



JOINT BOARD OF TEACHER EDUCATION  
INSTITUTE OF EDUCATION  
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*Create an Environment  
for Clean Living.*

# GUIDELINES FOR Environmental Clubs



## **Guidelines for Environmental Clubs**

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### **Authors:**

Marceline Collins-Figueroa  
Janice HoLung

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# TABLE OF CONTENTS

Acknowledgments	1
Introduction	2
Why should I Join an Environmental Club?	3
Getting Started	4
Selected Posts in Environmental Clubs	5
Organising Your Meetings	6
Helpful Hints	8
Suggested Activities for Environmental Clubs	17
How Green is Your College?	24
All About Field Trips	26
Appendices	
1. Information on the Jamaican Environment	31
2. Global Concerns	40
3. Days of Environmental Significance	42
4. Useful Contact Agencies and Organisations	43
5. Glossary of Environmental Terms	48

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Thanks also to the Joint Board of Teacher Education, the National Environmental Education Committee Secretariat and the ENACT Programme that contributed human, material and financial resources to the STEEP. Gina Sanguinetti, Director, and Michael Myles of the NEEC Secretariat rendered invaluable assistance in producing this handbook. We also thank the two reviewers who gave constructive comments for improvement.

We hope that the handbook inspires you and your advisors to begin and sustain a successful environmental club at your school.

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## Introduction

This Handbook is designed to assist you to start and maintain a successful environmental club at your college. It suggests a myriad of activities that clubs can pursue and where to go for help. It encourages you to study the local environment and to contribute to solving environmental problems. In so doing, you will be playing an important role in environmental education for sustainable development (EESD).

EESD involves among other things,

- understanding the consequences of human actions for the earth and its resources;
- understanding decisions and actions that can be taken locally and globally to encourage sustainable living and to avoid unsustainable practices;
- taking personal responsibility for living in a sustainable way.

An environmental club is an ideal place for you to gain these understandings. Through EESD, the club promotes environmental literacy as well as raise the quality of your total educational experience. By promoting the study of and actions on issues that really interest you, an environmental club increases your participation in all areas of learning.

We hope this handbook provides you with useful information and we would appreciate your comments on its contents and organization. If you implement successful projects or know of successful innovations, please let us know by contacting the Joint Board of Teacher Education or the National Environmental Education Committee Secretariat (see Appendix 4 for contact addresses).

Marceline Collins-Figueroa

Janice HoLung

## Why Should I Join an Environmental Club?

### As a member of an Environmental Club, I can:

- Gain knowledge about the environment
- Perform actions to improve the campus environment, e.g., stewardship activities
- Help to solve local environmental problems
- Educate others about the environment
- Enjoy myself and have fun
- Learn about clubs, and how they should be organised and run.



Any change in one aspect affects the other, so sensitivity to changes in the environment is crucial.

### T

**Threatened species:** Species that are likely to become endangered in the foreseeable future if the factors causing numerical decline or habitat degradation continue to operate.

### V

**Values:** Ends or ideals which are held by a person. They are central to attitudes and to some of our beliefs. Values are not absolute. They are the standards or codes which direct our actions. (King, R. et al. (2000). *Social studies through discovery (Rev. ed.)* Kingston, Jamaica: Chalkboard Press, JBTE-MPU. Longman)

**Vision:** A written statement or “picture” of what people expect their society, community or organisation to look like and accomplish at some future time.

### W

**Watershed:** An area of land from which water percolates into the soil to emerge at a lower level as a river or stream. Runoff water also may carry soil and dissolved substances into the river and its tributaries. Adjoining watersheds are separated from each other by high ridges (hills/mountains).

Glossary of terms adapted from:  
Foster-Allen, E., J. Glasgow & J. HoLung (2002). *Handbook for leadership development in environment education for sustainable development (Draft)*. Kingston, Jamaica: NEEC.



## O

**Organism:** Any living thing.

## P

**Population:** A group of interbreeding organisms occupying a given area, habitat or space.

**Precautionary principle:** Where there are threats of serious or irreversible harm to human health or the environment, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation. (Adapted from, Principle 15 of the Rio Declaration on Environment and Development, in Agenda 21. UN Conference on Environment and Development, 1992.)

**Problem:** A goal where the correct path to its solution is not known. (<http://PBLI.org/3core.htm>)

**Problem-based learning:** Curriculum development and delivery system that recognizes the need to develop problem solving skills as well as the necessity of helping students acquire necessary knowledge and skills. (*Internet classrooms* <http://score.rims.K12.ca.us/problearn.html>)

## R

**Re-cycling:** The collection and re-processing of manufactured products for re-use either in the same form or as new products, by recovering the resources contained in the original materials.

## S

**Stewardship:** The wise use of resources to provide a healthy, more efficient and sustainable working environment.

**Sustainable development:** Integrating the needs of ecological protection, social development and economic opportunity into all decision-making to meet the needs of present and future generations.

**Sustainable lifestyle:** A lifestyle that allows for the continuing, careful use and enjoyment of resources.

**Systems thinking:** A way of thinking where the primacy of the whole is stressed, and the inter-relatedness of the components.

## Getting Started

1. Arrange with the principal and administration for permission to start the club.
2. Arrange a venue, a suitable day of the week and time for meetings.
3. Advertise the meeting time, place, etc. (Organise beforehand with some students who might be interested in forming the management committee).
4. Get a teacher to be the staff advisor.
5. At the meeting, get names of all who attend, decide on the structure of the club, and on its objectives.
6. Have elections for the posts on the management committee, and post the names on the notice board. See page 5 for some suggested posts.
7. For the first meeting after the elections, invite an interesting speaker, or show a video or slide show, to hold everyone's interest.
8. Decide on the types of activities, offer members some suggestions, according to their interests and capabilities. See pages 17 to 23 for suggested activities.
9. Decide on the amount of dues and on a meeting schedule.
10. Ensure that notices are given out for the next meeting in good time!
11. Select students to be coordinators / chairpersons.

## Selected Posts in Environmental Clubs

### The Chair/Coordinator

- Guides the meeting according to the agreed agenda
- Enforces rules of procedure, e.g., only one person speaks at a time
- Rules on disputed matters
- Maintains the policy of the club and the college
- Prevents irrelevant discussions
- Encourages participation of all members
- Deals firmly and tactfully and with humour when faced with disruption or aggression
- Summarises the discussions before a decision is to be taken.

### The Secretary

- Drafts notices to convene meetings, and posts them
- Takes notes on what the meeting decides
- Takes care of certain logistical tasks, e.g., books the meeting room
- Follows up with members, others to ensure actions that were agreed on have been done
- Takes care of any correspondence
- Draws up first draft of agenda for the chair's approval
- Keeps the chair informed

### The Treasurer

- Collects dues
- Keeps financial records accurately
- Prepares budgets
- Provides meetings with financial information in a timely manner

**Note:** A treasurer may not be needed in a small club which does not handle much money.

## I

**Imbalance:** A condition in which the environmental equilibrium is upset or disturbed, with possible negative effects, if not corrected.

**Interaction:** The effect created when different parts of the environment – natural, man-made, living, non-living – act on each other.

**Interdependence:** The way everything depends on everything else – a sense of inter-connectedness and mutual effect.

**Issue:** a point in question; the subject of a discussion or debate.

## L

**Leadership:** Traits/skills that focus on building an organisational culture, doing things right, and on the long term vision.

**Learning organisation:** One that can maintain or improve performance based on experience. It operates on a shared vision, where team work and the best good of the organization are stressed, as well as on-going, individual personal development

**Limits:** the finite boundaries of resources.

## M

**Management:** Traits/skills that tend to focus on building organisational structure, on “doing things right”, and on the “here and now”.

**Mangrove:** Species of plants able to grow in salty/brackish wetlands.

**Morals:** Accepted rules and standards of behaviour dealing with relationships between people.

## N

**Natural Resource:** The sources in nature on which human beings and other living things rely for their needs – food, clothing, shelter, growth, recreation.

**Niche:** The role and activities of a living organism within a community.



## E

**Ecology:** The study of how living things relate to each other and to the world around them.

**Ecosystem:** Living organisms and their non-living surroundings in a particular area/habitat, interacting with each other and with the habitat to form a self-sustaining natural system.

**Endangered species:** Species in danger of dying out throughout all or part of their habitat and whose survival is unlikely if the factors jeopardizing them continue to operate.

**Endemic:** Species found in a particular area/country and nowhere else in the world.

**Environment:** The totality of all the linked factors that influence living things: the physical, biological, social, economic, political, cultural, technological and spiritual contexts of life.

**Environmental audit:** An assessment of the status of environmental policies, practices and controls.

**Environmental education for sustainable development:** An educational process to help people become more aware of, and concerned about, the environment and to be committed to maintaining a balance between quality of life and quality of the environment.

**Equilibrium:** A state of balance in the environment, maintained by interaction among all its elements, and contributing to environmental health.

**Ethics:** Individual character or set of moral principles of a person. A personal moral code.

## F

**Food chain:** A sequence of organisms in any natural community, in which each member feeds on the one before in the sequence, and is, in turn, eaten by the one after.

## H

**Habitat:** The place where an organism lives.

# Organising Your Meetings

## Here is a suggested order for regular meetings:

1. **Welcome** everyone, ask new members to introduce themselves.
2. Pass around the **register** for those present to sign it; collect **dues**. (Decide: when do they pay these? Monthly? Weekly?)
3. Ask the coordinator / chairperson to **recap the last meeting** for those who missed it (doesn't need to be minutes of meeting, just brief recap).
4. Ask for questions, comments and make **clarifications**.
5. Ask for **updates** on what has taken place since the last meeting.
6. **Review progress**; ask members for their comments on progress or lack of progress; get suggestions for continuance, for improvements.
7. **Re-organise** actions by doing the following:
  - a) List all actions with time deadlines
  - b) Add names of those responsible for each action
  - c) Ensure that everybody in the club is doing something.
8. After this business session is completed, have a **game** or something "fun" done by some member (previously prepared).

Or

9. **Share** some **environmental information** with the whole club. Discuss it by asking questions: who, what, when, where, why, how? Or do **some work** on the project at this time.
10. **Close meeting** with environmental pledge, or prayer.

- IF MEETINGS ARE INTERESTING AND PRODUCTIVE, MEMBERS WILL BE PLEASED TO BE PART OF THE CLUB!



- COORDINATORS SHOULD SHARE THE TASK OF CHAIRING THE MEETINGS, AND WORK ON ALTERNATE DAYS TO DO SO.
- COORDINATORS SHOULD MEET BEFORE EACH MEETING TO ARRANGE WHAT SHOULD BE DONE.
- A VARIETY OF DIFFERENT TYPES OF ACTIVITIES SHOULD BE PLANNED FOR EACH SEMESTER, AND SHOULD INCLUDE ONE FIELD TRIP OFF CAMPUS.

**E Clubs are for everyone! They should not be confined to Science or Social Studies students!**

## Appendix 5 Glossary of Environmental Terms

### A

**Afforestation:** replanting trees in a habitat.

**Algae:** Simple plants, lacking stems and leaves, usually living in water.

**Aquatic organisms:** organisms growing or living in water.

**Attitudes:** are directly derived from values. They are feelings expressed as preferences, as likes and dislikes, as approvals and disapprovals. An attitude may/may not lead to actions.

(King, R. et al. (2000). *Social studies through discovery (Rev. ed.)* Kingston, Jamaica: Chalkboard Press, JBTE-MPU. Longman)

### B

**Bacteria:** very small (microscopic) living things. They are important in nature, e.g., some break down organic matter in water and soil; others cause diseases such as diarrhoea and cholera.

**Bio-degradable:** Any material which can be decomposed (broken down into simple, stable compounds) chemically or physically by micro-organisms.

**Biodiversity:** The variety of all plants, animals and micro-organisms existing within a particular area (habitat or ecosystem) on earth.

### C

**Carrying capacity:** The maximum number of living things that can be supported indefinitely by a given ecosystem, area or habitat without deterioration.

**Community:** A group of people or other living organisms defined by one or more of the following: ecological systems, administrative systems, geographical areas, culture, interests.

### D

**Deforestation:** The removal of trees from an area/habitat.

46. St. Ann Environment Protection Association (STAEPA) (See Northern Jamaica Conservation Association)
47. St. Elizabeth Environmental Protection Association (SEEPA), 2 High Street, Hendricks Building, Black River St. Elizabeth, 634 3824, [seepa@mail.infochan.com](mailto:seepa@mail.infochan.com)
48. St. Thomas Environmental Protection Association (STEPA), c/o RADA, P.O. Box 46, Morant Bay, St. Thomas, 982-2205, [stepa2@yahoo.com](mailto:stepa2@yahoo.com)
49. University of the West Indies, Mona, Kingston 7, 927-1660, [www.uwimona.edu](http://www.uwimona.edu)
50. Urban Development Corporation, 12 Ocean Blvd., Kingston, 922-8310.

**Some organisations in Jamaica that collect products and materials for recycling.**

1. Cable & Wireless Jamaica Limited – [telephone directories](#) 926-9700 or 1-888-225-5295
2. Minott Services Limited – [corrugated cardboard](#) 926-3360
3. Garbage Disposal & Sanitation Services (GDSS) - [old newspaper, cardboard boxes, glass bottles \(clear & brown\)](#) 901-2414
4. Premier Waste - [corrugated cardboard, bond paper](#) 960-6351 or 906-3094
5. The Shell Company – [industrial waste oil, telephone directories](#) 928-6509 or 928-7301

## Helpful Hints

### 1. GETTING THE WORD OUT

**The success of what the club does depends on how well it is advertised. You can advertise your club happenings in many ways:**

- PUBLICISE THE CLUB: Place posters and updates on your notice board regularly.
- ADVERTISE UPCOMING EVENTS: At assemblies, on the notice board, in the local newspaper (if appropriate, and with administration's permission).
- SHOW OFF WHAT YOU HAVE DONE: Write articles for the school magazine or paper, send news releases to the local newspaper. Mount exhibitions of work done and pictures.
- REMEMBER: To include one contact person's name, and contact information, etc. in your advertisements.

### 2. WORKING WITH OTHERS

*WORK WITH OTHER CLUBS AND WITH THE STUDENTS' COUNCIL*

- Appoint someone to liaise with the Student Council President and the staff advisor.
- Co-ordinate your activities with other clubs' activities to reduce conflict.
- Invite other club leaders to your meetings and activities.
- Plan joint activities with other clubs.

## WORK WITH ADMINISTRATION AND STAFF

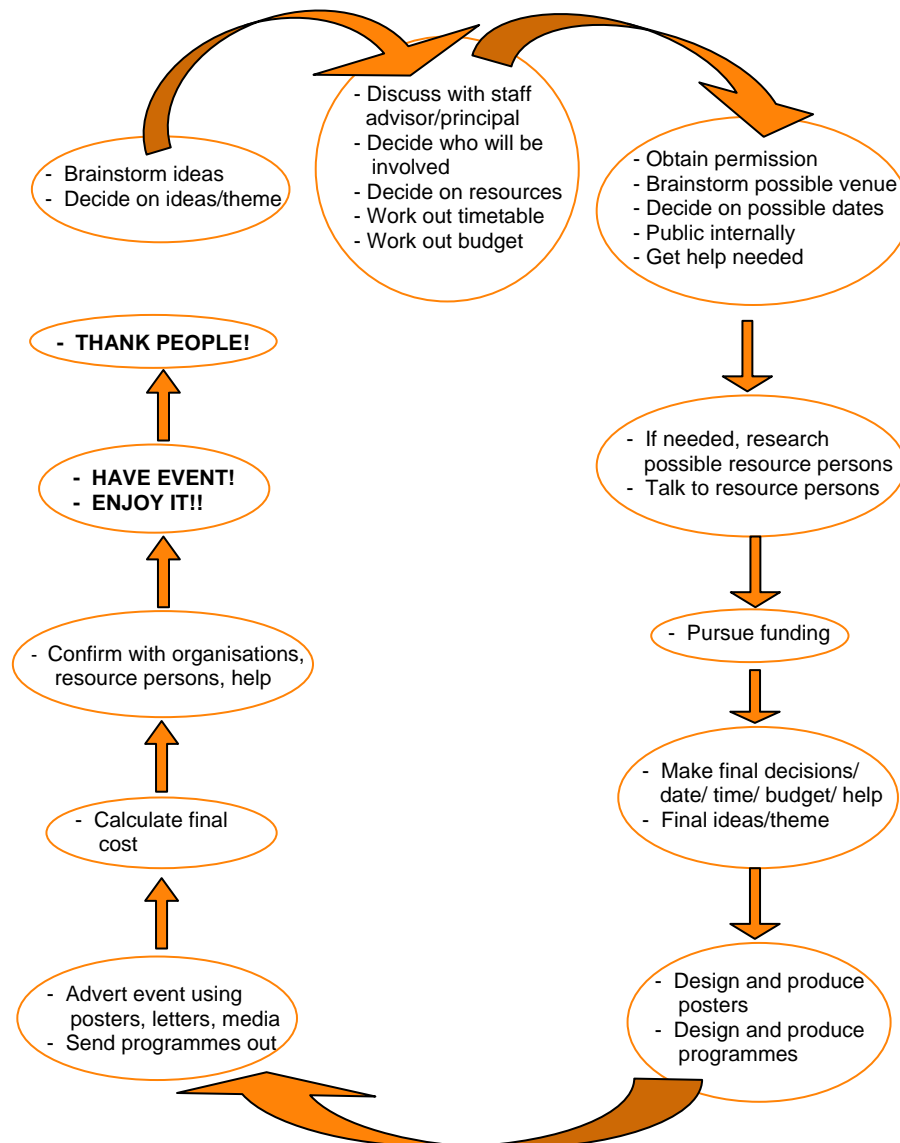
- Inform staff and include as many as possible in planning your activities and projects. Work with staff (administrative, academic and ancillary) to accomplish your goals!
- Remember that good organisation on your part encourages staff support.
- Show appreciation. Acknowledge staff support, through a letter, a card, a small token.
- Show appreciation for the work that ancillary staff is already doing. Make their job easier.



33. National Water Commission, 28 Barbados Ave., Kingston 5, 929-5430, [www.nwcjamaica.com](http://www.nwcjamaica.com)
34. Natural History Society of Jamaica, c/o Department of Life Sciences, University of the West Indies, Mona Kingston 7, 977-8007, [naturalhistory@hotmail.com](mailto:naturalhistory@hotmail.com)
35. Negril Area Environment Protection Trust (NEPT), PO Box 2599 Negril, Westmoreland, 957-3736, [nept@infochan.com](mailto:nept@infochan.com)
36. Negril Chamber of Commerce (NCC), PO Box 55 Negril, Westmoreland, 957-4591, [negrilchamber@cwjamaica.com](mailto:negrilchamber@cwjamaica.com)
37. Negril Coral Reef Preservation Society (NCRPS), PO Box 2725 Negril, Westmoreland, 957-4626, [coralreef@cwjamaica.com](mailto:coralreef@cwjamaica.com)
38. Northern Jamaica Conservation Association, PO Box 212, Runaway Bay, St. Ann, 973-4305, [njca@anngel.com.jm](http://njca@anngel.com.jm)
39. Office of Disaster Preparedness and Emergency Management, 2 Camp Rd., Kingston, 928-5111, [www.odpem.org.jm](http://www.odpem.org.jm)
40. Pesticide Control Authority, 2 King St., Kingston, 967-092
41. Portland Environmental Protection Association (PEPA), 6 Allan Avenue Portland, 993-9632, [pepa@cwjamaica.com](mailto:pepa@cwjamaica.com)
42. Rural Agricultural Development Authority (every parish), [www.radajamaica.com.jm](http://www.radajamaica.com.jm)
43. Sanitation Support Unit (SSU), c/o Construction Resources and Development Centre, 11 Lady Musgrave Avenue, Kingston 5, 940-2935
44. Social Development Commission, 12 Ocean Blvd., Kingston, 948-0562, [www.sdc.gov.jm](http://www.sdc.gov.jm)
45. Southern Trelawny Environment Agency (STEA), Albert Town P.O. Trelawny, 610-0818, [stea@cwjamaica.com](mailto:stea@cwjamaica.com)

21. Jamaica Tourist Board, 64 Knutsford Blvd., Kingston 5. 929-9200, [www.jamaicatravel.com](http://www.jamaicatravel.com)
22. Joint Board of Teacher Education, 2 Gibraltar Camp Road, University of the West Indies, Kingston 7, [www.jbte.edu.jm:1104](http://www.jbte.edu.jm:1104)
23. Kingston Restoration Company (KRC), 3 Duke Street, Kingston, 922-3126, [krc@infochan.com](mailto:krc@infochan.com)
24. Ministry of Commerce, Science & Technology, 36 Trafalgar Road, Kingston 10, 929-8990, [www.mct.gov.jm](http://www.mct.gov.jm)
25. Ministry of Health, 2 King Street, Kingston, 922-6084
26. Ministry of Education, Youth & Culture, 2 National Heroes Circle, Kingston 4, 922-1400, [www.moec.gov.jm](http://www.moec.gov.jm)
27. Ministry of Land & Environment, 16A Half Way Tree Road, Kingston 5, 920-9117
28. Montego Bay Marine Park Trust (MBMPT), Pier 1, Howard Cooke Boulevard, Montego Bay, 940-0659, [mbmp@n5.com](mailto:mbmp@n5.com), [naf-hope@cwjamaica.com](mailto:naf-hope@cwjamaica.com)
29. National Arboretum Foundation, 58 Hope Road, Kingston 6, 927-1371/927-1375
30. National Environmental Education Committee, 10 Caledonia Ave. Kingston 5, 754-7540 ext. 2304 [www.nepa.gov.jm/neecweb](http://www.nepa.gov.jm/neecweb)
31. National Environment & Planning Agency, 10-11 Caledonia Ave., Kingston 5, 754-7540 [pured@nepa.gov.jm](mailto:pured@nepa.gov.jm), [www.nepa.gov.jm](http://www.nepa.gov.jm)
32. National Environmental Societies Trust, 173 Constant Spring Rd, Kingston 8, 969-6502, [contact@nestjamaica.com](mailto:contact@nestjamaica.com), [www.jsdnp.org.jm/nestjamaica](http://www.jsdnp.org.jm/nestjamaica)

### 3. HOLDING AN EVENT



## 4. FUNDING CLUB ACTIVITIES OR PROJECTS

### a) Through Fund Raising

Fund raising projects and activities are usually fun-filled events but they require a great deal of planning and much hard work! Use the event planning cycle on page 10 to guide you. For the initial brain-storming, consider the questions below. Once you have made these important decisions, begin budgeting and move forward.

- WHO:** Who will be your target group? Can they afford your charges? Who will plan the activity, who will work at the event, who will clean up afterward?
- WHAT:** What type of event are you planning? Do you need permission from administration, as well as from neighbours of the school? Do you need permission from the police?
- WHEN:** When will you have it, middle or end of semester? Near Christmas? Near end of academic year? What time of day? For how long will the event last?
- WHERE:** Where on campus will you have it? Consider security arrangements for money being raised, for items being sold, for those in attendance.



9. Environmental Foundation of Jamaica, 1B Norwood Avenue, Kingston 5, 960-6744. Toll Free: 1-888-991-2953, [www.efj.org.jm](http://www.efj.org.jm)
10. Fisheries Improvement Project, c/o Discovery Bay Marine Lab, Discovery Bay P.O., St. Ann, 973-2241
11. Forestry Department, 173 Constant Spring Road Kingston 8, 924-2667-8, [www.forestry.gov.jm](http://www.forestry.gov.jm)
12. Friends of the Sea, 5 Pineapple Place, Ocho Rios, St. Ann, 974-4428, [Info@friendsofthesea.org](mailto:Info@friendsofthesea.org)
13. Hope Zoo's Tropical Learning Centre, Old Hope Road, Kingston 6, 927-1085
14. Institute of Jamaica, East Street, Kingston, 922-0620, [www.instituteofjamaica.org.jm](http://www.instituteofjamaica.org.jm)
15. International School of Jamaica (ISJA), c/o Casa Maria Hotel, P.O. Box 10, Port Maria, St. Mary, 725-0933, 725- 0185, [isia1@yahoo.com](mailto:isia1@yahoo.com)
16. Jacks Hill Community Council (JHCC), Jacks Hill P.A., St. Andrew, [jhcc@yahoo.com](mailto:jhcc@yahoo.com)
17. Jamaica Conservation and Development Trust (JCDDT), 29 Dumbarton Avenue, Kingston 10, 920-8278-9, [jcddt@jcddt.org](mailto:jcddt@jcddt.org), [www.greenjamaica.org](http://www.greenjamaica.org)
18. Jamaica Environment Trust, Earth House, 11 Waterloo Road, Kingston 10, 960-3693, [jet@infochan.com](mailto:jet@infochan.com), [www.jamentrust.org](http://www.jamentrust.org)
19. Jamaica Organic Agricultural Movement, c/o Ministry of Agriculture, Room 407, Hope Gardens, Kingston 6, 927-1202, [joam@mail.com](mailto:joam@mail.com)
20. Jamaica Public Service Co.Ltd, 6 Knutsford Blvd, Kingston 10. 926-3190, [www.jpSCO.com](http://www.jpSCO.com)

## Appendix 4

### Useful Contact Agencies and Organisations

1. Association of Development Agencies, 12 Easton Avenue, Kingston 5, 927 8272, [asdevgen@cwjamaica.com](mailto:asdevgen@cwjamaica.com)
2. Association of Science Teachers of Jamaica, c/o Chairman, Central Region, Dr. Errol Miller, Knox Community College, Spaldings, Manchester 987-8056
3. Bird Life Jamaica (BLJ), c/o Life Sciences Department, University of the West Indies Kingston 6, 927-1864, [birdlifejamaica@yahoo.com](mailto:birdlifejamaica@yahoo.com)
4. Bluefields Peoples Community Association (BPCA), Bluefields PA, Westmoreland, 955-8792-3, [bpca@cwjamaica.com](mailto:bpca@cwjamaica.com)
5. Caribbean Coastal Area Management Foundation, Bustamante Drive, P.O. Box 33, Lionel Town, Clarendon, 986 3344, [pespeut@infochan.com](mailto:pespeut@infochan.com) , [camf@n5.com.jm](mailto:camf@n5.com.jm), [iparchment@yahoo.com](mailto:iparchment@yahoo.com)
6. Coalition for Community Participation & Governance, 47 Beechwood Avenue, Kingston 5, 929-8873
7. Construction and Resources and Development Centre (CRDC), 11 Lady Musgrave Avenue, Kingston 5, 978-4061, [crdc@jol.com.jm](mailto:crdc@jol.com.jm)
8. Dolphin Head National Park Trust, Lucea P.O., Hanover, 952-1324 / 383-4678, [paulahurlock@hotmail.com](mailto:paulahurlock@hotmail.com)

Once you have decided on the event, you will need to prepare a budget. Use the guidelines below to assist in this task.

- Look at your big goals, and prepare a task list showing how you expect to reach these goals. Identify which of the tasks require money.
- Decide how much money will be required for each task (do research, do not guess!). Total the amount and add 10% to the total as a contingency.  
**THIS IS YOUR TARGET AMOUNT TO BE RAISED.**
- Now, decide on your fundraising activity –
  - Will you organise a sale of environmentally friendly products?
  - Will you arrange an “envirothon”?
  - Will you have a concert?
- Consider and list the costs associated with the fundraising activity. Do you need to pay for any aspects beforehand? How will you deal with this? How soon after the event will you have to settle other expenses? **THESE ARE YOUR COSTS.**
- Look at the sales that the fundraising activity is expected to produce. Estimate these, e.g., the number of people attending at \$X per person, or the number of items being sold. Itemise these and total them. **THESE ARE YOUR SALES.**
- Compare costs and sales. See if the sales figure is much higher than the cost figure. Is this difference near or greater than the amount you targeted? If this is so, then you can go ahead with your fund-raising! If not, then think again!!!

#### ***b) Through Donor Agencies***

Writing grant proposals to donor agencies can lead to financial support for environmental club projects. Foundations like the Environmental Foundation of Jamaica and private sector organisations can be valuable sources of support. Firstly, you should find out the broad objectives of the funding agency’s

programmes to determine if your project will meet their objectives.

These organisations vary in what they request for a proposal; it is therefore wise to speak with a representative of the donor agency to obtain guidance. The following outlines the minimum that is usually needed:

- **Statement of how your project will meet the goals of the funding agency's programme.**
- **Problem statement** of the need your project addresses. Outline the support you may already have got for your project, if any.
- **Goals statement.** Explain how your project will address the problem identified in the problem statement.
- **Action plan.** List the tasks identified to achieve your goals. Include a timeline.
- **Budget.** List costs.
- **Evaluation method.** Describe how you will measure the success of your project.
- **Sustainability.** Explain how the project and its effects will be sustained after funding ends.

Above all, **follow the directions given by the funding agency for completing a grant application.**

Follow up your application with a phone call or personal visit to show your commitment to the project.

Send "thank you" letters to grantors and to those who helped you, if you receive funding. If not, it would be useful to find out why you were not granted funds.

## Appendix 3

### Days of Environmental Significance

Clubs can support and participate in activities organised to mark these special days. Contact NEPA and other government agencies to find out the exact dates as these may vary from year to year.

January	Earthquake Awareness Week
February	World Wetlands Day
March	World Water Day World Meteorological Day
April April 1 – June 30	Earth Day Caribbean Spiny Lobster closed season
May	International Day for Biological Diversity Labour Day Jamaica's Peace Day
June	Disaster Preparedness Month National Environmental Awareness Week World Environment Day World Oceans Day
June – November	Hurricane Season
July	World Population Day
August	Emancipation Day Independence Day
September	International Ozone Day International Coastal Clean-up Day Maritime Week World Tourism Day
October	National Wood and Water Day World Habitat Day International Disaster Reduction Day World Food Day Fire Safety Awareness Week International Day for the Eradication of Poverty National Heritage Week National Heroes' Day
November	National Science and Technology Month World Peace Day
December	World AIDS Day



## Antarctica

Some issues:

- unique environment to be preserved for peaceful uses only
- debate about exploitation of minerals in the region

## The gene pool

Some issues:

- global habitat loss and loss of species
- the gene pool as the 'property' of all humankind
- manipulation /alteration of genetic material

## Intellectual and cultural heritage

Some issues:

- accumulated knowledge from science and the arts as belonging to all mankind
- preservation of historical treasures which can never be replaced, for example architecture and rock carvings; the threat posed by acid rain to buildings.
- preservation of the technology, art and craft and culture of indigenous peoples of all lands, for example, Amerindians, Inuit.

## Science and technology

Some issues:

- the good and bad consequences of technology
- effects of information technology on mankind
- alternative technologies (including traditional practices)

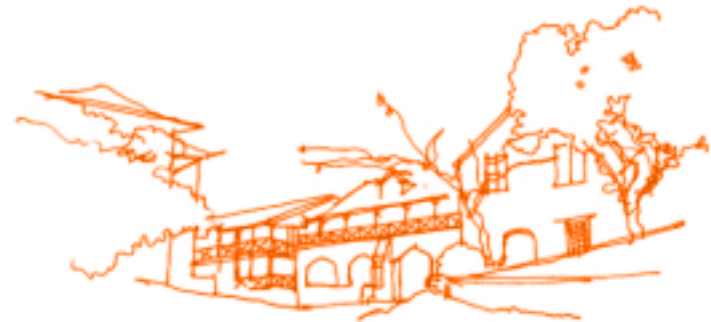
Some of the information in this appendix was taken from:  
Foster-Allen, E., J. Glasgow & J. HoLung (2002). *Handbook for leadership development in environment education for sustainable development (Draft)*. Kingston, Jamaica: NEEC.

and from:  
STATIN & NEPA (2001). *Jamaica's environment 2001: Environment statistics, and state of the environment report*. Kingston: STATIN.

"Have patience but be persistent".

"Work with someone who is knowledgeable in the area; never decide to do all on your own. Seek as much help as you can."

- Lecturer at Shortwood Teachers' College



## 5. KEEPING ON-GOING RECORDS

- Do regular updates of the progress of your activities or projects at meetings.
- You can measure your progress and detail it on a chart, which will be of interest to all members! For example, you can make a chart of the number of bottles collected for recycling each month! This will keep everyone aware and motivated.
- The charts and updates (write these up!) can serve as documentation for your project in order to inform others.

## 6. EVALUATING YOUR CLUB'S ACTIVITIES AND PROJECTS

- As an individual, reflect on the following questions:
  - What did you learn during the activity/project?
  - How can you apply it to other projects/situations?
  - How do you feel about your involvement in the project?
- As a group, discuss the following aspects of the project/activity:
  - Did the activity/project accomplish its objectives?
  - What were the most successful aspects of your project?
  - What was the least successful aspect?
  - Who was influenced by the activity?
  - What problems did you face in doing this activity/project?
  - What would you do differently next time, and why?
  - How would you build on the successes?

## Appendix 2 Global Concerns

There are some areas of the environment to which no single country or nation can lay claim. They are shared by all, and discussions about them take place in international fora. Some of these areas and examples of issues that affect them are:

### Climate change

Some issues:

- effects of sea-level rise and impacts on small island states
- energy consumption and conservation
- response by different nations to international conventions and protocols
- changing weather patterns

### Ozone-layer depletion

Some issues:

- international cooperation to phase out ozone-depleting substances
- effects on health of animals (including humans) and plants

### The oceans

Some issues:

- ownership and fishing rights
- rules about oil spills and dumping of hazardous waste
- nuclear trials in remote islands/nuclear materials being transported through shipping channels
- protection of species, for example, whales

### Outer space

Some issues:

- peaceful uses, for example, monitoring the weather
- the arms race and space

The section on cultural heritage is credited to Pam Morris in:  
 Glasgow, Joyce (1994). *Environmental education series 38, Environmental education: Curriculum guide for upper secondary grades in the Caribbean*. Paris: UNESCO.

Other sections are taken from:  
 Foster-Allen, E., J. Glasgow & J. HoLung (2002). *Handbook for leadership development in environment education for sustainable development (Draft)*. Kingston, Jamaica: NEEC.

and from:  
 STATIN & NEPA (2001). *Jamaica's environment 2001: Environment statistics, and state of the environment report*. Kingston: STATIN.



## 7. BUILDING THE CLUB'S SUCCESS!

A successful environmental club will -

HAVE LESS EMPHASIS ON	HAVE MORE EMPHASIS ON
<ul style="list-style-type: none"> <li>Lectures and talk</li> </ul>	<ul style="list-style-type: none"> <li>Activities and actions</li> </ul>
<ul style="list-style-type: none"> <li>Learning environmental facts</li> </ul>	<ul style="list-style-type: none"> <li>Projects involving issues in everyday life</li> </ul>
<ul style="list-style-type: none"> <li>Club activities that favour one group of students</li> </ul>	<ul style="list-style-type: none"> <li>Activities for all student groups</li> </ul>
<ul style="list-style-type: none"> <li>Supporting competition</li> </ul>	<ul style="list-style-type: none"> <li>Promoting cooperation, team activities, respect, and shared responsibilities</li> </ul>
<ul style="list-style-type: none"> <li>Students as followers</li> </ul>	<ul style="list-style-type: none"> <li>Students as leaders, problem-solvers, decision-makers, critical thinkers</li> </ul>
<ul style="list-style-type: none"> <li>Teachers determining what to do</li> </ul>	<ul style="list-style-type: none"> <li>Students determining what to do</li> </ul>
<ul style="list-style-type: none"> <li>Here and now</li> </ul>	<ul style="list-style-type: none"> <li>Sustainability</li> </ul>

# Suggested Activities for Environmental Clubs

## CHOOSING APPROPRIATE ACTIVITIES FOR YOUR CLUB

Making the decision for your club's project or activity is the first step in planning the activity. The challenge lies in finding the **right** activity for your own club. Here are some areas to consider when making your choice:

1. what you want to achieve
2. the number of people in your club
3. the time of year most appropriate for the activity
4. the rules and regulations at your college
5. the time needed to complete it
6. the amount of money needed.

If the activity being considered will not fit well with these considerations, choose another activity or project!

### NOW.....REMEMBER TO:

- *Start small!*
- *Involve everyone in planning*
- *Work together!*
- *Enjoy it!*

## ORGANISING YOUR CHOSEN ACTIVITY OR PROJECT

1. Make a list of jobs to be done and who will be responsible for each.
2. Make up a timetable with deadlines.
3. Inform your administration and tutors in writing.
4. Schedule an evaluation meeting after the activity.
5. Send out "thank you" notes to those who helped you.

## Cultural Heritage

*Culture* embodies all the accepted ways of thinking, feeling and acting in a society, and the interrelationships and organisation of these ways. We learn our culture from being part of a group. Our cultural heritage comes largely from West African and European migrants, but with elements from the culture of India, China and Lebanon fused into a distinct Caribbean mix. There are many aspects of culture; we shall mention briefly here only three – food, music and dance, and buildings and monuments.

*Food:* Yams, dasheen and other ground provisions, ackees originally from West Africa; breadfruit and mangoes from Asia; saltfish, pickled mackerel and corn pork; flour and cornmeal form the basis of much of Caribbean cuisine. These items represent what was originally food for the slave population. To these, add rice, curry and roti from India; and cassava dishes that originated with the Taino (Arawaks). Fresh meat dishes originally unavailable to slaves, have been creolised by the addition of numerous spices. Caribbean people of all classes eat Caribbean food with pride.

*Music and dance:* Like our food, our heritage in music and dance comes from many sources. Folk songs often have their origin in songs that slaves and early freed men and women sang as they worked. They were often a commentary on what was happening. Current Trinidadian calypso and Jamaican "dance hall" music are also commentary. Dances like quadrille and polka are European in origin, but creolised by Caribbean rhythm. Dances from Africa have been well researched and kept alive by our dance groups.

*Buildings and monuments:* Jamaica is rich in historic sites, buildings and monuments, and attracts the attention of archaeologists and historians from all over the world. The sites reflect the various colonial and native interactions of our history. An attempt is being made to preserve many buildings by having them declared national monuments. Heritage tourism is a new idea and has potential for varying the tourism product.

coast. Age group distribution is changing too, as the average lifespan increases.

### **Natural Disasters**

The geographical location of Jamaica, its geological history and physiography make the island prone to natural disasters. Earthquakes, hurricanes, storms, flooding, and landslides are natural disasters that occur, sometimes resulting in loss and damage to human life, ecosystems, and property. Expanding urbanisation of reclaimed land in the narrow coastal fringe and on steep slopes increases risks from natural disasters. Excessive soil erosion raises the levels of stream beds, contributing to flooding. Rising sea levels, due to climate change, will affect low-lying areas and coastline, reduce freshwater supplies and displace both biologic and human communities. Jamaica is situated approximately 56km south of the Cayman Fault and lies within one of the world's highest seismic risk areas.

### **Solid and Hazardous Waste**

The amounts of waste generated in Jamaica are difficult to quantify. Solid waste that could be handled by municipal or other collection is called collectable waste. This is the only waste that can be quantified, as waste is often burnt or thrown on empty lots or into gullies. The data indicate that each Jamaican generates between 0.6 kg and 0.8 kg of solid waste per day.

Many companies produce far more waste than is delivered to dumps. This waste is often utilised in the factory where it is produced, or it is sold or burnt in a furnace. The main waste products from bauxite and alumina plants are sodium hydroxide and so-called red mud. Most of this is deposited in large ponds. It is estimated that 14 million tonnes of red mud slurry are produced annually.

Bagasse, a waste from the sugar industry, and coconut shells are sometimes used to produce energy.

## **ACTIVITIES**

### **WORKING INDOORS**

- Prepare an environmental literacy campaign: get posters put up on bulletin boards, send home a newsletter to parents, have photos on exhibition: do this for different themes each month of the year.
- Prepare and carry out assemblies for the school community on the different environmental days in the school year: National Peace Day, Labour Day, Heritage Week, Earth Day, World Water Day, World Environment Day, National Wood & Water Day, etc. (see Appendix 3 for the list of days of environmental significance).
- Prepare dramatic presentations on issues, e.g., have a skit play about the confrontation between people and crocodiles: do we deserve their living space?
- Prepare and run a college environmental quiz, with prizes for winners.
- Have a poster, essay, poetry competition "Celebrate the Earth", "Use Water Wisely", "Let there be Peace on Earth" etc.
- Prepare some environmental games for students to play and learn with.
- Maintain an Environmental Notice Board with interesting news on the environment and set up Environmental Corners in the library.
- Organ a mini-conference or rally on an environmental issue in your community.
- Arrange for interesting people to speak on a topic or issue e.g.: JPSCo's energy management, National Water Commission, Office of Disaster Preparedness & Emergency Management, Red Cross, an environmental warden from NEPA, Forestry Department, Fisheries Department, Traffic

management, Peace & Love in Schools (PALS) programme, Ministry of Health.

- Prepare and show an environmental video of your campus focusing on any aspect of the environment, e.g., the natural, the buildings, etc.
- Do research on interesting local issues and topics, and make presentations, or have debates.

## WORKING OUTDOORS

- Identify a local environmental problem, propose solutions and act, where possible, to solve the problem.
- Go on field trips to interesting areas, e.g., heritage sites, national parks (see pages 26 to 30 for ideas on field trips).
- Prepare an “enviro walk” on the college compound, with notes on any old school buildings or ruins, notes on the pond, on the butterfly garden, on the vegetable garden, on the compost heap, on the school’s kitchen, pointing out the energy saving aspects of the school’s operation. Then make copies of the “walk” available to all teachers for their classes. Get ideas from the suggested thematic activities (see pages 21 to 23).
- Have a “clean-up” day of an area in your community.
- Do an environmental audit of the school with respect to use of water, electricity, and paper; give your recommendations to the principal; assist with fund-raising to remedy the situation.
- Establish and maintain a school vegetable garden on land or in containers (tyres or drums); beautify the school grounds with ornamental plants that do not require much watering.
- Prepare a compost heap, bag compost, and use it in the school garden, or at home.
- Sort garbage (remove paper, plastic, glass, composting materials) and recycle (i) recycle paper to make new paper for

## Energy

The use of energy is a necessity for human society. How much we use has, to a large extent, determined the lifestyle of various societies. Our basic source of energy is the sun. The most common secondary sources today are petroleum products, electricity derived from these products, hydroelectric power and firewood. Some energy is derived from wind, solar cells and the burning of waste products like bagasse.

Energy consumption in Jamaica is rising steadily. Day to day living in our homes uses the largest amount of energy, but mining and transportation are also heavy uses of energy. The use of petroleum, charcoal and firewood has grown, while alternative sources such as wind, solar energy and biogas are little used. Although the use of solar energy is increasing, there is such abundant sunlight that we should make better use of this source. We might also consider quick growing species of trees, like *Leucaena sp.* in fuelwood plantations, and so preserve our forests. Jamaica’s first wind turbine (at Munro College, St. Elizabeth) began operating in 1996.

## Human Communities

The development of human settlements involves a transformation of the natural environment into a man-made environment. The characteristics of this new environment are determined by culture, but there are always environmental problems which arise. Rapid urbanisation is one of the world’s greatest environmental problems, because it calls for the speedy addition of infrastructure, shelter and services like health, education, electricity, water supplies, sewage treatment, employment. In addition, urban centres draw heavily on environmental resources, and contribute little to them. Resources are usually brought into urban centres from elsewhere.

In Jamaica, the urban population has risen from about 32 per cent in 1960 to just over 50 per cent in 1999. Most of the estimated 2.59 million (1999 figure) people live on or near the

fumes into the air<sup>1</sup>, and recycled or abandoned car batteries cause leakage into the soil. In the Hope Flat/Kintyre area, east of Kingston, sited on an old copper mine, high concentrations of lead were found in the soil in the 1980s. Primary school children screened in the 1990s had unacceptably high levels of lead in their blood, though they did not yet show signs of lead poisoning. After some contaminated areas were covered with marl and cement, and extensive educational campaigns stressing cleanliness, the level of lead in the blood of these children decreased, and the new generation now have levels below the international level set for intervention.

Minerals extracted commercially in Jamaica are bauxite, gypsum, limestone and marl. Mining operations for the extraction of aluminium from bauxite is one of Jamaica's main industries. Some bauxite is exported in crude form, but more is converted to alumina before export. Although bauxite makes an important contribution to the economy, mining and processing the ore have caused much environmental damage, including dust and noise pollution, production of red mud residues, loss of biodiversity, reduction of forest cover, and increasing accessibility of forests for illegal logging using the roads built for hauling bauxite. Human communities have also had to be relocated, and roof damage associated with emissions of sulphur dioxide has been evident. Some bauxite lands have been rehabilitated; mined out areas have been covered with fertile soil, and the areas used for pastures, dairy farming, fruit trees, and for resettlement. The original vegetation types are, however, not renewed.

Quarrying gypsum has similar environmental effects to those of bauxite mining – natural environments are converted into barren mining areas, and dust is a problem. Illegal sand mining causes river and beach erosion, flooding and ruined agricultural lands.

cards or notes (ii) sell bottles to recyclers (see Appendix 4 for a list of recycling organisations).

- Set up a Litter Control campaign on campus (put up signs, beg for garbage containers, speak with staff who empty containers).
- Organise an “envirothon” – a walkathon to raise money, for example, for planting trees around the fence line of the school, or for repairing leaking water pipes, toilets, faucets.
- Plant a butterfly garden for students to enjoy and to learn from (research which plants; beg and/or fund-raise the seeds and some hand tools, arrange with administration for the small piece of land or containers required; then do it).
- Set up a small pond with fish and pond weeds and water lilies (use same procedures as above).
- Enhance the habitat: “adopt” an animal, e.g., set up bird feeders, or “adopt” a tree, e.g., beautify the area around it, take care of the tree.
- Visit a home for the elderly and entertain them or assist in personal grooming or simple tasks.
- Visit a children's home or children's ward at a hospital to read books for them and help with homework.

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<sup>1</sup> Jamaica no longer uses leaded gasoline.

## SUGGESTED THEMATIC ACTIVITIES: BIRDS

### Maths

- Conduct bird counts
- Draw graphs
- Analyse statistically

### Language Arts

- Keep records and communicate effectively
- Read literature on birds – birds in fiction and non-fiction; birds as symbols.
- Write and share poetry on birds

### Information Technology

- Search internet for information
- Develop website
- Prepare a presentation on a bird species.

### Science

- Identify birds. Observe colours (camouflage), feathers; adaptation of beaks, feet.
- Study habitats; feeding habits; position in food chains and webs; territorial behaviour; effects of pollution on birds; bird conservation
- “Adopt” a bird species

### Technology

- Make bird feeders
- Make kites with bird forms

### Music/movement/drama

- Identify and imitate sounds of birds
- Role play e.g. territorial behaviour of birds, conservation of birds
- Create a bird dance – imitating bird movements
- Put poetry about birds to popular music or dub rhythms
- Identify and sing folk songs on birds

### Geography

- Locate and describe habitats
- Describe seasonal variation
- Trace migration routes

### Visual Arts

- Observe colours, shapes, textures of birds/feathers/beaks/feet and portray them in sketches, drawings and paintings.
- Use structural materials and found materials to represent the form of birds.
- Make bird masks
- Decorate with feathers
- Use bird forms on textiles
- Design kites with bird forms
- Create posters about bird conservation

use of protective agricultural practices like terracing, contouring and mixed farming.

## Air Pollution

The earth’s atmosphere is all around us, with natural systems organised for maintaining a fairly constant mixture of gases, mainly nitrogen and oxygen. This is necessary for all living things. Green plants, which give off oxygen as they photosynthesize, help to keep the level of oxygen in the air constant. Many substances or pollutants are liberated into the air, which may cause human health problems, damage to other living things or to property. For example, asthma sufferers are often affected adversely by air pollutants.

The burning of fossil fuels releases oxides of sulphur and nitrogen. When these dissolve in rain, the rain-water becomes acidic. Another effect of the increased burning of fossil fuels in recent times is that the increased amount of carbon dioxide and other gases released (greenhouse gases) traps too much of the sun’s heat, and could lead to faster than normal increases in world temperature. Should this occur, sea levels could rise, and affect small islands such as those found in the Caribbean.

Some greenhouse gases, especially the chlorofluorocarbons (CFCs) found in many aerosol sprays, also contribute to damage to the shield of ozone high up in the atmosphere which protects the earth from excessive ultraviolet radiation.

## Minerals

Minerals are naturally occurring substances found in the earth. They are produced by inorganic processes, that is, they are not of plant or animal origin.

Several poisonous minerals are present in Jamaican soils, such as arsenic, mercury, cadmium and lead. Of these, only lead is usually highly connected with human activities, and has caused any known poisoning. Engines using leaded gasoline emit lead



Mangrove woodlands occur along much of the south coast, and parts of the north coast of Jamaica. The largest remaining stands are in the Portland Bight area, which is now a protected area. Mangrove woodlands are under pressure because we want to use them for housing (including hotels), charcoal burning and construction.

### Water supply

Water is a renewable resource; it is recycled in nature: heat from the sun causes water from the land surface, from rivers, oceans, and from the leaves of plants to evaporate (change into a gas). This rises high in the air, where it cools and forms very small drops of liquid water, in clouds. Eventually the water falls as rain, and the cycle begins again. Only about three per cent of all the water on earth is fresh water. About three quarters of this is trapped in ice caps and glaciers. In Jamaica, over 90% of the water supplied to everyone in the island is groundwater. The quality of this water is high, and is suitable for human consumption with minimal treatment. Threats continue, however, from seepage of sewage and nutrients from agricultural use.

A watershed is the land area that drains into a stream. Healthy watersheds are well forested. Our watersheds have been damaged by unsuitable agricultural practices; the removal of trees for fuelwood, charcoal production, yam sticks, and lumber; forest fires; human settlements; and unapproved quarrying and sand mining.

Some of the effects of this damage are: reduced vegetative cover and loss of topsoil (an inch of topsoil can take hundreds of years to develop); reduced water availability and quality; increased marine and coastal contamination and degradation; increased flooding resulting in loss of human life, property, roads and crops; and loss of habitat for important flora and fauna.

We can help to protect our watersheds by planting new trees; constructing check dams across smaller gullies to control the rate of flow, trap soil and help to establish vegetation; making

## SUGGESTED THEMATIC ACTIVITIES: SCHOOL GROUNDS

### Maths

- Measurement, length, weight e.g. litter
- Calculate areas
- Graph data

### Language Arts

- Write journals (e.g. seasonal changes)
- Write letters, debate use of school grounds
- Write poetry
- Use a rhythm to create dub poetry or rap

### History

- Research use of grounds over time. Research historical records e.g. school magazines.
- Interview staff with long service

### Information Technology

- Search internet for information
- Develop website
- Process data on spreadsheets
- Produce a newsletter

### Science

- On nature walks: identify smells, textures, colours (camouflage), sounds, shapes and forms.
- Identify animals and plants - including insects and wildlife. Study animals' habits, food chains and webs.
- Study a tree - its flowers, fruits, seeds, changes over time
- Study soil types – drainage etc. erosion.
- Record weather over time.
- Study pollution - make comparisons

### Music / movement / drama

- Identify and imitate sounds of the environment
- Role play e.g. response to pollution of grounds
- Create a dance
- Create a song on caring for the environment

### Geography

- Make and use maps of grounds to scale.
- Use compass for treasure hunts.
- Plot land use. Make models to scale. Study traffic flow.
- Record weather.
- Study landforms.
- Identify resources on the grounds

### Visual Arts

- Identify colours, shapes, forms, textures
- Sketch, draw and paint school ground scenes.
- Use colours, patterns, shapes, textures to portray plants, animals and buildings
- Use structural materials and found materials to represent forms, objects
- Decorate by stamping with found materials
- Create posters e.g. against pollution of grounds, caring for the environment

## SUGGESTED THEMATIC ACTIVITIES: BUILDINGS

### Maths

- Measure length
- Calculate areas, volumes
- Draw floor plans to scale
- Make models of geometrical shapes seen on buildings

### Language Arts

- Descriptive writing
- Imaginary writing about what goes on in school buildings, especially dormitories

### History

- Research past use of and past events in buildings
- Interview people associated with buildings in the past
- Research changes to buildings over time

### Science

- Study materials used in building construction
- Investigate energy and water use on campus
- Consider ventilation of buildings
- Look at the effects of erosion and pollution
- Study preparedness of buildings for natural/man-made disasters e.g. flooding, hurricane, earthquake, fire

### Music/movement/drama

- Role play, create a dance or song about life/work in the school buildings or preparedness for disasters
- Develop activities to make parts of any building more pleasant

### Information Technology

- Search internet for information
- Develop website
- Process data on spreadsheets
- Produce a newsletter

### Geography

- Locate position of school on maps in town, parish, country
- Map position of college buildings
- Effects of climate and weather

### Visual Arts

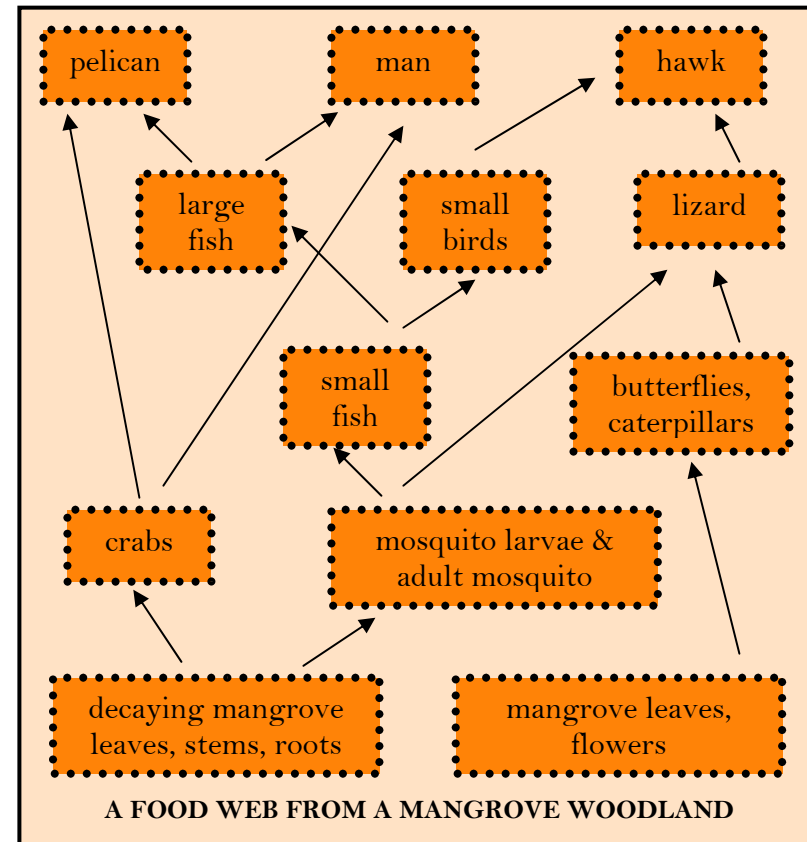
- Identify colours, shapes, forms, textures on buildings
- Sketch, draw and paint scenes of buildings – roof and window designs, mouldings, carvings, wrought iron designs.
- Use structural and found materials to make models of buildings
- Create posters e.g. for preservation of buildings

REDUCE

RE-USE

RE-CYCLE

button mangroves. It is easy to recognise the red mangroves along our coastlines, because the roots look like stilts, with the trunk and leaves of the tree above. The black mangrove has short roots which stick up above the surface of the swamp.



Mangroves are a breeding ground for many species, including worms, snails, shrimp, clams, oysters, and some fish. They offer protection for maturing offspring. The diagram shows a small part of the kind of food web you would expect to find in a mangrove swamp.

Mangroves also filter and absorb pollutants in runoff, and so improve water quality. They protect shorelines from wave and wind erosion, and protect coral reefs by holding back sediment that might damage coral by shading or suffocation.

# Appendix 1

## Information on the Jamaican Environment

### Jamaica's biodiversity

The diversity of plants and animals in Jamaica is extraordinary, and the island has a high level of endemic species, that is, species that are found nowhere else. This is because there is such a variety of types of ecosystems – wet and dry forests, rivers, caves, mineral springs, sandy beaches, rocky shores, mangroves, herbaceous swamps, swamp forests, salinas, mountains and plains. The essential goods for our survival depend on the variety and variability of genes in these species, on the numbers of their populations and the ecosystems of which they are a part.

Several factors threaten Jamaica's biodiversity; for example, urban growth, pollution and deforestation. One useful strategy to abate these threats is a system of 'protected areas', which should remain untouched so as to preserve them. These areas include the Blue and John Crow Mountains National Park, Coral Spring/Mountain Spring, Portland Bight, Palisadoes-Port Royal area, Montego Bay, Negril and Ocho Rios Marine Parks. The system, however, is inadequate, and many more areas need to be protected. The Black River Morass is protected under the RAMSAR convention for protecting wetlands. At the present time, 14 animal endemic species and 200 plant endemic species are classified as either endangered or threatened. Such species include the Jamaican coney and the giant swallowtail butterfly.

### Mangrove woodlands – a special ecosystem, an example of our biodiversity

Mangroves are a group of plants found in river estuaries and coastal swamps. They are adapted to living in brackish water, in water-logged conditions, without much soil air. In the Caribbean, there are four species – the red, black, white and

## How Green Is Your School?

1. Does your school have a *recycling programme* for its waste paper, cardboard, cans and bottles?
2. Does the school have a *policy* to use recycled paper?
3. Does your school seek to avoid the use of disposable paper, plastic, foam cups and plates?
4. Has the school eliminated the use of aerosol sprays and fire extinguishers that contain CFCs?
5. Does the school have an active policy and strategy to reduce its water consumption?
6. Does the school use environmentally-friendly cleaning liquids?
7. Does the school avoid the use of garden and household pesticides, using environmentally-friendly alternatives instead?
8. Does the school have an active *policy and strategy* to reduce its energy consumption?
9. Does the kitchen offer a choice of healthy foods, and discourage students from eating "junk" foods?
10. Does the kitchen collect its food waste to turn it into compost, or use it to feed dogs or pigs?
11. Does the school have houseplants in rooms and corridors?
12. Is the school making an effort to beautify its grounds?
13. Does the school provide environmental education and project-work for students and staff?

14. Does the school get involved in local environmental activities (both staff and students)?
15. Does the school invite speakers to talk to all about the environment and its problems?
16. Does the school library ever hold special exhibitions of books, magazines about the world environmental crisis?
17. Does the school have an environmental club or society?
18. Has your school ever undertaken an environmental audit of its activities and courses?
19. Has your school set up an Environmental Action Team to look into the kinds of actions which it could take?
20. Does the school encourage staff and students to take a positive attitude, building the belief that we CAN make a difference?

#### SCORING:

Yes = 2

Partially, presently discussing this = 1

No = 0

#### REPORT CARD

36-40 = You are doing excellently!! Take a Green Medal!!

31-35 = You are doing quite well!

21-30 = You have made a start, but you are not yet a green school.

0-20 = Plenty of room for improvement, must do better next term!

Adapted from: Dauncy, Guy (1990). *Building a green future: thirteen practical ideas for environmental organisers and activities*. Ganges, B.C: Garden of Gaia.

14. Other Institutions: Caribbean Agricultural Research and Development Institute, International Centre for Environment and Nuclear Sciences at UWI, Office of Disaster Preparedness and Emergency Management, Pesticide Control Authority, UWI Marine Lab at Discovery Bay, National Gallery of Jamaica, National Library



## FIELD TRIP SITES IN JAMAICA

1. National Heritage sites, e.g., Spanish Town Square, Port Royal, Seville, Rio Nuevo battlefield
2. Great houses in your parish
3. National Parks in your parish, e.g., Montego Bay Marine Park, Blue & John Crow Mountain National Park
4. Interesting places, e.g., Black River, Runaway Bay, Nonesuch or Windsor Caves, Rio Grande, Mineral Baths, Falmouth (buildings & swamps)
5. A filter plant or reservoir of the National Water Commission
6. Any garbage dump, recycling facility or landfill
7. Any environmental non-government organisation in your parish
8. Seven Oaks Sanctuary, St. Ann; Hope Zoo, St. Andrew; Serenity Park, St. Catherine
9. Forestry Department or Ministry of Agriculture nursery
10. Botanical gardens, e.g., Hope, Bath, Castleton, or Cranbrook Flower Forest
11. Museums: Geology Museum at UWI, Natural History Museum at Institute of Jamaica, Arawak Museum, Spanish Town Historical Square and Museum
12. Cultural sites: African-Caribbean Institute of Jamaica, Bob Marley Museum, National Stadium complex, Maroon villages in St. James, St. Thomas, Portland
13. Industrial plants: alumina/bauxite plants, breweries, distilleries, e.g., Appleton Estate

## All About Field Trips

### FIELD TRIP PLANNING CHECKLIST

- Discuss needs and interests of members
- Determine objectives of trip
- Determine site of trip
- Determine date and time of trip
- Obtain administrative permission
- Make transportation arrangements and determine cost
- Confirm accompanying staff
- Determine cost of admission (if applicable)
- Determine other costs
- Determine name of contact person at site
- Conduct a pre-trip site visit
- Note potential hazards
- Develop tentative trip schedule/rest stops, etc.
- Confirm arrangements in writing
- Send notice to teachers about possible absences
- Source equipment/materials to carry
- Determine required clothing
- Establish and disseminate trip rules
- Identify responsibilities of participants
- Decide on data collection
- Conduct pre-trip activities e.g. practice using equipment
- Teach emergency response procedures
- Note special needs of any participant
- Conduct post-trip activities:
  - Debriefing
  - Write trip report
  - Make presentations
  - Send thank you letters

## SAFETY CONSIDERATIONS FOR OUTDOOR EXPERIENCES

Safety considerations are important for any outdoor experience. Possible environmental risks should be considered and managed in an appropriate manner. No matter how carefully activities are planned, there is always a chance that an incident can occur.

Depending on the kind of incident that occurs, group leaders should consider the following:

- the affected person/persons
- getting emergency service, as needed
- the needs of the remainder of the group
- notifying school administrators/parents/guardians.

**The following precautions should be observed when working outdoors:**

### In a built environment – urban or rural

- Know meeting times and places
- Meet in groups away from the main street
- Use pavements
- If there are no pavements, walk in single file facing oncoming traffic
- Use pedestrian crossings
- Stay within the group to which you are assigned

### At ponds/ rivers or other bodies of water

- Walk on firm ground in sight of others
- Watch your footing
- Do not splash up water
- Wear rubber gloves when working in the water to avoid getting diseases like leptospirosis
- Wear rubber boots over shoes, as appropriate
- Have a safety line available, as appropriate

## On a farm

- Avoid dangerous farm equipment
- Wear gloves and/or rubber boots in areas that have manure, since manure can contain disease causing organisms
- Do not chase animals
- Be careful of the plants you touch. Most are harmless; but, some may be poisonous.

*In general, you must be careful when using equipment with glass or equipment with sharp points and edges. Hand lenses, for example, can start fires if they are not used properly.*

