with the health and regenerative capacity of the natural environment. All Jamaicans – policy and decision makers at the national, community and individual levels, must come to know this; to believe that this knowledge is the key to a worthwhile future; and to act on this certainty.

Some Jamaicans, individually and in groups, have already arrived at this conviction and begun to take action in support of it. The development of this Plan, through the inputs of stakeholders from government and non-government bodies, is an indication that the conviction is spreading.

Jamaica’s National Environmental Education Action Plan for Sustainable Development, establishes a point of reference regarding where we stand; what has been done; the key actors; the major target groups. It goes further: In identifying programme areas, priority themes and potential partners, it creates a strategic framework within which to place and relate future action.

The expected results identified for each of the programme areas contribute directly to the achievement of the Plan’s overall result, which is based on a broadly-shared vision of a desired quality of life for a 21st Century Jamaica.

Not least, by the very action of coming into existence, the Plan provides a degree of national recognition and legitimacy for those efforts at Environmental Education for Sustainable Development which have been on-going, in the formal education sector and in the broader national and local contexts, over time.
The Process of Developing the Plan

The National Environmental Education Action Plan for Sustainable Development is the outcome of a process of consultation with a range of stakeholders representing community and national interests. These stakeholders were identified wherever education, awareness or training opportunities have intersected with a focus on the environment or sustainable development.

The process has been guided by the National Environmental Education Committee (NEEC), which was established in 1993 by the Natural Resources Conservation Authority (NRCA), the Jamaican government’s lead environmental agency.

Initial consultations were held with the education and non-government sectors in 1994, and the NEEC subsequently revived the process of developing a National Plan in 1997, through a collaboration with the Canadian International Development Agency/Government of Jamaica Environmental Action (ENACT) Programme. A discussion paper formed the basis for inputs from a range of stakeholders during two workshops, one in Kingston, the other in Montego Bay. On this basis, a Vision Framework was developed, which was accepted by the multi-stakeholder NEEC. This Vision forms Chapter Two of the Plan. Thematic areas of concern identified in the discussion paper and in the workshops, as well as the key actors and target groups, are set out in Chapter Three.

Subsequent baseline research on the Formal Education sector, on Non-Formal Learning, and on existing and potential Resources & Practices – findings of which are outlined in Chapter Four - were the basis on which programme elements and action areas are identified in Chapter Five. Chapter Six speaks to implementation of the Plan, recognizing always that its success will rest with the partnerships which can be forged between those already involved, and those who must become convinced that Environmental Education for Sustainable Development is critical to their lives and livelihoods.

The International Context

Jamaica’s initiative on Environmental Education for Sustainable Development is taking place within a global context. Environmental Education has been on the agenda since 1972, when it emerged as an issue at the United Nations Conference on the Human Environment at Stockholm, Sweden. It took centre-stage, five years later, at the UNESCO-UNEP Inter-governmental Conference on Environmental Education at Tbilisi.

More recently, it played a central part in discussions at the 1992 UN Conference on Environment & Development at Rio de Janiero, Brazil, which galvanized debate and action on the environment. Agenda 21, the international agreement emerging from that conference, has become the touchstone against which national, regional and international action is judged.

Chapter 36 of Agenda 21 recognizes education as the major vehicle for arriving at a sustainable, democratic, globalized future: “Education, including formal education, public awareness and training, should be recognized as a process by which human beings and societies can reach their fullest potential. Education is critical for promoting sustainable development and improving the capacity of the people to address environment and development issues.”

Education was also recognized as a vital component in the sustainable development of small island states, which are usually heavily dependent on natural resources, and specially vulnerable to global environmental pressures. The UN Conference on Small Island Developing States (SIDS), held in Barbados in 1994, recognized the vital importance of environmental education, information and training, which are the focus of Chapter 36.

Reporting in 1997 on the implementation of Chapter 36, the Secretary General of the UN Department for Policy Coordination & Sustainable Development notes: “The challenge is to integrate the concepts of human development; social development and economic development with environmental protection
in a holistic, interdisciplinary conceptual framework.”

Education is therefore envisioned as a means to:

“(a) change values, behaviours and lifestyles that are needed to achieve sustainable development, and ultimately, democracy, human security and peace;

(b) disseminate the knowledge, know-how and skills that are needed to bring about sustainable production and consumption patterns and to improve the management of natural resources, agriculture, energy and industrial production;

(c) ensure an informed public that is prepared to support changes towards sustainability emerging from different sectors.”

Within the international arena, the focus of environmental education has shifted, over the years from being an end in itself, to being a contributory factor in achieving sustainable development.

The focus of education, itself, has also shifted:

“Traditionally” the Secretary General’s report notes, “education has been designed largely to pass on existing knowledge, skills and values. Today, education is being redesigned in terms of how to prepare people for life; for job security; for the demands of a rapidly changing society; for technological changes that now directly or indirectly affect every part of life; and ultimately for the quest for happiness, well-being and quality of life.”

And UNESCO’s International Commission on Education for the 21st Century, a major focal point for implementing Chapter 36, identifies three global trends which influence national agendas for educational renewal and action. They are: the transition from unsustainable to sustainable economic growth which considers both environmental and social objectives; the devolution of power and governance to a local level requiring increased democratic participation; and the globalization of local economies and societies.

UNESCO contends that the capacity of nations to prepare their people for the future, relies on the education and training of citizens in ways consistent with these realities.

Jamaican Context

“If we are to promote sustainable development, then we must improve the capacity of our people to address environmental and development issues; there must be this level of consciousness about it and while we all know that basic education provides the underpinning for any environmental and development education, the latter needs to be incorporated as part of the learning process. This means that we have to have it done formally; this means that we have to have it done informally; this means that we have to get to a stage where as far as education is concerned, it is indispensable; we have to ensure that it will have the effect of changing attitudes so that all of us will have the capacity to assess and address all the concerns in our neighbourhoods, in our communities, in the parishes, in the regions, throughout the entire island.”

Hon Easton Douglas, Minister of Environment & Housing,

Report of 1994 National Environmental Education Committee (NEEC) Consultations

Jamaica’s National Environmental Education Action Plan for Sustainable Development has been developed at a time when the world is still evolving tools to embrace the shift from a pure concern with the protection of the natural environment, to an integration of environmental and developmental agendas.
The integrative view is consistent with local concerns.

Environmental concerns with the carrying capacity of specific ecosystems cannot be separated from human settlement and land use considerations, which themselves are linked with infrastructure and services. Urban blight, water pollution, denudation of the hillsides cannot be separated from poverty. Air and water pollution, human health hazards, cannot be separated from industry. Litter cannot be separated from a lack of national pride and from a feeling, among many Jamaicans, that they have no personal stake in the society.

To be meaningful in a Jamaican context, environmental education must integrate the concepts of human development – social and economic – with sustainable natural resource use and environmental protection, in a holistic, inter-disciplinary conceptual framework.

The **National Environmental Education Action Plan for Sustainable Development**, therefore, focuses on identifying education, awareness and training activities which enhance knowledge, values, skills and action on broad issues relating to human interaction with the environment; within a context of efforts to achieve sustainable development and develop citizens prepared to participate in a sustainable society.

In embracing both environment and development, the Plan simultaneously identifies strategic environmental and developmental priorities for immediate attention; while creating room to set long-term goals, and develop co-lateral approaches with other economic and social initiatives seeking to move Jamaican society towards a sustainable future.

Jamaica’s journey towards awareness of the need to act on environmental issues, to integrate the idea of sustainable development, and to focus on Environmental Education for Sustainable Development has been going on for some time. The following are some of the milestones along the way:

- National physical plans, each including chapters on conservation and development, were developed for the periods 1972 - 1979, and 1978 - 1998. A National Land Policy was promulgated in 1996.

- In 1972, the year of the Stockholm conference on the environment, Jamaica established a Natural Resources Conservation Department (NRCD), with an emphasis on environmental conservation and protection.

- Based on the 1975 launching of a UNESCO-UNEP International Environmental Education Programme, and on the 1977 UNESCO-UNEP Inter-Governmental Conference on Environmental Education, Jamaica became an active participant in the international debate on environmental education. Jamaican educators were among the authors of a UNESCO-UNEP IEEP series of curriculum guides.


- National efforts aimed at developing an environmental education network were on-going throughout the 1980s.

- The NRCD was upgraded to the Natural Resources Conservation Authority in 1991, backed by some of the sternest environmental legislation in the Caribbean.

- In 1992, Jamaica participated in the United Nations Conference on Environment & Development at both the government and NGO levels, and has since expressed support for the implementation of Agenda 21, including Chapter 36 on public awareness, education and training.

- Against this background, the National Environmental Education Committee (NEEC) was established in 1993, beginning the process of developing a national environmental education action plan.
Consultations in 1994 stressed the all-embracing nature of the environment, harmonizing the biological, physical, economic, socio-cultural, and spiritual. Environmental education would embrace long-term attitudinal change, supported by environmental awareness and knowledge, to produce individuals committed to social action, as necessary, to protect the environment.

Speaking then, Minister of the Environment, Hon Easton Douglas, said: "...Notwithstanding the fact that we must have development - it is a part of the whole progress of nations - we must, at the same time, have development carried out so that some of the progress that we make today which meets the majority of our needs will not leave the country in a position where other generations will have fewer resources than we are now enjoying."

- Between 1994 and 1995, the issue of environmental education was the subject of activity at both the governmental and non-governmental levels.
- In 1995, the first Jamaica National Environmental Action Plan (JANEAP) was published by the Ministry of Environment & Housing and the NRCA, with annual status reports and triennial updates. An annual State of the Environment Report was initiated in 1997.
- In 1997, the Government of Jamaica also activated an advisory Sustainable Development Council.

The government, through policy documents and reports, has set out a direction which acknowledges the vital role of the environment and which begins to speak of the importance of sustainable development. The National Industrial Policy (1996), the National Plan of Action on Population & Development, Jamaica 1995 – 2015, the Jamaica National Environmental Action Plan and the National Plan of Action for the Survival, Protection & Development of Children are among the relevant documents.

"The Government recognizes the essential complementarity between environmental policy and industrial policy..." states the National Industrial Policy. "Most of the economic activities in Jamaica depend on the use of the country's natural resources. It is therefore important to develop mechanisms for sustainable management of the country's natural resources and reduce the negative impact of industrial activities on the environment. In this regard, the key goal of Government policy in all areas is sustainable economic development."
Defining The Environment & Environmental Education for Sustainable Development

Environment:

"The environment is here used to embrace the physical, biological, physiological, social, economic, political, cultural, aesthetic, ethical, spiritual - a totality of all the forces which impact on life as we know it, life of which human beings are one group of many lifeforms, but the only creatures which can speak about the environment... In practice, however, they are all interconnected."

Dr Joyce Glasgow, Citizenship in a Sustainable Future; Presentation to NEEC Vision-Setting Workshop, (1997)

Environmental Education:

- "Environmental education seeks to develop a population that is aware of and concerned about the environment, and which has the knowledge, skills, attitudes and commitment to work individually and collectively toward achieving and maintaining a balance between quality of life and quality of the environment."


- "We consider that environmental education for equitable sustainability is a continuous learning process based on respect for life. Such education affirms values and actions which contribute to human and social transformation and ecological preservation. It fosters ecologically sound and equitable societies that live together in interdependence and diversity. This requires individual and collective responsibility at the local, national and planetary level.

"We consider that environmental education should urgently bring about change in the quality of life and a greater consciousness of personal conduct as well as harmony among human beings and between them and other forms of life."


- "Education is critical for promoting sustainable development and improving the capacity of the people to address environment and development issues. While basic education provides the underpinning for any environmental and development education, the latter needs to be incorporated as an essential part of learning. Both formal and non-formal education are indispensable to changing people's attitudes so that they have the capacity to assess and address their sustainable development concerns. It is also critical for achieving environmental and ethical awareness, values and attitudes, skills and behaviour consistent with sustainable development and for effective public participation in decision-making.

"To be effective, environment and development education should deal with the dynamics of both the physical/biological and socio-economic environment and human (which may include spiritual) development, should be integrated in all disciplines, and should employ formal and non-formal methods and effective means of communication."

Chapter 36 of Agenda 21 (1992)

- "The challenge is to integrate the concepts of human development; social development and economic development with environmental protection in a holistic, interdisciplinary conceptual
Chapter Two
The Vision Framework

"Give us vision, lest we perish…" ¹

"We cannot build a future we cannot imagine…Vision without action is useless. But action without vision does not know where to go or why to go there. Vision is absolutely necessary to motivate action. More than that, vision when widely shared and firmly kept in sight, brings into being new systems.” ²

There are many broad definitions of sustainable development. These integrate the needs of human society and of the natural environment on which we depend. Yet, realizing these definitions requires us to identify desired levels of sustainability and quantify the social costs of a transition to sustainable development – a complex process in itself.

A first step, is developing a vision of a sustainable future, as a basis on which to plan and to build. The following is a composite, multi-stakeholder vision of a sustainably developed Jamaica:

A wholesome, beautiful physical environment, its natural resources managed with a view to sustainability. Fully educated and environmentally literate citizens, meaningfully employed, concerned with future as well as present generations, cognisant of their inter-relatedness with a finite physical environment and with a sense of responsibility for action as it relates to that environment; guided by a political and economic system committed to principles of equity, participatory democracy and sustainability.

The vision is drawn from a series of specific elements identified by stakeholders, which reflect the social, environmental and economic spheres. Several also relate to governance: that framework created and accepted by society within which deliberate social, environmental and economic inter-relationships are conducted. Governance occurs along a

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¹ From the second verse of Jamaica’s National Anthem.
continuum which affects individuals and communities at the local and national levels.³

Social
• Basic needs met;
• Environmentally literate and active citizens;
• Citizens and communities committed to sustainable living;
• Gender, class, social and economic equity;
• Respect for human rights;
• An emphasis on consensus, not conflict, in problem-solving;
• Positive role models and education which adequately prepares all citizens for sustainable living;
• Respect for diversity, local knowledge and culture;
• Health and well-being for individuals and communities.

Environmental
• Environmental friendliness in all sectors;
• Urban forests and reforestation of watersheds;
• A managed coastal and marine environment;
• Wildlife and plant habitat protection;
• Reduced pollution and managed waste;
• Improved air, water and land quality, based on a determination of levels of acceptability;
• Conservation of remaining pristine physical environment.

Economic
• Poverty eradicated; economic equity;
• Sustainable economic and industrial development, including careful use of resources; limited emissions, clean-up of pollution;
• Corporate responsibility and commitment, leading to the use of appropriate, environmentally-friendly technologies; the production of environmentally-friendly products; as well as socially-responsible accounting and other business systems;
• National financial systems which capture and underwrite the costs of natural resource depletion and pollution;
• National and business enterprise standards and targets;
• Tourism earnings used for environmental care and education;
• Sustainable agriculture; encouragement of environmentally-friendly traditional practices;
• Adequate rehabilitation and appropriate use of mined-out land;
• Global market niches in tourism and agricultural products and services;
• Full and meaningful employment with de-centralized job opportunities and new jobs stemming from a focus on sustainable development;
• Sustainable urban and industrial infrastructure and services;
• Research to identify new areas of economic growth.

Governance
• Cross-sectoral approaches and linkages including partnership structures to handle interactions between groups in the public, private and NGO domains; inter-agency cooperation;
• Sustainability as a context for long term development of the economy and society;
• A focus on planning, with decision-making based on research and information;
• Centralized land use policy; decentralized planning and regulation;
• Devolution of services to local areas and communities with accompanying capacity and resources;

³ Editorial Suggestion: Create an illustration of Jamaica, overwritten with the vision statement, into which four text boxes feed, each containing one of the elements: social, environmental, economic, governance.
• Monitoring and enforcement of laws;
• Incentives to encourage positive action, as well as deterrent legal sanctions;
• Efficient resource allocation, and systems to regain environmental costs;
• Economic, political and social support for maintaining a wholesome environment;
• An integrated approach to the environment.
• Government support of ‘green’ and environmentally friendly products and technologies;
• Standards for environmentally-friendly products and packaging;
• Investment in science and technology;
• Environmental and gender considerations integrated into government policies.

The vision can be achieved. Local environmental activist and teacher, Jean Brown, contends: "Moving Jamaica forward in sustainable development is an achievable goal which must include social sustainability, environmental sustainability and economic sustainability, through an inter-disciplinary framework of environmental education – formal and informal; with environmental groups playing a major role."

### The Role of Environmental Education in Achieving a Sustainable Future

Environmental Education for Sustainable Development can help Jamaicans achieve the vision of a sustainable society, with its pre-requisite: a sustainable natural environment.

Environmental Education for Sustainable Development, as envisioned by a multi-stakeholder assembly:

*is a holistic, integrative force which will enhance Jamaicans internally, as a precursor to external action; which will work through the formal education system, and through non-formal learning to encourage environment-friendly action at the individual, business enterprise, national and community levels. Elements include appreciation of nature, respect for all living things, understanding of human interdependence with the finite, natural environment, and recognition that human society – including the economy – can be integrated with the environment in a mutually beneficial and sustainable manner.*

Action in the area of Environmental Education for Sustainable Development is expected to create:

*citizens – individually and collectively, in both the private and public spheres – who are prepared to participate in creating and maintaining a sustainable Jamaica.*

### Citizens in a Sustainable Jamaica

*Pioneering Jamaican environmental educator, Dr Joyce Glasgow, lists the following characteristics for citizens of a sustainable Jamaica:*

- Caring;
- Self-disciplined (by implication, open to what the world has to offer without being overwhelmed by it);
- Alert, observant, anticipatory in recognizing environmental problems and issues and potential solutions;
- Willing to share information and ideas at the local, national and international levels;
- Concerned that their choices add to human enrichment;
- Examining economic policies for impact on society, as well as for monetary output; and, recognizing economic activity as a means of raising quality of life for all, ensuring that such activities are planned and implemented to alleviate poverty, hunger, illiteracy, human exploitation and domination;
- Analysing industrial, scientific and technological innovations for potential good, but also for adverse effects on the total environment and quality of human life, with the latter consideration being the superceding factor;
- Examining economic and political measures to see where they support cooperation rather than conflict;
- Evaluating public plans in terms of the fulfillment and renewal of the human person;
- Seeking opportunities for self-actualization;
- Being willing to and capable of planning and implementing individual and/or collective action to improve the health of the planet at the local, national and/or global levels according to their talents and opportunities.

These citizenship skills and values apply at the individual and collective levels, and in terms of private as well as public
Goals of Environmental Education for Sustainable Development

Based on the vision of Environmental Education for Sustainable Development and its role in developing a sustainable society, five broad goals are identified:

• To disseminate the knowledge, know-how and skills needed to improve the understanding and management of natural resources including agriculture, energy and industrial production, and of the built environment, thereby contributing to sustainable production and consumption patterns;
• To change values, ethics, attitudes, behaviours and lifestyles so as to facilitate improved management of natural resources including agriculture, energy and industrial production, and of the built environment; thereby helping to bring about sustainable production and consumption patterns;
• To ensure an informed public – including individuals and groups in the private and public sectors – which will support actions emerging from different sectors aimed at an improved environment and sustainable human development;
• To ensure an informed policy and decision-making directorate which will take a lead role on environment and sustainability issues, and which will interact with the public to develop and maintain sustainable practices;
• To ensure systems capacity which will sustain long-term support for initiatives on environmental education for sustainable development.

The National Environmental Education Action Plan for Sustainable Development seeks to identify actions necessary to achieve these goals.

Principles to Guide Environmental Education for Sustainable Development

Environmental Education for Sustainable Development embodies the following basic principles:

1) Agent for Positive Change
Environmental Education for Sustainable Development seeks social, cultural and value change at an individual and systemic level. It recognizes contextual socio-economic problems, and its programmes and messages promote positive behaviour, a sense of responsibility, national identity, social justice, as well as gender, class and economic equity.

2) Life-long
Learning is a life-long activity. The learning continuum extends beyond the formal system, and strategies for environmental education embrace people at the workplace, in the home and the community.

3) Holistic
Environmental Education for Sustainable Development assumes an educational process which is learner-centered and holistic, with consideration given to spiritual, physical and emotional as well as cognitive aspects of development. It recognizes the potential for teachers and students to learn from each other.

4) Integrative
Environmental Education for Sustainable Development promotes the integration of content and processes related to society, the natural environment and the economy, within an inter-disciplinary context; enabling individuals to make connections between the personal, local, national, regional and global.

5) Systemic
Environmental Education for Sustainable Development treats critical issues as well as their causes and inter-
relationships, systemically, taking account of their social and historical contexts. Fundamental issues relating to development and the environment, including population, health, peace, human rights, democracy, hunger, degradation of flora and fauna, are considered in this manner.

6) Empowering
Environmental Education for Sustainable Development is empowering and promotes opportunities for democratic participation at all levels.

7) Relevant
Environmental Education for Sustainable Development relates to the lives and livelihoods of learners and the society in general. It is issues and field based. By extension, it promotes and applies links between learning and real life, including the development of skills and the inclusion of hands-on activities. It analyses traditional practices and programmes which work well, and affirms them. Environmental Education for Sustainable Development educators practice the principles that they teach.

8) Action-oriented
Learning is a precursor to action, at the personal level, in the community, the nation and the world. Environmental Education for Sustainable Development encourages self-motivation, and is pro-active rather than reactive.

9) Dynamic
Environmental Education for Sustainable Development recognizes and keeps pace with knowledge creation. It encourages research and data collection to enable planning, guide educational activities and develop research competencies. In doing so, environmental educators make maximum use of the most appropriate technology.

10) Respectful
Environmental Education for Sustainable Development encourages respect for and care of country, taking advantage of learning possibilities offered by culture, heritage, the use of oral traditions and traditional knowledge systems.

11) Temporal
Environmental Education for Sustainable Development looks to the future, learns from the past and considers the present.

12) Ethical
Environmental Education for Sustainable Development helps develop ethical considerations, including consideration for all forms of life on the planet, with a view to creating improved standards of environmental behaviour.

13) Sustainable
Environmental Education for Sustainable Development promotes sustainable human development as the context for education, work-related learning and life skills.

Learning Outcomes for Citizenship in a Sustainable Future

The National Environmental Education Action Plan for Sustainable Development is guided by a vision of a Jamaican future in which social, environmental and economic components of sustainability are harmonized. Within this context, Environmental Education for Sustainable Development has a crucial role in enabling citizens to participate in a sustainable future by providing the knowledge, skills, values and action-orientation for sustainable living.
The following learning outcomes – in the areas of knowledge, skills, values/attitudes, and action – will establish broad parameters for Environmental Education for Sustainable Development. The outcomes listed are generic, and relate to both the formal education system and programmes for non-formal learning. The implementation of particular programme elements will require specialized elaboration of these outcomes.

Knowledge
Knowledge relates to the acquisition of information or understanding. The following are identified as important knowledge elements for Jamaican citizens:

1) The planet earth as a finite system made up of inter-connected ecosystems and system elements;
2) The earth's resources – air, soil, water, minerals, their distribution and role in supporting humans and other living organisms;
3) Human impact on the quality of the environment, locally, nationally and globally;
4) Human systems – built, social, political, and economic – and their inter-relationship with natural systems;
5) Traditional practices, knowledge and belief systems and their impact on the natural world;
6) Jamaica's economic dependence on its natural resource base;
7) The dependence of human health and well-being on a sound economy and healthy environment;
8) The effect of resource distribution on societies and the rate and character of economic development from a historical as well as a current perspective;
9) The role of science, information and technology in the development of societies and the impact of technology on the environment;
10) Local, national and global environment and sustainable development issues;
11) Strategies and actions for responsible citizenship within local, national and global communities;
12) Processes of planning, policy-making, regulations and action for sustainability by the international community, government, business, non-government and the public;
13) Concepts related to equity, social justice and individual and collective rights and responsibilities, in context of the environment and sustainable development;
14) Concepts related to sustainability;
15) Knowledge of the importance and role that various sectors of society can play in a sustainable future, including the public and private sectors, communities, non-government organizations (NGO)s, women, youth, aged, disabled etc.

Skills
Skills are broadly defined as attributes developed and used in undertaking tasks or solving problems. There are two basic types of skills: Intellectual Skills which deal with enquiry, identification and decision-making; and social skills which deal with the quality of human interactions. The following are broad skills areas identified as being important to Environmental Education for Sustainable Development.

1) Literacy and numeracy as a basis for other skill acquisition and learning;
2) Capability to use technology-based tools and resources in addressing questions;
3) Ability to use communication, enquiry, problem-solving and action, and critical thinking skills;
4) Competence to utilize inter-disciplinary approaches to problem-solving;
5) Capacity to gather and organize information and evaluate evidence and to see patterns;
6) Ability to apply definitions of fundamental concepts – environment, community, technology etc – to local, national and global experiences;
7) Ability to assess the nature of bias and evaluate different points of view;
8) Capacity to test new information against personal experience and belief;
9) Ability to reflect on and put into practice learning based on experience;
10) Ability to anticipate possible future action based on information and experience;
11) Capability to develop cooperative strategies for appropriate action and competence at consensus building and cooperative resolution of conflict;
12) Ability to participate actively and constructively in local, regional, national and global
community;
13) Ability to consider life options including career planning based on a sustainable future;
14) Competence to use tools developed within the context of environmental and sustainable development programmes.

Values/Attitudes
Values/Attitudes are defined as those sensitivities that affect and direct judgement. Those important in Environmental Education for Sustainable Development include:

1) Appreciation of the resilience, fragility and beauty of nature and the interdependence of life forms;
2) A sense of responsibility and stewardship, and appreciation that one person can make a difference;
3) Appreciation of the dependence of human life on the resources of a finite planet;
4) Appreciation of the role of human ingenuity, culture, tradition and individual creativity in ensuring survival and the search for appropriate and sustainable progress;
5) A sense of self-worth, empowerment and rootedness in one's culture and community. National pride. Respect for other cultures. Recognition of the interdependence of the human community;
6) A global perspective and a concern for disparities and injustices, commitment to human rights, social equity, and peaceful resolution of conflict;
7) Personal commitment to a sustainable lifestyle and to participation in change at the personal, community and national levels;
8) Respect for diversity and difference;
9) Value for education, resulting in a personal willingness to invest time and resources in this area.

Action/Participation
The development of a willingness to act in furtherance of the knowledge, skills and values developed, is the vital fourth step in learning. Specific action outcomes include:

1) Reinforcing and enhancing a culture of civic action;
2) Participating in democratic change and responsible stewardship of the local environment;
3) Developing the ability to act in ways that reflect appropriate knowledge, skills and values/attitudes for sustainable citizenship;
4) Taking individual and collective action as a contribution to sustainable development.
5) Adopting whole, sustainable lifestyles and livelihoods as a way of being in the world.
Chapter Three
Priority Themes & Key Actors

Introduction

The National Environmental Education Action Plan for Sustainable Development focuses on channels through which environment and sustainable development messages and actions can be communicated to a range of Jamaican audiences.

In Chapter Three, major content areas for priority attention and action are briefly described. The Jamaica National Environmental Action Plan (JANEAP), developed in 1995 and updated annually since, is the key environmental policy document which sets out priority environmental and sustainable development issues affecting Jamaica.

Chapter Three also introduces the key actors, currently undertaking activities directly or indirectly related to Environmental Education for Sustainable Development and attention is drawn to major groups which must be targeted for action, in order for the Plan to succeed.

Priority Themes

The themes for Environmental Education for Sustainable Development reflect the reality of a mountainous island nation, famed for the beauty and variety enclosed within an area of just 4,411 square miles (10,991 square kilometers), where natural resource degradation and the demands of development are undermining the once proud claim: Land of Wood & Water. Migration from rural poverty in search of a better life has spawned urban blight. The educational system is inadequate and there are not enough jobs, particularly not for the unskilled mass of the population. The resulting social ills are legion, and easily compounded. The internal situation is also affected by inescapable interactions with the world which laps at every inch of the coastline, wafts in on every breath of air, travels in and out on planes and ships, presses at the airwaves and penetrates every mode of communication.

The constant interaction of the social, economic and natural environments, makes vital the context of sustainable development, and creates the subject matter of Environmental Education for Sustainable Development.

The Jamaica National Environmental Action Plan (JANEAP), a guiding policy document for the definition of environmental and sustainable development priorities, states in its inception document: “The GOJ has made proper environmental planning and protection a national priority, and will seek multiple avenues to ensure sustainable development; including (1) using economic tools and incentives to encourage the efficient use of natural resources; (2) working with the private sector and NGOs in environmental management and protection; (3) looking to strategic use of external sources of financing and investment for meeting critical needs on the road to sustainable development; (4) looking to population control as a means of reducing the pressure on the natural resource base, some of which is non-renewable.”

The following list of immediate priorities, which incorporates information listed in JANEAP, provides a brief overview of the scope of environmental and sustainable development issues to be conveyed through Environmental Education for Sustainable Development programmes in Jamaica. The list starts with the integrative theme of sustainable development itself, and then explores, in their turn, issues related to the social, environmental and economic spheres and to practices which will produce the desired results:

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4 Greater detail on these organizations and agencies is provided in Appendix Four.
5 JANEAP 1997 Status Report
Sustainable Development

Sustainable Development is an overarching concept, relating to the harmonization of social, environmental and economic considerations in the cause of long-term human development.

At the national level, sustainability can be linked to familiar socio-environmental-economic themes such as energy conservation and solid waste management, already the basis of specific agency concerns; to the effects of pollution on individuals and communities through respiratory and other ailments; to more strictly ecological themes such as watersheds, biodiversity loss and marine resources; and to issues of equity and justice. For the broad mass of Jamaicans to join in a campaign for a sustainable future, there has to be a sense that all will benefit from actions taken and efforts made: A sense that this is for “all a wi!” At the local level, it is important to draw lessons from sustainable approaches being lived by community members.

Sustainable Development Planning

Sustainable Development Planning is an approach which takes account of people’s needs, rights and economic opportunities, within communities, while simultaneously promoting the sustained protection of the natural environment.

Environmental Education for Sustainable Development can provide basic information related to the environment and sustainable development, thereby equipping people with the tools to participate in decision-making and action.

Human & Environmental Health

The health and sustained well-being of the human race is dependent on a healthy environment. Health-related environmental issues include the control and monitoring of pollutants in air, water and soil; good waste management; ensuring safe supplies of food and water; curtailing the proliferation of vectors of disease; as well as programmes to curb or control unsustainable use of non-renewable resources and protect bio-diversity – which may have future health implications.

Environmental Education for Sustainable Development can promote awareness of links between human and environmental health, provide relevant skills and encourage positive attitudes and action which reduce environmental risks to human health.

Human Settlements

Intense competition for land, fuelled by population growth and business expansion, has led to human settlements plagued with persistent problems. Major problems are in urban areas, which host most of Jamaica’s 2.5 million people. Problems include urban sprawl, unplanned development, inefficient use of space, urban blight, scattered development, housing shortages, increased shortage of land, lack of employment opportunities and disparity in the provision of facilities and amenities. Poverty, economic
marginalization and the rural-urban drift result in squatting and unplanned developments. The population is expected to increase to 3 million by the year 2000, with 60% projected to be urban.

Environmental Education for Sustainable Development can promote healthy communities, green spaces, delivery of sustainable urban infrastructure and services, among planners and officials; and citizen participation in decision-making related to the delivery of municipal services. The trend to increasing urbanization suggests that future Environmental Education for Sustainable Development will need to focus significantly on urban issues, conditions and solutions.

**Consumerism**

Informed consumers have the power to demand environmentally-friendly products, through their purchasing decisions; and the capacity to influence a range of factors including air pollution, waste generation and management, and energy conservation, through lifestyle decisions.

Environmental Education for Sustainable Development can develop informed consumers from an early age, with information on the consequences of consumption choices and the impact of particular products; thereby providing individuals and households with the basic for environmentally informed choices. Re-use, recycling and other waste management options can be promoted.

**Pollution – Air, Land & Water**

Deteriorating air quality in the major urban centres, mainly due to industrial and vehicular emissions and the burning of municipal garbage, cause concern. Water pollution is also an increasing problem, due to the contamination of water supply sources and connected downstream wetland, estuary and marine ecosystems, by sediments, pathogens and chemicals – most of them resulting from deforestation of watersheds, improper disposal of wastes, and run-off contaminated by agro-chemicals. Inadequate urban planning contributes to the problem, which has consequences for human health, and bio-diversity. Land pollution is associated mainly with agricultural and industrial misuse.

Environmental Education for Sustainable Development can improve citizen and commercial/industrial sector awareness of the risks to human health and safety, to economic sustainability and to the natural environmental posed by unsustainable commercial and industrial activity; leading to changed attitudes and relevant action.

**River Systems**

River systems are not listed by JANEAP, but are included here because of their links to multiple ecosystems. Many rivers rise in Jamaica's mountainous hinterland and flow through a range of ecosystems, to the sea. Because they cut pathways and because they provide water for consumption and irrigation, they attract human settlement. They also carry silt from degraded watersheds as well as a range of pollutants generated by human activity, into downstream ecosystems.
Rivers can be used as an example of the interactions between ecosystems, humans, and other species – both negative, in terms of the effects of upstream pollution and degradation; and positive, in terms of the impact of river management and the possibilities for recreation and leisure. Target groups include government, resource users, river-side communities and the general public.

**Natural Heritage**

Jamaica’s rich natural heritage combines scenic beauty with a variety of ecosystems including wet and dry forests, rivers, caves, mineral springs, sandy beaches, rocky shores, mangroves, herbaceous swamps, swamp forests, salinas, mountains and plains. The island also has a high level of endemism. The biological diversity of the island’s terrestrial and marine ecosystems has been affected, in recent years, by deforestation and soil loss, soil and water pollution due to improper disposal of wastes, poorly planned urban developments, and wildlife harvests in excess of ecosystem carrying capacity. Problems of persistent poverty and limited public awareness impact on the integrity of land-based systems.

Environmental Education for Sustainable Development activities promote pride in and value for the local ecology and biological diversity, and a sense of environmental stewardship, among natural resource users and the general public. These activities can also promote sustainable resource management among resource users and government officials, enhance knowledge of and respect for sustainable traditional practices and remedies, and highlight the benefits of outdoor recreation and leisure activities.

**Global Issues**

Jamaica’s actions form only one small part of the global environmental and sustainability equation. Yet Jamaica, as a tropical island-state, is vitally affected by many global issues, including the degradation of the ozone layer, global warming, the possibility of consequent sea level rise, and marine pollution.

Environmental Education for Sustainable Development knowledge outcomes emphasize the inter-relationship of the local and global, and can increase awareness of the existing and potential impact of global environmental challenges on Jamaica’s ecosystem.

**Sustainable Tourism**

Sustainable tourism is defined as the optimal use of natural and cultural resources for both national development and visitor enjoyment, taking ecology, history and tradition into account.

Environmental Education for Sustainable Development can promote awareness and appreciation of local culture – both traditional and current, and responsible enjoyment of the natural environment by Jamaicans and visitors; pointing out the social and economic benefits to be gained. Growing awareness of environmental issues, internationally, also offers new local business opportunities in eco-tourism.

**Sustainable Agriculture**

Sustainable agriculture relates to the use of methods and products which are environmentally-friendly both on-site and downstream, and which naturally enhance the capacity of the land to keep on producing in the long term. A related area is the sustainable management of fish and other marine resources.

Promotion of sustainable agriculture practices has positive implications for health and safety, including the issues of watershed management, water and land pollution; as well as livelihood issues for resource users.
The marketing possibilities of organic and ‘green’ products can be explored.

**Land Use Management**

*Population growth, coupled with industrial and commercial expansion has resulted in intense competition for land, which is often not allocated to its optimum use. National Physical Plans have not been implemented. The promulgated National Land Policy, 1996, seeks to address this situation.*

*Environmental Education for Sustainable Development can promote knowledge of land ecology, and awareness of the importance of sustainable land use planning and practices, among planners, local government officials, developers, resource users and citizens.*

**Forestry, Agriculture & Watershed Management**

Woodlands, mostly ruinate or second growth, cover some 45 percent of the country, most of them in rugged terrain or dry, hilly uplands with poor access, therefore limited prospects for industry. Extensive cutting for fuelwood and charcoal manufacture, as well as production of sticks and posts, have caused environmental damage, particularly related to watershed degradation. Watersheds have also been affected by the clearing of steep, unstable slopes for squatting and cultivation. Nineteen of Jamaica’s Watershed Management Units are considered critically degraded and in need of urgent remedial work. Agro-forestry and land use control are considered priorities.

*Environmental Education for Sustainable Development can promote eco-tourism, sustainable agriculture, new production based on traditional local plants, and forestry management information and practices; focussing on natural resource users, communities and students.*

**Waste Management**

Many urban and rural households lack satisfactory sanitation. In addition, the collection and disposal of solid waste presents environmental, public health, social and liability problems. Special wastes are also an issue. National average sewage generation is over 455 million litres daily, with some 50 percent coming from the major urban centres where treatment facilities are inadequate. Ship-generated waste, particularly from cruise ships, is a concern. The International Convention on the Prevention of Pollution from Ships (MARPOL) requires that home ports have port reception facilities to treat and dispose of wastes.

*Environmental Education for Sustainable Development can promote a focus on natural resource stewardship and regeneration, involving learners in clean-ups as well as in actions related to lifestyle values and choices. Specific messages can relate to reduction, re-use and recycling of waste, and the promotion of related household and commercial activities. Partnership opportunities already exist with NGOs working with schools and in some communities; and private sector efforts to promote recycling and bottle collection in schools.*
Coastal & Marine Resources Management

Jamaica’s varied and irregular coastline, which gives rise to a range of coastal features, are affected by large populations residing on the coastal plains, and consequent high levels of economic activity. Numerous sandy beaches and cays, on which the island’s tourism industry relies heavily, are under threat from pollution, erosion and illegal sand mining. Wetlands, which act as nurseries for fish and wildlife, and stem coastal erosion, are steadily decreasing. Coral reefs, vital to the tourism and fishing industries and also to protect against coastal erosion, are extensively degraded. In addition there is serious over-fishing. Coastal and marine degradation could affect the tourist industry, with visitors increasingly seeking environmentally friendly destinations.

Environmental Education for Sustainable Development can promote awareness on marine ecosystems and issues, and activities which bring positive action on coral reefs, marine ecosystems, sustainable fisheries and tourism. Specific audiences include fishermen and others who earn their living from fishing, watersport activity operators, hotels and citizens in coastal communities.

Greening of Government/Public Sector

The capacity development of public sector agencies which have environmental roles has begun to receive attention. In addition, there is potential to encourage the development of environmentally-friendly policies and programmes within the public sector, and the setting of ‘green’ standards for suppliers of products and services to the public sector.

Environmental Education for Sustainable Development can promote government’s responsibility to set an example in providing environmentally-friendly services, and demanding ‘green’ standards from their suppliers.

Clean Technologies

There is increasing attention to practices and technologies which reduce the generation of pollutants, thereby reducing clean-up costs, lessening environmental impact and natural resource depletion, and protecting human health. This is achieved through improved technology, better products design, improved processing and product efficiency, or a combination of all three.

Environmental Education for Sustainable Development can promote government and private sector responsibility to adopt environment-friendly technologies, raw materials and products, entrench good housekeeping practicies in industry, and reuse and recycle waste.

Environmental Economics & Management

Efforts to integrate environmental concerns with economic management are underway. The Natural Resource Conservation Authority has been developing standards for air and water quality and incorporating the ‘polluter pays’ principle. The Planning Institute of Jamaica has been analysing the potential for using environmental economic tools for environmental management and sustainable development in Jamaica. Environmental Economic Policy Instruments (EEPI) are felt to have particular relevance and application in natural resource based economies like Jamaica where aspects of the production process may actually damage the eco-resource base; and where interactions between a range of econo-ecological resources such as forests, marine areas, agricultural areas, may take place within small spaces, with multiple possibilities for disruption. One element being considered for implementation is the System of
Environmental and Economic Accounting (SEEA), under which development is measured and monitored by having social and environmental costs factored into project proposals. The system has implications for both the public and private sectors.

Sustainable resource management, the minimizing of pollution, and the economic and social responsibility of resource users are all focus areas for Environmental Education for Sustainable Development. There is scope to develop partnerships with public utility companies which have responsibility for energy, water and waste, to promote responsible consumption and management, to suggest actions which the general public, or specific resource users, can take and urge the creation of effective incentives.

**Key Actors**

Historically and currently, a range of Jamaican agencies and institutions have undertaken some level of activity or been responsible for programmes related to Environmental Education for Sustainable Development, formal or non-formal. These organizations fall within the following major headings:

- Central Government, mainly through National Agencies and Advisory Boards
- Local Government
- Formal Education & Training Institutions
- Independent Learning & Resource Facilities
- Non-Government Organizations & Community-Based Organizations
- The Private Sector
- Organized Labour
- Social & Religious Organizations
- The Media

Nationally, there has been increased mention of the environment and sustainable development as elements of government policy, and an enhanced interest in environmental issues within the private and public sector and in some communities – reflected in the fact that the environment is now a common category in news and current affairs coverage in the print and electronic media.

Legally, the context for action on Environmental Education for Sustainable Development is shaped by the Education Act, and some fifty-two varied statutes, which provide direct or indirect jurisdiction over matters of the environment – ranging from physical planning and land use to public health. Chief among them are acts governing the mandate of the NRCA, and the Town Planning Department. The country is also signatory to a wide range of environment-oriented international conventions and protocols.

**CENTRAL GOVERNMENT**

The Jamaican Government is organized within a framework of Ministries, each with a series of portfolio responsibilities, and with links to or oversight of several quasi-independent agencies. Ministries of Government relate to Environmental Education for Sustainable Development, in the following ways:

- **Ministry of Education & Culture**, has responsibility for Jamaica’s teachers, students and schools, and therefore a crucial partnership role in Environmental Education for Sustainable Development activities within the formal education sector. The Ministry also has oversight of a range of relevant agencies and organizations including the Institute of Jamaica, Jamaica Library Service, Jamaica Adult Literacy (JAMAL)

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6 See Appendix Four for greater detail on these agencies and organizations.
7 See Appendix Five
Foundation Limited, and HEART/National Training Agency.

The Ministry of Environment & Housing, is responsible for environmental and land use policy and legislation, and oversees the work of two major agencies, the Natural Resource Conservation Authority (NRCA) and the Town Planning Department.

The Ministry of Health, oversees public health care facilities and staffing, at the national and local levels, and deals directly with a range of issues including health education and environmental control. The Bureau of Health Education works closely with the Ministry of Education to inculcate health education issues within the formal education curricula. Other divisions of the Ministry have worked on education programmes within the non-formal sector.

The Ministry of Agriculture, relates to teachers and students and, more specifically, to natural resource users, through its agricultural extension service, and through the Fisheries & Forestry Departments and the Rural Agricultural Development Authority (RADA). These latter organizations have an important role to play in the education of natural resource users.

The Ministry of Transport & Works, has responsibility for the national road system, public transportation, river training, flood control and sea defence works.

The Ministry of Tourism, is responsible for the island’s tourism product – Jamaica’s major foreign exchange earner. Issues relating to the environment in general and sustainable tourism in particular, are of interest to the Ministry and the agencies falling under its purview: Tourism Product Development Company (TPDCo), and the Jamaica Tourist Board (JTB).

The Ministry of Finance & Planning has a vital role in development planning and in budgeting resource use between competing demands. The Planning Institute of Jamaica (PIOJ) has wide-ranging planning responsibilities. The National Planning Council, which incorporates the Sustainable Development Council of Jamaica, and the Social Investment Fund which seeks to facilitate poverty eradication and community action, fall under the purview of this Ministry.

The Ministry of Labour, Social Security & Sports has responsibility for industrial health and safety and industrial relations, as well as for issues concerning the poor and women – areas of interest for Environmental Education for Sustainable Development.

The Ministry of Commerce & Technology is responsible for the national Science & Technology policy. The Ministry oversees the Bureau of Standards, which will be involved in the setting of environmental standards for business and which deals with packaging issues; and the Consumer Affairs Commission.

The Ministry of Industry & Investment has responsibility for the National Industrial Policy, and for ensuring that Jamaican industry, products and services comply with international norms, including those for environment and health.

The Ministry of Water is responsible for water resource management, including fresh water quality and disaster management. The Water Resource Authority, the National Water Commission (NWC) and the Office of Disaster Preparedness & Emergency Management (ODPEM) fall under the purview of this Ministry.

The Ministry of Foreign Affairs & Foreign Trade is responsible for overseeing Jamaica’s participation in international and regional treaties, including environmental treaties. The Ministry is also responsible for administration of Jamaica’s Exclusive Economic Zone (EEZ).

The Ministry of Local Government, Youth & Community Development has responsibility for the local government structure, which is currently under revision. It also has an important role in dealing with environmental matters at the local level.

The Ministry of Legal Affairs is responsible for the drafting of legal instruments, including environmental regulations.

The Ministry of National Security & Justice has responsibility for law enforcement, which includes the enforcement of environmental laws. The Jamaica Constabulary Force, the Jamaica Defence Force – including the Coast Guard which has responsibility for for offshore environmental matters - fall under this Ministry.

The Office of the Prime Minister (OPM), has responsibility for a range of programmes and projects, currently including the Land Administration & Management Programme (LAMP), Operation PRIDE, and the National Poverty Eradication Programme – all of which offer co-lateral opportunities for Environmental Education for Sustainable Development. The Ministry of Information falls under the OPM.

Government Advisory Bodies include the Sustainable Development Council, which is a working committee
of the multi-stakeholder National Planning Council. Within the NRCA, the National Environmental Education Committee brings together a range of interests focused on education, communication and the environment.

**Environmental Agencies:** While several government agencies have limited mandates for specific environmental issues – including fisheries, forestry, pesticides, rural agricultural development, public recreational facilities including zoological and botanical gardens– broad responsibility for environmental matters rests with the Natural Resources Conservation Authority (NRCA). The NRCA’s mandate includes the issuance of licenses related to natural resource use, the monitoring of pollution, and public education – the interest of the National Environmental Education Committee (NEEC).

**LOCAL GOVERNMENT**

Local Government authorities have responsibility for implementing government policy at the local level, with specific responsibility for health and land use planning. A Local Government Reform Programme is seeking to make these authorities more effective and responsive. Local authorities are a potential partner for non-formal Environmental Education for Sustainable Development in the area of community learning. At the central government level, responsibility for local government falls under the Ministry of Local Government, Youth & Community Development.

**FORMAL EDUCATION & TRAINING INSTITUTIONS**

A range of public and private training institutions offer formal education programmes at the infant, primary, secondary and tertiary levels. Several tertiary level institutions offer training programmes for professionals, including media communicators and teachers. Pre-service and in-service programmes for teachers address teaching methodologies, as well as content – both important areas for Environmental Education for Sustainable Development. In addition, many schools have programmes which seek to improve their staff development, and professional development concerns are also addressed by teachers’ organizations. Curriculum development, standard setting and certification are done at the national level. Institutions which address professional and academic training needs in the public and private sector, and which determine the areas covered in training programmes, offer opportunities to reach influential groups with environmental and sustainability messages. Although environmental education has been on the agenda of the formal education sector since the 1970s, the extent of its infusion in schools has been limited.

**INDEPENDENT LEARNING & RESOURCE CENTRES**

At the national level, the Institute of Jamaica offers a national and natural history focus, while the Jamaica Library Service runs an extensive network of libraries, islandwide. Privately developed learning and resource centres with an environmental focus include the Malvern Science Resource Centre in mid-western Jamaica, and the ICWI Group Foundation Science Learning Centre in Kingston. These centres offer an important resource to support Environmental Education for Sustainable Development activities islandwide.

**NON-GOVERNMENT & COMMUNITY-BASED ORGANIZATIONS (NGOs & CBOs)**

A wide range of environmental and development non-government organizations (NGOs) operate across Jamaica, some of them confining their activities to specific geographical communities and being thereby defined as community-based organizations. The Association of Development Agencies (ADA) estimates that there are some 2,000 NGOs and CBOs operating across Jamaica. A 1996 survey of these organizations showed that more than 50% of them deliver education, awareness and training to their constituents on a
range of social, environmental and development issues.

More than 100 local NGOs and CBOs fall under several national umbrella organizations: the National Environmental Societies Trust (NEST); the Association of Development Agencies (ADA); the Council for Voluntary Social Services (CVSS); the Association of Women’s Organizations in Jamaica (AWOJA); United Way of Jamaica (UWJ); People’s Action for Community Transformation (PACT) and the Professional Societies Association of Jamaica (PSAJ). A Jamaica NGO Council, including several umbrella agencies, is being incorporated. There are additional, vibrant umbrella groups operating at the parish and other levels, including parish environmental non-government organizations (PENGOs).

THE PRIVATE SECTOR

Within the business sector, the Private Sector Organization of Jamaica (PSOJ), the Small Business Association of Jamaica (SBAJ), the Jamaica Manufacturers Association (JMA), the Jamaica Exporters Association (JEA), and the Jamaica Chamber of Commerce (JCC), represent a wide range of businesses involved in manufacturing, mining, commerce, services and process industries. In respect of current private sector initiatives, the JCC hosts an annual Environmental Protection Award for its members, while the PSOJ has an Environmental Working Group. Several business entities have public relations, school-related or other programmes which have environmental elements. Recent business sector attention to environmental and sustainable development issues arises partly through pressure from government agencies, specifically the NRCA, Consumer Affairs Commission and Bureau of Standards; and partly through standards and other requirements being enshrined at the level of international trade. Jamaica’s tourism sector, which is directly dependent on the island’s natural environment, has a vested interest, and is also aware of opportunities based on the growing eco-tourism segment of the international tourist market.

ORGANIZED LABOUR

Organized labour organizations have a long tradition in Jamaica, and incorporate many tens of thousands of Jamaicans at all levels of the workforce. These groups include national labour unions which represent specific categories of workers in a range of business and industrial entities, as well as management level organizations, and professional associations – including the Jamaica Teachers Association (JTA) which represents the islands teachers, a major Environmental Education for Sustainable Development target group. Industrial health and safety, job creation, training, as well as the general quality of life for Jamaican workers are on-going concerns of organized labour. The Joint Trade Unions Research Development Centre (JTURDC) has undertaken specific research on physical planning and sustainable development in Jamaica.

SOCIAL & RELIGIOUS ORGANIZATIONS

A wide range of other groups bring people together in organized communities of interest. These include service clubs, churches and other religious organizations, parent-teacher associations, Neighbourhood Watches, consumer and other similar groupings defined by common concern for a specific subject area.

THE MEDIA

Jamaica is generally considered to be more of an oral than a literary culture in terms of information gathering, education and entertainment. Out of a population of some 2.5 million, it is estimated that there are 434,000 radio listeners, 288,000 newspaper readers and 1.2 million TV viewers. There are eight privately owned radio stations, three owned by the same parent company; and one other station which the government has said will become a public broadcasting station, with potential to disseminate environmental and sustainable
development messages. The government has also granted a limited number of community radio licenses, at least two percent of which have gone to environmental groups. In the print sector, there are two national morning daily newspapers, an afternoon paper, several weekly publications, and other community and special interest newspapers and magazines. Two commercial television stations and one religious station operate. Cable is widespread in urban areas. The government also operates a national information service.

Advertising is also an important medium for social messages, as are entertainment media – including music, art, dance and drama – which have considerable potential to convey Environmental Education for Sustainable Development messages.

### Major Target Groups

The **National Environmental Education Action Plan for Sustainable Development** recognizes that the commitment and genuine involvement of all social groups is critical to the effective implementation of objectives, policies and actions set forth in the Plan. The **National Environmental Education Action Plan for Sustainable Development** identifies the following as major target groups, for whom relevant and appropriate messages and programmes can be designed, implemented and monitored:

**Youth** – the age group 0 – 25 years, to be found in educational institutions, clubs, groups and on the street. Environmental and sustainable development decision-makers of the future.

**Educators** – including teachers within the formal sector, trainers and animators at all levels, who need to be addressed in terms of awareness, knowledge, teaching skills, and willingness to encourage action.

**Decision Makers** – including policy and decision-makers in local and central government, the private sector, organized labour and the social arena.

**Opinion Makers** – Persons who influence public opinion, including the media, specifically talk show hosts and columnists, popular heroes including entertainers and sporting stars, religious leaders and politicians at the local and national levels.

**Masses** – the mass of Jamaicans, including the young, unemployed and marginalized men and women who could potentially become involved in community mobilization.

**Vulnerable Groups** – including the elderly, the physically and mentally disabled, children, and occupants of squatter communities and other high risk human settlements.

**Consumers** – a group with a range of income and education levels, largely concerned with price, nutrition, health and safety issues. Potential for leverage on issues of ‘green’ products and services.

**Women** – a large and varied group with responsibilities at the workplace, in the home, caring the young and the elderly, taking budgeting, purchasing, hygiene, waste management decisions.

**NGOs/CBOs** – groups with single subject or broad thematic mandates, often working in specific communities, whose programmes require communication with and participation of community members.

**The Workforce** – Jamaican men and women who work as professionals and business people; trained workers at various levels; or unskilled labour.
Resource Users – farmers, fishermen, charcoal burners, tourism industry workers, whether business owners or employees; individuals, or persons grouped in interest groups.

Legal Fraternity – including the judiciary, lawyers, and the security forces.

The Media – mainstream and alternative print, radio and television, Web Pages on the Internet, advertisers and entertainment media including music, drama, art and dance.

The General Public – an amorphous group, generally equivalent to the society, which is the target for general campaign messages, but which must be broken down into its constituent parts for effective delivery of most messages.
Chapter Four
Environmental Education for Sustainable Development in Jamaica

"Environmental education is envisioned as a holistic, integrative force which will enhance Jamaicans internally as a precursor to external action; which will work through the formal education system, and through non-formal learning, to encourage environment-friendly action at the individual, business enterprise, national and community levels. Elements include appreciation of nature, respect for all living things, understanding of human interdependence with the finite, natural environment; and recognition that human society – including the economy – can be integrated with the environment in a mutually beneficial and sustainable manner."

Vision Framework

Introduction

The National Environmental Education Action Plan for Sustainable Development seeks to make Jamaicans aware, committed and action-oriented on environmental and sustainable development issues, using the formal education system as well as a range of non-formal learning opportunities at the national and community levels.

Chapter Three set out the issues. Chapter Four details the areas in which action must be initiated in order to achieve the vision of a sustainable future.

Programme Areas

There are five programme areas. Two of these relate specifically to the formal education sector: The professional development of Jamaica’s educators, both pre- and in-service, is a priority to ensure sustained delivery of Environmental Education for Sustainable Development within the nation’s classrooms. The integration of Environmental Education for Sustainable Development learning outcomes within national curricula is a vital complement to teacher professional development.

Outside of the classroom, the Plan focuses on achieving an informed citizenry, with enhanced ability to participate in informed debate and democratic processes. At the national level, the focus is on general awareness, with several substantial or influential groups targeted for more specific approaches. At the community level, localized audiences are targeted, with a focus on awareness, attitudes, skills and action.

For both the formal and non-formal areas, resource material is a vital underpinning. This includes documentation and publication of existing models of good practice, as a means of spurring positive effort.

The five programme areas, then, are as follows:
Teacher Professional Development;
Curriculum Development & Implementation;
National Public Awareness;
Community Learning; and
Resources & Practices.
Chapter Four presents baseline information related to the five programme areas. Issues, gaps, needs and opportunities are identified, and these findings form the basis on which subsequent programmes and actions are designed.

**FORMAL EDUCATION**

**Introducing the Formal Education System**

The formal education system is the context for two programme areas – Teacher Professional Development, and Curriculum Development & Implementation.

Formal education in Jamaica is overseen by the Ministry of Education and Culture (MOEC), which has responsibility for a multiplicity of school types at the pre-primary, primary, secondary and tertiary levels.

Some 29 pre-primary or infant schools cater to nearly 135,000 children aged 4 – 5 years. A total of 344 primary schools and the primary grades of 396 all-age schools serve a population of more than 300,000 children aged 6 – 11 years. At the secondary level, nearly 222,000 students aged 12 – 18 years attend grades 7 – 13. These students, most of whom leave school at 15 years, are spread between all-age, junior high, special, new secondary, secondary high, comprehensive high, technical high and vocational/agricultural schools – many of them overcrowded and under-financed.

In addition to the public institutions, there are 216 independent schools, 126 of them at the pre-primary and primary levels.


The Human Resource Management & Administration Division includes the Professional Development Unit which has responsibility for coordinating and/or conducting in-service training for all Ministry personnel including Education Officers, Principals and Teachers.

The Educational Services Division, headed by the Chief Technical Director, is responsible for Curriculum Development, Student Assessment, Media Services and School Supervision at all levels of the system.

School Supervision Officers monitor all aspects of school administration, facilitated by six regional centres.

Major agencies falling under the purview of the Ministry of Education include the HEART/National Training Agency, JAMAL Foundation Limited, the Institute of Jamaica, and the Jamaica Library Service.

**Emerging Educational Policy Directions**

**School-based Planning:** The MOEC is committed to encouraging increased school-based planning, beginning with the preparation of school mission statements. These will serve as yardsticks for identifying necessary change and assessing the effectiveness of strategies. The focus will be on student achievement.

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8 The analysis is based on five baseline studies as follows: Teacher Professional Development in Environmental Education for Sustainable Development in Jamaica by Marceline Collins-Figueroa & Joyce Glasgow; Curriculum Development & Implementation in Environmental Education for Sustainable Development in Jamaica by Pam Morris; Research Paper on National Awareness & Attitudes Strategies for the Jamaican General Public by Susan Otuokon; Learning for Sustainability: Community Based Approaches by Valerie Gordon; Baseline Study on Resources & Practices for Environmental Education in Jamaica by Christine Scott Dunkley & Janet Bedasse; and on Working Group feedback on these papers. Working Groups are listed in Appendix Three.
Community Involvement: The Ministry has broadened the base of educational planning and implementation, to include input from a range of Jamaicans, through the multi-sectoral National Council on Education. Within local communities, citizens are encouraged to help and protect their schools.

Curriculum Planning: This includes input from ‘stakeholders’ who supply information and may negotiate with the Ministry on content they would like infused into curricula – a relationship which began informally in the 1970s and has since been institutionalized. Often, the process seeks to strengthen topics already in the particular curriculum. Stakeholders, including government agencies and NGOs, may also assist with instructional materials and/or teacher education.

Equity: Inequities arise because Jamaica’s multiplicity of secondary institutions vary in respect of curriculum taught, per capita recurrent expenditure, teacher qualifications, physical conditions, and social currency of the final examinations given at different levels of the system. The government has stated its commitment to removing these inequities. The current Reform of Secondary Education (ROSE) programme is designing and implementing a common curriculum for all students in Grades 7-9. The challenge posed by differing levels of student performance is being addressed by variety in instructional materials and teachers’ strategies.

Quality Education for Increased Productivity: The ROSE programme seeks to provide quality education, developing productive citizens ready for further education or the working world. ROSE focuses on science & technology, career development, student-centred strategies in the teaching-learning process, and restructured student assessment. The success of this thrust at the secondary level rests on the success of the primary level programme, where Grade 6 graduates must have acquired literacy, numeracy, learning and social skills. There is increasing emphasis on integrating the social skills aspects of the primary curricula, on the basis that a holistic approach is more likely to promote learning than separate disciplines.

Finance: Cost sharing, whereby parents pay annual fees to help educate their children at secondary level; and the ‘adoption’ of schools by business firms, are two approaches to the ever-increasing needs of the education system.

Teacher Professional Development: The MOEC Tertiary Unit is moving to require that teachers regularly upgrade their professional skills as a prerequisite for promotion in the system; that courses in adult education are offered to all persons teaching at the tertiary level; and that teacher educators are involved in curriculum change and receive training relevant to their role in the change process.

The Educational System & Environmental Education

At all levels of the formal education system, there is some – however inadequate – curricular content in place, on which to base the development of environmental awareness.

The primary level curriculum, especially in social studies, seeks to lead children on a journey outward to national and global perspectives, after first establishing a relationship with home, school and community. A recurrent theme – how human beings satisfy the need for food, shelter and clothing – introduces the idea of resources, and the effect of culture and climate.

At the secondary level, environmental issues are implied or stated in a variety of disciplines which cover the physical, economic, socio-cultural and political environment of Jamaica, the region and beyond. Environmental education is not, however, a required cross-curricular focus in the current Reform of Secondary Education (ROSE) Project, which seeks to revise the lower secondary curricula and prepare teachers for handling it; although it is included in some subject areas including science and social studies.

Syllabuses of the regional Caribbean Examinations Council (CXC) are the main determinant of what is taught
at the upper secondary level. Several of these syllabuses emphasize environmental knowledge and concern and, in their assessment procedures, include measures which seek to tap students’ concern. This push is from the top-down, but has some effect on teacher awareness, particularly given the region’s psychological orientation towards success in external examinations.

At the tertiary level, the emphasis has largely been on upgrading technical knowledge. Lecturers and tutors must be aware of environmental issues, at least as they affect their particular disciplines. However no interdisciplinary measures promote, in the tertiary community as a whole, a real sense of environmental awareness and concern. This despite the fact that some faculties, in particular the University of the West Indies (UWI) School of Education, have been active for over nearly two decades in designing and disseminating resource materials in environmental education.

At all levels, modes of instruction remain overwhelmingly teacher-centred.

Educators Marcelline Collins-Figueroa and Joyce Glasgow, in baseline research for this National Plan, write that: “Teacher-centered, didactic strategies, which are the antithesis of what is needed to promote environmental awareness in teachers themselves, as well as in their students, are still the dominant mode of instruction.”

The environmental awareness of teachers and their students can also be enhanced by sources outside of the formal institutions. These sources include subject associations, learning and resource centres, non-governmental organizations which have school-oriented programmes, government agencies, the media, and national and international programmes and projects.

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**TEACHER PROFESSIONAL DEVELOPMENT**

**Contextual Review**

**Defining Teacher Professional Development**

Professional Development is defined as an integrated set of organized and sustained measures designed to enhance the teaching profession, within a context of school policy, organization and culture. Such measures include strategies to improve teachers' theoretical competencies; their ability to apply theory to solving educational problems; their research skills/expertise as well as their classroom skills and practice.

Initial Teacher Education refers to the first-time professional development of persons, either before they enter the teaching profession (pre-service), or while they may be teaching as untrained teachers (in-service). Continuing teacher education refers to the further education of trained teachers.

**The Role of Environmental Education for Sustainable Development in Teacher Professional Development**

Teachers, principals, supervisors, senior personnel and other educators in the arts and humanities as well as the natural and social sciences, must be equipped with knowledge, skills, values, and teaching strategies, which will enable them to implement Environmental Education for Sustainable Development in their professional settings.

These learning outcomes for educators include the following:

- learning essential knowledge about the characteristics of nature's life support system; human needs and the support system - human social and cultural systems, economic systems, community health, political systems, and science and technology; sustaining the life support system - ethical and value systems, sustainable environmental care and management, and responsibility to future generations;
- developing professional skills of facilitation with a variety of appropriate teaching approaches,
methodologies and techniques;
• developing values and attitudes which embrace care of the earth, justice, equity and human rights;
• action and participation which reflects responsible environmental stewardship.

The Teaching Profession

Just as the levels and conditions of Jamaica's schools vary considerably, so do the qualifications of the teachers in the system.

Of the 9,265 primary level teachers in the 1996/97 school year, 6,666 were trained college graduates. Just under 2,000 were untrained secondary school graduates, and just over 400 were trained university graduates. In the secondary system, which had 11,125 teachers during the 1996/97 school year, 7,088 teachers were trained college graduates while 1,465 were trained university graduates. There were 650 full time lecturers at the tertiary level in 1996/97.

Teachers at the Primary & Secondary Level by Qualification and School Type - 1995/96

<table>
<thead>
<tr>
<th>School Type</th>
<th>Trained University Graduate</th>
<th>Untrained University Graduate</th>
<th>Trained College Graduate</th>
<th>Untrained Tertiary Level Graduate</th>
<th>Trained Instructor</th>
<th>Untrained Secondary School Graduate</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary</td>
<td>268</td>
<td>36</td>
<td>3,879</td>
<td>32</td>
<td>21</td>
<td>918</td>
<td>5,154</td>
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<tr>
<td>All Age (1-6)</td>
<td>130</td>
<td>8</td>
<td>2,445</td>
<td>63</td>
<td>33</td>
<td>947</td>
<td>3,626</td>
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<tr>
<td>Prim &amp; Jnr. (1-6)</td>
<td>11</td>
<td>3</td>
<td>342</td>
<td>7</td>
<td>1</td>
<td>121</td>
<td>485</td>
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<tr>
<td>TOTAL</td>
<td>409</td>
<td>47</td>
<td>6,666</td>
<td>102</td>
<td>55</td>
<td>1,986</td>
<td>9,265</td>
</tr>
<tr>
<td>School Type</td>
<td>Trained University Graduate</td>
<td>Untrained University Graduate</td>
<td>Trained College Graduate</td>
<td>Untrained Tertiary Level Graduate</td>
<td>Trained Instructor</td>
<td>Untrained Secondary School Graduate</td>
<td>TOTAL</td>
</tr>
<tr>
<td>All Age (7-11)</td>
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<td>13</td>
<td>1,072</td>
<td>43</td>
<td>17</td>
<td>324</td>
<td>1,564</td>
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<tr>
<td>Prim &amp; Jnr. (7-11)</td>
<td>15</td>
<td>2</td>
<td>259</td>
<td>10</td>
<td>7</td>
<td>59</td>
<td>352</td>
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<tr>
<td>New Secondary</td>
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<td>63</td>
<td>100</td>
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<tr>
<td>Secondary High Comprehensive</td>
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<td>1,921</td>
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<tr>
<td>Technical High Voc/Agricultural</td>
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<td>33</td>
<td>569</td>
<td>82</td>
<td>42</td>
<td>65</td>
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<tr>
<td>TOTAL</td>
<td>1,465</td>
<td>576</td>
<td>7,088</td>
<td>552</td>
<td>446</td>
<td>998</td>
<td>11,125</td>
</tr>
</tbody>
</table>

Educational Digest 1995/96, Statistics Section, MOEC, 1997

Of the more than 600 schools offering secondary education, the 56 secondary high schools have by far the highest proportion of university graduate teachers, who, as a group, have the soundest content base in their respective disciplines. On the other hand, the secondary grades of all-age schools, the largest secondary category, are often likely to be staffed by teachers who have been prepared for work at the

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9 Educational Digest 1995/96
primary level. It is also noteworthy that the vast majority of Jamaica’s teachers are women. Of 1,497 teachers who graduated from colleges and teacher education departments in 1996, 82% of them were female.

The government's per capita expenditure in 1995/96 on students in public secondary high schools was J$16,400. At the primary level it was $8,030, and $1,850 at the early childhood level. At the tertiary level, per capita expenditure in 1995/96 ranged from $25,340 at the University of Technology (UTECH) to $152,900 at the University of the West Indies (UWI). The level for teachers' colleges was $65,040.

The professional development of Jamaica’s teachers must, therefore, take cognisance of, and attempt to cater to, a variety of needs, levels and conditions.

**Initial Teacher Education**

Most teachers in Jamaica's educational system receive their initial teacher education at one of six undergraduate teachers' colleges; or one of seven teacher education departments within other tertiary institutions.

Within the six teachers' colleges, student teachers pursue four programmes: early childhood, primary, special education and secondary – general, technical, cultural/aesthetic. There are no syllabuses which focus specifically on environmental education. Content syllabuses in science and social studies include more environmentally-related objectives than other subjects.

Some environmental education objectives and themes are found in syllabuses in art and craft, music, food and nutrition and religious education; and in education courses in technology in education, child development, psychology of adolescents, classroom management and education and society.

College tutors in science and social studies have knowledge on environmental topics related to ecology, marine biology, chemistry, history and geography. Few, however, model participatory, reflective processes in their classrooms, which would allow student teachers to pose questions, test theories and analyze data leading to the integration of science with other aspects of human culture.

Generalist teachers as well as specialist teachers in the arts, sport and technical education, are trained in teacher departments of other educational institutions. Specialist teachers do receive some infusion of environmental education within their courses, though this is not the primary focus.

Syllabuses for teachers’ colleges and departments are approved by the Joint Board of Teacher Education (JBTE), which also assesses the work of student teachers, makes recommendations on teacher training policies and certifies teachers.

**Continuing Teacher Education**

Continuing teacher professional development is offered through the Certificate in Education, Batchelor of Education and Master of Education programmes of the UWI School of Education; as well as through the Ministry of Education, Youth & Culture, other government agencies, and several non-government resource centres, NGOs and other interest groups.

Increasingly, the MOEC is highlighting on-going teacher professional development, linking it with promotion in the system. Many of the Ministry's units carry out professional development related to their particular functions and the Ministry responds to the expressed needs of schools. In addition, training is the specific mandate of the Tertiary Unit's Professional Development Unit which works through a range of partnerships – with the JBTE, teachers associations, other MOEC resource persons, donor-funded

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11 Planning Institute of Jamaica (PIOJ), 1997.
programmes, and special interest groups

Teachers may also receive training through the natural resource-focused Institute of Jamaica, many of whose divisions have outreach programmes to schools; through government agencies such as the Natural Resources Conservation Authority (NRCA), the Bureau of Health Education of the Ministry of Health, the Agricultural Extension and Mines & Geology sections of the Ministry of Agriculture and Mining, as well as agencies of the Ministry of Tourism.

Coordinating bodies such as the Human Employment & Resource Training Trust/National Training Agency (HEART/NTA), National Council on Technical and Vocational Education and Training (NCTVET), and Joint Committee for Tertiary Education (JCTE) offer specialist professional development, and there is a portion of each secondary school’s budget allocated to staff development.

The Jamaica Teachers Association (JTA), official voice of Jamaica’s teachers, has an extensive programme of professional development, including summer courses and on-going study circles. The Association of Science Teachers of Jamaica is another active teachers’ body with some environmental education themes.

In addition, private science resource centres, some interest groups and several environmental-oriented NGOs/CBOs undertake teacher professional development as part of their work within target communities.

School Environment

The government is placing increasing emphasis on school-based planning, an approach which involves principals, senior teachers with coordination functions, teachers, administrative and support staff as well as students, in setting school goals and then carrying them out. The process will eventually require that all schools create their own mission statements as a basis for action, and that they take a more learner-centered approach. This should enhance the capacity of schools to interpret curricula in ways which are relevant to their local situations, and provide an opportunity to involve communities in the process.

Analysis

Gaps

Increased attention to professional development is crucial in order to effectively deliver Environmental Education for Sustainable Development through the formal education sector.

Presently, even where opportunities exist within curricula, transmissive modes of teaching dominate classroom practice, encouraged both by content-loaded, knowledge based curricula, and by a centre-to-periphery emphasis in educational management. To be effective, Environmental Education for Sustainable Development requires a shift of focus to highlight student learning and the acquisition of attitudes, skills and actions as well as knowledge.

Some efforts have been made to make curricula more responsive to students’ lives and to the working world into which they will move on leaving school. The Reform of Secondary Education (ROSE) programme, currently being implemented in some Jamaican schools, has several relevant elements. Even under ROSE, however, limited attention is paid to Environmental Education for Sustainable Development, and most of the areas where it appears are knowledge driven and science/social studies focused. Lacking are the relationship to economic and political systems, considerations of science and technology, ethical and value systems, sustainable environmental care and management and responsibility to future generations. The necessary development of new modules must involve teachers, who should also be recognized for participating in on-going professional development.

Practicums, which are part of the syllabus for all trainee teachers, can be used to sensitize student teachers to possibilities for infusing Environmental Education for Sustainable Development into curricula.
Institutional policies, administrative structures and resource availability must fully support the intellectual growth and pedagogical skill of the teacher/educator. A pool of resource personnel, qualified to facilitate this development, is a priority.

Programmes will also have to take into account the reality of crowded schools, many of which lack necessary physical facilities, where large classes may hamper the attainment of outcomes expected from professional development initiatives; as well as pressure from students and parents to adhere to content-loaded curricula; and current low esteem of the teaching profession.

**Opportunities**

Emerging policies highlight a number of opportunities relevant to Environmental Education for Sustainable Development. Approaches which emphasize school-based development planning should provide opportunities to encourage learning which is relevant to the school's local situation, including a focus on local environment and development challenges. New policies which support on-going teacher professional development may provide a window of opportunity for the delivery of Environmental Education for Sustainable Development.

At the school level, the appointment of a teacher with responsibility for Environmental Education for Sustainable Development, would advance infusion in the curriculum and incorporation in school programmes. The Joint Board of Teacher Education can influence policy, curriculum and evaluation instruments relevant to Environmental Education for Sustainable Development at the teachers’ colleges. The Jamaica Teachers’ Association (JTA), the main teachers' representative body, which has contact persons in schools and which undertakes regular professional development activities, is another influential, potential partner.

There are opportunities to enhance teacher professional development within existing and potential programmes on environmental and sustainable development issues developed by the non-government and community based organizational sector, the business sector and a range of government agencies. Several such programmes incorporate a focus on teacher training, as well as providing materials and resource persons.

There are also opportunities to promote appropriate messages and principles through the media; and to make better use of local and regional resources, including libraries, distance education facilities, information networks and data bases, among them: the Conservation Data Centre (CDC) on the Mona Campus of the UWI; the Caribbean Environmental Network (CAREN); and the Information Management Programme of the Caribbean Conservation Association (CCA) in Barbados.
PORTLAND ENVIRONMENT PROTECTION ASSOCIATION: ‘PEP’ CLUBS

PEPA, the Portland Environment Protection Association, seeks to protect the environment of the parish of Portland, mainly through environmental monitoring, and the environmental education of youth and adults. PEP Clubs – school-based groupings of Portland Environment Protectors – are a major vehicle.

Support from the Principals of the participating schools, and the active involvement of Teacher Coordinators, are vital elements of the programme. Training workshops help prepare the Principals and Teachers, increasing their level of environmental awareness and enabling them to teach gardening and composting skills. Community members, including faculty from the local College of Agriculture, Science and Education, have acted as resource persons for training workshops. PEPA also supplies each Teacher Coordinator with a club manual, and with additional resource materials, and facilitates detailed brainstorming and programme development sessions at the start of each term. The Association highlights the motivation and recognition of these teachers as a vital element in the programme’s continuance and success.

The initiative started with eight schools, and has expanded to include 14 schools, twelve of them at the primary level and two at the secondary level. The focus on primary schools is deliberate, reflecting a view that young students are more likely to readily absorb new concepts.

Club membership is voluntary, and each club is limited to 20 – 30 students aged 7 – 12 years, who meet after school. Activities include establishment and maintenance of school gardens; litter control and sorting of garbage on the school compound; recycling of waste for art and craft projects; field trips and research projects; dramatic presentations; participation in an annual environmental quiz and an annual schools’ competition in the areas of organic gardening and recycling.

ENVIROTREK, a Jamaican environmental learning board game, was developed, tested and produced by PEPA, based on information from field trip reports.

Despite obstacles, including competing curricular and extra-curricular demands, PEPA rates the PEP Clubs as a positive force: improving school appearance, and increasing environmental awareness, knowledge and skills of teachers and students.

LESSONS LEARNED:

- Teachers face competing demands on limited time, and need constant support and motivation to participate in extra-curricular activities. Specific support includes professional development, follow-up, and public recognition.
- Professional Development in Environmental Education for Sustainable Development is essential as most teachers lack the necessary depth of knowledge for school-based programmes.
- The commitment of principals and teachers is essential to continuity of school-based programmes.
- Children are eager to learn if activities are fun and engaging.
- Good indigenous resource material can be developed to help sustain environmental education programmes, but human and financial resources for design, production, distribution and marketing must be in place.
- Long-term schools’ environmental education programmes can be sustained, but commitment and resources are necessary.
Contextual Review

Within the Ministry of Education, Youth & Culture, the Educational Services division, headed by the Chief Technical Director, is responsible for curriculum development and implementation. Responsibility for implementing curricula at the local level, lies with education officers, principals, department heads and teachers.

The Professional Development Unit, which is part of the Ministry’s Human Resource Management and Administration Division, is also important to curriculum implementation, since it has responsibility for coordinating and/or conducting in-service training of all categories of Ministry personnel, including education officers, principals and teachers.

In addition, a range of community and national groups may have inputs into the development and implementation of curricula.

Curriculum Development

Four curriculum units of MOEC are responsible for designing the curricula used in Jamaica’s schools, except for the Caribbean Examinations Council programmes at Grades 10 and 11. Usually the work is done by teams including classroom teachers and other educators such as MOEC supervision officers and lecturers at tertiary institutions.

- The Early Childhood Education Unit is responsible for the curriculum for the 4 year-olds and 5 year-olds. The present curriculum was published in 1983 and is due for revision.
- The Core Curriculum Unit produces primary level curriculum, the Reform of Secondary Education (ROSE) curriculum and the Ministry's Grades 10-11 curriculum for students who have not attained a level high enough to take the CXC exams and who sit the Secondary School Certificate (SSC) examination. The unit designs programmes for Language Arts, Mathematics, Social Studies, Science, Religious Education, Physical Education and Dance, and Music at primary level. Spanish is added at secondary level; Drama and Information Technology are infused at both levels.
- The Technical/Vocational Unit designs curricula for technical/vocational subjects at secondary level, as well as the ROSE programme and the Ministry's Grades 10-11 programme. There is also an Agriculture and the Environment Curriculum for Grades 7-9 in all-age schools. The technical/vocational subjects are Agriculture, Arts/Crafts, Business Education, Home Economics and Industrial Education. In the ROSE programme these subjects are integrated to form Resource and Technology. The Ministry’s Grades 10-11 programme is to be merged with those of the National Council on Technical and Vocational Education & Training (NCTVET). The Arts/Crafts section of the Technical/Vocational Unit works with the Core Curriculum Unit to design the Art/Crafts programme for the primary level curriculum.
- The Guidance and Counselling Unit designs the Family Life Education programme for Grades 1-11 and the Career Education programme for ROSE. The Family Life Curriculum Guide for Grades 1-6 was published in 1993. The Source Book for Teachers (Grades 1-11), which appeared in 1986, contains suggestions for infusing Family Life Education at secondary level. The Family Life Education project is currently collecting baseline data about FLE, after which curriculum revision will begin. Opportunities therefore exist to access curricular revision and infusion.

CXC Syllabuses

The Caribbean Examinations Council (CXC) examinations are school leaving examinations set for Grade 11.
students. Syllabus development is done by teams of Caribbean subject specialists, with one Jamaican serving on each team. Syllabus changes take effect, on average, every six years, based on a revision process initiated every three years. In 1995, CXC examined 35 subjects at general, basic and technical proficiencies. Both core curriculum and technical/vocational subjects were offered.

The new Caribbean Advanced Proficiency Examination (CAPE), a Grade 13 examination, is described as being geared towards sustainable development of human resources within the region, and brings together academic and technical/vocational courses within a single system of certification. Initially, CAPE will offer: Caribbean Studies, Communication Studies, Functional Spanish, History, Information Technology, Mathematics, Statistical Analysis. More subjects will be added later.

Opportunities exist for CXC and CAPE subject panels to receive suggestions, through the MOEC, for including sustainable development in its syllabuses.

Local Assessment

The MOEC is replacing the Common Entrance or Eleven Plus examination, which has been an extra-curricular placement programme for students leaving the primary level, with curriculum-based testing by the National Assessment Programme (NAP). A new Junior High School Certificate, based on the ROSE programme, examines students leaving Grade 9. Students not taking the CXC exams sit the Secondary School Certificate, which is likely to be updated in the future.

Instructional Resources

Two Jamaican commercial publishers produce textbooks - Carlong Publishers and West Indies Publishing Limited. Carlong has done some primary level textbooks and both publishers are producing for the ROSE programme. The publishers are guided by the curricula.

Other instructional resources available in the schools have been produced by curriculum stakeholders such as the Child Health Education Department of the Ministry of Health, Peace And Love in Schools (PALS) and the Jamaica Tourist Board. An opportunity exists to encourage special interest groups to infuse sustainable development into their own programmes.

Current Curriculum Content

Selected representative curricula were mapped against learning outcomes outlined in the Vision Framework, in Chapter Two. The sample mapping, undertaken by educator Pam Morris as part of a baseline study: Curriculum Development & Implementation in Environmental Education for Sustainable Development in Jamaica12, concludes the following:

- Knowledge of ecosystems is a traditional focus in the Science (biology, chemistry, integrated science, agricultural science) curricula. The human impact on the quality of the environment is emphasized in both Social Studies (including Geography) and Integrated Science. Social Studies deals with human systems and touches on most knowledge learning outcomes, including more on traditional practices than any other subject. Sustainability is ignored in all curricula; citizenship and social justice in most.

- The intellectual skills of communication and enquiry are represented, on the whole. Skills like action and critical thinking are under-represented. Other intellectual skills are

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12 In the study, Ms Morris identifies specific points for infusion of Environmental Education for Sustainable Development in several existing curricula.
largely ignored.

- Application skills are under-represented except for hints in the Integrated Science curriculum which has, as a major goal, that "students should display ability to apply scientific concepts and principles to everyday situations".

- In respect of social skills, the Resource & Technology, Integrated Science and Social Studies curricula all emphasize the importance of cooperative work and social participation skills, yet there appears to be little actually done within the classroom. Skills in career planning are emphasized in the Social Studies, Resources & Technology, as well as all ROSE curricula, yet little career planning activity is evident. Technology-based tools seem only to be used in Resource & Technology.

- The ROSE Resource & Technology curriculum uses a narrow interpretation of the environment – one which ignores the ecosystem approach and makes no reference to sustainable development. Environmental ethics are also missing.

- Social Studies is the only subject in which attitude outcomes are substantially represented. However, the Integrated Science programme has many points where students could be encouraged to reflect on the role of human ingenuity in ensuring survival.

- Both Social Studies and Integrated Science curricula try to promote action/participation. True to the characteristics of the subject areas, the physical scientists work at "responsible stewardship of the local environment" and the social scientists stress civic action. Both groups are developing the ability to act in ways that will promote sustainable citizenship.

- Environmental Education for Sustainable Development is not generally infused in subjects like Language Arts, Mathematics and Art. However, where a topic or theme must be used as a vehicle for skill development, topics may be chosen by teachers or students; and teachers of these subjects who have participated in environmental education workshops, have been encouraged to choose environmental themes.

- At the pre-primary and primary levels, integrative themes are being used to facilitate learning that is holistic and relevant. There are opportunities for infusing themes relevant to environmental education for sustainable development.

Curriculum Implementation

At the local level, the Education Act makes provision for the adaptation of national curricula to localized situations. However there is little instructional material available to teachers to assist them in localized curriculum planning. As a consequence, most teachers teach directly from the national curricula.

Analysis

Gaps

While there is some attention to environmental issues within Jamaica’s formal education system, this is largely limited to Science and Social Studies curricula. Even there, little consideration is given to sustainability; environmental learning outcomes are often narrowly defined; there is limited attention to skills, values and action outcomes; and Environmental Education for Sustainable Development messages, concepts and actions are not infused in a systematic or holistic way. Environmental Education for Sustainable Development needs to become integrated, systematically, in all disciplines.
In respect of implementation, at the local level, there is a need for instructional material and training to help teachers with their responsibilities in localized curriculum planning. At the national level, curriculum developers and professional development staff will need training in applying Environmental Education for Sustainable Development learning outcomes and teaching strategies in their own professional settings – including demonstrations of practical ways of implementing these outcomes and strategies across the disciplines.

It is important to develop consensus around a framework incorporating all the environmental education for sustainable development learning outcomes - knowledge, skills, values/attitudes and action - which is developmental from Early Childhood to Grade 11 and permeates all subject areas. At present, environmental content incorporated into curricula is uneven and lacks a holistic approach.

Examples of developmental frameworks already exist. This is the approach taken by the Family Life Education Source Book and the ROSE Career Education curriculum guide. In fact, there are many synergies between Environmental Education for Sustainable Development, and the ROSE programme with its principles of equity, quality and productivity.

Conditions in the schools also affect progress. Problems of limited financial, material and human resources, as well as overcrowded conditions in schools, and inadequate coordination within the system will impact on the implementation of Environmental Education for Sustainable Development in the classroom.

In a 1996 study, Bailey, Brown and Lofgren looked at factors interfering with coverage of the curriculum. They emphasized irregular pupil attendance and lack of instructional materials as the two most powerful factors. Others included teacher absence, teachers' knowledge level, teacher competence, disruption of classes due to special event preparation or to teachers’ attendance at seminars/workshops. There was also a shortfall in equipment, inadequate classrooms, and overcrowding.

The problems notwithstanding, the study identified the more successful schools as those with a motivated principal - dynamic, ambitious vision, high standards, creative problem-solving, good manager, successful in involving teaching staff with efforts to maintain good learning conditions.

The researchers concluded that many frame factors, which can operate negatively on the teaching and learning situation, can be overcome when the principal assumes the role of instructional leader and motivates staff, students and parents to overcome these obstacles.

This suggests that the training and motivation of principals is central to the effective delivery of Environmental Education for Sustainable Development. To date, no such training programme exists.

Opportunities

Institutionalizing Environmental Education for Sustainable Development in the formal education system requires that it be promoted at two points in the system – through infusion in the official curricula documents, and through the development of instructional materials and training programmes to support implementation of these curricula.

The current and on-going reform of many national curricula provides a crucial window of opportunity. The MOEC is open to input from special interest groups, and the National Environmental Education Committee should work closely with the Ministry to monitor opportunities within specific curricula revision schedules.

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some of which are documented in the Curriculum Development & Implementation baseline study. In addition, the national education reform process offers opportunities, including the development of integrative units to help teachers in the primary system implement revised curricula.

In the area of localized curriculum planning, there are opportunities for the development of tools which can help teachers fulfil this responsibility. Specifically, material could be developed which helps teachers integrate Environmental Education for Sustainable Development learning outcomes throughout various curricula, emphasizing the selection of reflective, participatory, learner-centered teaching strategies and the use of local and traditional knowledge.

The emerging school development planning policy, which will require schools to develop their own Mission Statements and goals, offers an opportunity to affect the way in which schools interpret and implement national curricula. Immediate opportunities exist within Technical High Schools, and schools which are implementing the ROSE programme.

Opportunities also exist for the development of professional development programmes appropriate to staff at the MOEC, school principals and teacher trainers. This is a vital link in the chain which must be forged if Environmental Education for Sustainable Development is to be effectively implemented within curricula.

In addition, a range of community and national groups have inputs into the development and implementation of curricula, and there are opportunities to forge links with them.
SLIGOVILLE ALL-AGE SCHOOL:
Integrating agriculture throughout the curriculum

Schools throughout Jamaica are being encouraged to make national curricula more relevant and practical to their local situations. Sligoville All-Age school in rural Jamaica, demonstrates how an integrative approach to curriculum development and delivery has been successfully used to address low literacy levels and poor student attendance. Agricultural practices and concepts are being infused into all subjects, at all levels, an approach which has gained the support of staff and parents.

Some 300 students from Grades 1 – 9, in classes averaging 30 students, now find agricultural topics infused into all of their subjects. They learn agricultural concepts and practices not only through field trips and garden plots, but also through interviewing, report writing, chart making, research, drama, role play, and art & craft.

The nine teachers, motivated by the Principal and with help from the support staff, are challenged to develop ideas for infusing the agricultural topics assigned to each grade level. They meet to discuss topics and exchange ideas, with one teacher assigned the responsibility of Project Manager.

The Grade 1 topic – Food for the Family – for instance, is reflected in the Language Arts lesson plans through use of food words to construct sentences, focussing on naming words, colour adjectives and verbs; through oral reports and poems.

The project seeks to help students write more constructively and precisely; develop healthy attitudes towards cooperation, appreciation, participation; and display willingness to work individually and in groups, and acquire new information. Students should also become aware of human dependence on the environment, of the need to use resources responsibly, and of the importance of caring the environment.

Practical elements include developing a small garden close to each classroom and teaching the principles of organic gardening. Grades 7–9 work on the school farm at designated times during each week. In addition, students participate in a range of incentive programmes, projects and courses.

Some ‘seed’ money and professional development activities come from an annual schools competition held by the Jamaica Conservation Development Trust, and the Ministry of Education provides an agriculture grant. Information resources include an encyclopedia; farmers’ guide; library books; newspapers; magazine clippings; as well as agricultural slots on radio and television. Farmers, past students, RADA officers, 4H Club Officers and parents are also tapped for information.

The effects of the project spread beyond the school gate, involving parents, other community members and Peace Corps volunteers as well as students and teachers. The community now has an organic farm and compost heap, and experiences are shared between the students and the adults every Wednesday morning.

The project is evaluated through Ministry of Education Officials who visit each term, classroom teachers who record and assess students’ progress, parents who monitor their children’s progress and results of competitions entered. The school usually tops all competitions entered. Teachers report that the project method has made students more aware and appreciative of their surroundings, developed pride, interest and good work attitudes. New traits include cooperation with each other, eagerness and responsibility. The students have also developed a love for plants and exercise their knowledge of how to care for them. Literacy levels have also improved tremendously, meeting an objectives set at the beginning of the project. In addition, teachers themselves have undergone personal development.

LESSONS LEARNED:

- Integrated approaches to curriculum delivery provide a common focus which strengthen the ways in which teachers and students work together, and provides meaningful learning experiences.
- A collaborative team approach and the involvement of all stakeholders is important to the successful
Introducing Non-Formal Learning

Learning is a life-long process. Jamaicans acquire knowledge, learn skills, develop attitudes and decide on actions through an array of planned and unplanned learning opportunities which take place outside of the formal educational system – in homes, yards, communities, at work and through the media. Systematic non-formal Environmental Education for Sustainable Development experiences must be crafted, to enhance citizens’ ability to be better consumers, producers, policymakers and stewards of the environment.

For the purpose of identifying actions, a distinction is made between non-formal learning activities which target the entire nation or ‘general public’ through initiatives focussing on the home, social sphere or workplace; and those which target specific communities. Communities, a more localized target, are distinguished as people living within a geographical area or whose lives are organized within common systems. Within communities, there are distinct groups of individuals who interact for purposes stimulated by common interests, particular issues or events.

National public awareness strategies are broad in scope, often pursued through a variety of media including radio and television, print, billboards and music as part of national campaigns. The strength of these activities lies in disseminating knowledge and information and thereby increasing levels of awareness though they can, over time, produce changes in attitudes and behaviour as well.

Community-based learning strategies are typically localized in specific geographical locations, and are characterized by ‘depth’ rather than ‘scope’. They may carry messages through face to face meetings, interaction and implementation of projects, and the building up of empowered groups. The strength of community learning is the potential to create significant change in individuals, leading to long-term, sustained impacts.

Specific groups targeted by national campaigns and community learning strategies may overlap, a process which can strengthen the impact of the messages being delivered. This makes it particularly important that Environmental Education for Sustainable Development activities operating at both levels are consistent and mutually reinforcing, and create local and national communities of shared values.

The Jamaican Reality

Jamaica, an island-state of 4,411 square miles (10,991 square kilometers), had a 1996 end-of-year population of 2,527,600. Some 42% of the population are under-20 years, 51% are under-25 years and 68% are under-35 years.\(^{14}\)

In terms of education, 1991 figures\(^{15}\) indicate that 42% of the population had only attained a primary level of education and just 24% had completed the secondary level. Some 9% of the population reported having no formal education. Reason for concern regarding educational quality is implied by literacy levels of 76%\(^{16}\) and relatively low participation and success rates in the yearly Caribbean Examination Council (CXC) school leaving tests.

The Jamaican labour force, as measured in October 1995, stood at 1,149,400 (45% of the total population)

\(^{14}\) Demographic Statistics 1996, The Statistical Institute of Jamaica

\(^{15}\) Figures relating to education levels and the labour force are from the Statistical Yearbook of Jamaica, 1996, The Statistical Institute of Jamaica

\(^{16}\) 1994 levels reported by the JAMAL Foundation Limited
and of this number 17% were unemployed. Of those employed, only 12% were at the professional, senior officials and technicians level and 19% were in unskilled work. The average weekly wage in 1996 was J$2,497 or J$129,844/year\(^\text{17}\).

According to 1991 figures, approximately half of Jamaica lives in urban areas and 34% live in Kingston, urban St Andrew and St Catherine\(^\text{18}\). Surveys\(^\text{19}\) suggest that those living in urban and peri-urban areas comprise the least environmentally aware group in the country and one which causes a significant amount of environmental damage due to socio-economic, educational and other constraints. A 1991 poll conducted in the Corporate Area and South St. Catherine by Dr Carl Stone, indicated that 20% of the public were aware of environmental problems in Jamaica, indicating issues such as litter, air pollution and pollution of beaches. 60% of these persons were in the middle and upper income categories while only 8% fell within the lower income groupings. When asked about the management of the environment, most people spoke about issues such as the cost of living and unemployment, rather than issues linked to environmental hazards and pollution - an indication of uncertainty about the nature of environmental issues.

Issues relating directly to the natural environment were not among the national problems prioritized by the general public in a 1995 poll conducted by Market Research Services Limited. The survey found that crime and unemployment – which are elements of the social environment - topped the list of principal problems seen to be facing the country. Youth between 15 – 18 years indicated education and the economy whilst a sample of company executives cited the need for a proper transport system and stabilization of the dollar as the principal problems.

**NATIONAL PUBLIC AWARENESS**

**Contextual Review**

A broad cross section of organizations and agencies are involved in delivering environmental and sustainable development messages at the national level, whether the audience is the ubiquitous 'general public' or interest groups operating across the island. These include central and local government, semi-independent government agencies, educators, the media, the private sector, non-government organizations social organizations such as churches and service clubs.

The table illustrates that the government and NGOs, motivated by organizational mandates and missions, deliver environment/sustainable development messages and concepts in order to increase awareness and, eventually, positive environmental action. These organizations identify environmental education through communications strategies at the national level and more targeted community level education through workshops and other programmes, as an essential part of their activities.

The media is interested in environmental issues as part of news and information reporting and because it is an area of increasing interest on the part of the public.

Companies which are natural resource users and polluters, have been forced by international and more recently national standards and legislation to reduce pollution and promote conservation of energy and other resources as part of company policy. These actions have made company management more aware of the importance of environmental conservation to their own businesses and the economy in general. Many big companies, both local and international, see the communication of environmental messages and support

\(^{17}\) In 1996/1997, the average relative value of the Jamaican Dollar was J$35:US$1

\(^{18}\) Demographic Statistics, 1996, The Statistical Institute of Jamaica

\(^{19}\) 1991 Survey, Environmental Awareness, Attitudes & Actions by Peter Espeut; 1995 Negril Environmental Awareness Survey
of environmental projects as being good for their corporate image.

**Organizations Delivering National Environmental Education for Sustainable Development Programmes, by Function and Method**

<table>
<thead>
<tr>
<th>Functions</th>
<th>Methods</th>
<th>Organizations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information Access</td>
<td>Resource/Documentation Centre Hotline (to lesser extent)</td>
<td>NRCA</td>
</tr>
<tr>
<td>(statutory or philosophic</td>
<td></td>
<td>NGOs eg. NEST/JCDT</td>
</tr>
<tr>
<td>concern re. &quot;public right to</td>
<td></td>
<td>Media particularly Print</td>
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<tr>
<td>know&quot;)</td>
<td></td>
<td>Libraries especially the National Library</td>
</tr>
<tr>
<td>Legislation Enforcement</td>
<td>Brochures, documents, Reminders through media</td>
<td>NRCA</td>
</tr>
<tr>
<td>(statutory mandate)</td>
<td></td>
<td>Other govt. agencies</td>
</tr>
<tr>
<td>Awareness Building</td>
<td>Brochures, Use of mass media, Presentations to school &amp; other groups</td>
<td>NRCA</td>
</tr>
<tr>
<td>(education mission)</td>
<td>Exhibitions</td>
<td>Other govt./statutory agencies, NGOs</td>
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<tr>
<td></td>
<td></td>
<td>Libraries</td>
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<tr>
<td></td>
<td></td>
<td>Media</td>
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<tr>
<td>Attitudes/Action Changing</td>
<td>Use of mass media, School Programmes, Community based strategies</td>
<td>NRCA</td>
</tr>
<tr>
<td>Changing (education mission)</td>
<td></td>
<td>Other govt./statutory agencies</td>
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<tr>
<td></td>
<td></td>
<td>NGOs</td>
</tr>
<tr>
<td>Public Relations</td>
<td>Use of mass media -eg. advertising, captioned photos, sponsorship of</td>
<td>Private sector</td>
</tr>
<tr>
<td>(maintain good corporate image)</td>
<td>projects, calendars</td>
<td></td>
</tr>
<tr>
<td>Good Citizenship</td>
<td>local community programmes with little coverage</td>
<td>NGOs</td>
</tr>
<tr>
<td>(corporate philosophy)</td>
<td></td>
<td>Some private sector, especially individual donors</td>
</tr>
</tbody>
</table>

Since there is little evaluation, often due to financial, human resource and time constraints or lack of a perceived need, the basis for undertaking or continuing these programmes is largely perceptional.

"The main expected effects of delivering these messages are raised public awareness and knowledge” Susan Otuokon states in her research study. It is recognized that this alone will not lead to positive environmental action in terms of care for our environment particularly in the areas related to the messages e.g. solid waste management. It is believed, however, that over a period of time and with the

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21 Ibid
constant and increasing delivery of these messages, that national awareness and attitudes strategies will contribute to changes in attitudes and actions.”

Target Audiences

Especially at the national level, many messages are sent out, scattershot, on the assumption that some people will be reached. Yet the identification and description of target groups is vital to deciding how best to deliver relevant messages. This is because people’s knowledge, values, attitudes and circumstances differ based on a range of factors, explored in study after study.

S. Wong et. al.\(^\text{22}\) find strong associations between levels of education and social class and values and attitudes. Carl Stone\(^\text{23}\) mentions, among other factors, exposure to the mass media and migration and travel. Elizabeth Thomas-Hope\(^\text{24}\) notes other factors including gender, rural/urban differences, opinions of other people and nostalgia.

Currently, the most commonly targeted audience for messages related to the environment is the general public, with some further definition specific to school children; householders; consumers; resource users such as farmers, fishermen and tourism operations; other businesses and industry.

The following are major target groups within the body of the general public:

- **Masses** - a major sub-sector of the population, which can be broadly defined as young (18 - 35 years), low income or unemployed, with low level of education and generally low levels of environmental awareness and responsibility. This group includes many sub-groups of its own.
- **Students** - a major sub-sector, comprising 5 - 17 year olds who attend primary or secondary level schools and are therefore fairly easily reached. They may still be open to new ideas. Linked to this group are children under 5 years, and those under 17 years who are no longer in school.
- **Workforce** - generally organized into associations or trade unions, or accessible through their place of work.
  - **Professionals** - a small, highly influential group including politicians, senior civil servants, industrialists, hoteliers, entrepreneurs, journalists, most of them with senior secondary or tertiary level educations and falling in the middle or upper income category, with some power to effect change at the policy and macro levels;
  - **Trained workforce** - a larger sub-group comprising people with secondary education and some skill training;
  - **Untrained labour** - the largest sub-group in the workforce, with some correspondence to the group titled the Masses.
- **Consumers** – a major group, particularly in terms of sustainable lifestyles. This group consists mainly of householders, and includes a majority of women, though there is considerable variety in terms of income and education levels. Returned residents, who have been exposed to a growing global concern with the environment, may be a receptive sub-group.
- **Resource users** – include fishermen, farmers, charcoal burners, tourism workers. This group includes considerable variety in terms of level of education and social class, and will include some cross-over with members of the professional sub-group. The closeness of users to the resources provides an opportunity to make strategies particularly relevant. By extension, the general public is a group of


resource users, for whom issues such as water shortages and increases in asthmatic attacks in children due to air pollution, are particularly relevant.

Other specific groups are of particular importance because of the role they can play in influencing others. These include journalists, and the media in general, government personnel, the security forces and the legal fraternity.

Research into target groups to understand their concerns, followed by pre-testing, is essential for successful message and programme design. Monitoring, on a regular basis, is also vital to ensure that programmes continue to meet their goals effectively.

### A Practical Example of a Wasted Message

Many environmental messages, concepts and actions are complex and require effort. Even where the message seems simple and practical, with relatively easy actions suggested which will benefit the public, it may be difficult to get necessary information and tools for action; or to find the time, effort and money required; or to change habits.

For example, with regard to solid waste – the public is being told:
- don’t throw garbage in the streets and gullies
- don’t burn waste
- don’t use plastic “scandal” bags; **but rather:**
- put garbage in bins for collection and disposal in official dumps/landfills
- compost organic waste
- use cloth bags for shopping and
- make useful items from recyclable waste.

**However,** even if the public agrees and understands that throwing garbage in streets and gullies, and burning garbage – especially scandal bags – is dirty, unsightly, unhealthy, kills coral reefs and poisons the air; and that composting and recycling are economically beneficial; the move towards action is still difficult.

Some of the reasons are:
- bins are not readily available in public places across the island;
- even if bins are present they are often full and not regularly emptied;
- people have an aversion to keeping “garbage” on their person or in their vehicle until they get home or to a bin;
- there is a belief that it is government’s duty to clean the streets and gullies and so people can and should throw waste in these places;
- there is also a feeling that people are paid to do the cleaning and that the employment of these poor people would be jeopardized if waste was not in the streets and gullies;
- some persons believe that the practice of throwing waste into the “bush” is a rural practice. This was not such a problem with what was once mostly biodegradable waste in rural areas; but the practice has transferred to urban areas and since most of the waste is now non-biodegradable, it has become an environmental problem;
- plastic bags are cheaper to the public than paper and cloth although cloth bags would eventually work out cheaper after the initial capital expenditure;
- composting is not so simple as it is made to seem and presents a problem to apartment and townhouse dwellers as composting bins are not readily available and it is easier to throw waste in your own bin;

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- school programmes have been successful in making useful items from recyclable waste, but to continue to maintain interest and to add incentive on a wider scale, cottage industries need to be started and this is another project all together.

In order to be truly successful in reducing garbage in streets and gullies and improving solid waste management, all the above issues need to be considered, other factors deliberated, and solutions developed for each. These solutions need to be put into place before and along with any national campaign.

Messages

Some messages currently being delivered include:

- general care of the environment;
- solid waste management;
- reforestation/watershed management;
- coral reef/marine protection and fisheries management;
- maintenance of a clean environment for health and safety reasons;
- care in using pesticides and other chemicals.

It is of note, however, that the delivery of these messages is not systematic; nor have priority issues been singled out on a national basis.

Broad, popular concerns emphasize poverty reduction and equitable development - both related to the largely unexplored theme of sustainable development. Sustainable development is widely cited, but not practically understood in relation to the environment, industry, the importance of science and technology, and social responsibility among others. There are also an increasing number of environmental and sustainable development issues which the public can literally "feel", such as respiratory problems stemming from air pollution; water shortages as a result of deforestation; and skin disorders because of water pollution.

Most of the present messages are content driven and lack a strong correspondence with action. Where actions are suggested, the necessary support systems or access to these actions may be missing. The result is a lack of action, and may extend to audiences desensitized to the message.

Methods of Delivery

The methods being used to deliver these messages to the general public at the national level are:-

- Print – brochures, posters/displays, newspaper advertisements, messages on billboards, calendars and vehicles;
- Print – newspaper articles and press releases aimed at the mass media;
- Radio – information through news, feature programmes on the environment and within other subject areas such as agriculture, fisheries, tourism, community development;
- TV – information through news but mainly through feature programmes on the environment and within other subject areas such as agriculture, fisheries, tourism, community development;
- Popular culture, which has been used to a limited extent through drama and songs with environmental themes nationally, and through some popular culture and the arts at the school and community level;
- School programmes.

The combination of a variety of strategies, repeated and reinforced over the long term, is considered the
most effective strategy; with the media recognized as being vital at the national level. It is also important to recognize and take advantage of existing opportunities.

Analysis

Gaps

A significant gap exists in respect of messages on the overarching theme of sustainable development, which is increasingly cited but little understood. In addition, there is little link made between economic and financial development and the environment.

Existing messages are either very general, or focus on a narrow range of target groups. There is significant inattention to the bulk of Jamaica’s population, who live daily with unemployment, crime and violence in degraded environments, mainly in the urban areas. Influential groups – including professionals, managers and policy makers, industry, government and the media – which have shown an interest in environment and sustainable development issues, have also been little targeted.

Messages must be made relevant to the experience and circumstances of target audiences. Messages must also be cohesive – moving away from perceived sectarianism, and from multiple, uncoordinated messages due to lack of effective collaboration. And there must be a direct relationship between the actions required, and people’s access to necessary tools, skills and training. In addition, messages and proposed actions must provide immediate or very short term, tangible benefits to the target groups, so as to encourage acceptance and continued action.

The elements of research as well as evaluation and review, are vital - but often missing. Socio-cultural constraints - such as not wanting to re-use someone else's used clothing and wanting to drive instead of walking or riding – cry out for investigation, as a basis for targeting specific publics and designing appropriate messages. The existence of multiple, uncoordinated messages also points to clear scope for greater collaboration between organizations – not simply joint meetings but actually implementing projects. At present, the public does not see a cohesive environmental movement.

A successful National Public Awareness strategy requires a supportive environment in which the public can easily access the means to act in the ways suggested. Necessary support systems fall in the following areas:

- Policy, legislation and regulation, particularly those which encourage environment/sustainable development practices (NRCA Licenses and Permits Regulations, the Town and Country Planning Act, and other Public Right to Know legislation);
- International and Regional networks which provide information, useful models, resources and other networking and capacity strengthening opportunities;
- Donor or funding agencies, local or foreign, public or private sector are important, but must recognize local circumstances and experience;
- Training Institutions can incorporate sustainable development concepts and issues into a variety of courses, thereby educating many of the influential groups in the society.

NGOs and CBOs do not currently access the media effectively, nor does the media effectively cover environmental and sustainable development issues. Investigative reporting to more deeply explore environmental issues, as opposed simply to events, would enable the public to make connections between environmental issues and their own health and livelihood.

There is a clear need to identify financial resources with which to employ and train trainers in communication and education skills; develop educational materials especially audio-visuals; maintain long term campaigns; and effect supportive community-level education programmes.
Opportunities

Stressing the links between Environmental Education for Sustainable Development and socio-economic issues creates an opportunity to make the subject area relevant to the main concerns of the general public at all levels. Similarly, the likely availability of new jobs in the environment and sustainable development fields can help to engender interest, particularly in youth; while the potential for new industries and the existence of new international ISO 14000 standards, particularly for exports, are immediately relevant to the private sector.

There is also increased awareness based on environmental degradation reaching a stage which directly affects people through water shortages, flooding, and health concerns. This level of awareness can be used as platform from which to launch awareness campaigns.

Specific target audiences may be accessible through existing networks, such as the National Drug Awareness Council's community groups (CODAC)s or the Women's Bureau's Parish Action Committees (PAC)s. At another level, information availability should be enhanced through the development of electronic networks such as the University of the West Indies Centre for Environment & Development (UWICED)'s regional website, the USAID supported Tele Jamaica, and the United Nations Development Programme (UNDP)'s Sustainable Development Network which is to be accessible at the community level. There are also opportunities to use message delivery strategies which have proven effective. These include the following:

• appealing to self-interest – save or make money, prevent disaster,
• portraying the successes of persons/groups in solving environmental problems;
• depicting the serious negative impacts of environmental degradation and pollution;
• suggesting simple, practical solutions/actions;
• repetition;
• use of colour, simple language, photographs;
• use of Jamaica’s rich and widespread popular culture.
Traditional acceptance of risky sexual behaviour has begun to change, and the change is being attributed to a public education programme focussing on Sexually Transmitted Diseases (STD), especially the Human Immuno-deficiency Virus (HIV) which causes AIDS. The Ministry of Health’s Epidemiology Unit has been running the National HIV/STD Control Programme since 1987.

Surveys reveal a 40% increase in condom use among homosexual men and a 30% reduction in self-reported high risk behaviour. Sex workers’ reported condom use with the most recent client is up to 95%, and three out of four report consistent condom use. Most Jamaicans now report some behaviour change to avoid HIV infection. But evaluators also identify both continuing and new problems for the HIV/STD programme, which tells project leaders that there is no room for complacency.

The Programme’s national awareness campaign focuses on health promotion, seeking to reduce transmission of sexually-transmitted HIV, through a reduction in the number of sexual partners; reduction in the number of casual partners; increase in the use of condoms; and correct use of condoms.

Between 1992 – 1996, USAID support enabled the development of a major condom promotion campaign, including advertising, face to face education and widely distributed printed material. The safe sex campaign was endorsed by star deejay Shabba Ranks and other musicians. Several relevant research studies were conducted, numerous training sessions and workshops were held and a variety of educational and intervention activities conducted. The AIDS Helpline, launched earlier in the programme, continued and measures were taken to strengthen care, counseling and support efforts.

The programme’s communication team used research results and lessons learned from previous communication campaigns to identify target groups and develop strategies and messages for each group. These were then conveyed to the public through public, private and NGO initiatives as well as the media. A message designed to help adolescents delay sexual initiation was supportive: “You are not alone.” STD clinic clients’ resistance to condom use was countered with “Increase the skills, increase the pleasure”. And young adults with more than one sexual partner learned: “Your partners’ other partners are your partners too.”
Each part of the communications strategy was narrowly focused. The target group of sexually active young adults, for example, was divided into men and women entering new relationships, women in need of condom negotiation skills, men with STDs and women with STDs. Messages were developed for each of those audience segments. The programme was also well coordinated: The communication team met with implementers, media practitioners and evaluators regularly, planning together what their strategies should be and how they could complement each other, a strategy which led to effective coordination of communication messages and activities. Monthly meetings of representatives from all the organizations involved in the HIV/STD Control Programme enhanced coordination and provided opportunities to devise joint strategies for counteracting rumors and misinformation. Technical assistance, training and oversight by the communication team ensured the quality and consistency of all educational materials and outreach efforts. Programme activities reached an estimated 750,000 people.

Public relations techniques were used extensively to influence youth and opinion leaders from the media, churches, the music industry and communities. Media material included a weekly “Safer Sex” advice column, as well as print, radio and TV material. Dance hall disc jockeys, who wield immense influence in the society, helped boost media access by contributing their time to videotape and record public service announcements that aired on television, radio and the sound systems of dance halls.

In addition, many HIV/STD programme elements incorporated drama, songs, games and other forms of entertainment, showcasing the creativity of Jamaican musical stars, comedians and community members themselves. The Targeted Community Initiative (TCI) enlisted the help of a famous Jamaican comedian to introduce sensitive topics such as HIV and condom use to inner city communities. The use of comedy proved very successful as, though non-threatening, got to the root of the issue. Other talented artistes performed in musical road shows for youth and at community gatherings. Projects also encouraged community members to develop and perform their own HIV/AIDS dramas.

Teens participating in the Jamaica Red Cross’ peer education project provided the story line and other ideas for a radio drama about HIV/AIDS that aired twice a week, reaching an estimated audience of 60,000. The Ministry of Health shot a video called “FRAIDS” in the inner-city neighbourhood of McIntyre Lands that featured members of the community. FRAIDS and several other MOH produced videos were shown on both local television stations.

The mass media coverage generated by the programme reinforced the messages Jamaicans received from thousands of outreach workers, counsellors, other public health staff and peer educators. The HIV/STD programme worked with employers to establish prevention programmes in dozens of workplaces and with social workers to build HIV counseling skills.

LESSONS LEARNED:

- Messages must be sustained, to change social norms that influence an individual’s behaviour;
- Cultural practices and the performing arts are effective vehicles for messages seeking to influence attitudes and behaviour;
- Dance hall lyrics reflect social attitudes as well as influencing ideas and behaviour, making popular music and performing artistes good media for communication with the masses;
- Target audience participation in message development ensures acceptance of the message;
- Careful coordination of communication messages and activities helps ensure the success of communication campaigns;
- Actions to achieve behaviour change must be carefully planned, and messages for various target groups must be specific;
- Government must be prepared to commit significant resources to achieve success.
Contextual Review

Communities across the length and breadth of Jamaica are arenas in the struggle to harmonize a healthy environment with social and economic goals, thereby creating a sustainable future for Jamaicans. The main focus of Environmental Education for Sustainable Development activity, within communities, involves the development of people’s capacity to participate in environment and sustainable development processes and solutions. This participation, which involves an interface between citizens, government and business interests, must be reciprocal – a need identified in the 1987 Jamaica Country Environment Profile:

“Mechanisms need to be established to pass on information gained at the community level. Just as the community needs to understand the role of government in providing some of the solutions to local environmental problems, so does government need to be made aware of the role of the community in making a contribution to environmental management.”

This requires not only that relevant, understandable messages be effectively delivered to citizens on a sustained basis, so as to develop those attitudinal responses consistent with sustainable living; but also that examples of sustainable living, at the local level, be identified, celebrated and replicated.

Key Agents Delivering Non-Formal Environmental Education for Sustainable Development

Several agencies presently undertake community-based, non-formal Environmental Education for Sustainable Development programmes in specific communities. These include central government agencies, local authorities, non-government organizations, resource centres, service clubs, professional associations, and community-based organizations.

Educational services provided by these agents vary according to their organizational mandates, institutional arrangements, available resources and intended messages and impacts. They disseminate their information in a variety of ways including lectures, seminars, workshops and other public fora, the distribution of brochures and publications and by media messages. Many, particularly within government and the NGO community, link Environmental Education for Sustainable Development activities to environmental and quality of life projects, which provide access to funds, technical assistance and action.

The following information categorizes the major groups delivering Environmental Education for Sustainable Development to communities, noting roles and functions:

Central government agencies carry out Environmental Education for Sustainable Development activities which are linked to policy, with legislative authority; programmes which are national in focus or extend across several parishes. These agencies are generally responsible for approving, planning or implementing infrastructural projects; resource management and control; undertaking social services such as health education, social and community development; or economic planning. Their target audience may be defined broadly as the general public, though many have a particular focus on resource users and local

26 Quoted in Baseline Study on Resources and Practices for Environmental Education in Jamaica, Christine Scott Dunkley and Janet Bedasse
communities. They appreciate, to varying degrees, the need for community involvement in development and planning. Sustainable development is usually an overall goal, by virtue of national policy, but this may not be manifest in agency programmes, approaches and activities.

Notable among government agencies delivering, promoting and monitoring non-formal environmental education activity is the Natural Resources Conservation Authority (NRCA) – a statutory agency which provides the management framework for conservation, protection and sustainable use of Jamaica’s natural resources, in collaboration with partners in the private and public sectors. The organization is committed to providing leadership in environmental policy development; establishment of standards, legislation and regulations; recognition of the set of principles which can inform the country’s sustainable development; and working with public sector agencies, private sector companies and non-government organizations to fulfil Jamaica’s environmental agenda.

Key concepts and messages contained in NRCA programmes targeted to communities relate to the Authority’s technical operational areas, namely coastal area management, national parks, protected areas and wildlife management, regulations and compliance, watershed protection and management, pollution control and waste management. The NRCA Public Education, Information and Outreach branch seeks to develop and implement programmes to increase public awareness of the need to protect the island’s natural resources, facilitate social change, and ensure sound environmental management – the prerequisite for sustainable development.

Within each parish, NRCA is seeking to have at least one functional NGO addressing sustainable development and environment issues; equipping this entity with the information necessary to promote sound management of the parish resource base.

**Local government authorities** have a parish or local community focus, and are backed by legislation governing a range of areas including land use planning and regulation, public cleansing, public health, minor water supply activities, and parochial roads. Local government has major responsibilities regarding environmental management and sustainable community development, and therefore considerable scope to devise innovative means – including education – to achieve environmental ends. Local government is currently the subject of policy review, and reorganization of institutional and operational structures.

**Non-government and community based organizations** which operate in a significant way at the community level, generally have a range of mandates, and may focus on a single subject area, such as conserving birds, or a broad-based area such as sustainable community development or ecosystem management. Most environmental NGOs, and CBOs with environmental mandates, incorporate environmental education activities into their on-going programme activities. CBOs are less inclined to do so, but do emphasize participatory and problem-solving skills consistent with the Environmental Education for Sustainable Development Vision Framework. Most NGOs/CBOs seek linkages with other similar groups and with public and private sector partners, in order to gain strength, achieve collective lobbying or share experiences. This is particularly important because most of these organizations are challenged by human and financial resource constraints.

**The private sector** has been known to support community-based environmental education initiatives in communities near to their operations. An opportunity exists to more fully involve the private sector in delivering Environmental Education for Sustainable Development at the workplace.

**Approaches & Methods**

Four types to community-based environmental education programmes may be distinguished, each with its associated approaches and methods. These are:

Information dissemination;
Community consultation;
Community participatory strategies; and
Community-based education.

Information dissemination is a one-way mode of transmitting information to communities, using methods such as public service announcements, brochures and exhibitions, and exhibitions.

Typically, consultation provides information and seeks limited input from a community, on activities, plans or documents, using methods such as town meetings, panel discussions, open fora and exhibitions. These may be driven by pre-conceived mandates. Consultation methods which can be used to seek information from communities include focus groups and questionnaires.

Community participatory strategies actively engage people in decision-making related to an entire planning cycle and follow-up action; based on principles of empowerment, equity and democracy. Francis (1993)\textsuperscript{27} defines participation as \textit{"the direct involvement of the masses in the process of planning, decision making, implementation, monitoring and evaluation of development projects".}

Community-based education related to the environment and sustainable development, engages people in an on-going learning process that focuses on each individual developing the knowledge, skills and values needed to participate in decision-making and action. Community-based educational approaches and methods are many and varied, including popular theatre, community mapping, participatory research, adult/popular education, transformational learning, meetings and workshops.

Many non-formal activities, originating within central government, involve community consultation and information dissemination approaches. CBOs and NGOs are more likely to use community education and community participation approaches.

**Target Groups**

The following are some of the groups presently targeted, or strategically placed to effect positive change within communities:

**Resource Users**: Persons who use the natural resource base for economic benefit, usually through extractive activity. They include fishermen, farmers, charcoal burners.

**Consumers & Householders**: Persons narrowly concerned with private lives and homes, including issues to do with products purchased, services subscribed to and the manner of managing the home environment.

**Workers**: Persons who earn a living in an environment outside the home, and who can often be targeted through trade unions or professional associations.

**Children/Youth**: Persons from infants to 25 years, who may be targeted through educational/vocational institutions, youth clubs, church groups or on the streets.

**Women**: Defined as a critical group, particularly given their usual responsibility for household hygiene, sanitation and family health care, water collection and storage, waste disposal and fuel collection.

**Young Men**: Potentially an important group in community mobilization for environmental management, given that they appear to have spare time and energy.

\textsuperscript{27} Francis.1993, in Valerie Gordon’s baseline study, Learning for Sustainability: Community Based Approaches.
**Industry:** A group covering manufacturing, mining, construction, tourism and commercial activities, to which operating guidelines, standards, competitiveness, raw material availability, waste control and management, and operational efficiency are issues of concern.

**Recreation & Leisure:** Persons habitually involved in recreation and leisure activities directly affect and are affected by the natural environment and, as such, have a vested interest in environmental health.

**Legal Community:** Given a mandate to uphold the law, the security forces and judiciary are an important focus for environmental and sustainable development education.

**Policy Makers:** Politicians and local authority members have a direct influence on the communities, and need to be aware of environmental and sustainable development issues so as to take them into account in policy and decision making.

All of these target groups require increased consideration as foci for community-based Environmental Education for Sustainable Development activity.

### Analysis

**Gaps**

Many central agencies limit their education and awareness programmes, at the community level, to information dissemination and community consultation. There are few opportunities for authentic participation, which actively and meaningfully engages people in consensus building and decision-making related to a planning cycle and follow-up action.

There has also been inadequate attention to community-based educational processes oriented to adults, which focus on engaging people in an on-going learning process and developing their capacity to participate in decision-making and action.

Consequently, many messages are divorced from real situations and from actions relevant to the local level, reducing the chance of centrally-delivered programmes effecting real change. Specific gaps related to enhanced community participation in local environment and sustainable development action include the following:

- A lack of standard public sector guidelines for community participation, despite an emerging trend towards civic engagement – consequently a variety of interpretations as to what constitutes ‘authentic’ participation;
- Few opportunities for community participation in public policy development;
- Barriers to authentic participation, including a culture of secrecy, and a system of top-down power;
- A lack of integrative approaches by public sector agencies and others;
- A lack of community awareness of rights and responsibilities related to the environment and sustainable development;
- A lack of community understanding of environmental and sustainable development issues and concepts, which would enable meaningful engagement in participatory decision-making and action processes;
- A lack of community understanding of participatory processes and opportunities for civic engagement;
- Inadequate government agency personnel trained in communication techniques, particularly participatory methods such as animation. The 1997 training of 15
community animators by the Social Development Commission in collaboration with the UNDP, is a step in this direction.

To date, the main target audiences, for non-formal community-based learning, have been groups of children and youth and, to some extent, natural resource users. Workers, consumers, householders, industry, and recreation and leisure groups, appear to be inadequately targeted.

It is also necessary to establish and/or strengthen networks of resource centres which can showcase good practices, disseminate information and facilitate inter-active learning. As a corollary, good practices in participatory methodologies, adult education processes and community environmental action must be documented as a matter of course.

Non-formal community-based environmental education programmes must also be guided by principles and methods of popular education, and give due regard to traditional knowledge, practices and cultural norms.

**Opportunities**

Community-based organizations and NGOs have, over time, evolved effective approaches to environmental education at the local level, both in Jamaica and across the Caribbean region. Opportunities exist to learn from capitalize on, and support these experiences; and to facilitate the exchange of good practice at the community level.

Existing institutions which can or do operate within communities, such as HEART/NTA, the National Youth Service, the JAMAL Foundation Limited and the SDC’s youth training programmes are potential partners in the delivery of Environmental Education for Sustainable Development messages.

Given the importance of developing knowledge, skills, values/attitudes and an action-orientation among the range of actors at the community level, communities must be helped to develop their own local action programmes on Environmental Education for Sustainable Development. Learning materials, developed within this context, can help communities establish localized visions of their own sustainable futures, and develop action plans to achieve these visions.

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**MANCHIONEAL CULTURAL GROUP:**

**NGO initiative for community-based conservation**

Under economic and social pressure, rural communities conscious of sustainable development are striving to generate income and employment while protecting, preserving and conserving natural resources. The Manchioneal Cultural Group/Environment Conservation Trust seeks community empowerment by using dance, drama and art to highlight traditional, cultural practices while simultaneously creating environmental awareness.

Originally formed to preserve and perform traditional Jamaican dances, group members became aware of the degradation of their environment and the implications of this for their economy, through the public awareness programmes of the Blue & John Crow Mountains National Park. Manchioneal, a fishing village on the edge of the Park, is affected both by degradation of the watersheds and of the marine resources on which the people depend. The group decided to use its talents to educate others within their community about the sustainable use of the forest and the sea, and to motivate cohesive actions towards developing and maintaining a sustainable way of life.

Specific programmes aim at reviving cultural and social values; promoting positive attitudes and values related to the sustainable use of natural resources; encouraging awareness concerning the dangers of deforestation and replanting 1,000 trees; cleaning-up selected beaches and conducting education campaigns on the results of over fishing; and fostering the kind of community spirit which will sustain a healthy, productive environment.

The programme, which has had funding from the Environmental Foundation of Jamaica (EFJ), began with evaluative workshops including representatives of all formal and informal groups in the community. These workshops emerged
A series of talks with farmers and fishermen, started concurrently with the summer school, remains an ongoing activity with the assistance of the staff of the Fisheries Division who visit the fishermen’s beaches regularly. The talks seek to help fishermen understand the dangers of over fishing and the harmful effects of chemicals on marine life; and to encourage the farmers to re-planting trees and use compost as manure.

Public concerts, showcasing the participants of the summer school programme, portrayed local environmental problems and proposed solutions. A Bruckins party, showcasing a traditional dance form common to Manchioneal, also carried the environmental message.

A story board, with information on the heritage of Manchioneal and the origins of Bruckins, was developed, for erection in the village. The history of the community is also being recorded.

Despite inadequate management arrangements, the project has been formally and informally evaluated as being a good one, with effective methods. The linking of the environmental message with cultural/traditional practices was considered a winner. Activities during the six months funded by EFJ did encourage greater awareness, though much more work remains.

Organizers note that there is now a general public awareness of environmental issues within the community. More initiatives are being taken by community members to carry on activities which will enhance the environment. Farmers are trying to set up their own compost heaps and fishermen, now aware of the dangers of over fishing are exercising caution in this respect. Moves are also being made to construct proper sanitary facilities for those who use the fishermen’s beach. Children have kept their environmental clubs going. The use of the performing arts to carry the environmental message still persists. Tree planting in certain sections of the community is being pursued, with prizes for the community that best maintains its trees. There is also a ‘street corner’ competition which addresses proper disposal of garbage. Community members are beginning to inject their own funds to keep the public awareness campaign and tree planting exercises going.

**LESSONS LEARNED:**

- Activity-based programmes convey concepts and develop skills more effectively than passive learning methods – a lesson demonstrated through the use of the performing arts and traditional dances to create and disseminate environmental messages;
- Children and adults learn most effectively when they can to the subject at a personal, day-to-day level. By extension, Environmental Education for Sustainable Development messages must be related to everyday life and to the linkages between the environment and all aspects of life - social, cultural, economic;
- Education programmes which begin at the pre-school and primary levels have most effect; Environmental education which starts at the earliest stage of a child’s life, enables development of life long appreciation and good habits;
- Capacity development/professional development is important. Teachers and community leaders are important in the development of attitudes, values and skills;
- Resources, from community members and from government, are important;
- Participation by all the sub-groups within the community is a key element in soliciting understanding, involvement and cooperation in the development of a sustainable lifestyle.
The Negril Coral Reef Preservation Society (NCRPS) seeks to protect the coral reef which is a mainstay of the town’s tourist industry – itself the mainstay of the town. Negril’s economy is closely tied to its natural attractions, including the famed seven mile white sand beach, cliffs, underwater caves and near-shore reef, which are heavily used by watersport operators, tourists and fishermen.

The effect of watersport activity on the reef, with its threat to future livelihoods, sparked the establishment of the Society in 1991. Most of the founders were, themselves, dive operators. Initially concerned with protecting the reef against physical impacts due to boats being moored on the reefs and tourists standing on the coral, the NCRPS has since extended its focus to include the impact of excess nutrients on water quality. An early focus on the impact of coastal activities has also extended inland, to take account of improper waste disposal, agricultural run-off and deforestation in Negril’s watershed.

A non-governmental organization with a voluntary Board of Directors, NCRPS is committed to direct action to mitigate reef degradation; and to the education of direct and indirect reef users, and young people. Direct users include watersport and dive operators, tourists, hotel staff and fishermen, many of whom were unaware that corals were living creatures which could be affected by human action. Indirect users/general public is a group including service organizations, the private sector, and communities both in the Negril area and in the town’s watershed. Young people are seen as an important audience with influence on their parents and links to future decision-making.

The installation of mooring buoys which allow boats to anchor offshore without damaging the reef, was one of the Society’s first, solution-oriented, programmes. This was complemented by an education programme for boat operators and tourists, which has resulted in the virtual elimination of anchor damage.

Concerns about high nutrient levels were addressed through a public campaign pressing for speedy installation of a central sewage system and tertiary treatment facilities; discussions with hoteliers on the use of phosphate-free detergents; and education activities in the watershed areas.

Most of the education and awareness programmes have been tailored to specific audiences.

Education activities, signs on the beach, brochures on reef etiquette in hotel rooms, posters and t-shirts have been the major activities aimed at watersport and dive operators and tourists. Watersport operators are reminded of the link between the health of the reef and their future livelihoods. Tourists are reminded that a healthy reef, which also protects the beach, impacts on the quality of their vacation.

Hoteliers, who also have a long term economic agenda, have been invited to community workshops, advised about the impact of phosphate detergents on the reef, and about the impact of sewage seepage. One hotel, Swept Away, collaborated with NCRPS on producing a booklet, Environment Matters.

Environmental education activities in schools, which involve teachers in planning and implementation, have included lectures and movies on the environment, field trips to see the reef, competitions, dramatic presentations, and school-wide waste management activities. Special events such as the commemoration of special environment days, and activities such as clean-ups, are a major focus. Another is the extra-curricular Junior Ranger programme which involves interested 10 – 17 year olds. The programme promotes good environmental citizenship, and seeks to identify and prepare potential wardens for the proposed Negril Marine Park.

Fishermen, a major resource user group which provides seafood for the town’s hotels and restaurants, have been targeted through workshops and meetings, dealing with threats to the reef and therefore to their livelihood, sea turtle protection, sea-weed culture as an alternative income earner, and the need for zoning in the proposed marine park. Based on their knowledge and experience, fishermen have helped to determine which areas should be zoned for...
Other groups targeted have been the police, as potential enforcers of environmental laws, and the Negril community at large. The community is reached through the Reef Rap newsletter, through community workshops and through presentations to civic groups.

Despite lack of funding and space, and the need to train and encourage teacher participation, NCRPS estimates that it has influenced some 200 - 250 watersport operators and employees; 30 – 40 teachers; 200 people in service clubs; 3,000 – 4,000 students; 300 fishermen; 15 hotels and 100 policemen, in favour of action to help rather than harm the reef.

The dependence of the entire community on tourism, which makes residents acutely aware of the relationship between tourism and survival, helped ensure relatively easy acceptance of NCRPS’s community education programmes.

**LESSONS LEARNED:**

- Persistence, flexibility and continuity are vital to successful environmental education in communities.
- A reliable, stable source of funds is important to cover programmes. This can involve sale of merchandise.
- Children, the future community decision-makers, must be educated. Teachers, principals and education officers must be willing to participate fully, for school programmes to work.
- Teacher professional development is important. Adequate knowledge and appropriate skills cannot be assumed.
- Environmental education of children is an effective way of reaching communities through teachers and parents. It is also a popular group with funders.
- Environmental education programmes must be participatory, innovative and activity-based, with approaches specific to target audiences. NCRPS found role playing and skits particularly effective with fishermen; and audio-visual resources effective for both children and adults. Printed material and lectures alone will not work.
- The link between the environment and livelihoods must be made by any successful Environmental Education for Sustainable Development programme. In Negril, the link was clear. Links between natural resources and survival may be less obvious in other communities, but must still be made.
- Programmes must offer feasible solutions, not just inform about the problem.
- A specific focus, such as saving the reef, is a good starting point.
- Peer pressure is an effective tool for self-monitoring among resource groups.
RESOURCES & PRACTICES

Contextual Review

Over the years, a range of organizations have developed and produced resource materials with environmental and sustainable development themes, as part of wider programmes. These have enjoyed varying use, often based on the extent to which the target groups can access the material. A scan of available material indicates that the government, non-government organizations and the private sector have been the main producers over the years.

Resource Producers

Government agencies have conducted or hosted seminars, conferences and workshops, mounted displays or exhibits, and produced pamphlets, posters or newsletter. Few have on-going publications. Most of the initiatives stop at the level of information dissemination, rather than seeking to create action. There is little use of theatre, drama or popular culture as vehicles for education and awareness on the environment and sustainable development.

Within the NGO/CBO community, major activities with respect to environmental education include informal talks and lectures, seminars, conferences and workshops, and outdoor activities. An estimated 50% of local NGOs have produced some resource material in the form of pamphlets, books, colouring books - even an environmental game\(^{28}\). Many NGOs produce newsletters, but there are usually targeted to their own members, with limited distribution to the general public. There is growing attention to material designed for teacher training and resource user training, but relatively little attention to the arts, theatre and drama.

Within the private sector, direct environmental education activity is very limited, although an increasing number of private sector companies sponsor environmental projects and programmes in partnership with NGOs, with public relations exposure. The main private sector activities in this area are the production of literature, manuals, videos, advertising and billboards. There is a limited amount of employee training and awareness-raising related to occupational health and safety, but few links between industry and the environment.

There is some access to the wide range of resources produced overseas. UNESCO is an important producer of environmental education resources, and both UNESCO and UNEP, which have significant environmental education resources, have offices in Jamaica. A UNESCO-UNEP environmental education series is of particular value for curriculum developers and teachers in the classroom. The Internet, though not a producer, provides access to materials produced by a wide variety of sources, mostly of North American origin. But overseas materials, while useful, must often be amended to become more relevant to Jamaican audiences.

Resource Type

Environmental education resources may be categorized as:
- End-user resources in which the ultimate target audience requires no further interpretation to understand and assimilate the information (for example, videos, pamphlets, story books, coloring books, interpretive centres.)
- Environmental education programme development and policy documents, which contain information,

\(^{28}\) 1995 Survey conducted by the National Environmental Societies Trust (NEST), quoted in Baseline Study on Resources & Practices for Environmental Education in Jamaica, by Christine Scott Dunkley and Janet Bedasse. 1997.
ideas, concepts, methodologies and examples to guide the development of environmental education policies and programmes at the national, local, formal or informal level. These do not contain "environmental" information, but rather for developing and implementing programmes.

- Curriculum guides and classroom materials include resources such as teacher's manuals, workbooks, activity sheets, lesson plans and guidelines for classroom activities and projects, are specially prepared for use in the educational system or academic setting.
- Reference material are resources with environmental or technical content, but which require further interpretation for presentation in layman's terms.

Most environmental education end user resources available in Jamaica are written materials, including pamphlets, booklets, story books, and colouring books, whose quality varies in terms of content and appearance. Most focus on imparting knowledge rather than influencing attitudes or practices or developing skills. There is a lack of audio-visual resources, a grave limitation as Jamaica is not a literary society. However the production of audio visual resources is constrained by the high cost of production.

Some curriculum material is activity based and there are many examples of teachers' manuals and classroom activities, including UNESCO curriculum guides which have been piloted in 20 Jamaican primary schools, and the locally developed Environmental Action Now Cookbook, as well as a range of packages and publications put together for schools by local NGOs. Specific publications cover waste management, tree planting and organic gardening.

**Target Groups**

The overwhelming majority of resources have been produced for students, especially between grades 2-9, who are addressed through classroom activities, story books, colouring books; followed by the general public – a catch-all for material without a clearly defined target group. NGOs target the general public through a variety of media - pamphlets, booklets and audio-visual presentations.

There is an obvious gap in materials for people with low literacy skills, who make up a large percentage of the Jamaican population; the private sector; the public sector; communities and resource users.

**Resource Content**

Some material is identified for all of the following areas:

- Waste management
- General environment (one resource may address several issues)
- Coastal areas/marine ecosystems
- Alternative energy/energy conservation
- Global environment
- Disaster preparedness
- Watersheds
- Water conservation
- Wildlife biodiversity
- Sustainable agriculture

But while there is a broad range of material, touching in some way on most major environmental issues, there is little depth and a significant number of thematic gaps, particularly in end user resources on wildlife and biodiversity; sustainable lifestyles; sustainable agriculture; coastal and marine issues (including issues relating to tourism, fisheries and marine based industries); and watershed protection. There is a general shortage of material on sustainable resource use, and green consumerism and a need for more integration of environment, development and lifestyle issues, to make materials relevant for a programme of environmental education for sustainable development.
There are few resources targeted to the workplace, although some unions are doing work on occupational health and safety, and the Jamaica Hotel & Tourist Association recently launched a manual for the environmentally friendly operation of hotels.

Textbooks, produced by commercial publishers, have begun to incorporate environmental education issues into such subjects as geography, social studies and science, based on curricula developed by the Ministry of Education, Youth & Culture.

**Marketing, promotion and distribution**

The overwhelming problems with respect to dissemination of environmental education materials are: the limited quantities of materials produced, lack of promotion and poor distribution. There is a general lack of knowledge in the environmental and wider community as to who is producing what resources, and there is no system of inventory or promotion. In addition, there is a lack of marketing and promotion expertise within organizations. Environmental education programmes in many organizations tend to be short term or one-off activities, often tied to project funding, which means that only limited amounts of materials are produced and distributed. Available resource materials need to be promoted and marketed so that people are aware they exist and where they are available. A system identifying where materials are housed needs to be developed and a database created and distributed to environmental educators.

**Access to Resource Material**

Access to resources is influenced by physical accessibility to the institution that houses the resources, and ease of retrieval of information from the resource centre.

Resource centres existing locally include the Institute of Jamaica, UNEP’s Regional Coordinating Unit, ICWI Group Foundation Science Learning Centre, Malvern Science Resource Centre, documentation centres at UNESCO, NRCA, US Peace Corps, JCDT/NEST, and ADA, and libraries at the Ministries of Agriculture, Ministry of Public Utilities and Transport, Petroleum Corporation of Jamaica, and Scientific Research Council. Many of these offer limited access to the general public. In addition, there is a network of public libraries, islandwide.

The Internet is increasingly accessible as a source of free, (cost and copyright-free) material, and provides the opportunity for Jamaican schools or environmental groups to participate in global projects, and share information from all parts of the world. The potential for using the Internet as an environmental education learning tool can be exploited through the initiatives by the Jamaica Computer Society Foundation, UNDP/UWI Sustainable Development Network which targets communities islandwide, and the Government of Jamaica/Inter-American Development Bank programmes to place computers in primary, secondary and tertiary schools. Already, most secondary and tertiary institutions have installed computer labs, and the Government promises that by the year 2000 all primary schools will be connected to the Internet.

**Use of Resources**

Utilization is defined as the effective use of available resources, especially resources actually in the possession of the user. Factors include the user-friendliness of the resource, support facilities such as electricity or availability of a video cassette recorder, and willingness or ability of the user to use the material in their possession.

There is a growing demand for user-friendly materials and resources, community groups, schools and interest groups, created somewhat by school competitions and NGO programmes. More attention is now being paid to making material user friendly in appearance and content.
Access to Models of Good Practice

There is much to be learned from existing models of good practice in terms of resource materials and programmes relating to Environmental Education for Sustainable Development. In many instances examples of sustainable practices exist at the community level. Few of these models have been documented, celebrated or replicated.

There is an oral history programme existing within the Office of the Prime Minister.

In addition, there are some awards recognizing good practice within the area of Environmental Education for Sustainable Development, within the schools, business and other sectors.

Analysis

Gaps

In Jamaica, most existing resource material falls into the print, audio or visual category, though there is increasing access to the electronic media by a limited number of persons and groups.

At all levels, there is an inadequacy of skilled resource personnel to produce material relevant to Environmental Education for Sustainable Development. Other major threats to resource production include the high cost of production and low literacy levels, both inside and outside of the classroom and at all age groups.

Where material is being produced, there is a need to ensure that both the target group and the message being delivered, are clearly understood and addressed. Gaps include the following:

- Insufficient evaluation to determine usage and effectiveness of materials available;
- Lack of knowledge concerning current levels of utilization of environmental education materials, so as to identify factors which encourage use and determine the most effective use of resources available for reproduction;
- Lack of information to guide the development of new material.

The issue of the education and awareness levels of target groups is also important. A 1991 awareness survey reflected generally low levels of awareness of the natural environment, with educational levels being the main determinant.

Gaps exist in terms of material for people with low literacy skills, including audio visual material; material for a range of adult groups; material on a range of thematic areas; and material which seeks to address skills and action, rather than just knowledge and values.

Problems also relate to inadequate quantities of material produced, especially where the production is project-based. The prohibitive cost of reproducing materials in the quantities needed is the main threat to widespread distribution. With respect to classroom and curriculum development materials, a major constraint to introducing materials to schools is the large number of schools in Jamaica (especially at the primary level) which has cost implications; and the remote location of some schools which has distribution implications.

In addition, there is no central data base of Environmental Education for Sustainable Development material.

Problems of access to material, by potential users, is affected by production, marketing and distribution constraints, including some gaps in geographic coverage of the island. With the exception of Malvern
Science Resource Centre, most resource centres are located in the Kingston Metropolitan Area. There is a need for similar centres to be spread more evenly across the island. Although there are ENGOs in almost every parish, not all have equally valuable environmental education resources, and most are not well organized or catalogued. Those which do have good material usually lack the space or staff to organize them. This is due a general lack of information management expertise within NGOs, lack of funding for staff for information management, office space and facilities. Efforts to address these difficulties by reference to new technology may be hampered by inadequate financial resources, as well as by realities of rural areas which lack electricity and telephone lines.

To address the major constraints of resource dissemination, distribution networks through churches, schools, and other established civic groupings need to be explored.

Opportunities

There is the potential for utilizing public infrastructure such as libraries which could provide space, and a document managing system for keeping holdings belonging to NGOs. The public libraries, heavily used by students, also constitutes an opportunity to equalize the geographic availability of environmental education resources, though the library system is generally impoverished with few environmental education resources. Book mobiles which go to rural areas may also be mobilized to carry displays and other environmental education materials. This would assist in reaching remote schools and communities. The Institute of Jamaica is the designated national clearing house for information, and therefore represents an important partner.

The following specific opportunities exist:

- To develop end-user resource material which fills gaps identified, using existing reference texts;
- To encourage agencies that are already producing materials with wide distribution, such as supplementary readers, to incorporate environmental education for sustainable development into their publications;
- To encourage specialist agencies not now producing materials, to do so, or to make reference materials easily available to other resource producers; and
- To integrate information or reference material from public and private sector and NGOs, such as CFNI information on healthy lifestyles or RADA information on sustainable agriculture, into comprehensive resource material for environmental education for sustainable development.
ICWI GROUP FOUNDATION SCIENCE LEARNING CENTRE:
Private Sector initiative in science education

The ICWI Group Foundation’s Science Learning Centre is a private sector initiative which seeks to demonstrate the value of interactive science education at the primary level.

Established in 1990, in a renovated wooden bungalow on the grounds of the University of the West Indies (UWI), the Centre could boast the following results in 1997:

- More than 5,000 teachers directly exposed to new teaching methods;
- Some 24,000 children directly exposed to the interactive exhibits through site visits;
- Some 9,000 teachers & 203,000 students influenced by outreach programmes to rural schools.

Programmes include hands-on exploration of science and the environment; use of drama, role play and art & craft; research projects and field trips; participatory development of classroom material; field testing of material; and documentation activities. The Centre seeks to achieve simultaneous student and teacher development, promoting child-centered, teacher-facilitated learning.

The Science Learning Centre is a major initiative of the ICWI Group Foundation, a not-for-profit body established by the ICWI Group of Companies in 1988. The Foundation is committed to developing the leadership capacity of young Jamaicans – towards advancing the country’s economic and social well being.

A critical element identified, is the country’s scientific and technological capacity. This is inadequate at a time when production, industry, natural resource management and a range of other areas are becoming more dependent on science and technology, creative thinking and problem solving skills.

At the same time, there is a lack of attention to science at the primary level; limited quantity and quality of science teachers at all levels; lack of equipment and facilities; and a pervasive view that science is difficult.

The Centre seeks to demystify science; to introduce it to children in fun ways at an early age and to show linkages between science and their daily lives. The hope is that, later on, they will understand basic scientific concepts, develop necessary critical thinking skills, and perhaps become motivated to study science subjects at a higher level. Similarly, for teachers, there is an effort to develop scientific competencies and introduce new methods of teaching and facilitating the learning of science.

The Centre’s mission: “to act as a demonstration centre to provide learning opportunities which will impact on the reform of science education at the primary level and in the wider community.”

Students may be exposed to an Early Childhood hands-on science programme, discovery room, computer room, science club and mobile planetarium. Professional development programmes include professional development activities for selected science teachers; a teachers’ manual for environmental science; vacation education programmes. Special events and outreach programmes include an annual drama-in-science competition; a festival of arts, science and technology; as well as activities to mark Earth Day, Environmental Awareness Week and World Astronomy Day.

The Centre benefits from partnerships with schools, the UWI and the university community, the private sector, donors, the MOEC, and other Science Centres locally and overseas.

LESSONS LEARNED:

- Activity based activities teach concepts and develop skills much more effectively than passive learning methods;
- Children and adults must be able to relate to the subject in focus, at a personal level;
- Developing an appreciation and understanding of the environment requires an early start;
- Capacity development/professional development are critically important;
- Teacher participation in material development brings their expertise to bear and fosters a sense of ownership of the product;
- Good relationships with the MOEC and the school system are necessary to get material field tested and accepted by teachers;
- Partnerships within the wider community are important as a source of financial and material resources and expertise;
Chapter Five
Programme Areas & Actions

Introduction

The programmes and actions put forward in this chapter are the centrepiece of the National Environmental Education Action Plan for Sustainable Development. They derive from the consensus-based Vision Framework, and the partnership-based analysis of priorities for action. In essence, they are a multi-stakeholder blueprint for action on Environmental Education for Sustainable Development in Jamaica. Collectively, the outcomes and actions recommended in each of five Programme Areas presented here, form a framework to which various agencies and organizations can attach their specific action commitments. The framework also provides a guide for identifying strategic priorities and developing implementation plans for the short and medium term. An update of the action framework every two years will keep it current and relevant.

The overall Plan is dated 1998 – 2010: a period of twelve years within which to entrench Environmental Education for Sustainable Development outcomes so firmly that they contribute to long term change towards the envisioned sustainable society.

Ultimately, implementation of the National Environmental Education Action Plan for Sustainable Development is expected to achieve:

"citizens - individually and in groups, in the public and private spheres – who are prepared to participate in sustainable living."

The actions outlined in the Programme Areas are designed to further the overall expected result, and fulfill the goals of the National Plan, set out in the Vision Framework.

This Chapter describes the expected outcomes and recommended actions for each of the five Programme Areas.
Programme Area 1:  
TEACHER PROFESSIONAL DEVELOPMENT

Preamble

Efficient and effective delivery of Environmental Education for Sustainable Development throughout the formal education system requires consistent attention to teacher professional development. Fundamental elements of a systemic approach include the development of enabling policies, capacity development amongst teacher educators, and the development of coordinated professional development activities.

Environmental Education for Sustainable Development holds teachers to the highest standards of professional development. Effective educators learn and impart knowledge, but also skills, values, and an action-orientation, using learner-centered teaching methodologies not currently widespread. Professional development fosters educators’ ability to reflect on social structures and relations, within institutions and the wider community, adopting research as part of their practice and promoting related action.

Programmes must enable on-going development of teachers’ understanding and ability in Environmental Education for Sustainable Development, with continuous reinforcement and practice in a variety of situations. Programmes must be flexible, responding to the defined needs of teachers, and paying attention to the progression from initial through continuing professional development. Teachers at all levels of the system and every discipline; principals, supervisors and other senior personnel must be active participants in successful change.

Such an extensive adjustment requires the understanding and commitment of policy makers, planners and implementers, including administrators and teacher trainers. It extends to curriculum planners, both at the level of pre-service and in-service training, and within the school system itself. It encompasses the production of resource material to support teacher trainers and teachers themselves. It also requires that consideration be given to ways of encouraging teachers and other educators to become willing and committed participants in the process of change.

Emerging focus on a school-based approach, which involves students, teachers and administrative and support staff in learner-centered education, and which creates room for teachers to interpret curricula with local conditions in mind, offers an opportunity not to be missed. The approach also offers the chance to enhance links between schools, and the communities in which they are sited – through inter-relations with parents, community members and groups, and the working world.

Key Considerations

The following principles should underpin professional development in Environmental Education for Sustainable Development:

- **Holistic, Life-Long Learning** – Teacher professional development should provide an adequate combination of subject knowledge and pedagogical skills, link theory and practice, develop skills for critical thinking, include emotional, attitudinal and value aspects, and be diversified enough to meet the academic, pedagogical, administrative, and affective needs of teachers.

- **Active, Participatory Approaches** – Participants should be involved in actively defining their learning needs, an approach which will prepare them to manage change and innovation, promote collegiality and collaboration, and recognize the potential contribution of teachers’ research. Approaches to teacher professional development should also promote reflection on, and systematic planning of, practice, and provide opportunities for teacher educators and practicing teachers to work with student teachers in the classroom – thereby placing classroom practice within the larger context of school-wide practice, structure and culture.
• **Integration** – There must be harmony between teacher education curricula and school curricula.

• **Support and Collaboration** – Programmes of teacher professional development should acknowledge the need for political and infrastructural support, and the gains inherent in collaboration with other processes and agents of change in the educational system.

**Potential Partners**

Potential partners in the process of orienting teacher professional development towards Environmental Education for Sustainable Development include: the National Environmental Education Committee (NEEC), the Ministry of Education & Culture, Ministry of Environment & Housing and Ministry of Health, the University of the West Indies, University of Technology and teacher training institutions, the Joint Board on Teacher Education, National Council on Education, National Commission on Science & Technology, National Council on Technical and Vocational Education & Training, HEART/National Training Agency, Council on Tertiary Education, as well as the Jamaica Teachers Association and subject associations, the NGO/CBO community, PTAs and School Boards, donor agencies, media, and industry.

**Expected Result**

The actions set out in the Professional Development programme will collectively result in:

"system-wide, organized measures to enhance the teaching profession's ability to facilitate Environmental Education for Sustainable Development."

**Programme Elements**

Action is required in the following areas:

**Policy**

Ministries and agencies which influence the processes of decision making and policy development must be urged to institute policies which enable and are supportive of Environmental Education for Sustainable Development. This includes, but is not limited to the integration of Environmental Education for Sustainable Development into curricular policy.

**Initial Teacher Education Institutions**

Capacity to train new teachers in knowledge, skills, attitudes and the action-orientation necessary for Environmental Education for Sustainable Development must be created and nurtured within initial teacher training institutions.

**Continuing Teacher Education Institutions**

Agencies and organizations involved in the continuing professional education of teachers must be encouraged to support, and deliver, Environmental Education for Sustainable Development principles and learning outcomes, in on-going or new professional development programmes.

**School-based Approaches**

Schools must incorporate a whole-school approach to Environmental Education for Sustainable Development and to professional development, thereby creating an enabling school context within which the teacher can deliver the relevant messages and actions.

**Beyond the School Gate**
Professional development strategies must actively promote Environmental Education for Sustainable Development among parents, media, private sector, professional associations and networks, and the development community, so as to create an enabling external environment.

**Policy**

**OUTCOMES**
Actions aimed at policy development and implementation will achieve the following:

1. Increased awareness and support for Environmental Education for Sustainable Development policy initiatives amongst leaders and decision-makers;
2. A Government policy which is broadly supportive of Environmental Education for Sustainable Development and specifically supportive of teacher professional development in EE for SD, and which is developed through a participatory approach;
3. Institution/school policies which support professional development in Environmental Education for Sustainable Development;
4. An accepted framework of concepts and teaching strategies for professional development in Environmental Education for Sustainable Development;
5. Required support/capacity to implement a policy on professional development in Environmental Education for Sustainable Development;
6. The systematic delivery of EE for SD at all levels of teacher training;
7. The development of tools by which progress in EE for SD PD can be measured.

**ACTIONS**

- Persuade and influence bodies working in the area of professional development to advocate for a policy on Environmental Education for Sustainable Development, including professional development;
- Launch an awareness-building campaign among key decision-makers towards a policy on professional development in Environmental Education for Sustainable Development;
- Obtain public endorsement of the National Environmental Education Action Plan for Sustainable Development;
- Research Environmental Education for Sustainable Development policies in other jurisdictions;
- Establish on-going policy development mechanisms with processes for bottom-up input;
- Develop an accepted framework of concepts and teaching strategies for professional development in Environmental Education for Sustainable Development;
- Facilitate the development of institution/school policies on professional development in Environmental Education for Sustainable Development;
- Develop a framework for instituting professional development in Environmental Education for Sustainable Development at all levels of teacher professional development, within a defined period;
- Identify an existing body which can serve as a focal point and through which to plan the systematic delivery of EE for SD at all levels of the teaching system;
- Create a central research node through which to ensure EE for SD PD remains state of the art;
- Development standards and performance measurements on EE for SD PD.

**Initial Teacher Education**

**ACTIONS**

29 A phased scheme is suggested in *Teacher Professional Development in Environmental Education for Sustainable Development in Jamaica*, Marcelline Collins-Figueroa & Joyce Glasgow. 1997, baseline research undertaken for the NEEC, as part of the process of preparing the National Plan.
• Lobby and build partnerships with organizations which can influence the inclusion of professional development in Environmental Education for Sustainable Development, within initial teacher training institutions;
• Develop a structured programme for pre-service educators, taking account of content, methodology and best practices. This should be developed in partnership with existing bodies, certified and required;
• Develop mechanisms to ensure Environmental Education for Sustainable Development becomes a core requirement in pre-service teacher training and in the training of trainers;
• Through leadership training programmes establish capacity and expertise in Environmental Education for Sustainable Development in key agencies such as the JBTE, MOEC-PDU, JTA and JCTE;
• Develop and implement training materials and programmes targeting pre-service educators;
• Implement pilot training modules/curriculum in initial teacher education programmes;
• Pilot model programmes such as the twinning of a teachers’ college with a secondary school in which trainee teachers can practice implementing Environmental Education for Sustainable Development;
• Undertake research and the publication of models of good practice, including community college programmes;
• Establish information networks for sharing expertise, and models of professional development in Environmental Education for Sustainable Development, with the wider Caribbean and Commonwealth.

**Continuing Teacher Education**

**OUTCOMES**

*Actions within Continuing Teacher Education institutions and programmes will achieve the following:*

1. Broad professional support for integrating Environmental Education for Sustainable Development in continuing teacher professional development services;
2. A cadre of educators leading in the delivery of continuing teacher education services in Environmental Education for Sustainable Development;
3. Locally relevant in-service materials specific to Environmental Education for Sustainable Development leadership training;
4. Teachers and other professionals trained in, and implementing Environmental Education for Sustainable Development.

**OUTCOMES**

*Actions influencing Initial Teacher Education Institutions will achieve the following:*

1. A cadre of education trainers, including administrators, who are trained for, and committed to facilitating Environmental Education for Sustainable Development and implementing relevant learning outcomes in pre-service training courses;
2. New and relevant EE for SD materials, curricula and programmes for initial teacher education;
3. Teachers and other professional educators trained in, and implementing Environmental Education for Sustainable Development throughout pre-service education.

**ACTIONS**

• Awareness and constituency building in key institutions and professional associations governing or delivering continuing teacher education;
• Lobby for Environmental Education for Sustainable Development to become a mandatory core requirement in all continuing teacher education programmes, with credit given for relevant training;
• Over a defined timeframe, require that existing teachers undertake a mandatory Environmental Education for Sustainable Development programme which incorporates content, teaching methodology and best practices;
• Collaborate with MOEC to encourage appointment of an Environmental Education for Sustainable Development Officer within the Ministry's Professional Development Unit;
• Support efforts to establish an EE for SD post in each school;
• Implement EE for SD leadership development and training initiatives for MOEC Professional Development Unit, Curriculum Development officers, Supervision Officers in the regions and other relevant officials;
• Create school-based experts by training principals, senior teachers and resource teachers;
• Encourage continuing teacher education institutions to prioritize Environmental Education for Sustainable Development and implement relevant, interdisciplinary, professional development;
• Develop a skills bank of resource personnel for professional development in Environmental Education for Sustainable Development;
• Audit materials on professional development in Environmental Education for Sustainable Development and identify gaps;
• Develop and publish locally relevant Environmental Education for Sustainable Development materials for continuing teacher professional development.
• Re-package UNEP-UNESCO resource modules on professional development for environmental education;
• Pilot an annual Environmental Education for Sustainable Development Summer Institute through the MOEC Professional Development Unit;
• Carry out school-wide professional development in Environmental Education for Sustainable Development, involving all levels of school personnel, and learners, in school based activities to develop relevant materials and resources;

School-based Approaches

OUTCOMES
Actions supporting school-based initiatives will achieve the following:
(1) Pilot 'sustainable schools' in which all staff and learners work to create a sustainable school culture – including classroom and schoolyard – and community;
(2) Professional development programmes delivered to teachers within this context;
(3) Incentive programmes and awards for model institution professional development initiatives.

ACTIONS

• Involve curriculum experts, professional development experts, principals, teachers, students and NGO/CBO representatives in the design and piloting of a ‘sustainable schools’ programme. Build on ongoing initiatives such as the MOEC school incentive programme and continuing initiatives spearheaded by the NGO community;
• Promote the creation, by MOEC, of the post of Senior Teacher with responsibility for integrating Environmental Education for Sustainable Development within the schools;
• Facilitate the execution of school-based professional development programmes for staff, principals and teachers, and leadership programmes for students;
• Develop formal and informal incentives and rewards for best practices within all schools, focussing on teachers, students, principals and support staff. Consider competitions at the local, parish, regional and national levels.

**Beyond the School Gate**

**OUTCOMES**

*Actions building support systems beyond the school gate will achieve the following:*

1. Greater access to community-based EE for SD resources and professional services by school teachers, staff and students;
2. Parents and communities, including professional bodies, the media, the private sector, NGOs and CBOs, involved in sustainable school programmes and other collaborative efforts to achieve Environmental Education for Sustainable Development;
3. Enhanced linkages between the schools and the world of work.

**ACTIONS**

• Promote projects which concentrate on building community-based resources and services for professional development in EE for SD;
• Establish system-wide networking and constituency building in support of Environmental Education for Sustainable Development, among community groups including PTAs, Media, Citizens' Associations, Religious institutions, School Boards and NGOs;
• Seek actions, particularly media, which raise the profile of teachers as change agents pivotal to developing citizens who are committed to nurturing, maintaining and sustaining the island, region and world;
• Promote projects which make explicit curricular and extra-curricular linkages between school and the world of work.
Programme Area 2:  
CURRICULUM DEVELOPMENT AND IMPLEMENTATION

Preamble

In order to encourage and sustain the delivery of Environmental Education for Sustainable Development within schools throughout Jamaica, Environmental Education for Sustainable Development learning outcomes must be integrated into formal education curricula.

Current coverage in national curricula lacks both depth and breadth: depth in that it focuses to a limited extent on environmental protection and conservation but largely ignores the context of sustainable development; breadth in that it is limited to a few topics and subject areas, whereas it should be systematically integrated into all subject areas at all levels. Where curricula do contain Environmental Education for Sustainable Development learning outcomes, the emphasis is largely on knowledge-based outcomes. Outcomes highlighting skills, values, and action are extremely limited.

Curriculum developers must be encouraged to better understand Environmental Education for Sustainable Development and ways of effectively and systematically integrating it into revised curricula. The development of an integrative Environmental Education for Sustainable Development curriculum framework, indicating learning outcomes and teaching strategies from early childhood to post-secondary levels, is an important step towards broad-based understanding.

There are few tools to help classroom teachers implement curricula in ways appropriate to their specific situations. This gap highlights the need to develop and reproduce instructional resources which can help teachers implement Environmental Education for Sustainable Development teaching strategies and content. These resources would be appropriately delivered through professional development programmes.

Curricula must also be grounded in real life applications and fostered through school-based planning and community involvement, if sustainable development is to become a way of life for all Jamaican citizens. Principals and school boards, in developing school-based curricular materials, must be provided with insights and skills related to Environmental Education for Sustainable Development. Orientation would also be appropriately provided for the textbook publishing industry.

Shifts in educational approaches to curricula must be accompanied by associated shifts in student assessment. Environmental Education for Sustainable Development strategies, processes and content must be integrated into CXC and other examination vehicles, as well as school-based assessment practices.

Key Considerations

The following principles should guide the incorporation of Environmental Education for Sustainable Development into curriculum development and implementation:

- **Inter-Disciplinary Context** – There must be movement from traditional disciplinary approaches, towards an inter-disciplinary approach to problems and issues.
- **Relevance** – National curricula must incorporate the underlying importance of sustainability as a key concept for all disciplines, the integration of diverse knowledge elements, and the integral relationship between formal learning and daily living. Curricula must be designed to accommodate local variations.
- **Systemic Approach** – Approaches must be systemic, integrating all levels of curricula and all levels of the organizational system. Every potential entry point for Environmental Education for Sustainable Development, within the educational system, must be explored. Mechanisms to implement Environmental Education for Sustainable Development policies within schools must be developed and
put in place; and appropriate assessment and accountability frameworks must be in place.

- **On-Going** – There must be recognition that curricular revision is a continuous process and that proponents of Environmental Education for Sustainable Development must be always ready to seize opportunities for infusion;
- **Collaborative** – There must be consensus building among and collaboration between stakeholders, on the goals, principles and learning outcomes set out in the Vision Framework of this National Environmental Education Action Plan for Sustainable Development.

**Potential Partners**

Potential partners for actions related to curriculum policy, development and implementation include the National Environmental Education Committee; MOEC personnel at all levels; teacher training and assessment agencies; the National Council on Education as it relates to School Boards; HEART/National Training Agency; NCTVET; educational institutions including the universities; teachers’ associations including the Jamaica Teachers’ Association; teachers; students; PTAs; textbook publishers and editors, NGOs and CBOs working in specific school communities and specialists in particular fields of knowledge.

**Expected Result**

The actions set out in the Curriculum Development programme will collectively achieve:

"Organizational and curricular policies and implementation mechanisms for formal education which support and enable learning appropriate to citizens in a sustainable future."

**Programme Elements**

Action is required in the following areas:

**Policy**

Macro level policies and decisions are required to support Environmental Education for Sustainable Development. These may include changes to the Education Act; awareness-raising among the Political and Technical Directorate within the MOEC and any other Ministry which impacts on curriculum policy; policy making at the school level, including the development of school-based curriculum frameworks.

**Curriculum Development**

Environmental Education for Sustainable development learning outcomes must be integrated in all curricular policy documents and instructional materials, with on-going research providing a basis for curriculum development, and periodic review.

**Curriculum Implementation & Resources**

Implementation resources, mechanisms and processes must be developed which enable teachers, schools and others to implement Environmental Education for Sustainable Development learning outcomes.
ACTIONS

Overall Policy:
• Urge immediate preparation of a written endorsement, from the political directorate, that Environmental Education for Sustainable Development be integrated into formal education curricula - Early Childhood through to Post-Secondary - and permeate all disciplines;
• Research and write a policy document on Environmental Education for Sustainable Development in formal education, based on consideration of other relevant models;
• Build awareness among the political directorate, and promote the institution of a policy on Environmental Education for Sustainable Development in formal education which would guide curriculum development and provide directions for implementing changes, including changes in professional development;
• Recommend immediate amendment to key MOEC documents – including the Mission and Vision Statements – which reflect the national curriculum.

School-based Curriculum Policy & Planning:
• Build support for school-based curriculum planning and innovation;
• Build awareness among stakeholders involved in school-based planning, including non-government organizations, community based organizations, special interest groups and community members;
• Examine and draft guidelines to incorporate Environmental Education for Sustainable Development in school-based planning;
• Implement school-based Environmental Education for Sustainable Development policy and planning guidelines in selected schools, building on existing policy and programme initiatives.

Curriculum Development

OUTCOMES
Actions aimed at policy makers seek to achieve the following:
(1) Policy statements/directives, issued from the Ministry of Education, the Ministry of the Environment and other relevant Ministries, recognizing Environmental Education for Sustainable Development as a central aspect of curriculum development;
(2) School-based policies and practices which promote Environmental Education for Sustainable Development

OUTCOMES
Actions promoting curriculum development will seek to achieve the following:
(1) An integrative Environmental Education for Sustainable Development curriculum framework that indicates learning outcomes and teaching strategies, spanning early childhood to post-secondary education;
(2) Application of the integrative framework by infusing Environmental Education for Sustainable Development at all levels and in all curricula of the formal educational system;
(3) A harmonized approach to influencing curriculum policy and development, among interest groups;
(4) Institutionalized involvement of community resource persons, including parents, in curriculum development;
(5) On-going inclusion of community knowledge, concerns and resources, within curricula;
(6) Increased numbers of curricular developers with the capacity to integrate Environmental Education for Sustainable Development in national and local curricula.

ACTIONS
• Devise an integrative curriculum framework based on the Learning Outcomes set out in the Vision
Framework, to illustrate scope and sequence from early childhood to post-secondary level;
• Involve key officers from MOEC’s four curriculum development units, university representatives, relevant interest groups and individual specialists in developing the curriculum framework;
• Review possible models, as part of a process of developing the curriculum framework;
• Promote integration of Environmental Education for Sustainable Development in all curricula, with the aid of the integrative framework/curriculum guide;
• Based on on-going research, recommend specific points for infusion of Environmental Education for Sustainable Development learning outcomes into various curricula;

• Act on opportunities to infuse Environmental Education for Sustainable Development, based on on-going curricular reviews;
• Establish a forum within which interest groups can interact to promote integration of their varied contributions with Environmental Education for Sustainable Development, towards effective infusion in the various curricula;
• Collaborate with other curriculum stakeholders such as Health Education, Family Life Education, PALS and the Tourist Board, to infuse environmental elements and a sustainable development context into their programmes and instructional materials;
• Create mechanisms to facilitate school boards, parents and other community resource persons input into school based curriculum development.
• Support programmes to help teachers plan and implement locally relevant versions of national curricula, based on the integrative framework - with community involvement;
• Design and implement relevant training programmes for curriculum developers including personnel from the MOEC Units for all subject areas, staff of the Professional Development Unit, supervision Education Officers, principals, ROSE teacher trainers and teachers;
• Identify Environmental Education for Sustainable Development experts who can participate in MOEC curriculum development teams and other working groups;
• Consistently expose curriculum developers and Environmental Education for Sustainable Development partners, and encourage them to act on this training.

Curriculum Implementation & Resources

ACTIONS

• The production of student-centered activity based modules focused on priority environmental issues and which emphasize school /community linkages.
• The production of teacher curriculum modules and instructional materials which facilitate classroom implementation of EE for SD learning outcomes and fill gaps identified in research.
• Publish guidelines for resource development in EE for SD
• Carry out in-service training of teachers, principals and members of the schools extended family.
• Dialogue with publishers of textbooks to influence greater incorporation of environmental education for sustainable development in school texts and other materials;
• Capitalize on business opportunities to produce and market textbooks and other materials;
• Carry out in-service training of teachers and principals and members of the schools’ extended families;
• Produce resources that enable teachers and school administrators to plan and implement locally relevant versions of the national curricula;
• Support the development of instruments and procedures to assess the quality of materials/resources, teaching/learning strategies, and student achievement, and to correct identified problems.
Programme Area 3:  
NATIONAL PUBLIC AWARENESS

Preamble

Supportive, aware and active citizens, working towards a sustainable Jamaica, are the chief outcome expected from the National Environmental Education Action Plan for Sustainable Development. National awareness and attitudes strategies must reach both the ubiquitous general public, and its more defined, more manageable constituent groups - promoting understanding of environment and sustainable development issues; highlighting the effects of everyday actions by individuals and groups; and gaining a commitment to positive action.

To attract the attention of citizens, messages must be relevant to the target groups; benefits of action must be clear; and citizens must have access to the means to act in the ways suggested. Effective message delivery strategies, appeals to self interest, clear connections between environmental degradation and personal or community problems, and references to local culture, must be used. The importance of having necessary support systems in place, including a culture of governance which recognizes the public’s right to information, must be emphasized. Capacity development opportunities are another vital element of the mix, particularly in respect of training and resource material to reach specific groups.

There is also scope for filling existing gaps and taking advantage of opportunities. Groups not currently being served include a variety of influential Jamaicans – both the professionals who influence policy-making and programme development; and the marginalized who influence success or failure through their attention or inattention. Development of messages appropriate to the diverse target groups which make up the Jamaican population, requires research. Attention must be focussed on the political, economic and other decision-makers, the mass of marginalized Jamaican citizens, students, the workforce comprising professionals, skilled persons and unskilled labour, consumers, resource users and the media which is a channel for information and a target group at one and the same time.

Thematic gaps, relating to sustainable development, and to the links between socio-economic development and the natural environment, must be bridged.

In addition, there is scope for greater collaboration between organizations, leading to clear coordinated messages and approaches which present the public with a cohesive front on issues related to the environment and sustainable development.

Key Considerations

The following principles should guide the building of National Public Awareness:

- **System-Orientation and Relevance** – National public awareness messages, concepts and actions must systemic rather than just symptomatic, must be relevant to the needs and concerns of the target groups, and must be clearly communicated.

- **Research Basis** – Actions, messages, and target groups must be defined based on research, and the effect of strategies on target groups must be monitored to ensure on-going effectiveness. Programmes must utilize a variety of methods and media, and messages must be repeated and reinforced over a long period.

- **Action Orientation** – In developing campaigns, awareness must be linked to action. Positive benefits and alternatives to negative behaviour must be explained, and feasible, easily accessible solutions must be suggested.

- **Participatory and Co-lateral Approaches** – Messages must be developed through participatory
approaches. Co-lateral opportunities, which create partnerships with existing programmes and build on appropriate habits, must be a vital focus;

- **Local Orientation** – Messages must take account of and utilize popular culture, and take advantage of existing opportunities – including media opportunities.

- **Sustainability** – The approach to developing campaigns and other programmes must be focused within an overall framework of sustainability, and should include examples of communities working towards sustainability. Relevant themes can be prioritized within this framework.

- **Integration** – Linkages must be established and maintained between strategies at the national and local levels, as well as other areas of the National Environmental Education Action Plan for Sustainable Development, to ensure integration and reinforcement of messages at all levels.

### Potential Partners

Potential partners in strategies to improve national awareness and attitudes in respect of the environment and sustainable development include stakeholders within the NEEC; the NRCA; the Council on Sustainable Development; the NGO/CBO national umbrella organizations; the NGO/CBO community; and organizations relevant to specific priority subject areas. With reference to capacity development in particular, all government and private sector training institutes are potential partners. Relevant professional organizations, entertainers, information networks and the media are also important.

### Expected Result

National awareness & attitudes strategies are expected to result in:

"Environmentally-aware citizens actively participating in sustainable development and with compatible attitudes, skills, behaviour and values."

### Programme Elements

Action is required in the following areas:

**Public Awareness Programmes**

Campaigns and other strategies must enhance public awareness on the environment and sustainable development issues, on a sub-sector as well as a national basis.

**Environmental Awareness Programmes for Influential Groups**

Public awareness programmes must specifically seek to sensitize politicians, civil servants, Members of Parliament and other members of the political directorate and decision makers.

**Capacity Development to Facilitate Delivery of Public Awareness Programmes**

Capacity development programmes must ensure the capacity of agents to deliver effective programmes of public awareness.

**Public Access to Environmental and Sustainable Development Information**

Citizens must be able to access information relating to environmental and sustainable development issues.
### Public Awareness Programmes

**ACTIONS**

- Develop public awareness campaigns, which promote citizen environmental literacy and citizen participation in sustainable living, using a multi-disciplinary team with environmental/sustainable development, communications, marketing, CBO and behavioural science expertise;
- Identify collaborative opportunities with organizations promoting relevant campaign issues and establish sustainable development as an overarching theme for public awareness campaigns focusing on the environment.
- Prioritize environment and sustainable development themes based on urgency of problems, public interest and ease of access to remedial action. Potential sub-themes with immediate public impact include solid waste management, watershed management and coastal/marine management;
- Prioritize target groups identified as youth, consumers, the masses, resource users, the workforce, business/industry, women, and vulnerable groups.
- Emphasize popular and traditional culture in message delivery; and radio as a critical medium;
- Create an awareness programme focusing on enforcement officers, and judiciary.
- Develop a range of specific EE for SD programmes, which target environmental issues in a variety of workplaces.

### Environmental Awareness Programmes for Influential Groups

**ACTIONS**

- Develop strategies and implement actions to sensitize politicians and local and national decision makers, including Ministers of Government, Members of Parliament and political parties themselves, leading to decisions and actions supportive of Environmental Education for Sustainable Development;
- Develop appropriate material to support the sensitization of political decision makers in government, NGOs and CBOs, the business sector, the workplace, and society in general, whose knowledge, attitudes, awareness and behaviour are reflected in their policy, programmes and communication, and who therefore contribute directly to sustainable development;
- Implement study tours to education decision-makers and politicians on environment and sustainable development issues and solutions.

### OUTCOMES

**Actions in this area will result in the following:**

1. More environmentally sensitized political officials, including Government Ministers, Members of Parliament and political parties themselves, leading to decisions and actions supportive of Environmental Education for Sustainable Development;
2. More environmentally informed and aware policy and decision-makers in government, NGOs and CBOs, the business sector, the workplace, and society in general, whose knowledge, attitudes, awareness and behaviour are reflected in their policy, programmes and communication, and who therefore contribute directly to sustainable development;
3. Broad consensus amongst the political directorate that Environmental Education for Sustainable Development is a national priority.
• Develop appropriate material to support sensitization of political decision-makers;
• Create awareness programmes focusing on other specific influential groups such as business.
• Develop a programme to train environmental and community development interest groups in the basics of media and news feature writing, and how to access the media.
• Seek written endorsement on the NEEAPSD from the political directorate

**Capacity Development to Facilitate National Awareness Programme Delivery**

**ACTIONS**

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<tbody>
<tr>
<td><em>Actions in this area will achieve the following:</em></td>
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<tr>
<td>(1) More informed, skilled and responsive media, artists and public opinion makers Contributing to a sustainable society;</td>
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<tr>
<td>(2) Enhanced networks amongst delivery agents involved in the delivery of environmental awareness campaigns;</td>
</tr>
<tr>
<td>(3) Evaluation mechanisms to monitor and measure the impact of public awareness and attitude campaigns.</td>
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</tbody>
</table>

• Design and implement EE for SD leadership development and awareness programmes for public opinion makers such as media and musicians.
• Develop locally relevant material and other resources to support training activities for public opinion makers.
• Develop a EE for SD Media Kit to provide information on basic concepts and strategies for EE for SD, and examples of good practice
• Promote the integration of EE for SD into the curricula of formal institutions such as CARIMAC etc.
• Encourage musical entertainment and other groups to celebrate the environment, sustainable communities and positive images of the future.
• Research and develop networking /coordination mechanisms for key agents involved in the delivery of EE for SD.
• Research and develop evaluation mechanisms to monitor and measure the impact of various public awareness approaches.
• Promote networking among delivery agents through meetings, e-mail and newsletters, to develop or enhance coordination of projects related to the campaign.

**Public Access to Environment and Sustainable Development Information**

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<tr>
<td><em>Actions in this area will result in the following:</em></td>
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<tr>
<td>(1) Increased access to information on environment and sustainable development;</td>
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<tr>
<td>(2) Technological capacity to facilitate access to information on environment and sustainable development</td>
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<tr>
<td>(3) Increased use of the media, professional and community groups, schools, churches etc, as channels for disseminating Environmental Education for Sustainable Development information.</td>
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</table>

**ACTIONS**

• Establish a national EE for SD database and network.
• Support a national public “right to know” legislation;
• Collaborate with existing entities developing technological services to create Internet sites relevant to environment and sustainable development
• Establish a national working group that seeks to systemize decentralized access to information on environment and sustainable development through local organizations.
Programme Area 4:
COMMUNITY LEARNING

Preamble

Local communities – the least formally structured and often the least consulted partner in civil society – bear the brunt of the current environmental crisis and, increasingly, are identified as the key to effective solutions. It is now generally recognized that the participation of community members and relevant interest groups in problem identification, analysis and solution, is fundamental to sustained and meaningful change at the community level. In this context, the roles of Environmental Education for Sustainable Development are many and varied. Community members must be provided with access to relevant environment and sustainable development information and educational processes which will enable them to participate, in an aware fashion, in decision-making and action. Community members must also be exposed to practical ways of integrating sustainable development practices into their lifestyles and livelihoods. Finally, community members must acquire skills necessary to participate in sustainable development planning, practice and monitoring.

Local communities in Jamaica range from urban-based to rural-based communities, although the majority of small settlements are found along highways or along the coast and have urban features. Communities also range in socio-economic stratification. And there is a diversity of local level stakeholders, including local government, the business and professional community, service and community groups, natural resource users, schools, churches, NGOs/CBOs, householders, women and young men. Community-based Environmental Education for Sustainable Development learning initiatives must be designed relative to the diverse range of community interests and priorities.

At the same time, communities must be exposed to wider knowledge on the inter-relationships of the natural, social and economic environments; and empowered with the skills, attitudes and action-orientation needed for action to safeguard the resource base on which their lives and livelihoods ultimately depend.

It must also be recognized that many of Jamaica’s urban and rural communities have generated survival initiatives against environmental degradation, from which national and global communities can draw valuable lessons. Mechanisms which draw participatory and integrative lessons of community into the frame of regional and national development planning, must therefore be developed. National processes and mechanisms for dealing with communities must themselves undergo reform. Many effective community intervention techniques have been developed, based on the work of non-government and community-based organizations within rural and inner-city areas. Properly documented, these can provide useful lessons and tools.

The specific role of community learning is to provide community members with relevant information and tools to facilitate action on issues relating to the environment and sustainable development.

Key Considerations

The following principles underpin community-based Environmental Education for Sustainable Development:

- **Local Relevance** – Programmes must build on and validate local knowledge and practice related to the environment and sustainable development;
- **Integration** – Programmes must recognize and utilize the links between rural and urban communities and the natural environment on which community members depend for energy, water, food and livelihoods;
- **Responsibility** – Community learning programmes must develop attitudes and sensitivities toward natural, social, economic and social settings which foster stewardship and a sense of responsible citizenship, within the local – national - global continuum; as well as critical thinking skills and a multi-
disciplinary approach to problem identification and solution.

- **Empowerment** – Programmes will develop a sense of self worth, empowerment and rootedness in community and an appreciation of the part that culture and individual creativity play in ensuring survival.
- **Action-Oriented** – Community learning programmes must develop the ability to work individually and collectively towards resolution of environmental problems - reinforcing and enhancing a culture of civic action.

### Potential Partners

The wide range of stakeholders currently operating at the community level all represent potential partners for community-based initiatives. These include national government agencies and their local offices, local government officials and organizations, NGOs, CBOs and ENGOs, service clubs, professional associations, cooperatives, special interest groups and local service providers.

### Expected Result

The Community Learning programmes will achieve the following result:

"Communities that are knowledgeable about and appreciative of our environment and are empowered to engage in sustainable development processes and practices."

### Programme Elements

Action is expected in the following areas:

- **Resource & Leadership Development**
  Appropriate material resources must be developed, along with a cadre of trainers equipped to facilitate community-based educational processes focused on engaging people in on-going interactive learning, participatory processes, and developing capacity to participate in decision-making and action.

- **Policy Development**
  Policies and associated support instrument must be developed and implemented, which actively promote people’s participation in processes related to the local environment and sustainable development; thereby enabling community-based Environmental Education for Sustainable Development.

- **Model Community Learning Programmes for Sustainable Development**
  Community members experience inter-related environmental, economic and social problems day by day in their local situations. Educational processes enable the development of awareness, skills and values which can help individuals and groups plan appropriate action at the community – and ultimately the national - level. Model Community Learning Programmes must be undertaken to test appropriate educational approaches for equipping community members to participate in sustainable community development.

- **Information Networks**
  Enhanced local community access to a range of information, tools and technologies is central to informed and meaningful participation in local sustainable development processes. Information Networks which promote both local-local and local-national-global exchanges are essential.
### Resource & Leadership Development

**OUTCOMES**

*Actions will result in the following:*

1. Delivery agents, including local government authorities, government agencies and NGOs, sensitive to community needs and trained in appropriate community-based education techniques;
2. A cadre of trainers/facilitators at the community and national levels, able to implement, and train others in, participatory planning, community-based vision setting, action planning and performance monitoring, related to Environmental Education for Sustainable Development;
3. Development of appropriate resources and methods, to support community-based learning programmes;
4. Community persons knowledgeable about and willing to comply with enforceable environmental legislation.

**ACTIONS**

- Research and design programmes and materials to train trainers and other delivery agents;
- Develop a cadre of non-formal educational professionals enabled to deliver Environmental Education for Sustainable Development programmes in community animation, vision-setting, participatory planning and decision-making techniques – including consensus building and conflict resolution;
- Based on the experience of the model community learning programme, develop a manual describing procedures and activities for community learning with respect to Environmental Education for Sustainable Development.
- Train delivery agents, particularly government and NGO, in delivery methods, based on the manual. Specifically, focus on environment/sustainable development content, research methods, and community intervention approaches;
- Develop, and make available to the communities, a simplified version of current environmental legislation and procedures for reporting and taking action against offenders.

### Policy Development & Support

**OUTCOMES**

*Actions in this area seek to achieve the following:*

1. Local policy and decision makers who are aware and supportive of the role of community in environment and sustainable development planning and management;
2. National policies, and appropriate legislation, which mandate community participation in planning and governance at all levels;
3. Practical guidelines and resources for government officials which set out optimal interactions with communities and which are supportive of community-based Environmental Education for Sustainable Development.

**ACTIONS**

- Recognize and support intra-agency networking to establish a policy framework for enhanced community-based development, and policy which includes a focus on Environmental Education for Sustainable Development;
- Develop mechanisms to ensure effective community level inputs in national policy development;
- Raise awareness among local politicians and government officers on the importance of community participation to achieve environmental and sustainable development goals.
Model Community Learning Programmes for Sustainable Development

OUTCOMES
Actions in support of this area will achieve the following:
(1) Community members empowered and enabled to participate in planning, programme development and monitoring of the local environment and sustainable development initiatives;
(2) Learning programmes, which test approaches to developing awareness, skills and values which can help individuals and groups plan appropriate action to meet the challenges of sustainable community development;
(3) A national community learning strategy developed from experiences gained in the model community learning programme;
(4) Effective evaluation measurements and tools to measure progress in community learning programmes.

ACTIONS

• Research existing community learning programmes to determine relevance to Environmental Education for Sustainable Development;
• Develop model community learning programmes and materials for testing, including approaches to community visioning, sustainable programming and implementation;
• Develop the capacity to monitor, evaluate and revise the model programmes;
• Develop programme messages, with linked actions, which reflect environmental and sustainable development issues with personal and community relevance;
• Identify a community initiative or initiatives within which to test the model learning programmes;
• Establish wide ranging partnership networks to support the model programmes;
• Identify appropriate technical, human, financial, training and other resources appropriate to the needs of specific groups who are involved in the model programmes;
• Using participatory methods, develop sustainable development indicators and train community members in monitoring these indicators;
• Develop a national community learning strategy, based on experience gained in the model programmes;
• Develop an incentives scheme for communities which demonstrate good practice in sustainable living;
• Develop a Local Initiatives Fund to help communities continue to innovate in areas relevant to community learning for Environmental Education for Sustainable Development.

Information Networks

OUTCOMES
Actions in this area will result in the following:
(1) Networks which facilitate enhanced, equitable access to information, expertise and appropriate technology practices related to the environment and sustainable development, for community members;
(2) Enhanced community-to-community information exchange and technology transfer at the local, national and international levels.

ACTIONS

• Facilitate the sharing of experiences, information and technology transfer between communities through systematic documentation and study tours;
• Establish a network of community based learning centres, which provide access to user-friendly
information, appropriate action and technical expertise;

- Identify, and provide necessary training support for, a corps of community resource persons;
- Develop a directory of community-based information resources and resource persons;
- Upgrade Environmental Education for Sustainable Development materials and resources at the local level;
- Develop mechanisms for feeding local information into centralized Environmental Education for Sustainable Development information systems.
Programme Area 5:  
*RESOURCES & PRACTICES*

**Preamble**

More quality resources to support Environmental Education for Sustainable Development activities in the formal and non-formal sectors; and more use of both existing and newly developed material: these are the twin goals of a focus on environment and sustainable development resources.

As it stands, several issues impact on resource production and utilization. These include: the extent to which resource materials include information on environment and sustainable development issues and practices relevant to Jamaica’s key needs; the effectiveness with which these messages are communicated through the various media; the efficiency of resource delivery to intended audiences; and the capacity of institutions to produce and upgrade locally-relevant resource materials so as to keep information current, relevant and practical.

Currently, a range of resources exist islandwide, which speak to major environmental problems and touch on sustainable development. However there remain some poorly served subject areas, including wildlife and natural history, marine and coastal issues, and sustainable development issues. In addition, the linkages between environment and sustainable development have not been made explicit or practical.

In respect of resource types, most existing Environmental Education for Sustainable Development material consists of printed documents. There is little audio-visual material. Related, is the lack of material to meet the needs of low-literacy audiences, some levels of students, adult audiences, and such highly defined and influential groups as policy and decision-makers, public servants at all levels, employees, the private sector, and academics. In addition, whereas all available resources address knowledge and some are designed to influence attitudes, few address practices and the development of skills.

Resource quality is another issue, taking into account the needs of the end users. The engagement of professionals to produce material which is also effectively marketed and distributed, will address one level of need. Guidelines for resource production will also enhance capacity to develop high quality, effective material.

There is also the problem of inadequate access to existing resources, compounded by limited production runs and inequitable distribution, particularly in rural Jamaica and in lower income settlements within urban areas. Most of the resource centres which focus on environmental and sustainable development issues, are located in Kingston, or in major urban centres. Public libraries and the school library system, are inadequately served with environmental and sustainable development material.

A central inventory of NGO holdings, continually updated, would facilitate reference to existing resource material, whether this is locally developed, or sourced overseas. It would also reduce chances of overlapping coverage of similar issues by different organizations.

In this respect, capacity is particularly lacking within the non-formal sector. NGOs, which are a major producer of material, within the context of associated programmes, have capacity development needs which include skill in developing, producing and marketing relevant, cost-effective materials. Much material now being used informally by teachers and students, based on NGO/teacher collaboration, could appropriately be standardized, tested and distributed. Within the formal sector, textbook producers are a major force, and a potential partner in efforts to infuse Environmental Education for Sustainable Development concepts and messages in every discipline.

Models of good practice, whether in the formal education sector, within local communities or at the national
level, must also be documented and publicized to encourage further positive action.

Key Considerations

The following principles should guide the development and distribution of resources relevant to Environmental Education for Sustainable Development in Jamaica:

- **Fair and Accurate Presentation** – Resources should describe or shed light on environment and sustainable development problems, issues and solutions, reflecting a diversity of perspectives.
- **Depth** – Resources should foster an awareness of the natural and built environment, a critical understanding of ecological and sustainable development concepts and issues, and an awareness of the values, attitudes and perceptions underlying issues.
- **Local Relevance** – Resources should be locally relevant, celebrating appropriate local knowledge and practice. Formats selected should be diverse and cater to a range of abilities, noting the prevalence of the oral tradition in local culture. Consideration should also be given to technological relevance.
- **Emphasis on Skills Building** – Resources should foster the development of life-long skills that enable learners to participate in sustainable development decision-making and action.
- **Action-Oriented** – Resources should promote civic responsibility, and enable learners to adopt sustainable development practices in their daily lives, within communities and workplaces.
- **User Friendliness** – Resources should be well designed, easy to use, and available on an equitable basis.

Potential Partners

Potential partners in enhancing Environmental Education for Sustainable Development resources include the many players engaged in resource production and distribution; operators of community resource facilities; the MOEC which sets the formal education curricula and which is therefore a major reference point for textbook producers; JAMAL Foundation Limited; the Jamaica Library Service; the NGO/CBO umbrella agencies which have some experience with documentation centres; the Press Association of Jamaica, Public Relations Society of Jamaica and Advertising Agencies Association; as well as artists of all types.

Expected Result

The actions set out in the area of Resources & Practices will collectively result in the following:

"Locally relevant, widely used materials and resources which address all sustainable development issues, produced with a high quality of content and mass appeal, with wide and efficient distribution to all target audiences"

Programme Elements

Action is required in the following areas:

**Resource Development, Production & Utilization**
Enhancing the quality and quantity of resource material on environment and sustainable development issues, both within and outside of the formal education sector, will result in resources more relevant to the needs of the target audiences and enhance levels of use.

**Resource Access**
Efforts are needed to ensure that potential users are aware of resource materials and can access them, and
that there is equitable distribution within urban and rural Jamaica.

**Models of Good Practice**
Models of good practice, whether they be programmes, projects or material resources, must be documented and promoted.

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**Resource Development, Production & Utilization**

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<tr>
<td>Actions to enhance resource development, production and utilization will achieve the following:</td>
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<tr>
<td>(1) High quality, locally relevant resource material which communicate environment and sustainable development messages and actions;</td>
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<tr>
<td>(2) A range of available resource materials which target environment and sustainable development themes, audiences and levels;</td>
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<tr>
<td>(3) More individuals and organizations with capacity to develop and produce meaningful and effective Environmental Education for Sustainable Development resources;</td>
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<tr>
<td>Develop and publish guidelines for the publication of effective Environmental Education for Sustainable Development resources in Jamaica;</td>
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<tr>
<td>Present the guidelines to potential resource producers through workshops and other training processes;</td>
</tr>
<tr>
<td>Target institutions such as JAMAL Foundation Limited, which have traditionally been involved in producing support material for special interest groups, but not traditionally involved in Environmental Education for Sustainable Development;</td>
</tr>
<tr>
<td>Collaborate with curriculum developers and publishers of school texts and other local material, to influence the production of high quality, locally relevant school-based resource materials on Environmental Education for Sustainable Development issues;</td>
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<tr>
<td>Repackage existing good material that needs to be made more user-friendly;</td>
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<tr>
<td>Promote the production of resources to address thematic, resource type and user category gaps that are priorities in other programme areas of the National Environmental Education Action Plan for Sustainable Development. These include sustainable development, sustainable lifestyles, sustainable agriculture, biological diversity, coastal and marine issues, and watersheds;</td>
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<tr>
<td>Create opportunities for the production of audio-visual and low-literacy resource materials;</td>
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<td>Produce resource materials that promote sustainable development practice in the workplace, taking note of existing practice such as the Jamaica Hotel &amp; Tourist Association (JHTA) manual as well as CARIMAC environmental journalism material;</td>
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<td>Promote enhanced cooperation between resource producers in the public and NGO sectors;</td>
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<td>Encourage the production of resources with clear instructions for optimal utilization;</td>
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<td>Deliver resources in the context of demonstration workshops which enable users to learn how to best use the resource;</td>
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<tr>
<td>Develop mechanisms for evaluating resources.</td>
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</table>
**Resource Access**

**OUTCOMES**

*Actions to improve access to resource material will result in the following:*

1. Enhanced awareness of existing, locally relevant Environmental Education for Sustainable Development resource materials;
2. Efficient and equitable mechanisms for the promotion, marketing and distribution of resources, especially to the community level;
3. Enhanced sharing and networking between resource producers, leading to reduced overlaps and redundancy.

**ACTIONS**

- Research, develop and maintain a centralized data-base/directory of local, regional and international Environmental Education for Sustainable Development resources. Distinguish between school-based and non school-based resources;
- Promote awareness of available resources through existing mechanisms – newsletters, publishers’ catalogues, web-pages, professional associations;
- Promote development of an Environmental Education for Sustainable Development Directory for teachers, produced through MOEC;
- Explore opportunities for incorporating Environmental Education for Sustainable Development imperatives into existing electronic networks, or creating a new Environmental Education for Sustainable Development network;
- Support the development and maintenance of Environmental Education for Sustainable Development ‘learning centres’ in each parish, using existing information infrastructure such as libraries or science resource centres;
- Provide training in information management for parish-based resource centres, to NGOs, CBOs and other partners;
- Develop a skills bank of Environmental Education for Sustainable Development development experts;
- Create ‘hot-lines’ which teachers, students and the general public can call for information on Environmental Education for Sustainable Development resources.

**Models of Good Practice**

**OUTCOMES**

*Actions to increase awareness of models of good practice will achieve the following:*

1. Enhanced awareness and networking between individuals and groups working within the area of Environmental Education for Sustainable Development;
2. Documentation of practical applications of environment and sustainable development in schools, communities, the workplace and business.

**ACTIONS**

- Research and develop a regular case-studies series which documents “Good Practice” within schools, communities, the workplace and business, to be made available electronically and in print;
- Host celebrations and award ceremonies which recognize sector-specific initiatives in Environmental Education for Sustainable Development;
- Communicate “Good Practice” in print and non-print form, including field trips, exhibitions, exchanges, networks and study tours.
Chapter 6
Moving Forward

The National Environmental Education Action Plan for Sustainable Development is designed to be realized at multiple levels, islandwide, through the development of partnerships which span the formal and non-formal sectors. The Plan itself provides the vision, outlines the issues and identifies the programmes – thereby creating a national level framework within which local level initiatives can locate their own priorities and processes.

Chapter Six sets out the initial mechanisms proposed to make the Plan operational within the first year of its 1998 – 2010 time span. It also sets forth a basis for prioritizing programmes, and the expected role of various agencies and institutions.

First Steps

The following steps are vital to getting the Plan underway:

# Increase the strength & scope of the NEEC Secretariat within NRCA

The NEEC Secretariat will mobilize and coordinate the systematic, partner-based implementation of the National Environmental Education Action Plan for Sustainable Development; based on appropriate governing and partnership structures and mechanisms. The existing secretariat, established on a part-time basis within the Natural Resources Conservation Authority, to service the meetings of the National Environmental Education Committee, must be strengthened to fulfil the enhanced role envisaged for it.

# Set up Lead Agency Focal Points

Lead Agency Focal Points will be established within a handful of key formal and non-formal education sectors, to mobilize and coordinate broad-based implementation of the National Environmental Education Action Plan for Sustainable Development within their sectors. The Secretariat will work with these lead agency Focal Points to identify action priorities and mobilize appropriate action, based on the recommendations in Chapter Five.

# Advocate for political and other support

There is a clear need for broad political and national will to act on environmental and sustainable development issues. This underpins the potential success of actions recommended in this National Environmental Education Action Plan for Sustainable Development – not least because it will determine the level of attention to resource allocation, including budgetary allocation. The development of specific policies relating to teacher professional development and curriculum development will also be affected, as well as to the culture of governance, with particular reference to incorporation of community concerns in policy development and implementation at the national level. The NEEC Secretariat and its partners will work towards appropriate policy development and action at key decision-making levels.

# Promote enhanced awareness

Messages, tools and promotional material will be developed to enhance awareness of Environmental Education for Sustainable Development concepts and strategies. At present, while there is some awareness of the need for education on the environment and sustainable development, and the actions entailed, there is still a clear need to expand the constituency of committed and active Jamaicans, at every level.
# Build constituency

The NEEC Secretariat will promote dialogue on the role of various partners in implementing the actions recommended in the National Environmental Education Action Plan for Sustainable Development. The building of partnerships is a recurrent theme within the Plan, involving both the enhancement of existing links; and the creation of new partnerships based on identified needs and proposed actions.

# Design projects and programmes

Organizations currently active in these areas are encouraged to locate themselves within the framework created by the programmes and actions at the national and community levels within the Plan. The NEEC Secretariat will develop a Workplan, facilitate the definition of specific projects, and work with potential partners to design and implement these projects. Participatory programme development, based on research and incorporating on-going evaluation and review to ensure that programmes remain targeted are underlying programme design principles.

# Implement Quick Start Initiatives

A series of Quick Start Initiatives are proposed, to give profile and momentum to the National Environmental Education Action Plan for Sustainable Development. These involve the creation of tools and the development and dissemination of messages which heighten awareness and understanding of Environmental Education for Sustainable Development concepts and issues.

# Identify and sustain funding

The NEEC Secretariat and its partners will play a role in attracting funding to projects implemented under the National Environmental Education Action Plan for Sustainable Development. It is anticipated that funding will be sourced from local and central government, the private sector, the non-government sector as well as local and international funding agencies. Programmes may also be created which can generate their own funds. Funding for selected capacity development initiatives will be provided through the GOJ/CIDA Environmental Action (ENACT) programme. The identification of funds is an immediate necessity in order to begin to coordinate action, to facilitate awareness and partnership building, to develop, produce and distribute materials and to undertake specific programmes.

# Undertake capacity development

The NEEC Secretariat will assume responsibility for projects funded in part through the ENACT programme, as part of a set of initiatives designed to achieve organizational capacity to deliver Environmental Education for Sustainable Development services and to achieve enhanced citizen participation. Jamaican citizens – individually and collectively - must be provided with learning opportunities which enable them to internalize Environmental Education for Sustainable Development knowledge, skills, values and actions. In addition, institutions must achieve enhanced capacity to deliver effective Environmental Education for Sustainable Development. Supportive capacity development needs include institutional strengthening, leadership development and training, the production of locally relevant resource materials, the creation of enabling environments, the creation of formal mechanisms for networking and information sharing, the provision of equitable access to appropriate information, the encouragement of innovative approaches, particularly in the formal education sector, the development of learning programmes which facilitate participation in sustainable living, particularly at the community level, advocacy for policy change and political will.

# Establish a performance review framework
A performance review framework, developed through identification of achievable programme results, establishment of indicators to measure progress, and monitoring using these indicators, will be the basis for evaluating the successful implementation of the Plan. Results and indicators, which must be developed in collaboration with persons actually undertaking the programmes, will be identified on a project by project basis. The performance review functions will be the responsibility of the NEEC governing body.

Setting Priorities

The National Environmental Education Action Plan for Sustainable Development takes a three-pronged approach, which identifies near-term priority areas for immediate attention; leaves room for establishing medium and long term priorities based on periodic programme review; and seeks on-going co-lateral opportunities whereby partnerships can be built with other programmes which share some elements of the vision of a sustainable future.

In setting priorities, there are two main areas for consideration. The first, and the main focus of the Plan, relates to how we get the messages across - the means and methods of preparing people and institutions to research, develop, produce, implement or facilitate Environmental Education for Sustainable Development programmes.

In terms of means and methods, the following broad priorities are identified for the short term:

- Creating the capacity to deliver programmes and projects based on the actions recommended in the Plan;
- Entrenching support for the Plan at all levels, including advocacy to create broad political and national will in support of the Plan’s objectives and the recommended actions;
- Exploring appropriate policy mechanisms, based on recommendations in the Plan.

Action around priority themes – outlined in Chapter Three – will be galvanized on a project by project basis. There is broad consensus, however that the following must be given priority:

- Awareness of the relationship between economic, social and environmental imperatives and actions required to move towards sustainable prosperity early in the 21st Century;
- Increased literacy on the priority environmental and sustainable development issues outlined in Chapter Three.

Institutional Mechanisms & Processes

The existing, part-time NEEC Secretariat, will be strengthened to mobilize and coordinate implementation of the National Environmental Education Action Plan for Sustainable Development.

The Secretariat’s functions flow from programme elements identified in Chapter Five, which repeatedly highlighted the need to build awareness and support at all levels, develop partnerships, enhance institutional and individual capacity for action, undertake necessary political advocacy and institutionalize a methodology which includes research, documentation, evaluation, review and communication. On this basis, core functions for the Secretariat will include:

- Planning, management and oversight of programmes, within the framework of the Plan;
- Development and coordination of partnership processes and mechanisms;
- Policy development and advocacy;
- Broad-based awareness building, including enhanced public awareness and acceptance of the National Environmental Education Action Plan for Sustainable Development;
- Sourcing funds;
- Research and information management;
• Development of biennial workplans;
• Development of a performance review framework and preparation of reports;
• Networking, communication and public relations.

The enhanced NEEC Secretariat functions require technical expertise and strategic leadership, with staffing at the executive and support levels.

The Secretariat will work in tandem with strategically positioned formal and non-formal education Lead Agency Focal Points. These focal points, to be established within organizations already working in these areas, will mobilize broad-based implementation of the National Environmental Education Action Plan for Sustainable Development among their constituencies, and develop strategies to strengthen institutionalization of Environmental Education for Sustainable Development within their own agencies. Selection criteria, to be developed by the NEEC Secretariat, will include capacity to influence a sizeable constituency, of strategic importance to implementing the Plan’s outcomes and activities; as well as capacity to deliver agreed outcomes, using appropriate partnership approaches.

The NEEC Secretariat will also seek to develop a range of partnerships with relevant organizations, to recognize, enhance or develop initiatives in priority areas which the Plan identifies for action. Where these actions already fall within the purview of government agencies and statutory bodies, NGOs, CBOs, educational institutions, business and social organizations, the focus may be on incorporating Environmental Education for Sustainable Development concepts and outcomes into existing programmes. In other instances, the Plan will provide a framework within which organizations, institutions and individuals can identify un-met needs and create appropriate new projects; or identify networking opportunities through which to harmonize individual efforts and more effectively fulfill their mandates.

Role of Partner Organizations & Agencies

The following broad suggestions outline the anticipated role of Jamaican organizations, agencies and sectors in implementing the National Environmental Education Action Plan for Sustainable Development, in respect of policy, support, monitoring and programme implementation. Benefits to be gained by involvement are also briefly identified.

**Government:** In the National Industrial Policy and other policy documents policy and in its international agreements, the Jamaican government has expressed a commitment to a healthy environment and sustainable human development. This Plan provides a means by which the government can put some of those commitments into action, through support for initiatives in both the formal education system and in the area of non-formal learning. Effective action requires an interactive process, involving all levels of the Jamaican community, rather a unidirectional approach – from the top down.

Within the Ministry of Education & Culture, and the Ministry of Environment & Housing, there reside particular opportunities to develop and implement broad policies, as well as specific actions, relating to Environmental Education for Sustainable Development. In addition, there are potential links between the Plan, and the agenda being developed for the advisory Council on Sustainable Development, which is a working committee of the multi-stakeholder National Planning Council. Synergies also exist between many of the Plan’s programme areas, and those of other national action plans and programmes such as the Jamaica National Environment Action Plan, the National Plan of Action on Population & Development, the National Plan of Action for the Survival, Protection & Development of Children, and the National Poverty Eradication Programme, all of which specifically identify environmental and educational imperatives.

**Statutory Agencies:** Specific statutory agencies have mandated responsibilities for action on the environment, sustainable development, education, awareness, information and culture; and roles in policy setting, programme execution and funding. The active engagement of these agencies with the National Environmental Education Action Plan for Sustainable Development, is particularly important to the success
of the actions recommended under the National Plan. The Natural Resources Conservation Authority, which has a mandated responsibility for public education on the environment and which hosts the NEEC Secretariat, has a vital role to play in enhancing government commitment to and support for Environmental Education for Sustainable Development programmes.

**Non-Government Sector**: The large and vibrant NGO and CBO community, which operates across Jamaica, has played a crucial role in bringing Jamaica to its existing level of awareness on the state of human interaction with the environment and the need to set course for a sustainable future. Full engagement of the sector is vital to future efforts, particularly in the areas of community mobilization, interaction with the formal education sector, and national advocacy.

**Formal Educational Institutions**: Both teacher training institutions, and schools at the infant, primary, secondary and tertiary levels, have major roles in providing teachers and students with the knowledge, skills, attitudes and action-orientation required to develop Jamaican citizens ready for the challenges of sustainable living. This responsibility extends to those agencies responsible for curriculum development and assessment. In addition, academics play a lead role in research, policy setting, training and resource development. The formal education sector provides the most direct route to Environmental Education for Sustainable Development outcomes for a major portion of the society. On the other side of the coin, teachers stand to benefit from significant professional development opportunities, including more holistic, relevant, learner-centered methodologies. Students, exposed to appropriate knowledge, skills and attitudes, will be well prepared to participate in creating a sustainable future.

**The Business Sector**: The interaction of the economy on the environment is a major element in the degradation of the natural environment. Business therefore has a responsibility to join in efforts to increase knowledge on environmental and sustainable development issues, as well as to enhance skills and create positive attitudes among the citizens who make up the workforce of business. Less altruistically, business needs citizens with the requisite skills to hold their own in an increasingly environment-conscious world. Businesses involved in tourism and other natural resource based operations have a direct vested interest in the environmental protection and sustainable human development. Businesses can work with government to implement policies relating to pollution, and natural resource and waste management. There is also scope to support or partner programmes and projects within communities to which businesses or industries are attached. Some organizations have already taken initiatives in this direction. In addition, there is room for sector-specific initiatives, including standard setting and workforce education.

**Labour**: Environmental concerns have already been expressed at the workplace in terms of industrial health and safety. Wider considerations relate to the role and future of workers in industries based on exploiting natural resources, including the tourism sector; the possibility of new jobs based on emerging environmental and sustainable development considerations; and consequent training opportunities. There is scope for labour and professional organizations to take a pro-active role in urging the preparation of workers for new job standards and expectations. The leadership role of the Jamaica Teachers Association among the island’s teachers makes it an important partner in Environmental Education for Sustainable Development activities. Other professional associations have potential roles in helping to galvanize awareness, attitude change, skill enhancement and action in other relevant sectors.

**Civil Society**: The many social and work related organizations into which people are grouped, nationally and at the community level, have a strong potential role in realizing Environmental Education for Sustainable Development. It is people, in their daily activities, who have the greatest power to move Jamaica towards a sustainable future. Once people are aware of the challenges, and involved in determining the solutions, peer pressure is also a major force for monitoring and enforcing compliance. Volunteers and community groups have a major role to play.

**The Donor Community**: At the international level, the vital importance of education and awareness on the environment and the promotion of sustainable development, is well established. The potential exists for significant support in undertaking recommended activities. Specifically, this multi-stakeholder National Plan
has synergies with many environmental and development programmes within the donor community, and complements the mandates which they are seeking to fulfil here in Jamaica.

**A Last Word**

It is important to remember that the development of the National Environmental Education Action Plan for Sustainable Development is not an end point, but a step forward in a dynamic process towards achieving the sustainable Jamaica foreseen in the Vision Framework.

Given resource constraints and varied levels of awareness and commitment, it is inevitable that some of the programme areas identified will receive more attention than others. This, in itself, will create a constantly changing scenario, which underlines the need for periodic review. In addition, the very concept of Environmental Education for Sustainable Development is evolving. In 1977, when the Tbilisi Declaration was signed, environmental education was a cutting-edge concept, aimed at bringing the world’s people to a realization of their responsibilities with regard to the natural environment. Over time, that concept has expanded, with a realization that humans must consider both the natural and built environments, and must adopt a viewpoint of sustainability. By the time Agenda 21 was developed and adopted in 1992, the concept had evolved into Environmental Education for Sustainable Development, and Chapter 36 of Agenda 21 had put education and awareness firmly on the world’s agenda. Now, at the international level, Environmental Education for Sustainable Development is being re-cast as ‘education for sustainability’.

The Secretariat charged with implementing this Plan will have to stay current with the evolving national and international views on the role of education and public awareness in caring the environment and creating a sustainable society. It will also need to ensure that there is a continuing focus on concepts and programmes which are relevant to Jamaica and Jamaicans. These, along with periodic reviews of progress on the actions recommended in the National Environmental Education Action Plan for Sustainable Development, should ensure continued progress towards the expected results, and contribute to the development of citizens working for a sustainable future.
### Glossary

<table>
<thead>
<tr>
<th>Organization</th>
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<tbody>
<tr>
<td>Association of Development Agencies</td>
<td>ADA</td>
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<td>Association of Women’s Organizations in Jamaica</td>
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<td>Association of Science Teachers of Jamaica</td>
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<td>Caribbean Examinations Council</td>
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<td>Caribbean Advanced Proficiency Examination</td>
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<td>Canadian International Development Agency</td>
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<td>Community-Based Organization</td>
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<td>Consumer Affairs Commission</td>
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<td>Council for Voluntary Social Services</td>
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<td>Environmental Non-Government Organization</td>
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<td>Environmental Action Programme</td>
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<td>Government of Jamaica</td>
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<td>HEART/National Training Agency</td>
<td>HEART/NTA</td>
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<td>Inter-American Development Bank</td>
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<td>International Environmental Education Programme</td>
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<td>Jamaica Library Service</td>
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<td>Jamaica National Environmental Action Plan JANEAP</td>
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<td>Jamaica Teachers Association</td>
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<td>Jamaica Exporters Association</td>
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<td>Jamaica Manufacturers Association</td>
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<td>Jamaica Chamber of Commerce</td>
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<td>Jamaica Tourist Board</td>
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<td>Jamaica Public Service Company</td>
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<td>Jamaica Cultural Development Commission</td>
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<td>Jamaica Constabulary Force</td>
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<td>Jamaica Defence Force</td>
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<td>Joint Board of Teacher Education</td>
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<td>Joint Committee for Tertiary Education</td>
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<td>Joint Trade Union Resource &amp; Development Centre</td>
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<td>Ministry of Environment &amp; Housing</td>
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<td>Ministry of Education &amp; Culture</td>
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<td>MOEC-Professional Development Unit</td>
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<td>National Environmental Education Committee</td>
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<td>Natural Resources Conservation Authority</td>
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<td>Non-Government Organization</td>
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<td>National Youth Service</td>
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<td>National Water Commission</td>
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<td>National Assessment Programme</td>
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<td>National Council on Education</td>
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</table>
National Council on Technical and Vocational
Education & Training (NCTVET)
National Environmental Societies Trust NEST

Professional Development PD
Peace & Love in Schools PALS
Planning Institute of Jamaica PIOJ
Private Sector Organization of Jamaica PSOJ
Professional Societies Association in Jamaica PSAJ
Peoples Action for Community Transformation PACT

Rural Agricultural Development Agency RADA
Reform of Secondary Education ROSE

Sustainable Development Council SDC
Social Development Commission SDC
Sustainable Development Network SDN
Small Business Association of Jamaica SBAJ

Tourism Product Development Company TPDCO
Tourism Action Plan TAP

United Nations Educational Scientific & Cultural Organization UNESCO
United Nations Environment Programme UNEP
United States Agency for International Development USAID
United Nations Development Programme UNDP
University of the West Indies UWI
UWI Centre for Environment & Development UWICED
University of Technology UTECH
Appendix 1

Members & Participants of the National Environmental Education Committee Planning Process.

NEEC Executive

Mr Franklin McDonald (Chairman)
NATURAL RESOURCES CONSERVATION AUTHORITY

Mr Sherlock Allen
JAMAICA TEACHERS ASSOCIATION

Ms Marceline Collins-Figueroa
INSTITUTE OF EDUCATION - UWI

Ms Novlette Douglas
NATURAL RESOURCES CONSERVATION AUTHORITY

Ms Charlene Easton
ENVIRONMENTAL ACTION PROGRAMME

Dr Elaine Fisher
INSTITUTE OF JAMAICA

Mr Winston Forrest
MINISTRY OF EDUCATION YOUTH & CULTURE

Ms Shelley-Anne Glasgow
NEST FOCUS GROUP ON ENVIRONMENTAL EDUCATION

Ms Valerie Gordon
CANADA/JAMAICA GREEN FUND PROJECT

Ms Angella Manning
CONSUMER AFFAIRS COMMISSION

Ms Jeanne Robinson

ICWI GROUP FOUNDATION

Ms Maureen Rowe
NATIONAL ENVIRONMENTAL SOCIETIES TRUST

Ms Fay Sylvester
CONSUMER AFFAIRS COMMISSION

NEEC Member

Mr Franklin McDonald (Chairman)
NATURAL RESOURCES CONSERVATION AUTHORITY (NRCA)

Mr Sherlock Allen
JAMAICA TEACHERS ASSOCIATION

Dr Wesley Barrett
MINISTRY OF EDUCATION, YOUTH & CULTURE

Dr Simon Clarke
UNESCO

Ms Marceline Collins-Figueroa
INSTITUTE OF EDUCATION, UWI

Dr Marjan DeBruin
CARIMAC, UWI

Ms Novlette Douglas
NRCA

Ms C. Drummond
BUREAU OF HEALTH EDUCATION

Dr Elaine Fisher
INSTITUTE OF JAMAICA

Ms L Fletcher-Gayle
ASSOCIATION OF DEVELOPMENT AGENCIES

Mr Winston Forrest
MINISTRY OF EDUCATION, YOUTH & CULTURE
Ms Vimin Gayle  
NRCA  

Dr Joyce Glasgow  
Retired - UWI  

Ms Shelley-Anne Glasgow  
JCDT  

Ms Vilma McClenan  
JAMAICA COUNCIL FOR ADULT EDUCATION (JACAE)  

Ms Valerie Gordon  
CANADIAN COOPERATION OFFICE  

Ms Beverley Hamilton  
TOWN PLANNING DEPARTMENT  

Ms Doreen Hill  
FORESTRY DEPARTMENT  

Ms Angella Manning  
CONSUMER AFFAIRS COMMISSION  

Ms Isolyn Reid  
MINISTRY OF EDUCATION, YOUTH & CULTURE  

Ms Jeanne Robinson  
ICWI GROUP FOUNDATION  

Mr Charles Ross  
PSOJ ENVIRONMENT COMMITTEE  

Ms Maureen Rowe  
NATIONAL ENVIRONMENTAL SOCIETIES TRUST  

Mr Wilfred Small  
JAMAICA 4-H CLUBS  

Dr David Smith  
JAMAICA CONSERVATION DEVELOPMENT TRUST  

Ms Fay Sylvester  
CONSUMER AFFAIRS COMMISSION  

NEEC Working Groups  

Working Group: Resources & Practices  

1. Ms Shelly-Ann Glasgow (Chair)  
Jamaica Conservation Development Trust  

2. Ms Janet Bedasse  
Jamaica Conservation Development Trust  

3. Mr George Blackwood  
PSOJ Environment Committee  
Caribbean Cement Company Ltd.  

4. Ms Tracy Cammock  
Institute of Jamaica  
Natural History Division  

5. Mr Terrence Cover  
St. Thomas Environment Protection Trust  

6. Ms Christine Scott-Dunkley  
JO-EN Executive Services  

7. Ms Lorna Fraser  
Ministry of Education Youth & Culture  

8. Ms Maxine McDonald  
Creative Projects Ltd.  

9. Ms Judith Scott  
Carrong Publishers  

10. Mr Wilfred T. Small  
Jamaica 4-H Club  

Working Group: Professional Development  

1. Elaine Foster Allen (Chair)  
Ministry of Education, Youth and Culture  

2. Ms Adel Brown  
Professional Development Unit  
Ministry of Education, Youth and Culture  

3. Ms Annett Campbell  
UNESCO  

4. Ms Vilma Charlton  
Joint Board of Teacher Education  

5. Ms Cynthia Cole  
Jamaica Environmental Trust
6. Ms Marceline Collins-Figueroa Consultant
   Institute of Education
   Faculty of Arts & Education
   UWI

7. Dr Joyce Glasgow
   Retired - UWI

8. Mr Rhoen Kerr
   Science Learning Centre - Mona

9. Ms Dorothy Raymond
   Jamaica Teachers Association

10. Ms Lilly Samuels
    UTECH

11. Ms Helen Stills
    Knox Community College

12. Ms Beverley Thompson
    Ministry of Education, Youth & Culture

13. Ms Shirley Whiley
    Portmore Community College

**Working Group: National Awareness & Attitudes Strategies**

1. Ms Fay Sylvester (Chair)
   Consumer Affairs Commission

2. Mr Kevin Bell
   Jamaica Information Service

3. Mr Randall Chambers
   GOJ/IDB Land Administration & Management Project

4. Dr Marjan de Bruin
   CARIMAC

5. Ms Laurel Fletcher-Gayle
   Association of Development Agencies

6. Ms Haide Hall
   Natural Resources Conservation Authority

7. Ms Elaine Hartman
   JIS Public Affairs

8. Ms Angella Manning
   Consumer Affairs Commission

9. Mr Errol Mortley

10. Ms Yvette Rowe
    Journalist

11. Mr Ruben Vazquez
    Shell Company West Indies Ltd.,

**Working Group: Curriculum Development and Implementation**

1. Mr Winston Forrest (Chair)
   Ministry of Education Youth & Culture

2. Mr Sherlock Allen
   Jamaica Teachers Ass.

3. Mr Peter Espeut
   South Coast Conservation Foundation

4. Ms Carolyn Hayle
   UWI Centre for Environment and Development

5. Ms Pam Morris
   UWI

6. Ms Marian Stewart-Titus
   Citizens Bank

**Working Group: Community Learning**

1. Ms Doreen Hill (Chair)
   Forestry Department

2. Mr George Cooke/Ms Dionne Jennings
   Ministry of Education, Youth & Culture

3. Ms Dorothy Delgado
   Local Government Reform Unit

4. Mr Krishna Desai
   NRCA Coastal Management

5. Ms Valerie Gordon
   Canada/Jamaica Green Fund

6. Ms Lisa Henlin
   Institute of Jamaica

7. Ms Claudette Mitchell
   JAMAL Foundation Limited
8. Mr Arthur Newland  
Association of Development Agencies

9. Ms Beverlin Rose  
S-Corner Clinic & Community Development

10. Dr Joy Royes  
Natural History Society

11. Ms Francine Yee-Sang  
South Coast Conservation Foundation

NEEC CONSULTANTS

1. Ms Janet Bedasse  
Jamaica Conservation Development Trust

2. Ms Suzanne Francis Brown

3. Ms Marceline Collins-Figueroa  
Institute Of Education UWI

4. Dr Joyce Glasgow  
Retired Senior Lecturer (UWI)

5. Ms Valerie Gordon  
Canada/Jamaica Green Fund

6. Ms Pam Morris

7. Ms Carol Narcisse  
Facilitator: Working Group Process

8. Ms Susan Otuokon (M.Sc.)

9. Ms Christine Scott-Dunkley  
JO-EN Executive Services

NEEC SECRETARIAT

1. Ms Elizabeth Baker  
Natural Resources Conservation Authority

2. Ms Novlette Douglas  
Natural Resources Conservation Authority

3. Ms Charlene Easton  
Environmental Action Programme
Appendix 2

List of Partner Organizations of the National Environmental Education Committee (NEEC)

Natural Resources Conservation Authority
Ministry of Education Youth & Culture
United Nations Educational Scientific & Cultural Organization
Institute of Education – University of the West Indies
Association of Science Teachers of Jamaica
Bureau of Health Education
Institute of Jamaica
Association of Development Agencies
Canada/Jamaica Green Fund Project
Town Planning Department
Press Association of Jamaica
University of the West Indies Distant Teaching Experiment

United Nations Children’s Fund
ICWI Group Foundation/Science Learning Centre
PSOJ Environment Committee
National Environmental Societies Trust
Jamaica 4H Clubs
Jamaica Conservation & Development Trust
Consumer Affairs Commission
Environmental Foundation of Jamaica
National Council on Drug Abuse
United Nations Environment Programme
Caribbean Institute of Media & Communication
Jamaica Teachers Association
Environmental Action Programme
Forestry Department
Appendix 3

Key Agents Delivering Environmental Education for Sustainable Development Programmes or Services

CENTRAL & LOCAL GOVERNMENT

Central Government Ministries

The Jamaican Government comprises a series of Ministries with specific portfolio responsibilities, each with a number of divisions and oversight of other quasi-independent agencies.

The Ministry of Education and Culture (MOEC) has responsibility for the formal education sector, including educational policy, teacher training, school administration and curriculum development; as well as for culture. The Ministry has oversight of a range of relevant agencies and organizations including the Institute of Jamaica, Jamaica Library Service, Jamaica Adult Literacy Foundation Limited (JAMAL), HEART/National Training Agency.

The Ministry of Environment & Housing’s responsibilities include environmental, land use, settlement, and housing policy and related legislation. The Ministry has specific responsibilities for upgrading squatter and informal settlements and maintains a large community outreach programme related to such settlements. The outreach responsibilities include those related to environmental matters and land as a scarce resource. Major agencies falling under this ministry include the Natural Resource Conservation Authority (NRCA), the Town Planning Department.

The Ministry of Health’s environment focus incorporates the Bureau of Health Education, which undertakes school and community-based efforts focusing on vector control, water quality, environmental health, personal and public health, hygiene and sanitation; the Parish Boards of Health, and Environmental Control Division, share responsibility for public sanitation and air and water pollution issues, the abatement of environmental hazards to health and aspects of occupational health and safety. The Pesticide Control Authority has specific regulatory responsibility for the management of pesticides in the environment.

The Ministry of Agriculture oversees the operations of the Fisheries and Forestry Departments and the Rural Agricultural Development Authority (RADA) as well as units responsible for the protection of the Jamaican environment from plant and animal diseases and invasion by alien species. The Ministry is also responsible for the Botanical Gardens and national Zoo.

The Ministry of Transport and Works has responsibility for the operations and maintenance of the national road system, public transportation issues as well as river training, flood control and sea defense works.

The Ministry of Tourism is involved in developing Sustainable Tourism for Jamaica; for public education and teacher professional development on tourism-related subjects, through the Tourism Action Plan. The Jamaica Tourist Board and the Tourist Product Development Company fall under the Ministry of Tourism.

The Ministry of Finance & Planning has a vital role in sustainable development and economic, social, and environmental planning and in budgeting resource use between competing demands. The Planning Institute of Jamaica (PIOJ) has wide-ranging planning responsibilities. Through its National Planning Council it has supported the establishment of the Sustainable Development Council of Jamaica (SDC-J). The Social Investment Fund (SIF) has been established to facilitate poverty eradication and community action.

The Ministry of Labour, Social Security & Sports has specific responsibility for industrial health and safety and industrial relations, as well as for issues concerning the poor and women – areas of interest for Environmental Education for Sustainable Development.

The Ministry of Commerce and Technology has oversight of national Science and Technology policy and the Bureau of Standards, which will be involved in the setting of environmental standards for business and which deals with packaging issues; and for the Consumer Affairs Commission.

The Ministry of Foreign Affairs & Foreign Trade is responsible for overseeing Jamaica’s participation in international and regional treaties, including environmental treaties. It is also directly responsible for the administration of Jamaica’s Exclusive Economic Zone.
The Ministry of Local Government Youth & Community Development has responsibility for the local government structure, which is currently under revision and which has an important role in environmental management in the parishes, and local communities. The local government authorities are also directly responsible for solid waste management, settlement management and local environmental issues. This Ministry also has oversight for the National Youth Service and the Jamaica Cultural Development Commission.

The Ministry of Legal Affairs is responsible for the drafting of legal instruments, including environmental regulations.

The Ministry of National Security & Justice has responsibility for law enforcement, which includes the enforcement of environmental laws. The Jamaica Constabulary Force and its Neighborhood Watch programme falls under this Ministry. The Jamaica Defence Force through its Coast Guard has specific responsibility for offshore environmental matters including oil spill response.

The Ministry of Water is a 'special subject' ministry established in December 1997 to take responsibility for water resource management, fresh water quality issues and disaster management and mitigation. Its agencies include the Water Resources Authority, National Water Commission, and Office of Disaster Preparedness and Emergency Management.

The Ministry of Industry and Investment is responsible for the National Industrial Policy and agencies such as JAMPRO. It has the responsibility to ensure that Jamaican commercial activities including its products and services adhere to international norms including those related to the environment and health.

The Office of the Prime Minister (OPM), has responsibility for a range of programmes and projects, currently including the Land Administration & Management Programme (LAMP), Operation PRIDE, and the National Poverty Eradication Programme – all of which offer co-lateral opportunities for Environmental Education for Sustainable Development. The Ministry of Information falls under the purview of the Prime Minister.

Government Advisory Bodies include the Sustainable Development Council, which is a working committee of the multi-stakeholder National Planning Council. Within the NRCA, the National Environmental Education Committee brings together a range of interests focused on education and communication.

Government Statutory and Executive Agencies

Several government agencies deliver messages relating to environment and sustainable development within the context of their mandate, some to small target groups, others to the nation at large. The key agencies delivering environmental education or related messages are listed and briefly described.

Natural Resources Conservation Authority (NRCA) is the lead government agency responsible for environmental management, providing a framework for the conservation, protection and sustainable use of Jamaica’s natural resources, in collaboration with public and private sector and NGO partners. It is mandated under the NRCA Act (1991) to undertake environmental education. The NRCA is also obligated to provide the public with information regarding permits and licenses for the release of industrial waste to the air, water or land.

The Fisheries Division is responsible for servicing, controlling and developing marine and inland fisheries through laws, monitoring and research. The Division plans a community-level education programme under the CARICOM Fisheries Resource Assessment and Management Programme, which will target fishermen and, to a lesser extent the general public, through the radio and TV programmes.

The Forestry Department is mandated to conserve and enhance forests, soil, water and other forest related natural resources on a sustainable basis by implementing programmes including forest development and management, watershed management, soil conservation, forest recreation development and forest research and extension.

Rural Agricultural Development Authority (RADA) offers extension services to farmers in rural Jamaica.

The Pesticide Control Authority (PCA) regulates the importation and sale of pesticides, provide quality control checks and education concerning the proper use of pesticides, and undertakes education and public awareness activities with farmers and the general public.
Metropolitan Parks and Markets (MPM) is responsible for garbage collection, street and market cleaning and the maintenance of parks in Kingston Greater Metropolitan Area, where it runs an environmental education campaign which targets the general public - householders, children, vendors and commuters. Similar agencies operate in the island’s North, East and West regions.

The Office of Disaster Preparedness and Emergency Management (ODPEM) is responsible for emergency and natural disaster planning and mitigation. ODPEM messages, at the national and community levels, include the relationship between improper environmental practices and disasters.

The Consumer Affairs Commission (CAC) is a statutory body in the Ministry of Commerce & Technology, which advocates consumer rights as defined by the United Nations, providing information about products, prices and consumer rights. Issues include solid waste management, CFCs, leaded gas, and a health environment. There is a current emphasis on youth.

The Jamaica Tourist Board is responsible for marketing the island’s tourism product, which depends greatly on the natural environment. Recently, greater environmental awareness of visitors and the growth of eco-tourism make for even greater focus on this area. Messages on solid waste management and marine and general environmental protection are aimed at the general public and students. Programmes to integrate tourism education in social studies and related subject areas exist, particularly in tourist resort areas.

The Tourism Product Development Company (TPDCo.) seeks to develop and improve the tourism product as a major contributor to the economy. A Sustaining the Environment and Tourism (SET) project to clean, upgrade and maintain resort towns takes solid waste management messages to schools, social agencies, community organizations, businesses and tourism workers.

The National Water Commission is a public utilities company with responsibility to provide potable water for human consumption and industry, and to collect and treat sewage. Public education activities target the general public and students on issues of water conservation, watershed conservation and water quality.

The Jamaica Public Service (JPSCo) provide electricity to the nation. A Demand Side Management Project seeks to reduce energy consumption by increasing energy efficiency and conservation through the use of energy saving equipment and energy conservation practices. JPSCo public education programmes target residential, commercial and industrial users, and students.

The Town Planning Department/Town and Country Planning Authority (TCPA) is the main planning agency regulating land use in Jamaica, mandated to ensure orderly and progressive development of rural and urban areas through a proper balance between the competing demands for land. The Town Planning Department is the implementing arm of the TCPA. As well as preparing plans, it advises local authorities on subdivision applications, change of land use and building activities. The TPD also provides advice to the public, developers and other government agencies on matters relating to land use.

The Urban Development Corporation (UDC) has significant development planning and implementation responsibilities. Established in 1968, it is mandated to undertake development in prescribed areas, within which it is the sole development planning authority. Messages promoted, through community-level public awareness, include community protection of, and responsibility for community health and sanitation and community-based physical infrastructure.

The Planning Institute of Jamaica (PIOJ) initiates and coordinates planning for the economic, financial, social, cultural and physical development of Jamaica, collecting, analysing and reporting on economic performance data, and advising government on economic and social policy. An NGO desk, an urban and regional planning unit, and a resource centre, are relevant initiatives.

The Institute of Jamaica (IOJ), incorporating the Museums Division, the National Library of Jamaica, The Natural History Division, The Junior Centre Division, IOJ Publications, The Afro/Caribbean Institute of Jamaica/Jamaica Memory Bank and the National Gallery of Jamaica has a number of broadly environmental functions. Many of the programmes involve educational outreach elements.

The JAMAL Foundation Limited, a company operating within the MOEC, works with other organizations to provide non-formal adult education programmes aimed at improving literacy, numeracy and life skills.

The Social Development Commission (SDC) works in local community development, focusing on self-help programmes, community dialogue, community development, youth empowerment through leadership and vocational training, micro-enterprise development. The environment and sustainable development are not presently a focus of SDC educational activities.

The National Youth Service (NYS) seeks to provide unemployed young persons aged 17-24 years, with the skills and attitudes necessary to either find employment or continue their education.
Local Authorities

At the local government level, two major Parish Council functions carry environmental responsibilities: as local health boards and as local planning authorities. Specific responsibilities include such environmentally related activities as public cleansing, management of dump sites, land-use planning, and development control, maintaining public bathing beaches and monitoring bathing water quality, protection of watershed areas around local water supply areas, and assisting central government agencies in general environmental monitoring. The local authorities are presently undergoing reform aimed at creating a decentralized, democratically controlled system of local administration that facilitates maximum participation by all elements of the local community in the management of local affairs.

FORMAL EDUCATION & TRAINING INSTITUTIONS

Coordinating Bodies within the Education & Training System

HEART/National Training Agency is a post-secondary training agency which also coordinates the Technical and Vocational Education and Training System (TVET).

The National Council on Technical and Vocational Education & Training (NCTVET) reviews and promulgates occupational standards for entry level skills training programmes and is developing an industry-validated certification scheme for graduates. It has recognized environmental concerns and issues in its operations, especially as regards resource use, solid waste management and safety.

The Joint Committee for Tertiary Education (JCTE), established in 1991, has been active in building partnerships at the tertiary level.

The Joint Board of Teacher Education (JBTE) considers and approves the syllabuses of the island’s six teachers’ colleges, and the seven teachers’ departments of other educational institutions, which together graduated 1,497 teachers in 1996. The JBTE also examines and assesses the work of student teachers, makes recommendations on teacher training policy and allied matters, and certifies teachers.

The National Council on Education (NCE) nominates persons for appointment to the 840 boards of educational institutions in Jamaica, and seeks to promote continuity in educational policy. Council members include educators, nominees of religious bodies, representatives from the business and agricultural sectors, professional bodies, political parties, trade unions, media, parents and students.

The National Commission on Science & Technology (NCST) seeks to heighten the role of science and technology in Jamaica’s social and economic development.

Initial & Continuing Teacher Education Institutions

Teachers’ Colleges: Six teachers’ colleges islandwide offer initial teacher education at the early childhood, primary, special education and secondary levels. There are no syllabuses that focus specifically on environmental education. Content syllabuses in science and social studies include more environmentally-related objectives than other subjects. The six teachers’ colleges are:
Bethlehem Moravian College, Malvern, St Elizabeth
Church Teachers’ College, Mandeville, Manchester
Mico Teachers’ College, Kingston
Sam Sharpe Teachers’ College, Montego Bay, St James
St Joseph’s Teachers’ College, Kingston
Shortwood Teachers’ College, Kingston
Seven tertiary education institutions have teacher training departments, several of them including pre- and in-service courses for teachers specializing in the arts, sport, agriculture, business, computer studies, home economics and industrial technology. The following institutions include teacher training departments:

College of Agriculture, Science & Education (CASE), Passley Gardens, Portland
Edna Manley School of the Visual & Performing Arts, Kingston
G.C. Foster College of Physical Education & Sport, St Catherine
Moneague Colleague, St Ann
University of Technology (UTECH), Kingston
West Indies College, Mandeville, Manchester
University of the West Indies (UWI) School of Education, Kingston

The UWI School of Education offers advanced programmes mainly to candidates who have completed teachers’ college certificate or diploma programmes. Environmental education content is limited, except in science and social studies professional options.

Other Educational and Training Institutions (tertiary or professional level)

A range of other tertiary and professional level institutions train influential professionals, including journalists and civil servants. These institutions include:

University of the West Indies (UWI)
University of Technology (UTECH)
Management Institute for National Development (MIND)
Institute for Management and Production (IMP)
Jamaican Institute of Management (JIM).

Some departments of these institutions have already hosted courses in which environment and sustainable development concepts and issues were explored. These include:

Caribbean Institute of Media & Communications (CARIMAC)
Institute of Social and Economic Research (ISER)
Marine Sciences Unit/Discovery Bay Marine Lab.
UWI Centre for Environment & Development (UWICED)

School & staff development

Individual schools have development programmes which seek to meet teachers’ needs. Many schools also benefit from Adopt-A-School Programmes, involving the private sector.

Teachers Organizations

The Jamaica Teachers Association (JTA) is the official voice of teachers in Jamaica and liaises between teachers and the MOEC, and other organizations. Professional development is a major focus.
The Association of Science Teachers of Jamaica (ASTJ) has been involved in professional development in ecological environmental education over many years.

Learning & Resource Centres

The ICWI Group Foundation Science Learning Centre, housed at the UWI, has interactive exhibits and programmes which target teachers and students. These include a continuing programme on Man’s Impact on the Marine Environment (MIME). The participatory development of an Environmental Action ‘Cookbook’ for teachers has been a major initiative.
Malvern Science Research Centre seeks to promote and enhance science and technology education in over 500 schools in southwest Jamaica from primary through to tertiary. The Centre is open to the public but
serves primarily as a school’s and a tour destination, seminar location and reference library. Teacher development is a major focus.

**Hofstra University Marine Laboratory** offers education programmes designed for teachers to enable them to “heighten their students’ awareness of the marine environment and its conservation”.

**Hope Zoo’s Tropical Learning Centre**, seeks to be a resource centre for environmental education, with an emphasis on wildlife and biodiversity.

**International School of Jamaica** works with agricultural teachers and their students in integrating bee-keeping, vermi-composting and other sustainable practices into schools’ agricultural programmes at the secondary level and into mathematics, science art and English at the primary level.

**Other Resource Centres, Libraries & Field Stations** offer varied access. These include the following:
- Jamaica Library Service
- Canoe Valley
- Conservation Data Centre
- Geological Survey Division
- Hope Zoo
- Institute of Jamaica, including Mason River Field Station
- NRCA Documentation Centre
- NEST/JCDT Library
- Sligoville Environmental Education Centre
- UWI faculties and departments

**THE NON-FORMAL SECTOR**

**Non-Government Organizations & Community-Based Organizations**

This grouping comprises environmental and development Non-Government Organizations (NGOs) and Community-Based Organizations (CBOs). The definition of CBOs is taken as organizations which are located in a particular community of residents having specific geographical boundaries and histories. It was estimated that there were over 1200 CBOs in existence in 1991.

**Umbrella organizations**

More than 100 NGOs and CBOs fall under three umbrella organizations: National Environmental Societies Trust (NEST), the Association of Development Agencies (ADA) and the Council for Voluntary Social Services(CVSS). Other umbrella organizations include the Association of Women Organizations in Jamaica (AWOJA), People’s Action for Community Transformation (PACT) and the Professional Societies Association of Jamaica (PSAJ).

**The National Environmental Societies Trust (NEST)** provides assistance to urban and rural members in planning, fundraising, implementing and evaluating community-based, environmental management and sustainable development projects, which are replicable and promise long-term benefits. NEST also facilitates institutional strengthening and coordination between its members, but has limited resources. In 1997, NEST had 40 organizational members, 60% community based, some 95% of them involved in environmental education activities at the community level.

**The Association of Development Agencies (ADA)** operates as a collective forum to promote sustainable development and social change. It supports indigenous community development initiatives aimed at effective social change which increases the participation, power and control of ordinary people over decisions affecting their lives. ADA also seeks to support public education at the local and national levels. It presently has a membership of 14 organizations.
The Council of Voluntary Social Services (CVSS) brings together socially responsive companies, institutions and individuals with a commitment to improve the delivery of social services to the people of Jamaica; for consultation, planning and action. Its goal is to ensure the development of the voluntary sector.

Non-Governmental Organizations

The Jamaica Conservation Development Trust is dedicated to the effective integration of conservation and development, and promotes sustainable development through the promotion of sound environmental management, education and advocacy. Work carried out through entities involved in development and the conservation of natural resources includes national park and protected area management, community development, participation of communities in the management of key resources and protected areas, eco-tourism as an employment alternative. Several programmes are targeted at teachers and students.

The Jamaica Environment Trust (JET) seeks to increase environmental awareness and activism by comprehensive education and advocacy programmes, focussing on solid waste management, recycling and tree planting in activities with students, teachers, and the general public.

The Gosse Bird Club, founded in the late 1950s to stimulate the study and conservation of Jamaican birds, makes presentations to schools, NGOs, childrens’ summer camps and interested groups including teachers.

The Environmental Watch Organization operates in Montego Bay, facilitating increased environmental awareness and issue analysis skills among teachers. Issues involve solid waste management, sewage and human impact on coral reefs.

The Jamaica Cooperative Union (JCU) is an umbrella organization for smaller, local fishermen’s cooperatives, which sell fishing supplies and assists in the welfare of fishermen. The organization has shown an interest in environmental issues.

The Natural History Society of Jamaica (NHSJ) is a non-profit organization which focuses on the study and conservation of the natural environment, with special reference to the flora and fauna, but also including interest in other fields of natural science. It promotes public education and environmental and ecological matters.

Wildlife & Environment Conservation Action Now (W.E.C.A.N), a youth group which focuses on natural history and biodiversity issues, is linked to the Hope Zoo and the Tropical Learning Centre.

Community-Based Organizations

Bluefields Peoples Community Association (BPCA) seeks to enhance economic, social and cultural upliftment in harmony with the natural environment, through a range of community development services. The focus is critical thinking, collective visioning and participatory decision making towards the creation of sustainable livelihoods and sustainable communities.

The S Corner Clinic and Community Development Organization in Inner City Kingston, seeks community development through programmes in education, skills training, health and sanitation. Specific targets are to strengthen the community council and transform the community into one that residents can be proud of.

South Coast Conservation Foundation (SCCF)/Caribbean Coastal Area Management Foundation seek to broker the effective management and sustainable use of natural resources in the Portland Bight/Hellshire Hills area.

The Portland Environmental Protection Association (PEPA) works with some 41 community-based member groups to encourage environmentally sound resource use and sustainable development practices through environmental education in schools, colleges and communities, direct action by and lobbying government agencies and officials for positive change at local and national levels. The focus is on ecosystem protection, solid waste management, eco-tourism, sanitation and sewage disposal, development and management of Port Antonio Marine Park and conservation corridor.

The Negril Coral Reef Preservation Society (NCRPS) focuses on preserving and protecting Negril’s marine resources and environment through sustainable development with emphasis on coral reefs, wetlands, fisheries, mangroves and seagrass beds. Public education, a Junior Ranger programme and teacher training are major focus areas.
St Ann Environmental Protection Association (STAEPA) is engaged in public education and in teacher training.

Other parish and community oriented groups include the following:

St Thomas Environmental Protection Association (STEPA)
Trelawny Environment Protection Association (TEPA)
St Elizabeth Environmental Protection Association
St Thomas Heritage Foundation
Portmore Environment Trust
Manchioneal Cultural Group
St Mary Association for the Recovery of Tomorrow (SMART)
THE PRIVATE SECTOR

Umbrella Agencies

Within the business sector, the Private Sector Organization of Jamaica (PSOJ), the Small Business Association of Jamaica (SBAJ), the Jamaica Manufacturers Association (JMA) and the Jamaica Exporters Association (JEA), and the Jamaica Chamber of Commerce (JCC) represent a wide range of businesses involved in manufacturing, mining, commerce, services and process industries.

Education and awareness programmes are undertaken by the SBAJ and the JEA and the Environment Committee of the PSOJ which prepared a video tape on water as a resource and plans another on the cost of deforestation. The SBAJ has undertaken a project to train its members on how to undertake environmental audits at the business place and the JEA has hosted seminars to make its members aware of the requirements under the new ISO standards. The JCC hosts an annual award for a business with environmentally aware practices.

Private Sector Companies with Environmental Involvement

The following private sector companies are involved in some form of environmental education at the national level. Others are involved in such activities directly or indirectly through sponsorship.

Guardsman Group of Companies operates a small zoo and offers tours for small groups, particularly groups of children.

JAMALCO was awarded an international award of excellence for its Earth Watch project in the nine high schools in Clarendon, its main operational location. The project focused on water and solid waste management issues, recycling of paper and PET bottles, composting, soil conservation and reforestation.

Kaiser Bauxite Company’s general education programme includes presentations in schools to increase environmental awareness and knowledge about Jamaica’s natural resources and about safety.

Caribbean Cement Company, the only local cement producer, complies with international environmental standards despite lack of local standards; and supports environmental projects nationally and within its locale.

NEM Insurance Co. Ltd. promotes the protection and care of Jamaica’s environment to the general public, based on its importance in economic development, as part of an advertising strategy.

Shell Co. (WI) Ltd., part of Shell International, audits its business and processes to improve environmental compliance. The company also promotes environmental awareness to the general public, focussing on general conservation, energy efficiency and avoiding environmental pollution.

Swept Away hotel in Negril has been a major supporter of the Negril Coral Reef Protection Society, and produced a booklet on environmental matters.

ORGANIZED LABOUR

Organized labour includes national unions representing specific categories of workers in business and industrial entities, as well as management level organizations, and professional associations. Industrial health and safety, job creation, training, as well as the general quality of life for Jamaican workers are ongoing concerns of organized labour.

The Jamaica Teachers Association (JTA), representing the island’s teachers, is a major Environmental Education for Sustainable Development target group.

The Press Association of Jamaica represents the island’s journalists, another influential group.
Professional associations already providing training and awareness to members on sustainable development issues, include The Medical Association of Jamaica, the Town and Country Planning Association, the Jamaica, Institute of Architects and the Jamaica Institute of Engineers.

The Joint Trade Unions Research Development Centre (JTURDC) has undertaken specific research on physical planning and sustainable development in Jamaica.

SOCIAL & RELIGIOUS ORGANIZATIONS

Service Clubs including the Lions Club, Kiwanis, and Rotary Club provide information to their members by hosting guest speakers and by undertaking projects which involve them in community activities such as tree planting (Kiwanis) the preparation and distribution of brochures on environmental conservation to schools (Rotary Club of Kingston) and assisting with the provision and maintenance of school equipment (Lions).

Religious Organizations have significant potential to disseminate environmental, social and development information. Five umbrella organizations cover a wide range of denominations: Jamaica Council of Churches, the Jamaica Association of Full Gospel Ministries, the Jamaica Pentecostal Union, the Jamaica Association of Evangelicals, the Seventh Day Adventist Churches and the Church of God. At the community level, Ministers’ Fraternals, comprising pastors from a particular geographical zone, are cross denominational.

Civic Organizations with strong community links include Parent Teachers Associations, Neighbourhood Watches and Credit Unions.

Relevant agencies with interest in environmental or sustainable development issues include the Caribbean Food & Nutrition Institute, which focuses on nutrition, lifestyle and healthy living; Jamaica National Heritage Trust, whose mission includes inculcating, in Jamaicans, a sense of pride, national identity, and an awareness of the importance of our heritage to national development; and Peace & Love in Schools (PALS) with its focus on training teachers and, by extension, students, in conflict resolution strategies.

THE MEDIA

Jamaica has an estimated 434,000 radio listeners, 288,000 newspaper readers and 1.2 million television viewers. There are eight privately owned radio stations and one slated to become a public broadcasting station, with potential to disseminate environmental and sustainable development messages. There are a few community radio licencees. The main radio stations are:

- **RJR Supreme Sound**: 26.2 % market share (29.5% of female and 21.8% of male listeners);
- **IRIE FM** (reggae music) 23.4% of market. (15.3% are female and 31.7% are male);
- **LOVE FM** (religious) 12.3 % of market (17.6% of women and 7.1% of men);
- **POWER 106**, **HOT 102**, **Radio 2** and **KLAS**: less listenership than the top three stations. POWER 106 and KLAS cater to professionals and business people.

The main print media are as follows:

The Daily & Sunday Gleaner and The Jamaica Observer, both of which have weekly pages dedicated to environmental issues. The Sunday Herald has a page dealing with Environment and Health issues. Environmental issues are sometimes covered in sections dealing with agriculture and business. In addition, environmental issues and messages can and will be covered in any publication.

The Western Mirror covers Montego Bay and Western Jamaica, The Star & Weekend Star, and X-News target lower socio-economic groups and tend to focus on sensationalism and feature risqué photographs. Television programming contains a high level of foreign content. Imported cable networks are popular. The local television programming is as follows:
The Jamaica Information Service (JIS) is a government agency with a mandate to inform and educate the public particularly with regard to issues of national importance and interest, through news, interviews and feature programmes which are aired on both local commercial stations – Super Supreme TV and CVM.
Appendix 4

International and Regional Environmental Treaties to which Jamaica is a Party

1. International Plant Protection Convention, Rome, 1951
   Accession: 24 November, 1969
3. Accession: 8 October, 1965
   Accession: 8 October, 1965  Entry into force: 7 November, 1965
   Succession: October, 1965  Entry into force: 30 September, 1962
5. Convention on Fishing and Conservation of the Living Resources of the High
6. Treaty banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and under Water,
   Moscow, 1963
   Ratification: 22 November, 1991
7. Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space
   including the Moon and other Celestial Bodies, London, Moscow, Washington, 1967
   Ratification: 10 August, 1970
8. Treaty on the Prohibition of the Emplacement of Nuclear weapons and other Weapons of Mass
   Destruction on the Sea Bed and the Ocean Floor and the Subsoil thereof, Washington, 1971
   Ratification: 30 July, 1986
   (Biological) and Toxin Weapons, and on their Destruction, London, Moscow, Washington, 1972
   Accession: 13 August, 1975
    Acceptance: 14 June, 1983
11. Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (as
    Ratification: 13 June, 1991
    Pollution from Ships, London, 1973
    Ratification: 13 June, 1991
15. Ratification: 21 March, 1983
15. Convention for the Protection and Development of the Marine Environment of the Wider
    Caribbean Region, Cartagena de Indias, 1983
    Ratification: 1 May, 1987
16. Protocol concerning Cooperation in Combatting Oil Spills in the Wider Caribbean
    Region
    Entry into force: 1 May, 1987
    Accession: 31 March, 1993  Entry into force: 29 June, 1993
18. Montreal Protocol on Substances that Deplete the Ozone Layer, Montreal, 1987
    Accession: 31 March, 1993  Entry into force: 29 June, 1993
19. London Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer,
    London, 1990
    Ratification: 31 March, 1993
    accession deposited: 6 January, 1995, effective 5 April, 1995
   Instrument of accession deposited: 6 January, 1995, effective 5 April, 1995

**Declarations on the Environment**

1. Declaration on the Human Environment, Stockholm  
2. Declaration of Santo Domingo, Specialized Conference of the Countries of the Caribbean on Problems of the Sea, June, 1972
3. Resolution of the 9th Assembly of the UNESCO Intergovernmental Oceanographic Commission, Establishing the Association for the Caribbean and Adjacent Regions of the IOC (IOC ARIBE) Paris, November 1975
4. Declaration on Human Settlements, Vancouver, 11 June, 1976  
   United Nations Conference on Human Settlements
   UN General Assembly resolution 37/7
6. Resolution on Sea Turtles  
   General Assembly of the International Union for Conservation of Nature and Natural Resources, San Jose, 1988
7. Declaration of Brasilia, March, 1989  
   6th Ministerial Meeting on the Environment in Latin America and the Caribbean
8. Langkawi Declaration on Environment  
   Commonwealth Heads of Government Conference, Malaysia, 21 October, 1989
9. Noorwijk Declaration on Atmospheric Pollution and Climatic Change, November 7, 1989  
   Ministerial Conference on Atmospheric Pollution and Climatic Change
   Provisions for environmental management, ICC
   Regional Meeting Preparatory to the UN Conference on Environment and Development  
   Economic Commission for Latin America and the Caribbean
   First Ministerial Conference of Developing Countries
16. Dublin Declaration on Water and Sustainable Development  
   International Conference on Water and Environment, 31, January, 1 992
17. Kuala Lumpur Declaration on Environment and Development, 29 April, 1992  
   Second Ministerial Conference of Developing Countries
18. Santiago Declaration on Sustainable Development and Environment in the Agricultural, Forestry and Fisheries Sectors of Latin America and the Caribbean, 2 1 February, 1 992
19. Cancun Declaration, 8 May, 1992  
   International Conference on Responsible Fishing
20. Montevideo Declaration and Agreement to Establish the Inter-American Institute for Research on Global Change Research, Montevideo, 14 May, 1992
21. Rio Declaration, 12 June, 1992  
   United Nations Conference on Environment and Development
22. Agenda 2 1, June 1992  
   United Nations Conference on Environment and Development
23. Non-legally binding statement of principles for a global consensus on the management, conservation and sustainable development of all types of forests, Rio de Janeiro, 5 June, 1992
24. Barbados Declaration, 1994 and Plan of Action
   UN Conference on Sustainable Development of Small Island Developing States, May, 1994
27. Washington Declaration on the Protection of the Marine Environment, 1995
   Global Programme of Action for the Protection of the Marine Environment from Land-based Activities
28. PAHO Regional Plan of Action to Implement the Pan American Charter on Health and Environment in Sustainable Human Development, November, 1995
   Pan-American Conference on Health, Environment and Sustainable Development
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