CHAPTER 4

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CHAPTER 4

ENVIRONMENTAL EDUCATION FOR SUSTAINABLE DEVELOPMENT I

FORMAL EDUCATION

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

The National Environmental Education Action Plan for Sustainable Development seeks to make Jamaicans aware of, committed to and action-oriented on environmental and sustainable development issues by using the formal education system as well as a range of non-formal learning opportunities at the national and community levels. Chapter 3 sets out the issues, chapters 4 and 5 detail the areas in formal and non-formal education in which action must be initiated in order to achieve the vision of a sustainable future.

PROGRAMME AREAS

There are two programme areas in the formal education sector: They are the professional development of Jamaica’s educators, both pre- and in-service, and the integration of Environmental Education for Sustainable Development into the national curricula. Professional development of the teachers is a priority in order to ensure sustained delivery of EESD within the nation’s classrooms. The integration of EESD desired learning outcomes into the curricula taught in every school is a vital complement to teacher professional development. For both the formal and non-formal areas, resource material is a vital means of spurring positive effort. The material must include documentation and publication of existing models demonstrating good and practical methods.

In this chapter, baseline information related to the two programme areas in the formal education system is presented. Issues, gaps, needs and opportunities are identified, and these findings form the basis on which subsequent programmes and actions are designed.

The Formal Education System

In Jamaica, formal education is overseen by the Ministry of Education and Culture, which is responsible for government educational institutions at the pre-primary, primary, secondary and tertiary levels.

There is an extremely wide range of pre-primary or infant schools as well as pre-primary classes in all-age and primary schools. The Ministry of Education is wholly or partially responsible for most of these schools and classes which together provide early childhood education for nearly 135,000 children of 4 to 5 years of age. 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 to 11. At the secondary level, grades 7 to 13, nearly 222,000 students between 12 and 18 years old attend a wide range of schools but most of them leave at the age of fifteen. Secondary education is provided at all-
age, junior high, special, new secondary, secondary high, comprehensive high, technical high and vocational and agricultural schools – many of them overcrowded and under-financed.

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

The Ministry has six divisions: Educational Services; Culture; Planning and Development; Projects and Technical Services; Human Resource Management and Administration; and Financial Management.

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.

The Human Resource Management and Administration Division includes the Professional Development Unit coordinates and conducts in-service training for all Ministry personnel, including Education Officers, Principals and Teachers.

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 SYSTEMS**

**School-based Planning:** The Ministry of Education is committed to encouraging increased school-based planning, beginning with the preparation of individual school mission statements. These will serve as touchstones which will identify necessary change and assess the effectiveness of strategies. The focus will be on student achievement.

**Community Involvement:** The Ministry has broadened the base of educational planning and implementation, to include input from members of the wider community 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 subject content they would like to see introduced into curricula – a relationship which began informally in the 1970s and has since been institutionalized. Often, the process seeks to strengthen topics already in a particular curriculum. Stakeholders, including government agencies and NGOs, may also assist with instructional materials and teacher education.

**Equity:** Inequities arise in the Jamaican educational system at the secondary level because of the multiplicity of schools established over many years in response to particular needs. They vary in respect of the curriculum, per capita recurrent expenditure, teacher qualifications, physical conditions, and the 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 a variety of instructional materials and teaching strategies.

**Quality Education for Increased Productivity:** The ROSE programme seeks to provide quality education intended to produce young citizens ready for further education or the working world. ROSE focuses on science and 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, in which children at the end of Grade 6 must have acquired literacy, numeracy, and 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 probably more likely to promote learning than is the traditional separation of disciplines.

**Finance:** Two approaches to the ever-increasing needs of the education system are cost-sharing
whereby parents pay annual fees, where possible, towards educating their children at the secondary level; and the 'adoption' of schools by business firms.

**Teacher Professional Development:** The Tertiary Unit of the Ministry of Education intends to ask teachers in the system, as a prerequisite for promotion, to upgrade their professional skills regularly; to require courses in adult education to be offered to all persons teaching at the tertiary level; and also to request that teacher educators are involved in curriculum change and receive training relevant to their role in the process of change.

**THE JAMAICAN EDUCATIONAL SYSTEM AND ENVIRONMENTAL EDUCATION**

At all levels of the formal education system, there is some curricular content – however inadequate – 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 their needs for food, shelter and clothing – introduces the concept of resources, natural, human and financial, and the effects 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 their use. However, it is found 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 the students’ concern. This initiative is from the top down, but it 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, in the tertiary community as a whole there are no interdisciplinary measures which promote, a real sense of environmental awareness and concern. This despite the fact that some faculties, in particular School of Education of the University of the West Indies (UWI), have been active for almost two decades in designing and disseminating resource materials for environmental education.

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

Educators Marceline Collins-Figueroa and Joyce Glasgow, in baseline research for this National Plan, write: ‘Teacher-centred, 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 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.
Teacher Professional Development

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 the theoretical competence of teachers in their ability to apply theory to solving educational problems, their research skills and expertise as well as their classroom skills and practice.

Initial Teacher Education refers to first-time professional development of individuals, either before they enter the teaching profession (pre-service), or while working 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 those in the natural and social sciences, must be equipped with knowledge, skills, values, and teaching strategies which will enable them to incorporate EESD into their professional settings.

These learning outcomes for educators include the following:

- acquiring 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 to facilitate learning by means of 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 reflect 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.

In the 1996/97 school year, 6,666 of the 9,265 primary schoolteachers were trained college graduates. Just under 2,000 were untrained secondary school graduates, and just over 400 were trained university graduates. Of the 11,125 teachers in the secondary system, 7,088 were trained college graduates while 1,465 were trained university graduates. There were 650 full-time lecturers at the tertiary level.
CHAPTER 4: ENVIRONMENTAL EDUCATION FOR SUSTAINABLE DEVELOPMENT

FORMAL EDUCATION SYSTEM

Table 4.1

<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>
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<tr>
<td>Primary</td>
<td>268</td>
<td>36</td>
<td>3,879</td>
<td>32</td>
<td>21</td>
<td>918</td>
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<tr>
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<td>63</td>
<td>33</td>
<td>947</td>
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<tr>
<td>Prim./Jnr (1-6)</td>
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<td>342</td>
<td>7</td>
<td>1</td>
<td>121</td>
<td>485</td>
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<td>TOTAL</td>
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<td>6,666</td>
<td>102</td>
<td>55</td>
<td>1,986</td>
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<td>All Age (7-11)</td>
<td>95</td>
<td>13</td>
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<td>43</td>
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<td>324</td>
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<tr>
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<td>10</td>
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<td>82</td>
<td>42</td>
<td>65</td>
<td>893</td>
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<tr>
<td>Voc/Agriculture</td>
<td>15</td>
<td>5</td>
<td>12</td>
<td>3</td>
<td>20</td>
<td>105</td>
<td>1125</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>


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. However, the secondary grades of all-age schools, the largest secondary category, are often likely to be staffed by teachers who have been prepared to teach at the primary level.

It is also noteworthy that the vast majority of Jamaica’s teachers are women. In 1996 when 1,497 teachers graduated from colleges and teacher education departments, 82 per cent 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 J$8,030, and J$1,850 at the early childhood level. At the tertiary level, per capita expenditure in 1995/96 ranged from J$25,340 at the University of Technology (UTECH) to J$152,900 at the University of the West Indies. The level for teachers’ colleges was J$65,040.2

The professional development of Jamaica’s teachers must, therefore, recognize and respond to the extremely wide variety of needs, levels and conditions in the country’s educational system.

INITIAL TEACHER EDUCATION

Most teachers in the Jamaican 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.

The six teachers’ colleges offer four programmes: early childhood, primary, special education and secondary — all containing general, technical, cultural and aesthetic aspects. There are no syllabuses which focus specifically on environmental education although content syllabuses in science and social studies include more environment-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 of 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 analyse data leading to the integration of science with other aspects of human culture.

General 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 degree of environmental education within their courses, although it 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, Bachelor of Education and Master of Education programmes of the UWI School of Education; as well as through the Ministry of Education and Culture, other government agencies, and several non-government resource centres, NGOs and other interest groups.

As has already been noted, the Ministry of Education and Culture is emphasizing more and more the need for continuing teacher professional development. 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 Ministry resource persons, donor-funded programmes, and special interest groups.

Teachers can also receive training through the Institute of Jamaica, which has a natural-

resources focus and offers some 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 and 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 and Resource Training Trust/National Training Agency (HEART/NTA), National Council on Technical and Vocational Education and Training (NCTVET), and the Joint Committee for Tertiary Education (JCTE) offer specialist professional development. A portion of each secondary school’s budget is allocated to staff development.

The Jamaica Teachers Association (JTA), the 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 environmentally 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, classroom teachers, administrative and support staff as well as students, in setting school goals and then carrying them out. The process will result in the school mission statements, already noted, as a basis for action, and a more learner-centred approach. This activity should enhance the capacity of schools to interpret curricula in ways which are relevant to their local situation, and provide an opportunity to involve communities in the process.
Analysis

GAPS

Increased attention to professional development is crucial for the effectively delivery of Environmental Education for Sustainable Development through the formal education sector.

Transmissive modes of teaching dominate classroom practice at present, even where other opportunities exist within the curriculum. These methods are encouraged content-loaded, knowledge-based curricula and by a centre-to-periphery emphasis in educational management. To be effective, EESD requires a shift of focus to concentrate on student learning and the acquisition of attitudes, skills and actions as well as knowledge.

Some efforts have been made to make curricula more related to students’ lives and to the working world into which they will move on leaving school. The Reform of Secondary Education programme (ROSE), currently being implemented in some Jamaican schools, has several relevant elements. Even under ROSE, however, limited attention is paid to EESD, and most of the areas where it appears are knowledge-driven, focused on science and social studies. Lacking are EESD’s 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, demonstration classes and actual classroom teaching experiences, which are part of the syllabus for all trainee teachers, can be used to sensitize student teachers to possibilities for infusing EESD topics into their curricula.

Institutional policies, administrative structures and resource availability must fully support the intellectual growth and pedagogical skill of the 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 the necessary physical facilities, where large classes may hamper the attainment of the outcomes normally expected from professional development initiatives. Pressure from students and parents to adhere to content-loaded curricula is another hampering element as is the current low esteem of members of the teaching profession.

OPPORTUNITIES

Emerging policies present 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 EESD.

At the school level, the appointment of a teacher with responsibility for Environmental Education for Sustainable Development should encourage its inclusion into the curriculum and incorporation in school programmes. The Joint Board of Teacher Education can influence policy, curriculum and evaluation instruments relevant to EESD at the teachers’ colleges. The Jamaica Teachers’ Association (JTA), 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 organizations such as the Portland Environment Protection Association, the business sector and a range of government agencies. Several such programmes incorporate a focus on teacher training, and also provide 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 these are 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.

An Example of Environmental Education initiated by a Community-based NGO

**PORTLAND ENVIRONMENT PROTECTION ASSOCIATION**

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 16 schools, thirteen of them at the primary level and three at the secondary level. The focus on primary schools is deliberate, reflecting the 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 the 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.

**LESSEONS 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 school environmental education programmes can be sustained, but commitment and resources are necessary.

Curriculum Development and Implementation

Within the Ministry of Education and 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 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 the Ministry are responsible for designing the curricula used in Jamaican schools, with the exception of the Caribbean Examinations Council programmes at Grades 10 and 11 and the General Certificate of Education, Advanced Level programmes at Grades 12 and 13. Usually the work is carried out by teams including classroom teachers and other educators such as the Ministry’s supervision officers and lecturers at tertiary institutions.

- The Early Childhood Education Unit is responsible for the curriculum for the four and five-year-olds. The present curriculum was published in 1983 and is due for revision.

- The Core Curriculum Unit produces the primary level curriculum, the Reform of Secondary Education (ROSE) curriculum and the Ministry's Grades 10-11 curriculum for students who have not attained CXC level. Instead, they 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 the 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 for 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, Art and Craft, 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 and Training (NCTVET). The Art and Craft section of the Technical/Vocational Unit works with the Core Curriculum Unit to design the Art and Craft 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 including Family Life Education at the secondary level. The Family Life Education project is currently collecting baseline data, after which curriculum revision will begin. Opportunities, therefore, exist at all levels for expansion of the curriculum.

**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 and Statistical
Analysis. More subjects will be added later.

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

LOCAL ASSESSMENT
The Ministry of Education is to replace 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
To date, two Jamaican commercial publishers have produced some textbooks – Carlong Publishers and West Indies
Publishing Limited. Carlong has also published some primary level textbooks and both publishers are producing for
the ROSE programme. The publishers are guided by the curricula.

First introduced in 1984, the Primary Textbook Scheme continues to provide all children attending primary
schools with free text books, printed on newsprint at low cost. This project was initiated by the Gleaner Company
and supported and advised by the Ministry of Education, with further assistance being provided by international
organizations and the Jamaican private sector. In more recent years, other companies have printed the books, but the
programme has survived.

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 add sustainable development to
their own programmes.

CURRENT CURRICULUM CONTENT
Selected representative curricula were mapped against learning outcomes outlined in the Vision Framework in
chapter 2. One sample mapping was undertaken by educator Pam Morris as part of her baseline study, Curriculum
Development and Implementation in Environmental Education for Sustainable Development in Jamaica in which
she also identifies specific points for the infusion of Environmental Education for Sustainable Development into
several existing curricula. From her sample mapping, she was able to arrive at the following conclusions:

- Knowledge of ecosystems is a traditional focus in the Science curricula (biology, chemistry, integrated
  science, agricultural science). 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 such as action
  and critical thinking are under-represented. Other intellectual skills are 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 and 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 Social Studies, Resources and Technology, as well as all ROSE curricula, yet little career planning activity is evident. Technology-based tools seem to be used only in Resource and Technology.

The ROSE Resource and 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 attempt to promote action and 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 into subjects such as 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. 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 assist teachers in localized curriculum planning. As a consequence, most teachers teach directly from the national curricula.

*One school demonstrates how to overcome the difficulties and succeed*

**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 in 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 playing and art and 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 into 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, focusing on naming words, colour adjectives and verbs, and also through oral reports and poems.

The project seeks to help students to write more constructively and precisely; to develop healthy attitudes towards cooperation, appreciation, participation; and to display willingness to work individually and in groups; and to acquire 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 for 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 encyclopaedia; The Farmer’s 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 have 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, and has 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.

• Integrated approaches to curriculum delivery provide a common focus which strengthens 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 implementation of any project.

Analysis

GAPS

While there is some attention to environmental issues within Jamaica’s formal education system, it 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. EESD needs to become integrated, systematically, into 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 EESD learning outcomes and teaching strategies in their own professional settings – including demonstrations of practical ways of achieving these outcomes and implementing strategies across the disciplines.

It is important for there to be consensus for a developmental framework incorporating all the EEDS learning outcomes – knowledge, skills, values and attitudes and action – progressing from Early Childhood to Grade 11 and permeating all subject areas. At present, environmental content incorporated into curricula is uneven and lacks a holistic approach.

Examples of developmental frameworks already exist. This approach has been taken by the Family Life Education Source Book and the ROSE Career Education curriculum guide. In fact, there are many synergies between EESD 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 affect the success of the implementation of EESD in the classroom.

In a 1996 study, Bailey, Brown and Lofgren looked at factors interfering with coverage of the curriculum in Jamaican primary schools. They emphasized irregular pupil attendance and lack of instructional materials as the two most powerful factors. Others included teacher absence, teachers’ level of knowledge, teacher competence,
disruption of classes due to preparations for special events or to teachers' attendance at seminars or workshops. Shortage of equipment, inadequate classrooms, and overcrowding also contributed to the situation.

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 EESD. 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 into 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 Ministry 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, some of which are documented in the Curriculum Development and 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 to help teachers fulfil this responsibility. Material could be developed to assist teachers to integrate EESD learning outcomes throughout various curricula, emphasizing the selection of reflective, participatory, learner-centred 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 Ministry of Education, 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 opportunities to participate in the development and implementation of curricula, maintaining close contact with the formal education system.

**Chap. 4 Notes**

1. The analysis is based on five baseline studies: Teacher Professional Development in Environmental Education for Sustainable Development in Jamaica by Marceline Collins Figueroa and Joyce Glasgow; Curriculum Development and Implementation in Environmental Education for Sustainable development in Jamaica by Pam Morris; Research Paper on National Awareness and Attitudes Strategies for the Jamaican General Public by Susan Otuokon; Learning for Sustainability: Community Based Approaches by Valerie Gordon; Baseline Study on Resources and Practices for Environmental Education in Jamaica by Christine Scott Dunkley and Janet Bedasse; and on Working Group feedback on these documents. Working Groups are listed in Appendix One.
2. Planning Institute of Jamaica (PIOJ), 1993. (p 10)