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CARIBBEAN CONSERVATION ASSOCIATION

ENVIRONMENTAL AWARENESS WORKSHOP

BUILDING SKILLS FOR
EFFECTIVE COMMUNITY ACTION

AND

PUBLIC AWARENESS



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FINAL REPORT OF A WORKSHOP HELD AT
GRAND ETANG FOREST RESERVE, GRENADA
JUNE 27 - JULY 2, 1988

ORGANIZED BY
CARIBBEAN CONSERVATION ASSOCIATION

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Prepared by: Calvin A. Howell
Workshop Coordinator



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BACKGROUND AND SUMMARY

An Environmental Awareness Workshop, targeted at twenty-five Youth and Community leaders from the Leeward and Windward islands of the Caribbean, was organized by the Caribbean Conservation Association at Grand Etang Forest Reserve, Grenada, from June 27 to July 2, 1988. The workshop presented an opportunity for participants to increase their awareness and understanding of regional environmental issues and to improve their skills at sensitizing members of the organizations with which they work as well as the general public to the importance and relevance of environmental issues, with a view of effecting positive change at the community level.

The workshop concentrated primarily on environmental issues confronting the participating countries as highlighted in the individual country reports which were presented during the early sessions of the workshop.

Through the use of lecture/discussion, popular theatre techniques, role playing, sessions on project proposal preparation, goal setting and fund raising strategies, techniques for introducing environmental awareness to youth and community organizations, and suggested methodologies for generating greater awareness and improving the quality of the Caribbean environment the workshop sought to increase the participants' awareness of environmental issues facing the region and to deepen their commitment to solving them.

The goal of Environmental Awareness Workshops is to commit participants to involvement in community environmental problems as an educational experience. This workshop was, therefore, designed as a model of this process. The major area of activity focused around the investigation of actual local problems, with each participant contributing to the investigation and making a commitment to share the experience with members of his/her group and with community residents afterwards. The projected result of this is that the participants would have learnt the value of acquiring, sharing, using and disseminating pertinent information to prevent or cope with similar problems when they are encountered again.

ASSUMPTIONS

Environmental Awareness Workshops are designed around two sets of assumptions. The first set concerns process, the second, content.

The process assumptions are well established and are particularly well expressed by the (US) National Education Association and the National Park Service as follows: *

1. "The learner learns best when he is actively engaged in what is being taught".
2. "The learner learns best when he is using all his senses".
3. "Each learner has unique ways of processing information and experience".
4. "The learner learns something new in relation to something he already knows".
5. "The learner learns what seems important to him - what he feels a need to learn".
6. "Discovering for oneself generates a sense of excitement and satisfaction that reinforces learning".
7. "Most formal learning occurs in groups, and all groups have dynamics or interacting forces that can either help or hinder learning"

The content assumptions are that local environmental problems exist everywhere, are current, generally poorly understood, and that there may be no pat answers, text books, or experts.

Because of these process and content assumptions, community environmental problems are ideal subjects to study since everyone can learn something important and everyone can contribute something of value.

*National Park Service and National Education Association, A Guide to Planning and Conducting Environmental Study Area Workshops, 1972, Library of Congress Catalog Card No. 72-83859, NEA Stock Number 191-05994.

The success of a Workshop depends to a very great measure on the extent to which these Assumptions are used as guidelines. The greater their application the greater the individual participation, and the greater the participants' benefit. The confidence of the participants in allowing the process to work upon them is, therefore, very important. Since self confidence and group spirit are an individual matter, all Workshops have differing degrees of success. In all Workshops, however, participants have an opportunity to be rewarded with achievement and a sense of sharing a newly identified common goal.

OBJECTIVES

The objectives of the workshop were as follows :

- To increase participants' awareness of the region's environmental problems and to sensitize leaders of youth organizations to the main causes and effects of global as well as regional environmental issues;

- To help participants develop their skills at increasing understanding among youths and community residents of the importance of their role in environmental preservation;

- To develop strategies for effective community action and greater public awareness;

- To provide an opportunity for participants to share experiences and discuss successful approaches to sustainable development projects at the community level.

OPENING CEREMONY

The opening session of the workshop was conducted under the chairmanship of Dr. J. DeVere Pitt, Chairman of the National Science and Technology Council which coordinated the local arrangements. Dr. Pitt welcomed participants and specially invited guests on behalf of the workshop organizers and took the opportunity to highlight some of the activities scheduled to take place that week as part of Grenada's Environmental Awareness Week. The week of activities was organized by the Grenada Environmental Education Committee to take place simultaneously with the workshop. The activities involved some of the workshop participants.

The workshop was officially opened by Grenada's Minister of Education and Youth Affairs, the Honourable George McGuire who in his feature address, stressed his Government's determination to protect the island's "green belt".

Mr. McGuire emphasized that more than talk will be required if this is to be successful. "It is one thing to announce policy, and quite a different one to have those policies implemented" he said.

Mr. McGuire noted that in addition to policy formulation, conservation projects will not be successful unless people have a will to see those policies carried out, and an understanding of the delicate balances of nature.

CCA's Executive Director, Mr. Michael King, addressed the gathering and re-emphasized the importance of environmental awareness to environmental management if the Caribbean is to achieve sustainable development. Mr. King traced the historical connections between the CCA and the island of Grenada, and reminded the audience that the inaugural meeting of the CCA was indeed held in Grenada in 1967. He enumerated a number of projects which have since been carried out by the CCA from which the Government and people of Grenada have benefitted. He urged the workshop participants to make good use of the opportunity being afforded them.

Mr. Calvin Howell, CCA's Environmental Education Officer and principal resource person for the workshop, thanked the many individuals and organizations who had co-ordinated the local arrangements and who had contributed in one form or another towards making the workshop a reality. Specifically, he acknowledged financial assistance for conducting the workshop from World Wildlife Fund-US, the Office of International Affairs U.S. Fish and Wildlife Service, Canadian University Service Overseas (CUSO) and United Nations Environment Programme (UNEP).

Appreciation was also expressed for the work done behind the scenes by Dr. DeVere Pitt, and by Messrs. George Vincent and Allan Joseph of the Forestry Division in Grenada.

THE WORKING SESSIONS

The Working Sessions were structured around problems identified and concerns raised by participants as articulated during presentations of Country Reports and the expectations voiced by participants.

Following discussion of Country Reports and specific island / country environmental issues, four broad areas were identified as being common to all the islands represented. These were:

- Sand Mining, Coastal Erosion and Marine Pollution
- Solid Waste Management
- Deforestation
- Problems related to Tourism and Development

These formed the focal issues for the Working Groups.

Much of the discussion centered around designing and conducting environmental awareness programs to sensitize members of Youth and Community organizations to the causes and effects of environmental degradation and the development of workable solutions to some of these problems. Several techniques and strategies to accomplish these objectives were discussed.

Deriving from working sessions was information and skills exchange in five major areas as follows:

1. PROJECT PLANNING

Participants were exposed to a number of approaches for introducing environmental awareness programmes into their group activities. Regardless of the approach used, a number of common factors need to be considered. These include:

- The identification of the environmental problem to be addressed. Analyze the severity, causes and effects
- The proposed project's objective and content

- Identification of the target audience - age, sex, attitudes, educational level, motivation, number of participants etc.
- Their understanding concerning why the project is being implemented and their response and attitude to the proposed project
- Project duration
- Resource budget - type and quantity of funding
- Type of support available from Governments and NGOs
- Media facilities available
- Infrastructure and other facilities available
- Benefits to be derived from the project by the target groups
- Anticipated outcomes from the project
- Ensure that the project is within both the financial and the manpower capabilities of the group

2. PROJECT IMPLEMENTATION

The following were found to be essential components of the implementation stage:

- Introduce the project to the target audience to determine their level of interest. If they are interested, outline the specific objectives of the project and brainstorm the group for ideas and suggestions.
- Analyze the support available from other organizations and verify that the necessary facilities required are available
- Develop an Action Plan and Time Table
- Develop a Responsibility Matrix
- Ensure proper accounting and reporting systems are established and develop cost saving and monitoring programmes
- Ensure that there is some form of public awareness as

to the proposed project and what it intends to achieve.
(Make use of the available news media)

- Contact the target audience again and involve them in the planning of the final project, action-plan and time-table and ensure their commitment to participating in the project
- Use resource persons who are knowledgeable and able to work with the target group and who can relate to the project
- Analyze and evaluate results: set measurable goals and measure the project's impact by various methods of information collection for evaluation.
- Ensure that each stage of the project starts on time.

The skills required for project planning and implementation would vary according to the type of project being implemented but generally they would include:

- Data collecting skills
- Problem solving skills
- Organizational, management and administrative skills
- Public relations and effective communication skills
- Decision making skills
- Group process skills (ability to listen and understand problems)
- Writing skills (reporting, book-keeping, analysis etc.)

3. FUND RAISING

Participants expressed a common problem encountered by most groups - a lack of available funds for implementing projects. A brainstorming session to develop ideas that could generate funds for implementation of small projects produced a number of suggestions including:

- Used book sales
- Jumble sales

- Cooking contests
- production of posters and post cards
- T-shirt sales
- Bingo games and other indoor amusement
- Walkathons / sponsored walks
- Dinners / parties
- Business donations
- Advertising
- Producing art work / prints etc.

It was recognized that the type of fund-raising activities listed above may not provide adequate funding for large-scale community based projects. Funding from international donor agencies may be necessary.

4. PROJECT PROPOSAL PREPARATION

A special session on Project Proposal Preparation was arranged, since some participants had little or no experience in this area. The following structure was suggested:

Abstract: A brief summary of the proposed project, its objective and rationale.

Background and Justification: An explanation of the importance of the project and the rationale for its implementation

Project Objectives: The overall and specific objectives of the project - what it seeks to accomplish

Achievement Indicators: How the outputs of the project will be measured

Detailed Work-plan: A break-down of both work and time allocated, setting specific target dates

Detailed Budget: A break-down of costs for the various activities of the project

Evaluation Criteria: These should be measurable

5. ROLE PLAYING and POPULAR THEATRE

Participants took part in popular theatre and role-playing sessions, paying special attention to the important aspects of planning that goes into the development of any environmental awareness project that may be considered for implementation.

Role playing is a teaching/learning strategy which is often categorized under the heading "Simulation". In role play the learners adopt and perform roles of individuals or groups involved in a particular situation or issue. The acting is spontaneous and the essential feature is that the actor ought to be able to internalize the roles and feelings of the individuals whom they are portraying.

As a tool in environmental education, it is a useful strategy since it focuses the attention of the learner on the practical problems of the environment, helps the learner examine the issues from more than one perspective, makes the learner assess his/her own beliefs in response to the environmental problem, improves problem solving and decision making skills and improves attitudes towards environmental problems. In so doing, the learner has to consciously examine his/her own beliefs and attitudes towards environmental issues.

Role playing is therefore a useful strategy to employ when attempting to bring about attitude change.

Note: More information on Role-playing is given in Appendix #3.

FIELD TRIPS

In keeping with the objectives and rationale of the workshop, participants visited a number of sites at Grand Etang and on the western and northern parts of the island. Each site demonstrated issues of particular environmental concern. Observations were conducted at the following sites:

St. John's River, the Beausejour Valley, Perseverance Dump Site, Carib's Leap (Sauteurs), Levera National Park, Bathway Beach, Lake Antoine, Grand Etang Lake, Nature Trails at Grand Etang.

Participants were provided with notes on environmental issues related to each site visited. After the visit the problems observed and some possible solutions were discussed.

In several of the areas, evidence of pollution was found including chemical pollution (herbicides, pesticides, industrial and other toxic compounds), sewage and domestic pollution, bacterial pollution, organic matter, sediment and litter. Other problems found in some areas include soil and coastal erosion.

Some suggested reasons for the erosion problems include a lack of public education on the correct methods of erosion prevention and control, and the continued practice of deforestation in order to gain access to new land areas for agricultural production.

Concern was expressed for the varying degrees of pollution found at various sites and the consensus was that a general lack of concern by members of the public for one another was extended to the surroundings as well. The end result is that because public land has no single owner, no one individual is responsible for its maintenance, hence environmental problems arise.

In the coastal areas, sand mining, littering and garbage disposal on the beach have also had their effects on the marine life and coastal environment. Associated with this, is the problem of siltation of rivers and seepage from dump sites close to the beaches which has led to pollution of the beach and near-shore waters. Many participants felt that most of the problems encountered could be avoided if there is proper public education regarding the collection and disposal of garbage.

In the case of marine pollution, it was the consensus that highlighting the problem and its damaging long term effects, by the use of appropriate environmental education programmes involving all of the media available, could result in an overall increase in awareness on the part of the public. Various approaches for public participation in the prevention and combatting of marine and land-based pollution were proposed. These and other recommendations are outlined in the relevant section of this report.

As most people who have attended seminars and workshops of this type know, the degree of success achieved in these meetings depends largely on the quality of participation. The Grenada Workshop brought together a dedicated group of young environmentalists who were eager to learn, willing to share their experiences and to make useful observations and suggestions for follow-up action.

The extent to which the recommendations of the workshop will be followed up will depend, to some extent, on CCA's ability to serve as a catalyst for maintaining contact between the various groups represented. Much of the follow-up action will have to be initiated by CCA, but the support of the groups represented at the workshop will be crucial. In spite of CCA's other mandates this challenge will be accepted and follow up action taken.

CCA wishes to thank all of the participants for their valuable contributions to the Workshop. Special thanks are owed to Ms. Sandra Joly of the Audio-Visual Unit of the Grenada Teacher Training College for her assistance in providing photographs of the workshop sessions, as well as to the following resource persons who contributed to the outcome of the workshop:

Dr. Judith Breuggeman, Zoological Education Coordinator, Busch Gardens, Tampa, Florida, a Consultant with FAVA/CA;
Mr. Scott Eckert a U.S. Peace Corps volunteer attached to the Forestry Division, Department of Agriculture, St. Vincent;
Mr. Richard Huber a Consultant with the Organization of American States (OAS) currently based in Grenada;
Mr. Rolax Frederick of the Forestry Department, Grenada, and
Dr. Guido Marcelle, President of the Pesticides Control Board of Grenada. To the many other persons, who contributed to the success of the workshop, the CCA extends its gratitude.

TREE PLANTING EXERCISE

One "hands-on" activity undertaken by the group was a beautification exercise planting a number of shade trees and flowering plants at historic Fort George. The group hopes that this contribution to the beautification of Grenada will serve as testimony to their commitment to enhancement of the environment.

CLOSING CEREMONY

After an intensive week of study, observation and interaction, the workshop was officially closed on July 2, 1988 by Dr. Devere Pitt during a Closing Ceremony at the "No Problem Apartments".

CONCLUSIONS AND RECOMMENDATIONS

Specific recommendations coming out of the four workshop sessions on Sand Mining, Coastal Erosion and Marine Pollution; Solid Waste Management; Deforestation; and Tourism and Development are contained in the Rapporteurs' reports appearing on pages 15 to 22 of this document. Other recommendations emanating from discussions following the field trips and other sessions are incorporated in this section:

It was the general consensus that the social and cultural environment play an important part in creating the environmental problems which have arisen as a result of rapid modernization and development in some areas, resulting in increased pressure being placed on the environment. The working group and field trip reports demonstrated that there is a need for public awareness programmes at all levels in order to stimulate better understanding and to galvanize community action to address environmental issues. The need for greater involvement by local Governments was apparent, particularly in enacting and enforcing environmental legislation. Public education about environmental issues should be on-going and should embrace both the formal and non-formal systems within the society.

The group recommended that lobbying Governments for the introduction and enforcement of appropriate legislation to prevent the further pollution of rivers, ponds and water ways (which eventually find their way into the sea) should be high on the list of preventative measures.

- Public education in the use of pesticides, herbicides, insecticides and fertilizers was recommended as being vitally important since these have a devastating effect on the marine environment.

- The development of broad-based environmental awareness programmes (both long and short term) to address major environmental issues was considered a priority.

- Other recommendations include:

Lobbying National Governments to establish adequate dump sites in suitably located areas, to provide proper garbage disposal facilities and to conduct research into the effects of chemical/industrial pollution with a view to preventing its occurrence.

- Initiating community action e.g. clean-up campaigns, group discussions, hikes, film-video shows on the environment, creation of environmental education working groups and environmental agencies.

- Conducting campaigns to discourage disposal into the oceans and near shore waters of the Caribbean sea of garbage, toxic and hazardous wastes and the illegal dumping of garbage in gullies, along beaches and coastal areas.

- Initiating campaigns to prevent the destruction of mangrove swamps and wet lands, and to discourage beach sand mining.

- Promoting the linkages between tourism based economic development and its dependence on a healthy environment.

Emanating from a special session on mis-use of pesticides was the recommendation that participants research the problem in their individual countries and document cases of actual poisoning by pesticides so that a strong case can be put to national Governments to ban the importation and use within the region of specific pesticides which have been banned from use in the developed countries where they are manufactured, but which are still imported, sold and used indiscriminately in the Caribbean. Many of these pesticides are considered extremely hazardous to humans and can kill far more than just pests.

Another recommendation coming out of the workshop was for the promotion by CCA of a Caribbean wide " Festival of Artistes for the Environment" to encourage top ranking environmentalists and entertainers of various kinds throughout the region to mount a high quality, entertaining festival to call attention to environmental concerns and to win support for worthwhile environmental projects.

Finally, it was recommended that participants in the workshop pool their creative resources and produce a promotional video highlighting environmental issues throughout the region on the theme "Give Nature a Chance" (trees, birds, fishes, seas, beaches etc.)

These recommendations will be raised in other fora and appropriate action taken when convenient.

WORKING GROUP REPORTS

Following the technical sessions, four working groups discussed the common problems in workshop session and presented the following reports in plenary:

1. SAND MINING, COASTAL EROSION, MARINE POLLUTION

Rapporteur: Celeste St. Hill

A. Sand Mining:

Causes: - The need for sand for building purposes
Effects - Reduction in the amount of sand being mined on beaches.

Recommended Solutions:

In many islands, beach sand is used as building material. As an alternative to beach sand mining (a) sand may be sought from other sources (b) alternative building materials may be used

Sand mining in inland areas results in quarries which leave ugly scars on the landscape and may become targets for illegal dumping. Wood is the most obvious alternative building material. However, the use of local wood should be limited if deforestation is not to occur. Short term and long term solutions are required to the problem of sand mining.

Short term solutions:

- 1) Sand mining should be controlled and should be limited to specific beaches.
- 2) Legislation should be implemented to ensure that sand mining is controlled throughout the Caribbean.
- 3) Enforcement agencies should be set up to ensure that the legislation is enforced.
- 4) Educational programmes on negative effects of sand mining and the use of alternative building material should be implemented.

Long term solutions:

An international conference should be planned with the objective of identifying and evaluating the feasibility of alternative building materials. Persons to be invited to the conference should be technicians- (coastal conservationists, environmentalists, engineers, architects etc.). Once alternative building materials have been identified and a strategy developed, proposals should then be made to Governments regarding their use and the control of sand mining.

B Coastal Erosion

Causes - The erection of buildings too close to the sea.
- The erection of groynes.
- The destruction of coral reefs.
- The destruction of beach vegetation.

Effects - Reduction in beach size.
- Loss of habitat to coastal flora and fauna.
- Destruction of beach front property and loss of revenue.

Recommended solutions

- 1) A Governmental committee/commission should be established in each island e.g.(N.C.C.) in Barbados. This committee will be responsible for initiating research into coastal erosion within each territory and will seek and implement solutions. This department will also be responsible for the planning and maintenance of seaside flora which will hold the sand and will reduce coastal erosion.
- 2) Seminars and awareness programmes should be conducted, aimed at various target groups (developers, government officers, hoteliers, the public etc.) in order to sensitize them to the problem and long-term effects of coastal erosion.
- 3) The press, T.V. and radio should be utilised in order to increase the public's awareness of these issues.
- 4) Legislation should be enacted to prevent the building of groynes the destruction of beach plants, the dynamiting of fish and the destruction of the reefs.
- 5) Building construction below the storm high water mark should be prohibited by law. To oversee this, there should be an effective Town Planning Department with persons sensitized to the deleterious effects of coastal erosion.

C Marine Pollution

- Causes
- The discharge of untreated sewage from homes/hotels etc. into the ocean.
 - The discharge of toxic waste (garbage, industrial chemicals, fertilizers, pesticides etc.) from local establishment.
 - The dumping of toxic wastes from foreign establishments.
 - The discharge of sewage, bilge water and the dumping of garbage from ships.
 - The discharge of chlorine from swimming pools.
 - Fresh water run-off as a result of soil erosion.
- Effects
- Destruction of marine flora and fauna.
 - Loss of revenue to agencies depending on a healthy marine environment for their subsistence.
 - A hazard to the health of coastal populations.

Recommended solutions:

- 1) Proper sewage treatment plants should be designed and established in all countries.
- 2) An import ban on specified harmful chemicals should be imposed. Proper studies should be conducted on pesticides and weedicides used in the country and persons using them should be educated in the proper use of chemicals.
- 3) A plan should be devised to use local fishermen, pilots of low flying aircraft, and the local Coast Guard in the monitoring of our coastal waters and the reporting of any unidentified vessels to the nearest base.
- 4) Legislation should be implemented to ensure the proper disposal of sewage etc. from ships. Harbour water quality should be continuously monitored to ensure that regulations are being observed. Investigations should be conducted if there is any increase in the coliform count and the offending vessels should be fined.

- 5) All swimming pool water should enter a catchment tank where the water can be suitably treated before being discharged into the sea.
- 6) A reforestation program should be investigated particularly geared to coastal areas.

2. SOLID WASTE MANAGEMENT

Rapporteur: Ronald Charles - Dominica

Definition of Solid Waste: Household and Industrial residues.

Some suggested causes:

- (i) Collection and storage of solid waste in the home and industry.
- (ii) Illegal disposal sites.
- (iii) Legally established dump sites are not suitably located.

Recommended Solutions

A. Conduct diagnostic survey to determine:

- (i) People's attitudes to collection, storage and disposal of waste.
- (ii) People's practices with regards to
 - (a) collection and disposal
 - (b) effects of collection and disposal.

Verify practicability of existing systems of garbage collection by local council and determine whether residents are aware of existing system.

B Develop a work plan to include:

- (1) A mobilization program in (a) schools, (b) youth groups, (c) homes.
- (ii) Popular Theatre techniques to sensitize people to waste management issues

- (iii) Radio programmes, jingles, television spots etc.
 - (iv) Clean-up campaign (both in community and illegal dump sites).
 - (v) Place litter bins in strategic spots
- C Carry out Evaluation to determine the effectiveness of the program

3. DEFORESTATION

Rapporteur: Leslie Charles - St. Lucia

Definition: Deforestation is the complete destruction of the forest area i.e. all strata by cutting, burning etc.

Causes:

- Overgrazing
- Charcoal production
- Demand for lumber by products and fuel due to population increase
- Residential purposes, clearing for housing
- Slash and burn for agriculture
- Clearing for construction of roads
- Land tenure system - Personal philosophy on forest resources
- Natural causes - like hurricanes and droughts augment the problem.
- Lack of effective policies and laws, and their non-enforcement
- Poor land and forestry management (plans)
- Squatting (illegal encroachment on the forest) as a result of poverty and unemployment (social causes)
- Attitudes towards the forest
- Modern technology e.g. chain saws etc. contribute to the problem.

Effects:

- Causes soil erosion
- Siltation of rivers, streams, seabeds thus destroying aquatic life.
- Causes floods during heavy showers - loss of plants and animals on land and in seas and rivers i.e. loss of natural habitat

- Soil infertility - waste of top soil
- Reduction of arable land
- Decrease in water supply; obstruction of the hydrological cycle i.e. more run-off occurs
- Destruction of renewable source of lumber, charcoal
- Changes in climatic conditions - temperature, moisture etc.
- Disrupts the ecological balance
- Loss of oxygen sources
- Increased evaporation
- Reduces the aesthetic value of the country
- De-stabilizes the flow of streams due to water absorption and retention
- Reduction of organic content i.e. rotting of logs and leaves
- Destruction of food chains

Recommended Solutions:

- (1) Control of livestock production through laws; enforce fencing and grazing policies
- (2) Provide alternative pastures for grazing
- (3) Provide alternative fuel-wood forest plantations, community forests for charcoal production; alternative sources of energy, more fuel efficient stoves.
- (4) Alternative building materials; manage forests on a sustainable yield basis - reforestation.
- (5) Population control family planning.
- (6) Alternative building structures (apartments instead of detached houses) change attitudes towards housing.
- (7) Implement improved crop production techniques which will enhance productivity of available agricultural lands e.g. agro forestry, terracing, grass barriers, improve irrigation techniques. A balanced approach to pesticide and fertilizer use. Combination of natural and biological/organic methods.
- (8) A planned approach to the use of roads which will maximize the use of existing roads. Design roads with the natural environment in mind. There should be efforts towards maintenance of the environment together with maintenance and construction of roads.
- (9) Implement comprehensive forestry laws and educate the public to their importance.
- (10) Reforestation after natural disaster action plan.
- (11) Establish firebreaks
- (12) Strengthen existing laws and policies
- (13) Improve management plans

- (14) Housing management through planning and the provision of low cost housing.
- (15) Education - Develop public awareness programs; implement laws and policies which exist.
- (16) Develop a "Land Use Policy" through a consultative process.
- (17) Control of industrial development.

4. TOURISM AND DEVELOPMENT

Rapporteur: Astra Penn - British Virgin Islands

Definition: The group agreed that tourism is a major foreign exchange earner and job provider in the region. Some islands depend solely on tourism. It was the consensus that if strict procedures are followed, tourism and positive development can work hand-in-hand.

Some Negative Effects

Strain on facilities:
(tourists tend to take more baths per day) hence more water needed for showers, pools etc., as well for golf courses, toilets etc.

- Contributes to de-forestation:
Tourism is the largest consumer of charcoal (i.e. use of barbecue grills).
- Contributes to social tension:
Tourism in many ways divides the people, it shows the "haves" and "have nots" as development is concentrated in one sector.
- Over-fishing:
Tourism creates a greater need for exotic dishes, i.e. more lobster, more conch etc.
- Sewage: produces large quantities of sewage which are destructive to coral reefs and marine life.
- Environmental Concerns:
Historical sites are overlooked and in some cases destroyed.

Recommended solutions:

- (1) Preserve culture: Promote the use in hotels of local herbs and use them in place of imported teas and coffee.
- (2) Promote historical and archaeological sites, and local cultural activities.
- (3) Activities: Take guests on nature tours: bird-watching, hiking etc, get them away from the hotel and out to other areas, thereby spreading the money around.
- (4) Impose a Conservation Tax: Have a tax imposed that will not go to Government but to environmental organisations for conservation projects.
- (5) Impose a close season on certain species e.g. conchs, lobsters, etc. to cut down on over fishing.
- (6) Legislation: Impose large fines on persons contravening environmental laws.
- (7) Establish de-salination plants for water supply.

COUNTRY REPORTS

Prior to their arrival for the seminar, participants were requested to prepare brief reports on the conservation activities and environmental problems in their island/country. The reports were to consist of the following:

- The major environmental problems of the country;
- Perceived causes and measures being taken for their solution/prevention;
- The role his/her organization can play in facilitating greater public awareness of these environmental problems.

The following reports were obtained from the workshop participants.

Anguilla, a 35 square mile limestone island on a coral base, rises to a maximum of 213 ft. above sea level. Although Anguilla lacks volcanic mountains, high rainfall and rich agricultural soil, it is more than compensated by its white sand beaches, crystal clear water and coral reefs teeming with marine life.

The absence of adequate rainfall and a generally unproductive soil, has prevented agriculture from being as strong an economic or employment source as in other Caribbean islands; and since Anguilla possesses no mineral resources there has been little alternative than to make tourism the main stay of the economy.

There are a myriad of real and potential threats to the environment and since the island's natural environment is the main tourist attraction, it must be preserved and any threats must be controlled before the situation becomes irreversible.

Problems:

With the increase in building construction, the demand for sand has also increased, resulting in indiscriminate sand mining. This process has destroyed at least one beach (Sile Bay). The Forest Bay has been almost entirely destroyed and the beaches of Shoal Bay and Meads Bay are threatened. There are also plans for the construction of two hotels in areas of sand dunes which will inevitably affect nature's balance on the dunes.

Due to the absence of a large agricultural industry, the danger of chemical pollution from fertilizers has been minimized but the underground water supply is threatened by the disposal of sewage into underground septic tanks with the possibility of contamination by untreated waste. The potential for contamination is greatly increased by the construction of more hotel rooms. Litter has also had its effects by placing further strain on the natural beauty of the island and the garbage collection and disposal services, thus severely threatening the tourist industry.

Coral reefs and beaches are also threatened by the dumping of waste from ships and by oil spills in the area, which by extrapolation would also endanger the island's tourist industry. The marine resources are being pressured as a result of over fishing of popular fish species; lobster, conch and marine turtle catches.

The imminent opening of the North Coast area will not only affect the unusual plant life there, but will likely destroy the endemic iguana found only in that part of the island.

The filling in of salt ponds also threatens the ecosystem and may result in flooding in the future.

It should be remembered that some of these issues presented are only potential problems at present but they should be considered and dealt with now rather than later when it may be too late.

Areas of Action

Some areas of action are as follows:

Legislation has been enacted to prevent sand mining, hunting of sea turtles, destruction of their nesting sites and littering.

Marine parks have been designated and the first National Park has been established.

Plans are underway to protect the underground water supply from contamination by sewage disposal, and various government departments are involved in conservation and beautification programmes.

At present there is no specific government department dedicated to environmental conservation and there is no coordination of efforts. The formation of a National Trust to manage National Parks, Museums etc. should improve the coordination of conservation efforts, but there is need for government to establish an Environmental Awareness Committee and eventually a Department of the Environment.

Tree planting and beautification programmes should be encouraged and additional areas should be designated as National Parks including the off-shore bird sanctuary of Dog Island's Satellite Cay.

Finally, the environment is too important to our very survival for us not to be conscious of the issues, the problems and the solutions.

BARBADOS

Presenters: Celeste St. Hill, Judy Sandford & Donville Innis

Barbados is 166 square miles and has only a thin top soil yet supports a population of about 254,000 people. Consequently it is one of the most densely populated places in the world. Its main industries are tourism and sugar and in 1987, the island was visited by an estimated 422,000 short stay visitors.

Problems:

It is not surprising therefore, that Barbados suffers from several environmental problems, some of the major ones are listed below:

Pollution of the land, underground water supplies and/or near shore coastal areas by the:

- illegal dumping of refuse in gullies and in open refuse dumps.
- use of large amounts of fertilizers, pesticides and weedicides
- inappropriate disposal of industrial waste and hazardous chemicals
- inappropriate disposal of sewage via illegally placed suck wells or soak-away pits
- discharge of sewage directly into the marine environment from residential areas, hotel establishments and cruise ships with little or no treatment.

Coastal erosion as a result of the:

- erection of groynes
- reef destruction by the harvesting of coral, dynamiting of fish, careless anchoring of boats, etc

Soil erosion as a result of:

- poor agricultural and farming practices
- debushing

Loss of natural habitat (woodlands, wetlands, coral reefs, dune areas) as a result of:

- residential and industrial expansion
- various forms of pollution

Decrease in flora and fauna as a result of:

- over-harvesting
- loss of natural habitats

Over the years various governmental departments and non-governmental organizations have undertaken projects to combat environmental problems. Included among these is the Keep Barbados Beautiful Committee (KBBC) a non-governmental, non-profit organization composed of concerned citizens interested in and willing to work towards ensuring that Barbados remains environmentally healthy.

Areas of action

The KBBC was formed in 1979 at a time when illegal dumping and littering were particularly noticeable. Its main objectives were originally to educate the community in its attitudes towards the disposal of litter and to encourage the beautification of homes and gardens and the planting of trees. Over the years however, the Committee has widened its scope and now functions as a pressure group that seeks to draw government's attention to a number of problems relating to the management of various aspects of the environment and the need for the creation of a Government Department with specific responsibility for the Environment.

The KBBC has initiated several projects over the years, some of which are:

- Best Garden Competition (1980, 1981, 1985)
- Beautiful House Competition in Marchfield, St. Philip (1985)
- Art and Poster Competition with an environmental theme for schools.
- A national anti-litter campaign which included the making of the film "Vanishing Heritage" (1982) which was shown in community centres throughout the island.

In addition, the Committee participated in a National Consultation on the Environment in 1987 thus helping to formulate a national framework on the environment. In 1988 the Committee embarked on its most ambitious project - an Environmental and Cultural Awareness programme aimed at one village in each of the eleven parishes. Funding was received through the Canada Fund for Local Initiative and Celeste St. Hill and Judy Sandford were appointed as Coordinator and Assistant Coordinator of the programme. Additional funds were made available by the Insurance Corporation of Barbados for the re-vamping of the film "Vanishing Heritage".

The programme is aimed at 11 villages throughout the island, one per parish. The participants view films, take part in panel discussions and are exposed to environmental education materials. Environmental problems facing a particular community are identified and solutions offered; resource persons are on hand to answer questions. Many interesting activities and competitions have been designed to gauge the programme's success.

Other environmental activities include field trips and hikes to areas like Graeme Hall Swamp, the Soil Conservation Unit and other interesting places. There is a Beautification of Homes Competition, a Clean Lots Competition and a Beautification of the Village competition where villages will be judged on general cleanliness.

For Environment Week, the Committee, as part of its environmental and cultural awareness programme planned a waste art competition. In addition, on June 4th, persons from the 11 villages joined with persons from government departments, non-governmental organizations schools and church groups in a "March for the Environment".

From a cultural perspective the programme seeks to encourage a better knowledge of local history and customs. Villages were selected on the basis of the existence of a documented village history. Other criteria used include a population of between 800 and 3000 people, distinct boundaries, a central meeting place and a community or church groups. Extensive research into the history of villages of Barbados has been done and documentation on the areas selected for the programme has been made available. This information will be passed on to the people in their respective communities and the participants will then collect additional information from the older members of their village. Research will be done into old time Barbadian customs, events, and games and this part of the programme will culminate in an inter-village Cultural evening and an inter-village Sports Day.

Points will be awarded throughout the competition and at the end of the project, prizes will be given in the various categories. The village earning the most accumulated points will be judged the overall Top Village.

BRITISH VIRGIN ISLANDS Presenter: Astra Penn

The British Virgin Islands have been described as the ultimate tourist destination due to their white sandy beaches, exotic coral reefs, and lush green tropical vegetation. Promotional emphasis is placed on the fragile and unique natural environment. The entire tourism industry is based on the utilization of the natural resources available and if the industry is to be sustained then conservation of the natural environment is essential.

Problems

The development process including tourism related activities have been detrimental to the fragile environment. Critical coastal mangrove habitats which are essential to the maintenance of stable marine ecosystems and are important breeding and nursery grounds for fisheries have been destroyed to facilitate marina development throughout the islands. Seagrass beds and coral reefs show signs of anchor damage caused by careless boating and yachting activity. A higher demand for fish and shellfish to supply the needs of the tourist industry, the destruction of critical breeding grounds, the disruption of the marine food chain, the excessive removal of conch, fish and shellfish, have resulted in a significant decrease in these species and over-fishing of important commercial stocks.

The pumping of bilge, emptying of holding tanks and the indiscriminate dumping of garbage from yachts and other vessels have created a serious problem of marine pollution in the territories. Plastic bags, cans, bottles, industrial packaging and balloons commonly wash onto the shores.

The terrestrial environment is impacted when vegetation is cleared for hotel and other tourism oriented developments. The clearing of vegetation can also impact the marine environment because of erosion and the resulting increase in sediment load. Although most of these developments are landscaped after completion, the landscape vegetation is often alien and not the natural local vegetation that existed at the particular site.

In addition to this type of impact the terrestrial environment is also affected by the actions of the tourists themselves. Rare plants and orchids have been heavily collected and some can no longer be found on our two mountain top terrestrial National Parks, Sage Mountain and Gorda peak.

I think we are at the point in the development of our territory where the costs versus the benefits of tourism must be examined carefully.

Areas of action

Ownership incentives and taxes need to be reviewed to ensure that sufficient economic benefits are derived from the tourist industry to enable effective and efficient management of our natural resources, and sufficient circulation of revenues within the territory to ensure the necessary spin off effects.

To minimize the effect of tourism on the natural environment the following are being undertaken:

- guidelines for environmentally sound development
- public awareness and environmental education programmes for nationals as well as tourists
- review, amendments and enforcement of existing legislation and the placement of permanent moorings in sensitive reef and grassbed areas.

More emphasis needs to be placed on policy-making and the following recommendations are proposed:

- (a) The natural resources of the British Virgin Islands should be exploited to benefit British Virgin Islanders first. More emphasis needs to be placed on conservation activities for the youth, and on conservation of cultural resources and traditions, with less emphasis on conservation for tourism. Our heritage, culture, rights and future opportunities must be preserved for future generations of British Virgin Islanders.
- (b) Greater local participation in industry, particularly at the ownership and management levels should be encouraged. This will ensure a more equitable circulation of revenue within the country, good spin off effects and a higher level of direct benefits to local British Virgin Islanders.
- (c) Adjust tourist clientele by pursuing a larger share of the conservation and environmental tourism market. These types of tourists will be more conscious and should help to minimize impacts caused by the tourists themselves.

DOMINICA Presenter: Ronald Charles Forestry Department

Dominica (Latitude 15 N, Longitude 61 W) is the most northerly of the Windward Islands, lying between the French Caribbean islands of Martinique and Guadeloupe.

Since its discovery, Dominica's natural beauty has always charmed its visitors. However, its topographic features limited the development of large estates and as a result Dominica still has the greatest expanse of relatively undisturbed tropical rainforest remaining in the Caribbean. Despite its lushness, natural beauty and biotic diversity, Dominica has experienced some environmental problems. These problems are not unique to Dominica but are true for many third world countries which are faced with the everyday problem of having to provide the basic necessities for its people.

Problems

One of the major environmental problems facing Dominica is that of squatting (both rural and urban). To the rural farmer, conservation is an abstract concept as far as he is concerned. His primary objective is to provide for his family at any cost - even if it means occupying a piece of farm land at any opportunity. This has severe consequences especially in terms of land clearing on steep slopes where erosion is inevitable and unavoidable, resulting in landslides, siltation of rivers etc. To those persons who see a livelihood in urban areas, the need for accommodation will force them to occupy or build a "shack" on any vacant available lot, which results in poor sanitation, poor hygiene etc.

Another problem associated with squatting is deforestation for agriculture and to satisfy the demand for wood products. The rapid increase in the banana industry has further aggravated this problem. Associated with these problems, - not only will the farmers occupy unsuitable agricultural land but they also introduce another undesirable - is the indiscriminate use of pesticides. Pesticides cause two main problems, they eventually find their way into the water supply, and they kill the micro organisms in the soil which are necessary for the breakdown of nutrients for soil fertility. These are serious problems.

Other forms of environmental problems are associated with the death of coral reefs caused by both man-made and natural factors, the hunting of wildlife and fishing in fresh water streams during the closed seasons.

For World Environment Day (1988) the Minister of Agriculture declared that in his opinion Dominica needs a cleaning up. The Minister was making direct reference to the high incidence of wanton dumping of rubbish by the Dominican public. It appears that the general public have lost their concept of proper rubbish disposal. The Ministry of Agriculture is proposing to government that 1989 be declared the Year of the Environment and this could result in a pooling of resources towards cleaning up the environment.

The cultural environment is also suffering. The family unit is no longer as close knit as before the advent of electricity and television, and with the following of favourite foreign T.V. programmes, traditional story telling has died out. Much of our heritage as portrayed in past architectural designs are quickly being changed to suit "modern" tastes. The result is that some people do not understand how our cultural past is reflected in some structures which deserve protection. Land development which does not conform to accepted land use principles must not be ignored. At present Dominica is experiencing a large increase in construction especially of private homes. Although in not too critical proportions as yet, it must be watched closely.

Areas of Action

Despite the many environmental problems in Dominica a number of organizations and institutions have worked diligently to protect and conserve a healthy environment. The Forestry Division has worked and will continue to explore all avenues aimed at protecting our healthy environment. The Forestry Division was instrumental in establishing two forestry reserves with more than 25000 acres, as well as the institutionalizing of two National Parks - the Morne Trois Pitons National Park and the Cabrits National Park with an area of about 19000 acres combined.

Other activities of the Division include publications of booklets, brochures, and posters on the natural environment as well as the cultural environment. The Division has a weekly radio program on the National radio where several environmental topics are discussed, in addition a series of newspaper articles are carried in the New Chronicle. A tabloid called "Vwa Diablotin" - named after an extinct bird species once found on the island - is being revitalized to provide an additional source of literature for schools.

The Forestry Division also carries out an ongoing program via guided tours to places of natural and aesthetic beauty. These tours allow for interaction and on-the-spot demonstrations between the Division and the tour participants. Lectures and audio-visual presentations are also organized for schools and youth groups.

Finally, it can be said that the case of the environment is gaining very slow but positive momentum, led by the Forestry Division team, who are concerned about the quality of the Dominican environment. Another organization concerned about conservation activities is the Dominica Conservation Association.

GRENADA Presenter: Wayne Frank

The system of National Parks and Protected Areas proposed by the Grenada Government faces several serious problems including the location of a sewerage outfall project operating in the St. George's area. This project pumps sludge into the sea daily. The pumping station is located on Melville Street and the sludge is pumped to Green Bridge where it shoots out about 50m into the sea.

This untreated sludge is chemically contaminated. North of the outfall is a "protected reef". As the ocean currents travel northwards the untreated sludge is also carried and deposited on the reef. This not only damages and kills the reef but also the marine flora and fauna located there. When the tide is high the situation is further complicated by the polluted water also being transported into the harbour.

To the South of the outfall are two important turtle feeding grounds, and with a change in current direction these areas are also subject to the effects of the polluted water. This can have far reaching effects since an unhealthy feeding area for the turtles could have severe repercussions on future turtle generations.

In my opinion, these situations should be carefully scrutinized before they get worse. The Grand Anse beach is only a few hundred meters away from the outfall and the Grand Anse reef is also in close proximity to the sewage outfall. Thus, both can easily suffer from the movement of the polluted water at its deposition site.

Reef death leads to beach erosion and destruction, with no real means of repair if present conditions remain in operation. The destruction of their feeding grounds will cause the turtles to search for new areas to feed or result in their death from starvation or from eating polluted food.

Areas of action

To combat this pollution problem the following are recommended:

- Sewage should be collected in large catchment tanks filtered and treated. The treated sewage can then be used as a form of fertilizer for agricultural purposes.
- Water should be and can be reserved for use in other projects.
- A proper system should be established to look at the effects of marine pollution.
- Legislation should be enacted to prevent sewage disposal into the sea.

MONTSERRAT Presenter: Joseph Kirwan

In 1970, the Montserrat National Trust was established with the aim of preserving the natural environment and cultural heritage of the island. This non-governmental and non-profit organization, dedicated to preserving the past, protecting the present and enriching the future has divided its work into three main areas:

- (i) working on archaeological sites
- (ii) conservation of natural resources
- (iii) educational programmes

Arising from these areas of activity, the work of this organization can be seen all over the island.

On March 29th 1988, an Environmental Education Committee which functions under the aegis of the National Trust was formed. The Committee will be concentrating in the area of public awareness programmes and will be placing emphasis in the following areas:

- (i) sand-mining and beach conservation
- (ii) soil erosion
- (iii) cutting down of trees - deforestation
- (iv) garbage storage and disposal
- (v) livestock control and
- (vi) World Environment Day

It was decided by the Committee that for World Environment Day (1988) attention would be focussed on beaches and the associated sand-mining, beach conservation and sanitation. The following projects were carried out over the period June 3rd-6th 1988:

- Sale of flags bearing world Environment Day with the Trust logo
- Erection of beach signs.
- Beach clean up by youths and prisoners.
- Newspaper articles on beaches.
- Radio and T.V. message from Chairperson of the Committee.
- Radio and T.V. message from the National Trust
- Video with "Keep Your Beaches Clean" message.
- Radio spots
- An Environmental Programme was hosted by Radio Antilles, a local radio station.
- Churches held services which focussed on the environment.

These programmes were generally successful and members intend to look at other areas of the Committee's programmes in the future.

ST. CHRISTOPHER AND NEVIS

Presenters: Brian Warner & Jefferson Wallace

In St. Christopher and Nevis there are environmental problems which have an effect on the economic and social well being of the country. The more pressing areas are coastal erosion, sand removal for construction, garbage and solid waste disposal.

Coastal erosion is being experienced in Nevis, particularly, at a faster rate over the last 15 years. The erosion is most severe on the West coast from Fort Charles to the Northern end of Pinneys Beach and on the North coast between Newcastle and Camps. Other areas along both these coasts show a slower rate of erosion. These erosion differences arise due to the location of St. Kitts and Nevis within the North East Trade Wind Zone and the different types of wave action experienced around the coastlines of both islands.

Along Pinneys Beach, and Hurricane Hill Bay on the north west coast of Nevis and at Belle Tete on the north west coast of St. Kitts, sand deposition has resulted in wide beaches. Long shore sand transport from the north east and the south west has resulted in the formation of an extensive accretion zone.

Beaches which are ever changing coastal features exhibit seasonal and long term erosion. During certain times of the year they are eroded or lose sand and at other times they accrete or gain sand. Pinneys Beach is by no means an exception. The beach which is usually wide and stable, after tropical storms and high waves, may be eroded and may retreat as much as 75m to a very steep slope.

Most of the erosion is due to natural causes (2 hurricanes in 1978 followed by the effects of another in 1984). Other causes may be due to the increased wave energy and rising sea levels.

The most important fact is that natural coastal erosion is occurring at specific sites. In St. Kitts and Nevis erosion is occurring at about 1m/yr and this is likely to continue, thus some form of planning must take this into account when dealing with the islands development.

Man made causes of erosion are exemplified by the beach mining at Gallows Bay, Pinneys Beach and Hurricane Hill Bay and the extensive removal of coastal vegetation, which has the effect of destabilizing the sand causing siltation of mud flat estuaries.

Building too close to the high tide mark also has a detrimental effect. The absence of the buffer zone results in increased turbulence leading to erosion and the sand is eventually lost to deep water where it cannot be moved by normal wave action. This results in the beach being lost permanently and eventually damage to the buildings will result.

Groynes are also cause for erosion, especially in Nevis. These solid structures reduce long-shore sand transport from north to south and has resulted in considerable damage at Gallows Bay in the South. A similar effect is also being exerted by the concrete jetty at Charlestown.

Near shore pollution and the death of coral reefs also contribute to beach erosion in Nevis. The presence of a healthy reef along coastlines helps to dissipate wave energy and wave action on the beach thus protecting them. The reefs also are a source of white coral sand. At present many of the reefs are dying as a result of pollution and its stressful effects. With the death of the reefs there is little protective resistance offered to the beach from wave action and hence the end result is beach erosion.

Other environmental problems are garbage disposal and solid waste disposal. At present the illegal dumping of solid waste is on the increase. These illegal dump sites become sanctuaries for the breeding of rodents and insects and contribute to the spread of disease. This environmental problem may be attributed to the collection and storage of solid waste, illegal dump sites and the improper location and mismanagement of sites.

The storage and disposal of solid waste is a problem that is readily acknowledged as a threat to the environment but it is apparent that there are no concerted efforts made by health conscious individuals in the nation to deal with this problem.

Non-governmental organizations such as the Frigate Bay development Corporation, and the St. Kitts Jaycees have a continuing interest in the fight against the build-up of solid waste. The Frigate Bay Development Corporation, with its strong tourism bias has occasionally allowed its equipment to be diverted for public health use.

The need to address a pressing solid waste concern at Saddlers Village, received a positive financial injection by UNICEF who agreed to underwrite the expenses for the St. John's Community Improvement Project in St. Kitts. All government dump sites are open, but Saddlers' is close to a ravine which is under utilized. It is hoped that this dump site will soon become a sanitary landfill manned by the public health department.

Another open dump site, the Conaree Village dump site is located 2.5 miles east of Basseterre. From time to time the garbage which is deposited there is fired, pushed away, crushed or recycled with the soil. This is done with private sector assistance. The other dump site at Fort Smith, Sandy point, near the foothills of Brimstone Hill is less than 50ft. from the sea. This site is not only wide and long but when garbage is fired or bulldozed, the smoke becomes a nuisance to passersby. The bulldozing process leaves toxic tins to be reclaimed by the sea and poses a hazard to marine life.

Areas of action

The Nevis Historical Conservation Society recognizing these problems, holds panel discussions with knowledgeable personnel and the general public, but there has been little action in terms of informing the entire island as to how acute the problem is.

The Nevis Youth Council can play an important role, as its members are aware of these problems and can create flyers, plays, information pamphlets, stressing these and other major issues to get the public's attention to combat these problems.

Research into the use of alternative building materials other than sand e.g. ghaut mould from gully deposits, would be helpful. In terms of garbage disposal to arrest this serious health problem, it is necessary to sensitize and educate the public as to the consequences of littering and leaving garbage cans open.

The idea of keeping the country clean must be stressed since the country's development emphasis lies heavily on tourism. The public should be educated by using jingles, and T.V. spots showing how to keep garbage safe and rodents away. Lobbying Government for changes in the dumping site locations and management could produce positive results.

Our environment is important to us and everything should be done to conserve and prevent environmental problems from occurring or from becoming worse. The public should be educated via the media to get the message across to all ages. A sense of national pride must be instilled in our people if we are to win the battle against environmental degradation.

ST. LUCIA Presenters: Alan Prospere & Nicholas Moffat

The major environmental problems are as follows:

- A lack of town planning in urban communities.
- Rubbish disposal generally, especially citing of large dumping grounds.
- Extensive deforestation for agricultural and charcoal production.
- Damage to water supply through unsuitable farming in water catchment areas.
- Destruction of wildlife habitats through extensive deforestation.
- Pollution to rivers and streams from rubbish disposal, and by pesticides and herbicides.

There are many factors related to the causes of these problems including:

- Increased population.
- A lack of education on conservation issues.
- Short term economic incentives, e.g. the banana industry.
- Lack of Government commitment.

The group ROUTES identified the indiscriminate dumping of garbage into the urban Vieux Fort area as being a major environmental problem that required urgent attention. The main cause for this was the lack of facilities such as refuse bins and a poor collection system. This resulted in the formation of several illegal dumping grounds which became the breeding grounds for flies, rats and mosquitoes. The main refuse dump located at the entrance to town, very close to the International Airport was both an eye sore and health hazard.

The government of St. Lucia via the Forestry Department has developed many educational programmes to increase public awareness and their understanding of the environment. Magazines such as Bush Talk and Jacquot are prepared and sent to schools on the island, school talks and lectures, public radio and T.V. programmes and extension work are also carried out. In addition three Nature Trails have been constructed on various parts of the island for use in public awareness and education.

Other areas of activity are the enforcing of legislation related to land use in particular:

- The Litter act 1983
- The Fisheries Act 1984
- The Wildlife Protection Act 1980 (banned to increase the wildlife population).

There are also national conservation bodies which are directly responsible for the protection and conservation of our natural resources such as:

- The Environmental Commission
- The Parks and Beaches Commission
- The Land Conservation Board
- The St. Lucia National Trust
- The St. Lucia Naturalists' Society

These organizations work very hard in stimulating public understanding of resource management practices.

Using surveys and interviews to obtain information from the public on their knowledge, attitudes and practices of solid waste management in the Viux Fort area, ROUTES recognized that a wide cross section of the community in this area could be reached by stimulating community interest. The group achieved community participation in the project through active publicity, and through general education and training. ROUTES found that a combination of these factors resulted in:

- The elimination of illegal dump sites.
- The use of Skip bins and litter bins.
- The community being sensitized and educated to the environment.
- The use of Litter Wardens to patrol Vieux Fort.
- Closer cooperation and communication with governmental and non-governmental organizations (both local and external).
- A wider understanding by the public of the role ROUTES can play in changing and fostering the development of the environment.

The Forestry Department of St. Lucia has a strong relationship with various conservation organizations in St. Lucia and around the world, all of which support educational programmes on conservation matters. The department places great emphasis on public education by organizing special activities especially in commemorating World Environment Day - 5 June, World Food Day - 16 October and Forestry Week which all help to stimulate awareness. The Department is often represented at various meetings in the Caribbean and around the world to discuss conservation issues.

Finally, both the Forestry Department and ROUTES, will continue their hard work in the areas of education and conservation and it is hoped that with the support of the general public, the goal of being surrounded by a healthy St. Lucian environment will be achieved.

ST. VINCENT Presenters: Roy Kirby & Andrew Simmons

St. Vincent and the Grenadines comprises a 150 square mile chain of islands rich in natural beauty. These islands have a cumulative population of 120,000 with the mainstay of the country being agriculture. Banana is the major export product. The island's (St. Vincent) physical feature is dominated by a backbone of thickly wooded mountains running north to south. These mountains are the home for many species of wildlife including the indigenous St. Vincent Parrot and Whistling Warbler.

Problems

There are several problems that plague the country including illegal dumping, random quarrying, wildlife destruction, destructive farming practices, beach erosion and littering, logging, pollution of rivers and water catchment areas. All of these must be addressed if St. Vincent and the Grenadines is to preserve the title "Gem of the Antilles".

One of the more serious problems is the close proximity of farming to water catchment areas. Despite appeals made to desist from this practice, farmers are slow to cooperate. Hence there is a need for all to be educated to appreciate the importance of a continuously safe and efficient water supply.

The marine environment is also affected not only by beach erosion but the coral reefs especially in the Grenadines are dying from indiscriminate dumping of garbage and damage by anchors. In the centre of Kingstown, sludge from the sewers is washed out into the harbour. As factory numbers increase in the Campden Park Industrial Estate, they in turn add to the pollution of the Campden Park Bay.

Deforestation is also in evidence to the extent that Cypress and Laurier have become scarce. Mahogany trees, which give great hope to the furniture producers, each year fall prey to forest fires. An ever increasing problem associated with this is that farmers insist on encroaching not only on the fringes of virgin forests but to penetrate them for the establishment of new agriculture plots. As a result the iguana and agouti are endangered. Hunters also fail to heed the plea to desist hunting the manicou and marine turtle during closed seasons.

There are plans for the erection of a hotel at the Ottly Hall Beach, despite its small area. Construction at this location will result in the prevention of access to the public beach from the land and the area will eventually face a severe pollution problem.

Areas of action

The question of what is being done to solve these problems naturally arises. At present the Pathfinders have been carrying out projects to identify:

- Different species of birds and their characteristics, habitats, foods, and pet care if they are used as pets.
- Trees and how to identify them.
- Establishment of Nature trails
- Clean-up campaigns

What is clearly apparent is that unless something is done soon to stop the wanton destruction of these "Gems of islands", what will be passed on to our future generations will be nothing but a second Haiti - a land of bare mountains and little aesthetic beauty.

JEMS Progressive Community Organization

The JEMS Progressive Community Organization was established in 1978 by Andrew Simmons. The organization was developed to involve youths in Junction (Diamond), Enhams and McCarthy - the original villages and surrounding areas (hence the names JEMS) - but as the programs and focus of the organization changed to embrace rural development more communities were included.

The past five years have been the most dynamic in the evolution of the JEMS Progressive Community Organization. From a tiny youth group based in Enhams Village, JEMS has evolved into a broad based organization serving fifteen villages on the South-east of St. Vincent and the Grenadines.

Initially the area was plagued with illiteracy, unemployment, poor housing, poor environment practices, drug abuse, gambling and teen-age pregnancies. JEMS is concerned with all these areas especially the high rate of illiteracy existing in the country. This is demonstrated by the continuous development and re-shaping of the JEMS Institute for Popular Education and its commitment to the National Association for Mass Education and the Adult Education Unit, in their thrust for the development of a national literacy campaign.

JEMS programme consists of academic development, skills training, and community infra-structural development. Every community project has an educational aspect. JEMS has developed as a forum for the grass roots and under-privileged community people to share their ideas, experiences, joys and make valuable

decisions and contributions on matters relating to the development of their villages.

The organization has become a model for community organizations throughout St. Vincent and the Grenadines in particular and the Caribbean region in general.

The organization's programmes are people oriented and are geared specifically at integrating the many facets of society into a package aimed at raising the living standard of community people and enabling them to acquire the machinery so as to determine the course their development should follow. The programme areas of the organization consist of:

- 1 Education
 - (A) Adult education/Literacy programme and
 - (B) Community Education programme
- 2 Cultural
 - which is integrated within the community education programme and has the following aims:
 - to develop unity among community workers
 - to combat the influx of foreign culture on our society
 - to give the community people an opportunity to display their talents and creative skills
 - to participate and develop the local art forms.
- 3 Sports
 - This is an effective strategy to mobilize community people to cooperate and build a bond of friendship and fraternity.
- 4 Internal training
 - Necessary for present JEMS members and for new members of the organization.
- 5 Community & Environment Development
 - which has the aim of working along with residents to develop community oriented projects there-by making life within the village more attractive, and easier for its people. Over the last ten years JEMS has completed a number projects including:
 - The Stubbs Environment Improvement Projects.
 - The construction of garbage disposal units, renovation of public baths and water extension at Enhams.
 - The "Emily" Rehabilitation project.

- The Kingshill development project.
- The Vieux Fort - St. Lucia Solid Waste Management Project.
- The Mc Marthy Water Project.

Over the years, JEMS has proven itself to be a broad based, community grass roots organization, meeting the needs of villagers and assisting them in solving problems they encounter, with limited resources available within their communities.

While JEMS has been able to receive funding for specific community projects, the question arises as to how long the organization would be able to survive with 100% voluntary work. There has been more pressure on the organization by the communities to assist in solving the numerous basic problems they face.

SEMINAR EVALUATION

In assessing these responses it should be noted that only 18 participants submitted evaluation forms, hence the percentages expressed in the following responses are based on the reports received.

1. What were your overall impressions of the workshop?

83% of the participants found the workshop to be successful. 72% described it as interesting, educational and informative with the Grand Etang location being a good site for the topics discussed since many of the problems encountered there are found through out the region.

67% of the participants felt that the workshop was an effective means of increasing their environmental awareness and sensitizing them to some of the region's environmental problems.

One participant felt that the workshop was taxing with too many night sessions after tiring days and that although the content was useful it was sometimes too condensed.

In general, it was felt that the workshop was timely, well coordinated and organized and that it achieved its objectives.

2. What aspects of the workshop were of most value to you? Why?

Approximately 78% of the participants felt that the use of popular theatre, role playing, field trips and the techniques for implementation of environmental awareness projects were of the most value. Reasons for these choices were that they all led to an increase in awareness by the participants (especially the nature hikes), they improved their communication skills and contributed to their understanding of how such activities can be used as effective tools to generate environmental awareness.

The session on proposal preparation was considered to be useful because it allowed those participants who had never been exposed to the process, a chance to gain some experience as to what is involved, and hence increase their understanding of the process.

3. What did you least like about this workshop? Why?

The major complaint by participants (67%), was that time was not managed as efficiently as it could have been. It was felt that because the workshop was operating within a limited time frame, there was good reason for effective time management. This was especially applicable to some of the country presentations which were too long. Another complaint was that the lunch arrangements which were considered to be unsatisfactory by some participants, could have been better.

4. What was the most important thing you learned or gained from this workshop?

From the participants' responses, the important things gained from the workshop were identified as the importance of conservation and environmental education (50%), preparations for the successful implementation of environmental awareness projects (33%), methods to gain funding for projects (11%), the similarity of the environmental problems experienced throughout the Caribbean region, and the various methods to increase public awareness (33%).

Another point coming out of the workshop was that the interaction and active involvement in group participation, in the sharing of skills, knowledge and experiences was a successful way of uniting the Caribbean to solve the environmental problems presently being experienced.

5 "House-keeping" arrangements

House keeping arrangements were generally considered to be good and appreciation was expressed to the organizers for their choice of accommodation. 28% rated it as fair while 11% rated it as satisfactory. Some participants felt that a more diversified lunch could have been provided.

6 Do you think the objectives of the workshop were met?

67% of the respondents felt that the objectives of the workshop were met to a great extent, while 33% felt the objectives were met to some extent.

7 How could this workshop have been improved given the time constraints?

It was felt by the majority of the respondents (78%), that a major constraint was poor time management, and that this should be improved if workshops of this nature are to be held in the future. Suggested ways to improve this include:

- Enforcing Punctuality
- Preparing seminar documents/reports that are to be discussed, in advance and distributing them ahead of time so that questions can be asked.
- The incorporation of country reports and group reports to produce one joint report by each country.
- The enforcement of time limitations on presentations
- Making better use of travel time.
- Dealing with the more important issues first.

Other suggested areas of improvement include the participation by workshop personnel in solving or initiating the solution to specific problems found in the host country; the use of resource persons from within the region rather than outside the region; the greater use of these resource persons throughout the workshop; encouraging greater use of audio-visual aids in presentations; inter-relating presentations and field trips; providing accommodation and workshop location at the same place or close to each other; more group work by participants.

8. How will you be able to use the ideas gained at this workshop?

Respondents all felt that the methods and techniques they had learnt during the workshop would be useful once they returned to their respective countries and groups. It was felt that these procedures would be effective in educating and sensitizing communities to their environmental problems and how they can be best prevented.

50% of the respondents felt that the greatest asset from the workshop was the ideas relating to project implementation. Collaboration with other environmental groups in the region to form support groups was seen as one potential outcome of the workshop. This would foster continued communication between workshop participants.

9. Do you have any specific suggestions for future workshops on environmental education?

Suggestions for future workshops included the following:

- The use of more regional resource persons who are knowledgeable about the problems of the region.
- Training sessions on coral reefs so that participants can further educate people in their local communities.
- Allocation of more time to issues that require time to be resolved.
- More practical field projects.
- Annual workshops of this type to be held in different islands.
- More national workshops/seminars on this issue organized by CCA, using available local and regional resource persons.
- Work on case studies of existing problems in the host country.

10. Additional Comments:

- The most common comment from participants was that the workshop experience was beneficial since it involved young Caribbean environmentalists who were able to critically and effectively discuss pressing environmental issues which, in the process, led to a commitment to working towards improvement of present conditions.

Opinions were also expressed to the effect that the workshop was timely and well organized and that the workshop process led to a better understanding of the environmental issues, and resulted in a renewed enthusiasm by the participants to combat and control the problems identified when ever practicable.

It was suggested that follow up workshops should be held to evaluate the participants' progress in implementing projects on environmental awareness and to discuss solutions to any problems which may arise.

11. I would/would not like to be invited to a follow-up workshop/seminar/consultation on environmental awareness.

All the respondents expressed a willingness to attend future activities on environmental awareness, except one who indicated that he would not attend if the house keeping arrangements were the same.

WORKSHOP PARTICIPANTS

Mr Timothy Hodge
President
Anguilla Archaeological &
Historical Society
P O Box 252
The Valley
Anguilla
Tel: 497-2201

Mr Donville Inniss
Franklin & Franklin Ltd
Willey
St. Michael
Barbados
Tel: 426-0490/0493

Mrs Judy Sandford
The Keep Barbados Beautiful
Committee
#10, The Garrison
St. Michael
Barbados
Tel: 427-2201

Ms Celeste St. Hill
The Keep Barbados Beautiful
Committee
#10, The Garrison
St. Michael
Barbados
Tel: 427-2201

Ms Astra Penn
Friends of National Parks Trust
c/o Ministry of Natural
Resources & Labour
Government of the British
Virgin Islands
Road Town, Tortola
B.V.I.
Tel: 494-3701

Mr Ronald Charles
Forestry Division
Botanic Gardens
Roseau
Dominica
Tel: 7-2401

Mr Lennox Andrews
Telescope Community Action
Group
Grenville
St. Andrews
Grenada
Tel: 440-7345

Mr Aden Forteau
Forestry Dept.
Ministry of Agriculture
Botanical Gardens, Tanteen
St. George's
Grenada
Tel: 440-2934

Mr Wayne Frank
Fisheries Division
Ministry of Education
Botanical Gardens
Tanteen
St. Georges
Grenada
Tel: 440-2166

Mr Glenford John
G.T.V.I.
Tanteen
St. George's
Grenada

Ms Sandra Cely
A.V. Unit
Teachers College
Tanteen
St. George's
Grenada
Tel: 440-2536/2787

Mr Joseph Noel
GRENCODA
Grenada Community Development
Agency
Grenada
Tel: 444-8340

Mr Raphael Paul
Calypso Association Office
Town Hall
St. George's
Grenada
Tel: 440-1556

Mr Ken-Martin Whiteman
Agency for Rural Transformation
Lucas Street
St. George's
Grenada
Tel: 440-3440

Mr Mathew Wigglesworth
Forestry Dept.
Ministry of Agriculture
Botanical Gardens
Tanteen
St. George's
Grenada
Tel: 440-2934

Mr Joseph Kirwan
National Environmental
Committee
and National Youth Council
Montserrat
Tel: 491-5838

Mr Roy Kirby
Pathfinders
Kingstown
St. Vincent
Tel: 456-1474/7191

Mr Brian Warner
Nevis Historical and
Conservation
Society
Hamilton House
Charlestown
Nevis
Tel: 469-5892

Mr David Harleson
U.S. Peace Corps
P O Box 246
Basseterre
St. Kitts
Tel: 465-4073/2277

Mr Jefferson Wallace
Teachers Training College
Burdon Street
Basseterre
St. Kitts
Tel: 465-2508
465-2521 ext 1139

Mr Leslie Charles
Folk Research Centre
National Popular Theatre
Animator
P O Box 514
Castries
St. Lucia
Tel: 46060/46878

Mr Nicholas Moffat
ROUTES
Vieux Fort
P O Box 338
St. Lucia
Tel: 4-6068

Mr Alfred Prospere
Forestry Department
Ministry of Agriculture
George Vth Park
Castries
St. Lucia
Tel: 23231

Mr. Andrew Simmons
President Jems Progressive
Community
Organisation
Enhams P.O.
St. Vincent
Tel: 762069/61111 ext 437/438

RESOURCE PERSONS

Dr Judy Breuggeman
FAVACA
Conservation Busch Gardens
P O Box 9158
Tampa
Florida 33674
U.S.A.
Tel: 813-985-3614
813-988-5171 ext 252

Mr Scott Eckert
U.S. Peace Corps
P O Box 884
St. Vincent

Mr. Richard Huber
Organization of American States
P O Box 123
St. George's
Grenada
Tel: 809-427-5242

Mr Rolax Fredericks
Forestry Division
Department of Agriculture
St. George's
Grenada

Mr Calvin Howell
Caribbean Conservation Assn
Savannah Lodge
The Garrison
St. Michael
Barbados
Tel: 426-9635/5373

Dr Guido Marcelle
Teachers College Complex
Tanteen
St. Georges
Grenada

SECRETARIAT

Miss Anne Evans

COORDINATORS

Mr. Allan Joseph

Dr. DeVere Pitt

APPENDIX #1

OUTPUTS: The following Jingle was composed by participant Raphael Paul of Grenada during the workshop.

Let's Clean -up de Place

From the time you small they taught you
Cleanliness is next to godliness
But the evidence is now showing
You are far from this context
You cleaning out you house
Making it spick and span
The garbage you throw away
Scattered around the land
In the river and on the beach
Even on the street
And you don't seem
Concerned about it

Chorus

But think again when you cleaning
Where you doing your dumping
It's causing mass pollution
And increasing the rodent population
In the country.

If you know what life is worth
You'll remember dirt will hurt.
So let's clean up the place (Repeat 3 times)
And keep it clean.

Note: Raphael Paul is Secretary of the Grenada Calypso Association. He undertook to set the jingle to music and will try to have it recorded as an output of the workshop.

APPENDIX #2

SLOGAN CORNER

The following slogans were offered by participant Brian Warner of Nevis.

1. Get Smart Protect Nature"s Art

2. Development, caused their death
understanding, restored their life
let us all now live in unity
Protect our Wildlife!

3. United we stand, divided we fall!
Man and his Environment are no exception

4. Let's preserve the environment, NOW!
There is No second chance.

5. Man shall not live by himself alone
It's the Gospel Truth!
Protect our Environment

6. Life is like a sink
It can be full (with life)
or it can be empty (of existing species)
Don't pull the plug on it!

7. In wildness is the preservation of the world.

APPENDIX # 3 Major Characteristics of Role Play

1. Pupils are required to act out roles based on details relating to an issue.
2. The performance must be spontaneous.
3. The outcome of the enactment is unknown to the participants.
4. The issue is dramatized creatively and a solution should emerge as the participants portray what seems to be just and fair to them.
5. The activity should stimulate learning not just at the intellectual level. It should constitute an emotional experience as well.

Why Is Role Play A Useful Strategy To Employ

It is well suited to achieving the aims of environmental education in that it can be used to:

1. Focus the attention of the learners on the practical problems of the environment.
2. Require learners to explore the role which perceptions, values and beliefs of individuals play in their response to environmental problems.
3. Help learners examine an issue from a variety of points of views.
4. Develop problem solving, decision-making and social skills.
5. Appreciate the consequences of different problems.
6. Improve attitudes towards environmental problems.

In short, role play requires the full and active participation of the learners in exploring and dealing with environmental issues. In so doing, it should require them to more consciously examine their beliefs, attitudes and approaches to environmental issues. It is therefore a useful strategy to employ when attempting to bring about attitude change. In addition, frequent use of the strategy should provide practical guidelines which the learners can apply when attempting to examine and take action pertaining to environmental issues, as well as to every day life situations.

Some Guidelines Which Are Useful
When Employing Role Play In The Classroom

Fannie and George Shaftel (1967) offer the following suggestions for using role play.

1. Begin with a warm-up session. Present the problem/issue. Outline the problems, discuss and interpret it with the pupils. A short outline may be provided in writing. The written outline facilitates discussion and helps to focus on the issue. The pupils would discuss the issue in terms of what is taking place, where it is taking place, as well as the actions and attitudes of those involved. Try to make the characters real. Highlight the dilemma with which the character is faced. A situation should not be selected unless the class has studied the content relating to it
2. Select the participants after roles have been described and clarified. Pupils should be allowed to volunteer to play the various roles. Provide a few minutes for volunteers to think about the portrayal of their roles.
3. Prepare the observers. These pupils should be assigned tasks. Points which must be noted should be highlighted and clarified.
4. Set the stage. Use of space and order of action is discussed. Final questions about roles are raised.
5. The role play is conducted spontaneously. When the main points have been highlighted, or if an impasse is reached, the teacher ends the presentation.
6. The presentation is reviewed and evaluated. When this is being done, focus on points such as how the roles were enacted, body language and its appropriateness re the characters and situation, proper mood of the situation, convincing dialogue. Consider possible changes which could help to improve the portrayal. Discuss alternative solutions to the problem.
7. Re - enact the situation. Repeat stages 2 and 6 paying attention to changes suggested. A different set of pupils should be involved in the re-enactment.
8. Discuss and evaluate the re-enactment. Have the pupils compare the various ways in which the characters involved reacted to the issue. Encourage them to develop generalizations based on their findings, paying special attention to values which have implications for their future conduct.

1. Describe the environment under study.

2. Are there any indicators of pollution? If yes, what are they?

What kinds of pollution do they indicate?

3. In your opinion, what role has the social and cultural environment played in creating any problem which exists?

4. What are some possible solutions to the pollution problems? Could the problems have been avoided?

In what ways can members of the public be sensitized to the marine pollution problems which now exist?

6. In what ways can members of the public assist in preventing and/or combatting marine pollution?

WORKSHOP FOLLOW-UP

As a part of the workshop process, participants were required to commit themselves to involvement in environmental awareness activities within their groups and in their communities.

A. A Commitment to Change: what I plan to do in the next six months

(1) Personal Change: In the six months following this workshop, I will undertake to improve my personal work performance in the area of environmental awareness and management within my organization in the following ways:

By December 31, 1988 I will

(2) Organizational Change: In the six months following this workshop, I will undertake to get the following projects implemented by my organization.

Signature -----

Organization -----

Name & Address -----

Date -----

B. Implementing the Change: I plan to take the following steps:

July 1988:

August 1988

September 1988

October 1988

November 1988

December 1988

Signature _____

Date _____



This Certificate is awarded to



*For participating in
The Caribbean Conservation Association's
Environmental Awareness Seminar
at Grand Etang Forest Reserve*

GRENADA

June 27 — July 2, 1988




Executive Director
CCA

