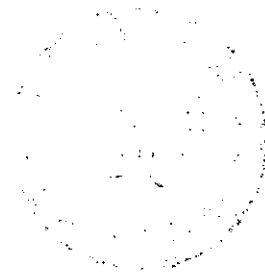

Caribbean Disaster Preparedness Seminar

**Proceedings, Issues and
Recommendations**



**St. Lucia, West Indies
June 10-20, 1979**

CARIBBEAN DISASTER PREPAREDNESS SEMINAR
PROCEEDINGS, ISSUES AND RECOMMENDATIONS

SECTION I: Full Text--Issues and Recommendations

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FOREWARD

Regional and international disaster preparedness planners have long recognized the Caribbean's high levels of risk from natural and man-made disasters. They agree that preparation for events they consider unavoidable has been insufficient. Reacting to the need for action to minimize the impact of potential catastrophes, planners from Caribbean governments and international organizations designed and held a broadbased disaster preparedness seminar in St. Lucia from June 10 to 20, 1979, for the Caribbean islands and certain adjacent mainland countries.

Seminar objectives were:

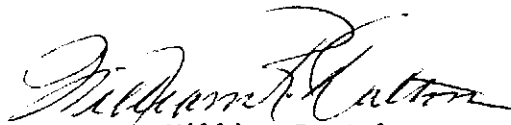
- . To better understand the disaster threats.
- . To highlight areas of special vulnerability.
- . To identify problems inhibiting preparedness measures.
- . To recommend actions which can be taken to strengthen country and regional preparedness.

More than 150 representatives from twenty-two Caribbean governments, Caribbean and international organizations and scientific or technical fields participated in the seminar. The intensive program reviewed the disaster threats to which the region is vulnerable and the specific preparedness requirements for each. On this basis, full agreement was reached on a wide variety of preparedness recommendations, presented as Section I (Issues and Recommendations) of this report. Both the report and an Executive Summary have been sent to heads of Caribbean governments for consideration of priorities and future actions, which might be undertaken unilaterally or in association with other nations and organizations. Based upon the level of interest expressed by Caribbean government representatives, it is anticipated that country positions respecting future actions will be communicated within a few months to the Interim Caribbean Disaster Information Exchange, which is operating as an adjunct of the Office of U.S. Foreign Disaster Assistance, Room 1262A NS, Agency for International Development, Washington, DC 20523.

Information received from governments will be the focus of a Spring 1980 working meeting of national and organization representatives. At that meeting an attempt will be made to define comprehensive disaster preparedness programs for individual nations and the region as

a whole to increase preparedness levels in a number of crucial areas. Shortly thereafter, preparedness planners and representatives of potential resource support nations and organizations will gather to explore their respective roles. Agreement will be sought for both short- and long-term cooperative arrangements and the investment of specialized personnel, materials and funds.

Hope was expressed by seminar participants that the St. Lucian meeting would generate renewed interest toward significant disaster mitigation for the region. It was acknowledged by all present that progress in this urgent area of humanitarian concern was ultimately dependent upon a continuing strong commitment to action by the governments of the region and the nations and organizations which make up the associated disaster assistance community.

A handwritten signature in cursive script, appearing to read 'William R. Dalton', is positioned above the typed name.

William R. Dalton
Seminar Director

SECTION I: Full Text--Issues and Recommendations

FULL TEXT
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FULL TEXT

ISSUES AND RECOMMENDATIONS

I. Disaster Planning

A. General Policy

Issues

Achievement of effective disaster preparedness by individual countries and regional groupings requires planning keyed to objectives and tied to sound organization and operating procedures.

Recommendations

1. Each country should complete a self-audit to determine the status of "country preparedness" on key aspects of disaster preparedness. Major topic areas that should be analyzed include:
 - a. Legislation, at national and local levels.
 - b. Funding availability, both pre- and post-disaster.
 - c. Public education, including use of the community infrastructure.
 - d. Organization, including lines of authority and placement of leadership function.
 - e. Logistics, including movement of people and supplies.
 - f. Communications, including use of an emergency operations center.
 - g. Integration with private sector and voluntary organizations.
 - h. Regional relationships.
 - i. Relevance, a consideration of the actual levels of risk for specific threats.
2. A region-wide "resource assessment" should be undertaken. It should examine and determine, on a

regional basis, what resources exist and to what degree they can be readily shifted from one area to another in time of emergency. It will be important to know for each country what resources may exist in excess of its own emergency needs and thus might be made available for use elsewhere.

3. International, bilateral, and non-governmental donor organizations should commit resources to form an interdisciplinary team that can help, on an individual country or regional basis, to develop or improve disaster prevention and preparedness plans.

Each participating donor organization should indicate what skills/resources it can commit for what period of time to assist requesting nations in establishing or upgrading their national or regional plans.

4. The socioeconomic development plans of the Caribbean countries should include a section on Disaster Preparedness. The links between development and disaster, both positive and negative, should be clearly spelled out in this section of each national plan.

B. Communications

Issues

1. Establishment of country and regional communications policy.
2. Establishment of regional system for emergency/disaster communications.
3. Inventory of country and regional communications capabilities.
4. Survey of existing communications systems/networks and recommended projects to provide effective communications before, during and after emergency/disaster situations.
5. Identification of ways and means to obtain the recommended communications systems.

Recommendations

1. Each country should establish an emergency/disaster communications policy. It must be supported by

legislation and become effective during an emergency/disaster situation. Regulations should provide for pre-planning of communications systems for coordination and direction during emergency/disaster periods.

2. In order to have a reliable disaster/emergency communications system, a country-by-country planning team should be established to:
 - a. Analyze communication methods used in previous disasters.
 - b. Determine necessary changes and improvements.
 - c. Confer with regulatory and licensing agencies on the status of existing communications.
 - d. Contact the owners/operators of all networks to ascertain how and whom they serve.
 - e. Determine possibility, legality and feasibility, country-by-country, of integrating existing networks for disaster purposes.
 - f. Survey facilities and equipment available.
 - g. Conduct a frequency-management survey, identify the frequencies in use, indicate their compatibility and design a frequency-management plan for emergency/disaster purposes.
 - h. Draft recommendations to regulate amateur radio and citizen band operators and integrate them into the emergency/disaster communications plan, including licensing instructions and training on how to deal with official emergency/disaster communications.
 - i. Obtain a waiver of import duty on amateur radio equipment for licensed operators who regularly assist in disaster situations.
3. In recognition of the responsibility of each national government to communicate officially with its citizens concerning disasters, a regional communications planning team composed of disaster coordination specialists, communication experts and technical personnel should be established to:

- a. Review country communications planning team reports and provide on-site studies for internal communication systems.
- b. Be available to undertake disaster-related surveys and studies within a country.
- c. Be responsible for establishing an emergency/disaster communications scheme that would complement and supplement those now in operation and for preparing country-to-country and regional disaster plans.
- d. Consider the requirements of local, national and international news media and advise how best to meet the needs and demands of the media.
- e. On a long term basis, initiate regional planning for an integrated emergency disaster communications system.

C. Planning Information and Acceptable Risk

Issues

1. What types of information do planners require from scientists?
2. What levels of disaster risk are acceptable and who should define them?

Recommendations

1. Governments should clearly define or identify, in advance of crisis situations, the official source or group from which they will accept scientific information and advice.
2. Event (e.g., volcano, hurricane, oil spill, etc.) scientists/experts must be clearly advised to which body or authority they will report.
3. Information from event scientists/experts should include:
 - a. Observational information--an up-to-date description of the event/activity.

- b. Current trend information.
- c. Forecast information based on probability, with an indication of the scientists' confidence in the probability rating.

NOTE: Event scientists/experts should also contribute to interdisciplinary team information on the hazards, danger or likely damage associated with the expected activity.

- 4. Governments should determine and establish for their own use (not the scientists' use) what levels of risk are acceptable to their countries or communities.
 - a. One method of determining acceptable risk involves the study of case histories of previous events and the establishment of levels of risk in relation to probabilities of occurrence. This will provide at least a crude formula for decision making during a crisis when the information provided by the scientists should include forecast information on a probability basis.
 - b. In some emergencies, there may be a gradually increasing hazard (over a period of time), during which it is impossible to pinpoint the time when evacuation is imperative. The prior establishment of a policy on levels of acceptable risk, based on model situations, will enable the rational identification of the appropriate time for evacuation or for other preventive action with consequent social and economic benefits.

D. News Media Role

Issues

People in the Caribbean rely heavily on radio and other media. Therefore, it is crucial that the media provide both accurate and timely information. The media, especially radio, can be very helpful in boosting morale and keeping people in touch. Government officials and media personnel need to be fully aware of the media's key role.

Recommendations

- 1. Disaster plans should include a section on the role of the media before, during and after a disaster.

2. Governments should provide a quick, accurate flow of information to media outlets during disasters, but should not be censors. To assure credibility and accuracy, governments should cooperate closely and fully with the media. A government representative should be identified as the official source of disaster information.
3. The media have a social responsibility in a disaster situation. They should not be considered a nuisance, but rather an essential, critical tool of control. They have an educational role in reinforcing disaster preparedness training activities of government.
4. The media should refrain from publishing unconfirmed unsubstantiated information which may alarm the public.

E. Public Education

Issues

A significant reduction of human and economic losses could be achieved in future disasters, especially volcanic eruptions and earthquakes, if a greater awareness of the hazards and their possible effects existed.

Recommendations

1. A program of public education should be undertaken as a priority matter. This program should highlight human safety and reduction of human and economic losses and draw attention to the details of national disaster preparedness plans.
2. A list of simple disaster terminology should be compiled, published and widely disseminated.

F. Administrative Structure for Disaster Planning and Relief

Issues

Where in a country's administrative structure should the central authority for pre-disaster planning and disaster relief coordination be located?

Recommendations

1. The central national agency in charge of pre-disaster planning, the issuance of warnings, and the general coordination of rescue and relief operations in cases of disaster should be located at the highest possible level in the institutional and administrative structure of a country.
2. The central agency should be placed under the direct authority of the chief executive, who may delegate this responsibility for disaster assistance to a minister.
3. The central agency should be based on specific legislation defining the role of each sector.
4. The chief executive should, in case of disaster, rely on the advice of an interministerial committee responsible for the coordination of relief and reconstruction operations.

G. Requirements and Alternatives in Pre-Disaster Planning

Issues

What are the primary requirements and alternatives in pre-disaster planning and how can governments be persuaded to commit themselves to an adequate level of pre-disaster planning?

Recommendations

1. A model country level pre-disaster and post-disaster preparedness plan for the Caribbean region should be developed. The model can then be modified as necessary to suit conditions in the individual countries. This recommendation should be forwarded to the CARICOM Secretariat and to the Dutch, French, and Spanish speaking countries with the request that each country nominate or designate a representative to serve on a regional disaster planning and preparedness committee to advance the adoption of disaster plans throughout the Caribbean region. For this purpose, ways and means should be provided for the preparation and distribution of the plans in order to obtain responses from all countries.

2. Ideas for stimulating interest in pre-disaster planning and government commitment include:
 - a. Relating knowledge of recent disasters and disaster responses in one country to those of neighboring countries and elsewhere.
 - b. Utilizing scientific and historical data on the adverse impact of disasters on economic, social and political conditions.
 - c. Indicating rising expectations of the people to be informed, warned and protected.
 - d. Describing disaster planning, prevention/mitigation and preparedness assistance available from bilateral, international, governmental and non-governmental agencies.
 - e. Improving national capabilities to increase the possibility of assisting other countries when disaster strikes.

H. Disaster Threat Awareness

Issues

1. Is awareness of disaster threats and of effective mitigation methods adequate in the region?
2. How can the level of awareness be improved (a) in the short term and (b) in the long term?
3. The current level of awareness concerning disaster threats and effective mitigation methods among the general public, private enterprise and governments in the region is inadequate.

Recommendations

1. In view of a generally low level of awareness, a list of target groups should be drawn up and different media and information formats should be developed to inform and educate each separate target group. A tentative list of target groups that should be considered includes:

- a. Decision-makers, both public and private (administrators and scientists.)
 - b. Opinion-makers such as service clubs, newsmen, radio and television personalities and clergymen.
 - c. The general public, including the elderly and young people, through youth organizations and educational organizations.
2. Various programs should be designed to reach the different groups and these programs should be implemented through the use of media briefs, audio-visual presentations and printed pamphlets and brochures. Local Caribbean institutions could be used to design and coordinate these programs. In this connection, the proposed Caribbean Environmental Institute was mentioned.
 3. In the short term, local seminars in each of the various Caribbean countries, coupled with publicity in the local media, should be organized.
 4. In the long term, regional seminars should be held at frequent intervals until preparedness plans are completed by each individual country. The regional seminars could then be held at less frequent intervals.
 5. In order to maintain public awareness, in the long term, plans should include a strong component for public education.

I. Disaster Prevention and Mitigation

Issues

1. Land use zoning based on risk analysis can reduce losses by optimally using land resources, avoiding areas of high risk for critical (lifeline) activities and identifying areas from which people should be evacuated in certain disasters.
2. Experience has shown that significant reduction of human and economic losses can be achieved by the adoption, enforcement and monitoring of relevant building codes. Few nations of the region have building codes with legal status, in spite of the existence of draft codes.

3. Governments should promote the preparation, implementation and enforcement of building codes. In particular, the preparatory work of the Caribbean Council of Engineering Organizations with codes of practice for engineering work in the Commonwealth Caribbean should be carried through (with government support) to legal adoption.

J. Inventory of Essential Facilities

Issues

During a disaster, certain essential facilities such as hurricane shelters, emergency housing, hospitals, communications facilities and public utilities must be operational to coordinate relief and rescue operations. At present, many governments have no mechanism to ensure that these facilities continue to operate during a disaster.

Recommendations

As a minimum first step in disaster preparedness, governments should identify public facilities essential to disaster relief. These facilities should be inspected regularly and, where needed, brought up to a minimum standard of hazard preparedness.

II. Seismic and Volcanic Preparedness

A. Development of National Monitoring Networks

Issues

Essential to the prediction of major earthquakes and volcanic eruptions and to the protection of life and property is the establishment of a seismic network with continuous radio transmission of seismic signals from a number of outstations to a data recording and analysis center. The operation of a network of this kind makes it possible to delineate active zones for risk mapping, engineering applications, geothermal exploration and similar purposes.

Recommendations

Countries of the Caribbean region vulnerable to earthquakes or volcanic eruptions should seek funding from appropriate agencies for seismic equipment and assistance, preferably from existing regional institutions, in training personnel and establishing networks.

B. Mobile Emergency Monitoring Service

Issues

An essential step in preventing the loss of human life and in mitigating the catastrophic effects of volcanic eruptions is to have available the best scientific assessment of possible precursors to such events.

Recommendations

A cost-effective solution to regional needs would be to develop a volcanic and seismic emergency team of regional experts, together with a pool of emergency equipment, capable of being sent on short notice anywhere in the region to investigate an emergency and to assist the civil authorities in coping with the scientific aspects of the disaster.

NOTE: Scientific assessment of precursors and establishment of emergency teams and equipment pools are equally necessary to preparedness for hurricanes and other disasters.

C. Preparedness for the Continued Operation of Essential Utilities

Issues

1. Recent earthquake and volcanic emergencies emphasize the need for adequate preparedness to avoid:
 - a. The contamination or blockage of drinking water supplies.
 - b. The possible toxicity of volcanic dust or gas.
 - c. The disruption of public electricity supplies, especially those dependent on hydroelectric sources.
 - d. The breakdown of communications systems, such as the giving of an alarm during the night.
 - e. High vulnerability in all facilities considered essential for post-disaster activities.

Recommendations

Each country should examine its state of preparedness for these and related problems by carrying out a specific field survey of existing facilities and by using scenarios provided by volcanologists, seismologists and meteorologists.

D. Improvement of Volcano Monitoring Systems

Issues

It is noted that the St. Vincent government, as a result of the 1979 eruption, has made plans to build a volcano observatory and to maintain a permanent network of seismic stations around the volcano. Similar comprehensive volcano monitoring systems were established in Guadeloupe (in 1916) and in Martinique.

Recommendations

Governments of islands with potentially active volcanoes should consider possible loss of life from volcanic eruption, as well as the enormous cost of an evacuation lasting several months; in this light, they should examine the desirability of upgrading present volcano monitoring systems.

E. Seismic-Resistant Design and Construction of Housing

Issues

Experience has shown that the greatest losses in earthquakes often result from the collapse of poorly designed housing.

Recommendations

1. A survey of typical regional housing should be made and simply written guidelines on earthquake-resistant design and construction should be prepared and disseminated through the use of working models and mass communication techniques such as television.
2. In the long run, governments and individuals should be dissuaded from building on land which is vulnerable to disaster damage. (See II.I Disaster Prevention and Mitigation)

III. Meteorological Preparedness

A. Improved Hurricane Awareness

Issues

1. Hurricanes are one of the major natural problems in the Caribbean. Yet, there is widespread misunderstanding of these great storms. For example, most people are not aware of the storm surge--the primary killer element associated with hurricanes.
2. There is also increasing evidence of growing apathy in the Caribbean. Extreme hurricanes are relatively rare events and most locations have not experienced major devastation in recent years. This has promoted a belief that hurricanes are no longer a problem. Meteorologists in the Caribbean are concerned that people do not understand the hurricane and, therefore, will not respond realistically to hurricane warnings.

Recommendations

Governments should develop and initiate public education programs on natural disasters. One absolutely vital part of this program is the introduction of information on natural disasters in the public schools.

B. Improved Weather Warnings

Issues

Weather forecasts are a vital part of disaster warnings and since weather events are not always confined to national boundaries, effective weather warnings require international cooperation. This was recognized years ago when the World Meteorological Organization (WMO), an affiliate of the United Nations, was created. The primary purpose of the WMO is to improve the quality of weather forecasting throughout the world by seeking ways to correct deficiencies in weather observing facilities and communication systems. The WMO has been very active in the Caribbean, recently encouraging all countries in Central and North America and the West Indies to establish a Hurricane Committee. The first action of the committee was to adopt an international operational hurricane plan. Caribbean governments can be proud of this plan that pledges the support of their meteorological facilities during a

hurricane threat. The committee reviews hurricane procedures and proposed investment annually.

Recommendations

Caribbean governments are encouraged to support proposals designed to improve regional weather warnings that will be frequently submitted for consideration by the WMO.

C. Improvement of Meteorological Observing Stations

Issues

Many deficiencies in meteorological observations are evident in the Caribbean region, especially during hurricane threat.

Recommendations

Governments of the Caribbean islands should ensure that their meteorological observing stations are equipped, manned and operated in accordance with standard practices. In particular, their stations should provide observations as required when a hurricane threatens the region.

IV. Health Preparedness

A. Issues

1. In the aftermath of a national disaster, severe public health problems requiring immediate and effective action may arise. During the first 24 hours of a disaster, a country usually has to depend exclusively on its own resources. Until external assistance arrives, local health services and survivors will usually care for the injured. These facts indicate the need for comprehensive emergency preparedness and planning.
2. Contrary to common belief, natural disasters are rarely followed by major epidemics unless there is also mass starvation. Although the possibility of increased transmission of diseases cannot be ruled out, mass immunizations, especially against typhoid fever, are not recommended. Priority must be placed on restoration of routine control activities, establishment of a surveillance system and, above all, assurance of an adequate and safe water supply, proper sanitation, and related environmental measures.

3. In most countries, information management is usually poor. Each country should have baseline data on common diseases among vulnerable groups in affected areas (what, who and where) and a reliable inventory of resources and voluntary and medical personnel available. A simple, reliable epidemiological surveillance system is needed both during and after an emergency. Training may be needed to prepare people for collecting data on disease.

B. Recommendations

1. Governments should designate a senior technical official to act as focal point to stimulate and promote health emergency preparedness, to coordinate with existing international and/or regional organizations and to assist authorities in the coordination of relief operations. The designation of this senior official is a prerequisite for the development of health preparedness activities and the effective channelling of necessary resources.
2. A clear policy statement on the priority of health emergency preparedness in general and of environmental health preparedness in particular should be adopted. This policy should be accompanied by commitment of the necessary resources for its implementation.
3. Provision should be made for the maximum use of indigenous human and material resources. The training of health personnel should have the highest priority. Health management in emergency situations, first aid and disaster medicine should be an integral part of the curriculum of all health professionals (medical, nursing, sanitary engineering, etc.). In addition, bilateral, regional and international organizations should provide technical support and cooperation to train the senior official in charge of emergencies. It is recommended that a mechanism be developed for health officials to acquire field experience during actual emergencies in other countries of the Caribbean or the Americas.
4. The active participation of the health sector in the preparation of national and regional disaster plans, with due consideration to the role of hospitals, should be stimulated. All professionals and volunteers should be thoroughly familiar with the relevant parts of the disaster plans.

5. Detailed legislation to facilitate such things as the importation of medical supplies, registration of foreign health professionals, limitations on the liability of volunteers, etc., should be reviewed or enacted.
6. Regional and international agencies should be requested to develop and make available manuals, guidelines and training materials (leaflets, slides, illustrative plans, etc.) adapted to the problems and conditions of participating Caribbean countries.
7. Health education of the public and, in particular, the provision of first aid training through all existing channels (health educators, Red Cross and other volunteers, etc.) should be promoted.
8. A written inventory of existing essential resources in the health sector should be undertaken at the national level and disseminated to other Caribbean countries.
9. A mechanism or set of agreements to permit, in case of disasters, the donation or loan of essential supplies between Caribbean countries and the immediate assistance of Caribbean health professionals in preference to volunteers or teams from outside the region should be considered.
10. The administrative and financial feasibility of maintaining increased inventories of essential health supplies in each Caribbean country to constitute a reserve for disasters should be considered.
11. Donations should be accepted for only those medical supplies which correspond to the needs and priorities of the country.

V. Preparedness for Environmental Disasters

A. Issues

Caribbean ecosystems are highly vulnerable to environmental degradation from rapid socioeconomic changes.

B. Recommendations

1. As a matter of urgency the governments of the region should adopt long term policies and management prac-

tices ensuring the environmentally sound socioeconomic development of the region on the basis of sustained utilization of its water and resources.

2. The capabilities of national institutions dealing with environmental matters should be strengthened, in particular, by seeking assistance from the relevant regional and international organizations.
3. Cooperation should be established between the countries of the region in fields requiring coordination. These might include:
 - a. Exchange of information and experts on matters such as environmental legislation and soil protection techniques.
 - b. Assessment of the present status and trends of the environment in individual countries, especially in terms of relationships between environmental problems within a given country.
 - c. Development of regional and/or subregional contingency plans to cope with man-made disasters such as oil pollution.
 - d. Formulation of regionally applicable environmental quality criteria and guidelines that could be used as the basis for relevant national legislation.
4. A new (or existing) institutional arrangement for coordinating environmental activities that require regional cooperation and for channelling international assistance to national institutions should be designated.

VI. Preparedness for Oil Spills

A. Issues

1. Oil spills represent a significant threat to Caribbean countries.
2. Both the prevention and mitigation of oil spills should be addressed at appropriate levels (local, regional and global).
3. What should be the response of an individual country to a small coastal spill (example: 500 to 2000 ton tanker)?

4. At the regional level, medium-size spills could be effectively handled by pooling clean-up resources available in the region. A mechanism for regional response to oil spills is needed. The OAS has recently established a Task Force on Oil Spill and Marine Coastal Pollution which has proposed a structure for cooperation.

B. Recommendations

1. Response at the country level to small coastal oil spills is a necessity. Trained people, minimal equipment and local response are required.
2. Each country should select one person to manage oil spills responses. This person should be trained by attending either an oil spill clean-up training course such as those given in the United States or a future course presented in the Caribbean area. The initial administrative action plan should ask the oil and shipping companies involved in operations in each country what their response would be to an oil spill.
3. The Caribbean region should have a regional supply of oil spill clean-up equipment, facilities and trained manpower. A regional action plan is needed. The individual governments should establish the mechanism to respond within a regional structure.
4. A resolution should be passed to take regional action on oil spills.
5. Researchers should be asked to evaluate oil shipping statistics, means of improving shipping safety, and effects of oil on marine life in the Caribbean (example U.S. NOAA/EPA with the Trinidad Institute of Marine Affairs).
6. Governments should assess regional oil spill procedures. Country interaction and integration into the proposed regional plan for oil spill control should be addressed and coordinated within individual governments. The framework of the Caribbean Oil Spill Control Plan developed by the OAS group is an excellent start for the regional planning process and should include all interested countries in the greater Caribbean area.

7. It is suggested that the Caribbean Secretariat coordinate the regional plan. Special arrangements will be made for non-members of CARICOM by request to the Secretary General. The Caribbean Secretariat could effectively address the need for both training and equipment facilities to deal with spills.
8. An international agency for the establishment and administration of funding for the clean-up of oil spillage/-generalized pollution and the resultant damages should be created. Both prevention and mitigation of the effects of oil spills should be addressed at the international level.
9. Since small countries throughout the world are seriously threatened by potential supertanker spills and routine small spillage in high traffic situations, a mechanism to address this problem on a global basis should be developed.
10. Governmental actions should be taken through international bodies and multinational companies (1) to prepare for massive oil spills and (2) to provide an insurance pool for funding clean-up and compensation of victims. Appropriate U.N. organizations should be contacted and appraised of the oil spill problem.

VII. Drought and Famine Preparedness

A. Issues

1. Meteorological drought is a "creeping" natural disaster which can lead to reduced crop yields, increased prices (often unanticipated), and disruptions in the socio-economic system. It is important to scientifically assess the impact of year-to-year variations in seasonal rainfall on crops. Decision-makers are often unaware of the potential benefits to be derived from analysis of meteorological data.
2. Assessment of climatic impact on crops in the subtropics can be complicated due to multiple planting dates, intercropping, the variety of crops, cultural practices and, in some cases, the availability of both meteorological and agronomic data. A crop monitoring program must consider efficiency, ease of operation and cost. The following assumptions can be applied in the development of a low-cost, reasonably efficient crop assessment program from existing facilities and data:

- a. Year-to-year variability in yield is mainly determined by rainfall during the crop season (other techniques such as interviews and field observation are essential to assessment).
 - b. Regional crop calendars are generally available.
 - c. Scientific studies discussing crop water requirements are often available.
 - d. Many countries have vital historical records of rainfall in crop regions.
 - e. Many countries (e.g., Belize, Dominican Republic, Jamaica and others) have agroclimatic divisions in their National Meteorological Service or Agriculture Departments and have access to significant expertise in organizations such as the Caribbean Meteorological Institute.
 - f. Regional organizations can assist in implementing crop assessment programs for some countries.
3. Agroclimatic techniques for providing qualitative information on expected crop conditions for a variety of crops have been developed by NOAA/CEAS. This multidisciplinary approach is not necessarily limited to disaster preparedness; its techniques, including the Yield Moisture Index (YMI) which is based on weighted cumulative rainfall during the crop growing season, could be used for efficient, low-cost qualitative crop assessments and better informed marketing decisions.

B. Recommendations

1. Policy-makers and planners should be informed of the benefits obtainable from analysis of climatic data through applied agro-climatology and multidisciplinary cooperation.
2. The NOAA/CEAS reports and working paper distributed at the seminar discuss development of crop assessment programs and should be distributed to meteorologists, agronomists and appropriate government officials.
3. The structure and steps for implementation with an existing rainfall reporting network include:

- a. Assembling monthly rainfall data for key locations near crop regions.
 - b. Determining the crops in a region and their "normal" planting and harvesting dates.
 - c. Computing historical indices for desired crops as outlined in the working papers.
 - d. Comparing the current year's crop index to previous years by an agrometeorologist or, preferably, agrometeorologist/agronomist team and preparation of an assessment indicating the expected yields for each.
 - e. Preparing written reports of results for government officials and, ultimately, for the public.
 - f. Establishing a period for test and evaluation of procedures.
 - g. Investigating additional applications resulting from interaction of scientists and decision-makers.
4. Some countries such as Belize, Dominican Republic, Jamaica and others have existing programs which could easily incorporate these procedures.
 5. Other countries may require some institution-building and training, which might possibly be provided by the Caribbean Meteorological Institute.
 6. Other organizations, such as OAS, FAO, NOAA, USDA, PAHO/WHO, etc., might provide additional technical assistance.
 7. Appropriate procedures should be established for key personnel to receive special short term training on agroclimatic assessment procedures. (NOAA/CEAS could provide some professional training.)
 8. Applications in related fields may be indicated by an example from Belize, where weather conditions ideal for growth of crop fungus have been identified. At the outset of such conditions, crops can, if necessary, be treated to prevent damage or loss.

9. Governments should institute means for coordination in the fields of meteorology, hydrology, agriculture, communications, etc.
10. All available hydrological services should be utilized in the construction of dams, ground water reserves, etc.

VIII. Preparedness for Transport Disasters

A. Issues

Greater awareness of the economic and technical implications of transportation accidents is needed. Prevention programs should be promoted and carried out.

B. Recommendations

1. Letters of agreement (between states) requiring providers of facilities and experts to assist in the investigation of transportation accidents should be signed.
2. Greater emphasis should be given by regional governments to provide, update and more effectively maintain facilities and equipment used in fire prevention and fighting. Fire prevention and search and rescue authorities should be encouraged to acknowledge related deficiencies and take immediate action when training equipment and procedures are inadequate or non-existent.
3. Airport personnel, including airline operating staff, should receive First Aid and refresher training annually, as appropriate. Immediate steps to implement this need should be taken.
4. All persons involved in the planning, conducting and organization of air/sea rescue services should be trained in search and rescue operations and procedures. This type of training is imperative for management staff of Fisheries Departments.
5. Governments should recognize the services provided by volunteer groups and individuals in emergencies and provide assistance/encouragement by:
 - a. Reimbursing costs of fuel used in searches.
 - b. Waiving landing/parking fees for aircraft on search and rescue missions and duty for importation of aircraft, equipment and supplies used in rescue operations.

- c. The use of safety equipment, e.g. flares, life jackets and emergency position identification reporting beacons (EPIRB), on marine craft must be strictly enforced.
6. Authorities should strive for regional cooperation by sharing local resources and expertise and, whenever possible, by coordinating the purchase and maintenance of equipment and training operations.
7. Where non-existent, national statutory bodies comprising suitably (technically) qualified persons should be appointed to organize search and rescue operations on a continuous basis and a committee should be established to integrate individual services on a regional basis.
8. Arrangements for the expeditious clearance/transshipment of supplies for relief should be well documented and widely disseminated. Entry/exit documentation or formalities should be kept to an absolute minimum.

IX. International, Governmental and Non-governmental Agencies

A. Issues

International, governmental and non-governmental agencies all have counterparts in each country which facilitate disaster preparedness activities.

B. Recommendations

1. All agencies should closely coordinate their disaster preparedness activities.
2. Governments must assign specific roles to each agency so that they can prepare for immediate action.
3. Each country should inventory all available international resources and should be familiar with the procedures for making appeals.
4. International agencies in individual Caribbean countries should participate more actively in smaller, localized disasters.
5. Regional groups of international agencies should meet at least every two years to review plans for disaster relief on both national and international levels.

6. Funding of disaster preparedness projects (on a more regular basis) should be considered by the international agencies.
7. International agencies should actively participate in the follow-up of the seminar recommendations, working through agreed upon focal points of coordination.
8. Each responsible international and private voluntary organization already established in a country should be a member of the National Disaster Committee.

X. Role of Public and Private Institutions

A. Issues

What are the respective roles of public and private institutions in pre-disaster planning at the local, national and regional levels?

B. Recommendations

On regional, national and local levels, pre-disaster planning activities of public and private institutions are the same, except that public institutions establish policy and enact legislation.

Role of Public and Private Institutions

National Level Pre-disaster Activities

	<u>Public</u>	<u>Private</u>
Policy	X	
Legislation	X	
Formulation of plan	X	X
Structure/organization	X	X
Inventory of resources (financial, human, material)	X	X
Upgrading/filling the gaps identified in inventory	X	X
Training	X	X
Public education/information dissemination	X	X
Disaster prediction/forecasting (scientific assessment)	X	X

Regional Level Pre-disaster Activities

	<u>Public</u>	<u>Private</u>
Coordination of national pre-disaster plans	X	X
Inventory of international resources (financial, human, material)	X	X
Upgrading/filling the gaps identified in inventory "Sharing of Resources"	X	X
Training	X	X
Public education/information dissemination	X	X
Disaster prediction/forecasting	X	X
Disaster warning	X	

XI. Regional Cooperation

A. Issues

Optimal disaster preparedness (including disaster prevention) for the benefit of all the people of the Caribbean might best be accomplished by developing a regional disaster organization.

B. Recommendations

1. An effective Caribbean regional disaster organization would require:
 - a. Provision of access to the highest possible level of expertise in disaster preparedness and relief for the region.
 - b. Acceptability of the organization as a conduit to provide services to all countries of the region.
 - c. Inclusion of an indigenous component and of Caribbean expertise in disaster preparedness.
2. Functions that could be performed at the Caribbean regional include:
 - a. Stimulating and helping governments to undertake disaster prevention, preparedness and relief and to obtain funding.
 - b. Promoting public awareness and community participation.
 - c. Coordinating activities with Caribbean scientific organizations.
 - d. Collecting and disseminating information on disaster prevention, preparedness and relief.
 - e. Coordinating and integrating regional communication systems.
 - f. Assisting governments in the preparation of disaster plans and particularly in:
 - 1) Carrying out analysis of disaster threat and vulnerability.

- 2) Making inventory of available resources.
 - 3) Enacting the necessary legislation.
 - 4) Conducting training in disaster prevention and preparedness.
 - 5) Maintaining relief and rescue equipment and stockpiling of supplies, as appropriate.
 - 6) Undertaking evaluation of disaster relief operations in order to improve the capabilities of all Caribbean countries.
 - 7) Coordinating the activities of the private sector and non-governmental organizations.
 - 8) Coordinating the activities of all interested agencies in disaster prevention, preparedness and relief.
3. The Caribbean countries, keeping in mind the basic considerations set out above and the functions which could be performed at the regional level, should carefully consider what mechanism(s) can be used to best promote the goal of Caribbean cooperation and self-reliance in disaster planning, preparedness and relief.

SECTION II: Seminar Agenda

CARIBBEAN DISASTER PREPAREDNESS SEMINAR
AGENDA: Monday, 11 June, 1979

0800 FINAL REGISTRATION OF PARTICIPANTS

0930 INTRODUCTION OF PRIME MINISTER by Philip Boyd

WELCOME by John G. Compton

RESPONSE by Philip Boyd

1030 OPENING REMARKS by Calvin H. Raulerson

1100 INTRODUCTIONS by Greaham Louisy

1130 SEMINAR SCOPE AND OBJECTIVES

William R. Dalton

1200 LUNCH

Moderator: Michael Borel

1400 CARIBBEAN THREAT AND VULNERABILITY

Carlisle Burton
Geoffrey M. Rudder
John Tomblin

1540 BREAK

1600 PREPAREDNESS IN THE CARIBBEAN

Enso Bighinatti
Philip Boyd
Carlisle Burton
Anibal F. Irastorza

1700 GEOTECHNICAL MAPPING OF DISASTER-PRONE AREAS

Franklyn McDonald

CARIBBEAN DISASTER PREPAREDNESS SEMINAR
AGENDA: Tuesday, 12 June, 1979

Moderator: Leon O. Marion

0900 DISASTER PLAN

James Buttimer

1000 DISASTER PLANNING--GOVERNMENT'S PERCEPTIONS

James Buttimer
Louis Jadotte
Juan R. Menchaca
José A. Solas Nicolau

1100 BREAK

1120 DISASTER PLANNING (Continued)

1200 LUNCH

1400 DISASTER PLANNING--TOPICAL FOCUS

Survey and
Assessment: Cleveland Facey

Logistics: Gerard Jospitre

Health: Algernon Boyd
Mervyn Henry

Management: James Buttimer

Mass Care: Paul Bergeon

1600 BREAK

1620 DISASTER PLANNING--ISSUES, PRIORITIES, PROBLEMS AND
SOLUTIONS

Marcus Ingle
Jean-Paul Lévy
Stephen R. Tripp

CARIBBEAN DISASTER PREPAREDNESS SEMINAR
AGENDA: Wednesday, 13 June, 1979

Moderator: Louis Jadotte

0900 EARTHQUAKES AND VOLCANOES

Michel Feuillard
Richard Fiske
Tony Gibbs
Hutson Martindale
John Pereira
John Shepherd
John Tomblin
Denis Westercamp

1040 BREAK

1100 EARTHQUAKES AND VOLCANOES (Continued)

1200 LUNCH

1400 ST. VINCENT EXPERIENCE - Part 1

Hudson K. Tannis

1520 BREAK

1530 ST. VINCENT EXPERIENCE - Part 2: A Slide and Movie
Presentation

Paul Bergeon
Hutson Martindale

1700 DEFORESTATION AND LANDSLIDES

Sam Kunkle

CARIBBEAN DISASTER PREPAREDNESS SEMINAR
AGENDA: Thursday, 14 June, 1979

Moderator: Lenore Harney

0900 FIRES, AIR CRASHES, AND SEARCH AND RESCUE

Haynes Cyril
Michael Fenn
Sydney Meade
Kirkland H. Nixon
Clyde K. V. Outram

1010 BREAK

1030 OIL SPILLS

Lawrence B. Gratt

1200 LUNCH

1400 NEWS MEDIA DISASTER ROLE

R. Anthony Best
Robert Collinge
Neville S. Grosvenor
Timothy James
Carl D. Moore
Julian E. Rogers

1600 BREAK

1620 IN-COUNTRY COMMUNICATION AND COORDINATION

Leroy M. Clark
Milford Fink
L. E. Smith
Stephen R. Tripp

CARIBBEAN DISASTER PREPAREDNESS SEMINAR

AGENDA: Friday, 15 June, 1979

Moderator: Susan Balfour

0900 WEATHER MONITORING AND CROP YIELD ESTIMATION

Montaigu Cantave
Kenrick Leslie
Leonard Stevens
Louis Steyaert

1030 BREAK

1050 NUTRITION SURVEILLANCE IN THE CARIBBEAN

Curtis McIntosh
Serge Picard
Kendrick L. Williams

1200 LUNCH

1400 EMERGENCY MEDICINE

Claude de Ville de Goyet
Cleveland Facey
Patrick Hamilton
Hector Rodriguez Silva

1530 BREAK

1550 SANITATION

Antonio T. Bobadilla
Neil Carefoot
Raymond Noel

1700 THE CARIBBEAN ENVIRONMENT

Stephan T. Keckes
Rafael Gonzalez Massenet
Arsenio Rodriguez

CARIBBEAN DISASTER PREPAREDNESS SEMINAR
AGENDA: Saturday, 16 June, 1979

Moderator: Juan R. Menchaca

0900 HURRICANES AND FLOODS

Frank Farnum
Neil Frank
Tony Gibbs

1110 BREAK

1130 HURRICANE TRACKING SIMULATION

Neil Frank

1230 RECENT HURRICANE RESPONSE IN BELIZE

Kenrick Leslie
Severo Pinto

1300 LUNCH

(Saturday afternoon and Sunday, unscheduled)

CARIBBEAN DISASTER PREPAREDNESS SEMINAR
AGENDA: Monday, 18 June, 1979

Moderator: Franklyn J. McDonald

0900 COMMUNITY PREPAREDNESS

Gerardo P. Cabrera
Anibal Irastorza
A. J. P. Kusters
S. Moosai-Maharaj

1030 BREAK

1100 COMMUNITY PREPAREDNESS (Continued)

1200 LUNCH

1400 ROLES AND RESOURCES OF NATIONAL AND INTERNATIONAL
VOLUNTARY ORGANIZATIONS

Claude L. Cadogan
Leroy M. Clark
Roland Lamy
Leon O. Marion
John Nelson
Serge Picard

1700 DELEGATION PRESENTATION

CARIBBEAN DISASTER PREPAREDNESS SEMINAR
AGENDA: Tuesday, 19 June, 1979

Moderator: Clyde K. V. Outram

0900 CHALLENGE OF COORDINATING INTERNATIONAL ASSISTANCE

Sergio Labarca
Jean-Paul Lévy
Colm O'Colmain

1030 BREAK

1050 SOUTH ASIAN DISASTER PREPAREDNESS SEMINAR REVIEW

Sher Ali Baz

1120 PROSPECTS FOR REGIONAL DISASTER PREPAREDNESS

Philip Boyd

1200 LUNCH

1400 DISASTER PREPAREDNESS: CONSIDERATION OF PROPOSALS

William R. Dalton
Marcus Ingle

1500 BREAK

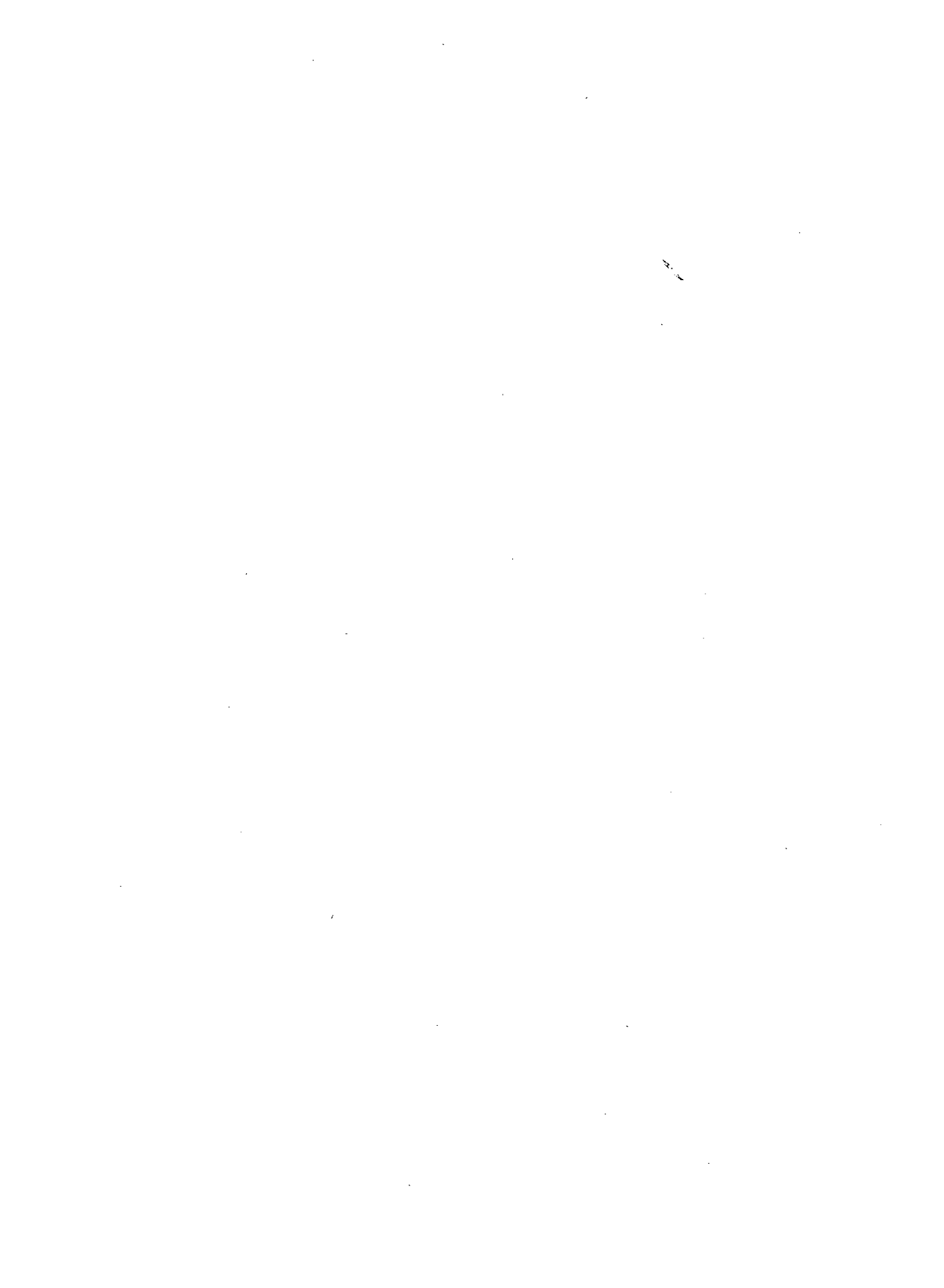
1830 RECEPTION AND DINNER

CARIBBEAN DISASTER PREPAREDNESS SEMINAR
AGENDA: Wednesday, 20 June, 1979

Moderator: Grace Pilgrim

0900 CONCLUSIONS AND RECOMMENDATIONS

Philip Boyd
William R. Dalton



SECTION III: Occasional Notes and Observations

These are a collection of notes of seminar participants
and are not meant to be a seminar summary.

11 June, 1979

TOPIC: Caribbean Threat and Vulnerability
PANELISTS: C. Burton, G. Rudder, J. Tomblin

A historical review of Caribbean disasters was presented. Regional records show at least 30,000 deaths due to 21 hurricanes, 30,000 deaths due to 3 volcanic eruptions and 17,000 deaths due to 8 earthquakes. The comprehensive survey included natural disasters--hurricanes, earthquakes, volcanic eruptions and epidemics--and man-made disasters--aviation accidents, fires, explosions and oil spills. "Threat" was defined as the likelihood of disaster-producing events occurring and "vulnerability" as the susceptibility to human loss and damage from such an event.

Hurricanes threaten the entire Caribbean. Soon after a potential hurricane forms and is located, it is kept under constant surveillance. Techniques to predict hurricane paths, as well as time and intensity of impact, should be developed. Present course predictions may vary up to 90 km, thus involving more than one island. Any shift of the storm might be sufficient to change the point of impact to yet other islands. Though warnings may save lives and mitigate damage to the fishing industry, agricultural vulnerability is difficult to reduce.

Volcanoes threaten only 1.3% of the Caribbean population, whereas hurricanes and earthquakes pose a threat that is widely distributed throughout the region. Prediction techniques for volcanic eruptions have improved but are not widely utilized in the Caribbean. Three questions confront future researchers on volcanic phenomena:

- a. Is the present level of monitoring adequate?
- b. What type of information is required from scientists?
- c. What level of risk is acceptable?

Prediction techniques for earthquakes are still unreliable. Additional research, in such areas as the relationship between fault lines and tectonic plates is necessary.

The role of the scientist in recommending or making administrative decisions was discussed. It was concluded that scientists should provide political leaders and/or administrators with the scientific evidence needed to make final decisions for the community. However, scientists should continue to be deeply involved in that decision-making process. The consensus was that scientists, politicians and administrators should work more closely to achieve better understanding as an integral part of national disaster preparedness programs.

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TOPIC: Preparedness in the Caribbean

PANELISTS: E. Bighinatti, P. Boyd, C. Burton, A. Irastorza

The United Nations Disaster Relief Office (UNDRO) has defined "disaster prevention" as those measures designed to prevent natural phenomena from causing or resulting in disaster or other related emergency situations and "disaster preparedness" as action taken to minimize human and economic losses and to organize and facilitate timely and effective rescue, relief and rehabilitation. The importance of developing and maintaining up-to-date national disaster plans was stressed as the key element of disaster preparedness.

National preparedness should not be limited to a single disaster focus (i.e., hurricanes), but should encompass all hazards, including those of man-made origin. A national plan which does not rely solely on government personnel was advocated. This is particularly relevant in the Caribbean where frequent changes in personnel are common. The general public's sense of awareness of the need for disaster preparedness can and should be stimulated by education regarding disaster threats and vulnerability.

Disaster preparedness should identify what emergency assistance is available from public and private national and international organizations, the Red Cross and voluntary agencies. The private sector, including the Red Cross and religious groups, can perform the vital function of encouraging the frequent review of disaster preparedness plans to assure their maximum effectiveness and to assure appropriate consideration of the role of voluntary agencies.

An important aspect of disaster preparedness is the coordination of the relief effort among national governmental agencies. Regionally, Caribbean preparedness cooperation was recommended with respect to:

- a. Identifying legal aspects of disaster relief as they affect voluntary agencies and volunteers.
- b. Supplying food, medicine and equipment in response to disasters.

This seminar provided a unique opportunity for representatives from the public and private sectors and from national and international voluntary agencies to discuss the current state-of-preparedness and to recommend future disaster-related activities.

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TOPIC: Geotechnical Mapping of Disaster-Prone Areas

SPEAKER: F. McDonald

This presentation reviewed work in progress on a project in Jamaica designed to produce a spatial analysis of natural hazards. The project receives technical assistance from the British government.

National governments need to systematically accumulate existing data (geological maps, borehole logs, geotechnical data) generated by site investigations, mineral exploration and scientific studies in the territories. In many instances, the data is essential for national planning and development. Such data for West Indian territories is often located outside the region and not easily available. Its collection for regional use would be expensive. Therefore, the objectives of the Jamaican project are to produce maps to satisfy the needs of planners and to provide the data in a reasonable time at a low cost.

Jamaica, in common with other Caribbean territories, is vulnerable to a wide range of natural hazards such as earthquakes, hurricanes, floods, landslides and erosion. Many of the hazards are strongly influenced by geological factors when the works of man come into violent conflict with natural forces. Geological factors likely to actuate disasters can be identified in advance by a combination of topographic, geologic, hydrologic and engineering investigation techniques, termed "Geotechnical Mapping." The application of geotechnical data to mitigate the hazards of earthquakes, floods, landslides and other soil conditions was briefly reviewed.

The methodology being used for geotechnical mapping is based on available geological maps and data, air photographic interpretation, site investigation reports, and site visits and field trips. Geotechnical maps can be used for a variety of purposes: physical planning; generating disaster scenarios for contingency planning; land use zonation; identifying priority areas for risk/vulnerability assessment; and preparation of more detailed risk maps.

Drawbacks of conventional geological maps were described. Eighteen geotechnical groups were defined and mapped. A table representing the geotechnical characteristics of the groups in terms of strength, slope, stability, bearing capacity and drainage was constructed.

The importance of land use zonation as a long-term mitigation measure and the need for selective siting of critical lifeline facilities (health and rescue services) and for vulnerability analysis in feasibility studies of development projects were cited.

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12 June, 1979

TOPIC: Disaster Plan
SPEAKER: J. Buttiner

A review of pre-planned and unplanned responses to disaster emphasized the importance of pre-disaster planning. Response appears

to be consistently more effective when anticipated and organized than when executed on an ad hoc basis. Instituted emergency procedures permit use of national resources (that are frequently available within the stricken country), reducing dependence on external or international assistance.

The existence of a national disaster plan documents government commitment to disaster preparedness and an effective response. A plan defines the organizational and functional mechanisms and procedures for carrying out disaster programs. It focuses the attention of various agencies on the development of an organized, coordinated and effective response to disasters.

The national plan defines preparedness and response functions and assigns responsibilities to appropriate government agencies with the necessary resources, expertise and experience. The plan also should identify arrangements reached with private, non-governmental organizations, foreign missions, and voluntary organizations, as well as procedures for coordinating their emergency activities.

The elements of a national plan include organizational objectives and structures, regulatory requirements, identification and delegation of responsibilities, concepts for operations and plans for implementation.

Delegates were asked to analyze the Illustrative National Disaster Preparedness Plan (prepared for the seminar) in the context of their unique requirements. They were encouraged to discuss the following questions among themselves and in subsequent sessions:

1. How do you obtain government commitment to an adequate level of disaster planning?
2. How do you place the leadership function so it has the necessary authority supporting it?
3. How do you win approval for funding pre-disaster planning?
4. How can community involvement be encouraged?

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TOPIC: Disaster Planning--Governments' Perception
PANELISTS: J. Buttmer, J. Menchaca, J. Nicolau

The need for national disaster planning was personalized by the Portuguese and Cuban delegates. The need for public and private institutions to pressure governments to develop disaster relief plans was

stressed by the Portuguese delegate. Investment in those plans will pay off in the long run since they reduce the costly effects of disasters.

The Portuguese National Plan went into operation four years ago. Initial progress was slow until two separate events triggered its adoption:

1. A small group of U.S. experts, sponsored by the Office of U.S. Foreign Disaster Assistance, visited Portugal and emphasized planning needs to a group of 150 government officials, politicians, and relief organization representatives.
2. Severe flooding occurred in 1978 and 1979 leading to the creation of a National Emergency Center headed by the Prime Minister within the Civil Protection Department.

Portugal's national plan, which advocates decentralization, is being reviewed and revised constantly. It presently is carried out by three main divisions:

1. The National Department of Civil Protection within the central government.
2. The Regional Coordination Centers, which depend on the Regional Civil Authority.
3. The County Coordination Centers, which depend on the local mayors.

The National Department is governed by an executive board in charge of administration, planning, foreign aid and relationships with international organizations, including NATO. The national plan calls for interdisciplinary teams and the National Committee of Civil Protection headed by the Ministry of Defense (in the absence of the Prime Minister) meets at least once a year to discuss programs, plans and budget with representatives from technical and scientific institutions, police armed forces and the chairmen of all the Regional Coordination Centers. The Regional Coordination Centers have their own regional committees made up of representatives of different disciplines.

In accordance with the Cuban National Development Plan, the Office of Civil Defense is responsible for disaster planning and relief activities and is organized according to Cuba's political and administrative structure. The government considers disaster planning an integral component of national planning and development policy.

The total plan consists of a national, provincial and local elements, (including specific industrial plans, i.e., for factories, farmers'

associations, ports, and fishing cooperatives. Other elements include community education and simulation exercises, the organization of a system for the collection and dissemination of hydrological and meteorological data, procedures for the evacuation of people and livestock, emergency harvesting of crops, the procurement of transportation, fuel, potable water, food and medical supplies, the provision of medical assistance and the organization of rescue operations.

Despite major Cuban achievements in disaster planning, there is a persistent need for technical assistance to: improve their meteorological service and in-country communication system; further hydrologic development and seismic research; and create stockpiles of food, medical supplies and transport vehicles in anticipation of natural disasters.

During the Questions and Answers period, some of the following points were made:

1. The role of the central government in any national plan is of utmost importance. A government policy-maker should be in charge of the plan.
2. Security forces should be available to protect property in case of evacuation.
3. Disaster planning is related to development. Any development work should take into consideration protection of the population.
4. Alternative methods of funding are required to carry out national disaster plans.

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TOPIC: Disaster Planning--Topical Focus

PANELISTS: P. Bergeon, A. Boyd, J. Buttimer, C. Facey, M. Henry,
G. Jospitre

Specific country problems were discussed.

Jamaica

Although historically earthquakes have been very damaging, hurricanes, floods, landslides, and man-made disasters are generally held to be Jamaica's principal threats. The Central Emergency Relief Committee has responsibility for assessing relief and rehabilitation requirements and coordinating appropriate response activities. Their disaster response mechanisms were most recently tested in serious floods last April when four people drowned, 5,000 families were

affected and damages amounting to US \$2.4 million were sustained. Immediate relief needs were effectively met. It was noted, however, that since the last major hurricane to strike Jamaica was in 1951, the present generation is not fully sensitive to hurricane danger.

Questions arising from the recent Jamaican floods are:

1. Can people be persuaded to relocate from low-lying flood-prone areas?
2. Can the system for providing international assistance be improved?
3. Is there a need for a Caribbean regional disaster preparedness and relief agency to assist with national agency efforts?

Haiti

Again, disastrous hurricanes and flooding are more prevalent than earthquakes, although the earthquake threat exists. During disasters, Haiti relies heavily on the Red Cross to assess needs and coordinate relief efforts. The Red Cross, however, does not have the necessary authority to mobilize both the public and private sectors for full and effective disaster relief activities. Although government decision-makers are becoming increasingly sensitized to disaster threats, a more effective framework within the national government for overall planning and coordination of disaster mitigation, preparedness and relief should be designed.

Analysis of events in several countries indicates that responsibility for disaster preparedness and relief should be directly under the authority of the Office of the Chief of State. Alternatively, a specific ministry with the necessary authority and experience could direct and coordinate disaster preparedness and relief operations.

Antigua

Pre-disaster planning in the medical sector was reviewed. The most important health factors to be considered following a disaster are safety and purity of the water supply, adequate waste disposal, protection of food supplies and prompt removal of the dead following identification.

Martinique and Guadeloupe

A review of the civil protection system showed major system elements to be prevention, protection, warning and relief. The past ten years of experience with this system have been good, but improvements are necessary in communications and meteorological and seismological

monitoring techniques. Its operation was illustrated by a description of the monitoring of Soufriere's 1976 volcanic activity and the ensuing evacuation.

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13 June, 1979

TOPIC: Earthquakes and Volcanoes
PANELISTS: M. Feuillard, R. Fiske, T. Gibbs, J. Pereira,
J. Shepherd, H. Sigurdsson, J. Tomblin, D. Westercamp

Earthquakes and volcanoes occur in the Caribbean because the earth's crustal plate which defines the region is moving in the opposite direction from a separate and much larger Atlantic plate. The entire edge of that plate, as a result, is vulnerable to both hazards.

Microzonation studies are being carried out at the University of the West Indies, Mona Campus, to identify susceptibility to shock of areas with differing geologic formations and to determine structural resistance to variations of shock.

A presentation was offered on zonation studies undertaken to determine the level of threat to specific areas from ash, volcanic flows and blasts based on analysis of historic activity of la Soufriere on Guadeloupe. Once a disaster relief plan exists, an important component of disaster preparedness should be consideration of intelligent land use zonation and proper structural design to minimize the damaging effects of earthquakes.

Delegates were urged to encourage country adoption of building codes that ensure adequate consideration of seismic-resistant construction. Such codes should be approved first by appropriate engineers. Construction of new health facilities, in particular, should conform to the strictest of building codes as their continued operations are critical during disasters. Wherever possible, structural standards of all existing health facilities should be upgraded, as well as the standards for stability of equipment and supplies.

Increased cost of earthquake-resistant construction should not be more than 4-5%, particularly if taken into account in the early design stage. Costs rise when earthquake-resistance considerations are introduced at later stages of the design and building processes

The 1971 eruption of Soufriere of St. Vincent was a non-explosive volcanic event which did not present an immediate threat to the island population. Major lessons learned from this experience

concerned the relationships between scientific advisors and government decision-makers and the necessity for an adequate level of monitoring.

In terms of planning for potential volcanic disasters, the 1971 eruption provided other lessons:

1. Government at the highest level should directly obtain information and advice from a single, closely knit team of experts with some experience in the region.
2. Rapid and efficient communication between scientists and government is crucial.
3. Scientists of an investigating team should report their findings directly to the government and avoid dealing directly with the media.
4. Government, in turn, is then fully responsible for issuing frequent status reports to the general public on the developments in a volcanic crisis, based on the findings of the scientific team.

The monitoring of Soufriere's volcanic activity and eruption last April were reviewed. It was stressed that the only precaution against volcanic activity is evacuation and the crucial question in that connection is always that of whether or not to evacuate.

The session closed with the posing of two issues:

1. How should scientific observation and advice be coordinated?
2. How should balanced information be channelled to the public?

These issues require that policy decisions be made as soon as possible by government officials supported by advice from scientists.

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TOPIC: Deforestation and Landslide
SPEAKER: S. Kunkle

Deforestation is often partially caused by human activity. Although the immediate effects of deforestation are small in comparison to those of earthquakes, volcanoes and hurricanes, the ultimate effects can be equally as devastating because of the frequency of the occurrence and magnitude of the long-term negative impact.

Several factors causing landslides were cited, the most important of which is uncontrolled deforestation of an area. Others include improperly designed roads, overgrazing by livestock and mining and farming on steep slopes. All of these erode the soil which would otherwise act as a "sponge" to absorb water. After reduction of soil storage capacity, heavy rainfall could potentially set in motion a series of grave problems:

- . Gullies form along roads and cut channels into fields, destroy bridges, damage human habitations, and reservoirs clog with sediment.
- . Debris (branches, rocks, etc.) blocks streams, thereby causing flooding.
- . Landslides occur endangering lives and infrastructures.

Measures to minimize these potential hazards include reforesting denuded areas, assuring proper drainage when roads are built, controlling livestock grazing, zoning to limit land use in areas where landslides are likely to occur, building terraces on slopes, establishing windbreaks of trees and vegetative controls on dunes or coasts, controlling forest fires, establishing parks and green spaces and creating buffer strips.

All of these control measures are within the legislative province of national, regional and local governments.

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14 June, 1979

TOPIC: Fires, Air Crashes, Search and Rescue
PANELISTS: H. Cyril, M. Fenn, S. Meade, K. Nixon, C. Outram

Most damage by fires could be avoided by assuring the availability of adequate equipment, supplies and trained personnel, appropriate inspection procedures and adequate building codes, construction techniques and water supply. It is essential, however, that authorities overcome their reluctance to acknowledge deficiencies and take action when training, equipment and/or procedures are inadequate.

Fires and crashes of air craft pose significant threats to lives and property especially if they occur in a populated area. Aviation statistics show that a very high percentage of accidents occur in the approach-to-land and immediately after take-off phases of flight. Attention was called to the probable future proliferation of small airlines ("which could be regarded as accidents looking for a place

to happen") and the need for government action to enforce safe operations. Specific reference was made to the importance of ensuring the proper containment of hazardous materials transported by air.

Recent experiences indicate that aviation accidents make extraordinary demands on a wide variety of institutions including fire services, medical facilities, the coast guard, ambulance services and the police, the news media and other airlines. In every category, there is a continual need to formulate and revise procedures and periodically to engage in simulated exercises to ensure prompt response and coordination. Following an aviation accident, a thorough investigation should be undertaken to determine the cause. The findings should be promptly reported and the necessary actions taken to remedy any dangerous deficiencies.

Guidance in search and rescue standards and practices is available to member states from the International Civil Aviation Organization. Member states are required to provide for search and rescue services within their territories on a 24-hour basis. Responsibility for search and rescue on the high seas is determined by regional air navigation agreement. In each region, states are required to establish a coordination center. In addition, local units should be designated in both the public and private sectors and suitably positioned, staffed, equipped and organized for both on-shore and off-shore search and rescue. Identification of authorized personnel to contact would eliminate many problems in search and rescue operations.

Panelists recommended that authorities strive for regional cooperation, identify procedures employed in the Caribbean and elsewhere that can be adapted for their use, share local resources and expertise whenever possible and coordinate purchasing, maintenance, repair and training operations.

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TOPIC: Oil Spills
SPEAKER: L. Gratt

Oil spills, or the inadvertent release of oil, do not present an immediate danger to the general public; the primary damage is to ecological and socioeconomic systems. Event and/or "fault trees," utilized to analyze oil spills, provide a visual display enabling identification of critical causative and contributory factors, where preventative and mitigative measures can be applied. Analyses of principal failure modes for accidental spills have indicated that frequencies of major oil spills are correlated to marine transport and transfer operations. Techniques for reducing spill risk and mitigating consequences include conformance to stringent standards

for hull and tank construction, training and licensing of officers and crews, availability of navigational aids and collision avoidance systems and installation of oil monitors and alarm systems.

Transportation statistics can indicate the probability of an oil spill accident. The matter of mitigation of the effects of a large oil spill should be addressed by proper planning. The lack of a clear plan of action, appropriate equipment and expertise in the Caribbean were identified as serious problems. Moreover, there is a general lack of knowledge of where to obtain help, despite the certainty that in many instances a major oil spill will require help from external sources.

As an indication of the magnitude of the threat posed to a state by a major oil spill, a recent oil spill near Puerto Rico was cited. Despite the fact that the spill involved only 50,000 barrels and did not occur in an important fishing, tourist or heavily populated area, damages totalled US \$6 million.

Some accidents are caused by old tankers ill-equipped to utilize available meteorological information. Such meteorological data following a spill can be used to predict the movement of the oil and may permit threatened areas to prepare for its arrival.

It was recommended that deliberate combustion of oil spills be avoided since there is danger of erratic dispersal and explosions may further contaminate the environment.

The presentation revealed the need to plan for spills and to identify at least one person to whom all information regarding oil spills would be directed. This individual would be responsible for maintaining a current inventory of the availability of local and foreign equipment and expertise. Contingency plans for spills of different magnitudes were also suggested. Elements would include clarification of the chain of command, limits of authority to respond and procedures for training and notifying authorities.

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TOPIC: News Media Disaster Role

PANELISTS: R. A. Best, R. Collinge, N. Grosvenor, T. James,
C. Moore, J. Rodgers

There are potential news media roles and responsibilities before, during and after disasters. Although printed media can be most effective in pre-disaster preparedness, electronic media are generally more effective during a disaster. Because the radio is more

accessible, portable, and can reach the illiterate, it plays a significant role during emergencies.

People in the Caribbean rely heavily on the radio, therefore, it is imperative that its information be reliable and accurate during a disaster. It helps boost morale by keeping people informed. Radio amateurs can also fill a very useful role, in this regard.

It is important that media people prepare to play roles related to emergencies. Senior personnel should be included with decision-makers and scientists in disaster preparedness planning. Disaster preparedness planners and civil authorities should also cooperate fully with the media and recognize the media as a useful arm of their activities and responsibilities.

The thought was expressed that cooperation between government and the media is affected by the tendency of administrators in the Caribbean to distinguish between local and international media and to be more responsive to the latter. Local media, on the other hand, tend to be less aggressive in asking questions.

* * * * *

TOPIC: In-Country Communication and Coordination
PANELISTS: L. CLark, M. Fink, L. Smith, S. Tripp

Communication is a vital function and a major responsibility of government during periods of threat or disaster. Full attention must be devoted to the selection and coordination of the communications network/system.

Planning is the key to success in setting up a good communications system. Members of a National Communications Planning Team should be drawn from the news media, police, Red Cross, military, public health and other public and private sectors. A coordinated system should be mapped out for each area of the nation, taking into consideration the many options that may be available including high frequency (VHF/UHF) radio, microwave links, satellites, Citizens Band radio, amateur radio operations and telephones (the vulnerabilities of which must not be overlooked).

The existence of a reliable communications system enables responsible preparedness and relief operations personnel to inform, alert, and advise the public and to coordinate planning and relief more effectively. Measures should be taken to assure a back-up system (including an auxiliary power system) in the event that the main communication lines and links are disrupted. The wide geographic distribution of nations in the Caribbean requires disaster communications planning on both a country and regional basis. Emergency

communications systems must be adapted to consider the area's threat and vulnerability.

The Bahamas, for example, are especially prone to hurricanes. The government has established at police headquarters a system to inform, alert and advise the public during hurricane threats. Four independent, complementary installations compose the system, linking each island in the chain. All installations are supplied with emergency power to ensure continuous emergency communication. Legislation can be enforced, enabling such powers to be invoked during a national disaster. News releases are issued by the government information office located in the emergency operations center.

* * * * *

TOPIC: Weather Monitoring and Crop Yield Estimation
PANELISTS: M. Cantave, K. Leslie, L. Stevens, L. Steyaert

Techniques used to predict crop shortfall or failure due to drought in the Caribbean Basin were described. The importance of an accurate, quantitative forecast of crop yield (approximately one month in advance) lies in its potential to provide an early warning of diminished food supplies and possible famine. Data for weather/crop impact assessments include statistics on rainfall, soils, crop types and planting dates. Evidence suggests that an assessment using these data is significantly more accurate than predictions based on cumulative precipitation alone.

The socioeconomic benefits of having agroclimatic monitoring systems in countries vulnerable to drought are readily apparent; both private and public sectors can profit from such systems, even in the absence of probable drought conditions, since they provide information on expected market conditions and for land use planning.

Since many countries in the Caribbean already collect the necessary data and have the facilities to institute a crop monitoring program based on rainfall, not all countries may require assistance. Agro-meteorology, hydrometeorology and climatology offer great, though underutilized, potential for the enhancement of crop yields.

The elements of a low-cost, reliable drought monitoring system for implementation by Caribbean governments were briefly discussed. A paper, entitled "Rainfall Monitoring and Crop Yield Assessments" describing these elements in greater detail, was distributed.

The experiences of Haiti and Antigua with respect to prolonged drought and severe flooding were presented. Areas needing improvement were identified as food storage and facilities, construction of dams and reservoirs in conjunction with updated conservation measures, a more

open and flexible agricultural marketing system and increased exploration of groundwater supplies.

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15 June, 1979

TOPIC: Nutrition Surveillance in the Caribbean
PANELISTS: C. McIntosh, S. Picard, K. Williams

Improper and/or inadequate food storage, famine and malnutrition continue to plague many Caribbean people. During and following disasters, these problems are frequently exacerbated. Disasters directly affect food availability by destroying supplies, disrupting production and inhibiting timely and equitable distribution. Economically, disasters may lower available foreign exchange needed to import foodstuffs and agricultural production items.

The major nutritional consequence of decreased food supply and its maldistribution following a disaster is the increased prevalence of energy-protein malnutrition. This is most severe among children under five years of age (who are not breastfed) and pregnant or lactating women. Disaster-related malnutrition is due primarily to the depletion of food stocks and overcrowding in evacuation or resettlement centers.

These problems could be partially alleviated by formulating and implementing national or regional programs which incorporate objectives and administrative mechanisms to deal with food storage and distribution during disasters, i.e., maintaining a three-month food supply in disaster-resistant storage structures and having available or being able to divert necessary transport equipment.

Caribbean countries need to improve their food and nutrition data base as a part of overall improvement of national disaster preparedness. In this regard, countries should consider adopting, as part of an ongoing government planning operation, a "Food and Nutrition Surveillance System" similar to that developed by and available from the Caribbean Food and Nutrition Institute. It provides reliable information required for designing measures to enhance the nutritional status of groups in high risk communities. This system measures food availability, distribution channels, and the nutrition status of households.

Delegates were urged to consider both the short- and long-term costs and benefits of such assistance. While the short-term benefits of feeding needy individuals are obvious, assurance is needed that

measures, a more open and flexible agricultural marketing system and increased exploration of groundwater supplies.

* * * * *

15 June, 1979

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PANELISTS: C. McIntosh, S. Picard, K. Williams

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short-term assistance efforts will not greatly displace productive individuals or develop costly long-term dependencies.

* * * * *

TOPIC: Emergency Medicine

PANELISTS: C. de Ville de Goyet, C. Facey, P. Hamilton,
H. Rodriguez

The presentation focussed on emergency preparedness in the health sector rather than on only the medical aspects of emergencies.

In the aftermath of a national disaster, severe public health problems requiring immediate and effective action may arise. During the first 24 hours of a disaster, local health services and survivors usually must care for the injured. Therefore, before external assistance can arrive, the country (or individual communities) are exclusively dependent upon their own resources. More efficient utilization of all resources can be achieved by comprehensive emergency preparedness and planning.

In most countries, information management is usually poor. Each area must have baseline data on common diseases among vulnerable communities (what, who and where), and must have an up-to-date inventory of resources and voluntary and medical personnel available. A simple, reliable epidemiological surveillance system should be ongoing before, during and after an emergency. Training may be required for persons responsible for collecting data on disease.

Contrary to common belief, natural disasters are rarely followed by major epidemics, unless coupled with mass starvation. Although the possibility of increased transmission of diseases cannot be ruled out, mass immunizations, especially against typhoid fever, are not recommended. Priority must be placed on restoration of routine control activities, establishment of a surveillance system and, above all, ensurance of an adequate and safe water supply, proper sanitation and related environmental measures.

A principal objective of Cuba's emergency medical system has been to maintain an inventory of the minimal amount of resources necessary to confront a crisis. Another has been to fully utilize existing facilities by assuring maximum flexibility rather than creating special stand-by emergency services.

Also in Cuba, each basic hospital unit formulates a preparedness plan consistent with the political/administrative organization of the country. Each year, these institutions perform emergency exercises and simulate disasters to evaluate their state of preparedness. Annually,

the National Health Service provides practical and theoretical training to all professional and community personnel who may be called upon to provide medical care in the event of disaster.

* * * * *

TOPIC: Sanitation

PANELISTS: A. T. Bobadilla, N. Carefoot, R. Noel

The elements of a National Environmental Health/Disaster Preparedness policy were described, as was a rational policy on which to base a course of action. It included the following components:

1. Identification and definition, in both social and economic terms, of problem areas needing further attention.
2. Identification of objectives to determine, by means of sound planning and preparedness measures, how best to prevent and/or minimize illness, death and environmental degradation, as well as provide relief, to victims of disastrous conditions.
3. Procedures for emergency action to (a) assess environmental health conditions; (b) make repairs; (c) provide emergency supplies; and (d) monitor and control sanitary conditions and water quality, etc.
4. Enhancement of readiness of personnel and the general public, utilization of specialized training or brief, non-technical courses and leaflets, as necessary.
5. Mobilization of the collective resources of governmental and welfare units to prepare for and mitigate environmental problems associated with disasters. These resources cannot be effectively or quickly mobilized without (a) an emergency environmental health service (developed as an integral part of the national disaster plan); (b) a clear assignment of official responsibilities (which conform as closely as possible to routine task responsibilities); (c) a disaster fund; (d) an effective and reliable emergency communication network; (e) appropriate training; and (f) an effective monitoring and reporting system.
6. Evaluation, to determine when conditions have returned to normal, to compare benefits to expenditures and to provide feedback for improving future preparations and emergency responses.

CARICOM is mandated to develop a health strategy and to determine the feasibility of establishing an environmental health institute. Studies to date have determined that many Caribbean countries urgently need to improve existing regional water systems, as well as to stockpile spare parts and extra pumps and promote community involvement in environmental health.

The session closed with the observation that health is not the monopoly of medical personnel but is everyone's responsibility. All governments should be urged to implement health preparedness programs.

* * * * *

TOPIC: The Caribbean Environment

PANELISTS: R. Gonzalez Massenet, S. T. Keckes, A. Rodriguez

Recent economic growth in the Caribbean has been significant. The area, however, is highly vulnerable to events that disrupt the environment. Damage has been observed (i.e., soil erosion, deforestation and oil spillage) and its consequences are obvious. These environmental anomalies are gradual and predictable, therefore, avoidable through proper measures of protection and development. Without adequate preparation, future man-made and natural disasters may seriously threaten the socioeconomic fabric of the Caribbean.

International assistance in developing environmental plans is available to governments. Delegates were urged to submit concrete suggestions to their governments regarding cooperative disaster efforts.

Issues on environmental deterioration have been discussed ad nauseam in the Caribbean. The key question is "what are the opportunities for finding solutions?" The Caribbean Environmental Project (CEP) of the United Nations Environment Programme is designed to confront the problems arising from the development and mismanagement of resources.

The CEP represents a cooperative opportunity to solving future environmental problems. It will attempt to formulate discrete recommendations for presentation in March 1980. To take this step, experts will review a synthesis of findings of studies conducted by different agencies of the UN. This should provide a base for determination of the priorities and the most feasible mechanism for implementation.

Air contamination with examples from the Dominican Republic was discussed. Both man-made and natural solid and gaseous pollutants (dust, volcanic ash, space debris, asbestos, CO, SO₂, CO₂, hydrocarbons, nitrogen oxides, ozone, smog, viruses and bacteria) and their effects were considered. It is difficult to calculate the cost of damage from air pollution (estimated at \$40 billion in the United

States), because lower life expectancy and agricultural production rates cannot be computed. Both air and water pollution, therefore, are extremely important environmental degradations for consideration in planning and disaster preparedness.

* * * * *

16 June, 1979

TOPIC: Hurricanes and Floods
PANELISTS: F. Farnum, N. Frank, T. Gibbs

An average of eight tropical cyclones sweep the tropical Atlantic every year, particularly during the summer and autumn months, frequently resulting in death and destruction. Such storms are not accidents; they are nature's way of removing excess heat to maintain a balanced temperature in the atmosphere. They are identical to the typhoon in the Pacific or the cyclone in the Bay of Bengal. Fortunately, there are numerous, very effective measures that greatly mitigate the harmful effects of hurricanes.

A hurricane begins as an air wave which becomes unstable and develops a vortex, comparable to an enormous steam engine with tremendous power. This rotating wind of great force starts in the tropical ocean and circulates in a counter-clockwise direction (in the northern hemisphere) at speeds in excess of 74 mph. Storm size, intensity and endurance vary considerably.

A hurricane has three main parts: the outer portion where the wind intensity is weakest, the region of maximum wind and the eye, which averages about 25 miles in diameter. Both wind and storm surge are responsible for damage, but nine out of ten deaths are attributable primarily to the storm surge.

An exercise on hurricane tracking, however, revealed how difficult it is--despite the progress in detection and tracking techniques--to forecast a storm's course over a twenty-four hour period. The problem of public response to hurricane warnings, which may vary from total indifference to immediate action, was also discussed.

Policy-makers and administrators appear to be unwilling to accept a non-zero level of risk--the net result being failure to take action. It is incumbent, nevertheless, on legislators, administrators and engineers to determine acceptable levels of risk and to assure compliance with corresponding minimum standards of design and construction.

As a starting point, the Barbados Association of Professional Engineers, at the request of the Council of Caribbean Engineering Organizations and as an outstanding example of regional cooperation, initiated the preparation of a Draft Code of Practice for structural wind load designs. To date, despite its widespread acceptance by engineers, the code has not been included in the official building regulations of any Caribbean country. As a result, modern designs, construction techniques and reduced safety margins have created many new buildings which are more vulnerable to wind damage than older buildings.

* * * * *

18 June, 1979

TOPIC: Community Preparedness

PANELISTS: G. Cabrera, A. Irastorza, A. Kusters, S. Moosai-Maharaj

Effective disaster prevention, pre-disaster planning and disaster response require input from every level of government. A national disaster preparedness plan involving only top levels of government is not adequate. When catastrophes occur, all levels are interdependent.

During plan formulation and/or implementation, information should flow both up and down. For example, vulnerable populations and structures must be identified at the community level. Since the initial emergency response usually begins with local fire, police, civil defense agencies and volunteer groups, warning and evacuation procedures also may be best determined by them. In addition, the community is usually responsible for enforcing building codes and land-use regulations which have major implications in mitigating disasters. Death and destruction could be greatly reduced in many cases if communities required adequate construction standards for wind and fire resistance, electric wiring, tying down roofs, etc. In the event of destruction of private dwellings, local and neighboring communities can often provide emergency shelter. For these reasons, disaster preparedness plans should be community-oriented by including local leaders and residents in their formulation and implementation.

Panelists urged governments to:

1. Initiate training in disaster preparedness (prevention, warning, rescue, relief, rehabilitation), particularly at the community level (by radio, in schools and churches) where the need is perhaps greatest.

2. Develop a warning system effective in all geographic areas, for every segment of the population, especially the illiterate, and realizing that public radio alone is insufficient.
3. Coordinate disaster relief operations and long-term rehabilitation through a Central Emergency Relief Committee at the national level.
4. Review and revise preparedness plans.

Participants were reminded of the willingness of the Red Cross and other humanitarian organizations to assist with these activities once they are initiated by government.

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TOPIC: Roles and Resources of National and International Organizations
PANELISTS: C. Cadogan, R. Carrillo, R. Lamy, L. Marion, J. Nelson, S. Picard.

During a disaster, voluntary organizations are at the forefront of humanitarian assistance with people-to-people programs, responding to the total needs of people directly affected in an attempt to alleviate suffering.

A distinction was made between operative and non-operative agencies. Operative agencies provide funding plus personnel to implement activities, whereas non-operative agencies usually provide only funding. Funding emanates from three sources:

- Individuals who believe in what the organization is doing.
- Contracts/grants from governments for development assistance.
- The United Nations.

The Organization for Economic Cooperation and Development (OECD) reports that money expended for non-governmental programs in the fields of humanitarian and development assistance totals approximately two billion U.S. dollars per annum.

The voluntary agency has the ability to remain flexible in its working relations with host governments. In many cases, representatives of voluntary agencies are already in-country conducting regular humanitarian work. Therefore, when necessary, they can rapidly call on their experience and resources to provide disaster relief and rehabilitation in cooperation with the host government.

Voluntary agencies can join with governments in the formulation of preparedness plans and may have a role in such plans. However, voluntary agencies traditionally want to maintain an independent status with regard to their actions following the occurrence of a disaster.

Voluntary agencies that have specialized capabilities to render immediate post-disaster relief often concentrate on food, health and medicine, housing, water and clothing. The worldwide voluntary organization which has its total program committed to disaster-related events at both the national and international level is the Red Cross.

During the discussion following the presentation, it was suggested that voluntary organizations increase their visibility by informing the public about the activities in which they are engaged.

* * * * *

TOPIC: The Challenge of Coordinating International Assistance
PANELISTS: S. Labarca, J-P Lévy, C. O'Colmain

The challenge of coordinating international disaster relief assistance is to get the right type of relief to the right people at the right time in the right quantity. Obstacles to the smooth flow of relief include difficulties that arise in (1) the country or countries stricken by disaster; (2) the donor community (countries, organizations, the public at large); and (3) countries through which relief supplies and/or personnel must transit or from which relief supplies must be obtained.

Many of the problems in the stricken country depend on its level of development, particularly on the existence of a disaster relief organization and on its relations with other countries. Assessment of needs is first and foremost the responsibility of the country in which the disaster occurs. If the government does not have the capability to assess its needs (for example, when disaster occurs in a remote area, which is often the case), response will be delayed and/or perhaps inappropriate. If the government refuses to declare a disaster for political or other reasons or decides not to officially request international assistance, the problem of meeting needs is compounded and it is extremely difficult for international relief to follow.

The flow of relief supplies is often delayed by insistence on time-consuming customs procedures, demand for detailed bills of lading, refusal to allow clearances except during normal working hours, etc.

Restrictions on the temporary immigration of disaster relief personnel without visas and the authorization needed to use emergency communications equipment or for medical personnel not previously certified in-country could be lifted. In countries which are traditionally neither donors nor disaster-stricken, there may be difficulties obtaining overflight permission, transit visas for personnel or rights to load or unload personnel and/or supplies.

Donor countries have a responsibility to take steps to coordinate relief operations with actions of other nations in the international community. Prior knowledge of disaster-prone areas or the willingness on the part of donor countries to follow the directives of international organizations responsible for coordinating and mobilizing international relief, (i.e., UNDRO) is essential to smooth, effective operations. Otherwise, duplication and waste of unwanted and useless goods are inevitable. Apart from being costly, the dispatch of unnecessary relief items actually impedes the flow of high priority items.

Long-term interests and indigenous customs (eating and living habits, etc.) of the country must be considered and relief supplies adapted accordingly. Equally important, caution must be exercised to avoid creating a demand (for sophisticated medical care, for example) in the wake of a disaster that cannot be sustained when relief teams depart.

At the very least, a beginning has been made to identify some relief barriers. Gradually steps are being taken by the international community to mitigate or eliminate them. But one problem continues to plague international disaster relief efforts--the non-existence of a central disaster relief agency in the stricken country with which international agencies can work.

In addition to describing the challenge of coordinating international assistance, panelists summarized the objectives and functions of the United Nations Disaster Relief Office and the Organization of American States. It was noted that the World Health Organization has the main responsibility for international assistance in the health sector; and its regional office in the Americas, the Pan American Health Organization, has established a unit with mandates to carry out a comprehensive emergency preparedness program and to assist in the coordination of health assistance.

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19 June, 1979

TOPIC: Prospects for Regional Disaster Preparedness
SPEAKER: P. Boyd

Delegates were asked to consider the creation of a mechanism to ensure regional cooperation to improve disaster preparedness.

When considering regional cooperation, national efforts should be seen as being of paramount importance, but the large number of assisting agencies should also be recognized and the right of these agencies to have direct access to the government should be respected. It should be recognized that several Caribbean countries have plans in effect.

Functions of a regional organization would be to:

1. Stimulate national governments to initiate disaster preparedness planning and implement corresponding plans.
2. Make an inventory of resources and coordinate the sharing of resources throughout the region.
3. Analyze disaster threats and vulnerability and formulate contingency disaster preparedness plans on a regional basis.
4. Assist national governments to stimulate public awareness.
5. Establish liaison with and coordinate contributions from donor countries and agencies.
6. Serve as a regional communications link.
7. Affiliate with Caribbean scientific organizations.
8. Coordinate the work of private, non-governmental organizations in disaster preparedness.
9. Create a regional stockpile of relief supplies.
10. Provide technical assistance, post-disaster evaluation, etc., as appropriate.

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SECTION IV: List of Attendees

PARTICIPATING COUNTRIES

ANTIGUA

Boyd, Dr. Algernon Ivor
Chief Medical Officer
Ministry of Health and Public
Information
New Administration Building
St. John's, ANTIGUA
(809) 21492, 22675

Stevens, Mr. Leonard P.
Director
Meteorological Service
St. John's, ANTIGUA
(809) 20930

THE BAHAMAS

Smith, Mr. Luther E.
Deputy Permanent Secretary
Cabinet Office
P. O. Box N-7147
Nassau, THE BAHAMAS
(809) 322-2805

Williams, Mr. Kendrick L.
Deputy Permanent Secretary
Ministry of Health and Insurance
7th Floor
PO Box N7329
Nassau, THE BAHAMAS
(809) 322-7425

See also Participating International
Voluntary Organizations: LORCS

BARBADOS

Burton, Sir Carlisle
Head, Civil Service and
Chairman, Central Emergency Relief
Organization
Prime Minister's Office
Government Headquarters
Bridgetown, BARBADOS
(809) 42-62814

Gibbs, Mr. Tony
Consulting Engineers Partnership, Inc.
Concept
Dayrells Road
Christ Church, BARBADOS
(809) 42-65930

Harney, Dr. Lenore
Chief Medical Officer
Ministry of Health
Bridgetown, BARBADOS
(809) 42-63470

Outram, Mr. Clyde K. V.
Technical Director-Aviation
Air Traffic Services Building
Grantley Adams International Airport
Christ Church, BARBADOS
(809) 42-86592/87377/86667
Cable: MKP BYA

Pilgrim, Ms. Grace
Central Emergency Relief Organization
Prime Minister's Office
Bridgetown, BARBADOS
(809) 42-60970

BELIZE

Leslie, Mr. Kenrick
Chief Meteorology Officer
National Meteorological Service
P. O. Box 717
Belize City, BELIZE, C.A.
Airport Extension 12

Pinto, Mr. Severo
Secretary
Central Emergency Organization
Office of the Premier
Belmopan, BELIZE, C.A.
082345

BERMUDA

Clark, Mr. Leroy Maxwell (Nobby)
Police Commissioner
Chairman of the Bermuda Disaster
Relief Organization
Police Headquarters
Prospect
Hamilton 5N, BERMUDA
(809) 295-0011

McMaster, Mr. James
Assistant Commissioner, Operations
Police Headquarters
Prospect, Hamilton 5N
BERMUDA
(809) 295-0011

BRITISH VIRGIN ISLANDS

Dawson, Mr. Carl
c/o Deputy Governor's Office
Road Town
Tortola, BRITISH VIRGIN ISLANDS

CAYMAN ISLANDS

Archer, Mr. Roy St. A.
Deputy Commissioner of Police
P.O. Box 909
Police Headquarters
Grand Cayman, CAYMAN ISLANDS
(809) 94222

Nixon, Mr. Kirkland H.
Chief Fire Officer
P. O. Box 277
Department of Civil Aviation
Georgetown
Grand Cayman, CAYMAN ISLANDS
(809) 92275

CUBA

Cabrera, Mr. Gerardo Pichardo
Hurricane Specialist
National Civil Defense
Havana, CUBA

Menchaca, Dr. Juan Roberto
Advisor
Ministry of Public Health
Havana, CUBA
(809) 32-2561

Rodriguez Silva, Dr. Hector
Professor of Internal Medicine
Institute of Superior Medical Services
Havana, CUBA
(809) 32-3044

DOMINICAN REPUBLIC

Bobadilla, Mr. Antonio T.
Administrative Officer
Defensa Civil
Apartado No. 1351
Santo Domingo, DOMINICAN REPUBLIC
(809) 689-3818/3808

Gonzalez Massenet, Dr. Rafael
Professor of Biophysics
Defensa Civil
Apartado No. 1351
Santo Domingo, DOMINICAN REPUBLIC
(809) 689-3818/3808

Oviedo-Javier, Dr. Jose R.
Director, Normative Programs
Secretariat of State for Public Health
and Social Assistance
(Secretaria de Estado de Salud Publica
y Asistencia Social)
Santo Domingo, DOMINICAN REPUBLIC
(809) 565-3131 x216

See also Participating International
Voluntary Organizations: LORCS

FRANCE

Bergeon, Mr. Paul
Director of Civil Safety
Prefecture of Martinique
97200 Fort-de-France, MARTINIQUE
(809) 74.34.61
Telex: 029650 MR

Feuillard, Dr. Michel
Director
Laboratoire de Physique du Globe
St. Claude, GUADELOUPE
(809) 81.30.14
Telex: 029884

Plormel, Mr. Jean-Pierre
Administrateur des Affaires Maritimes
Quai Layrle
97100 GUADELOUPE
(809) 82.03.13, 82.69.84
Telex: 029858

Westercamp, Dr. Denis
Bureau de Recherche Geologique et
Miniere
BP 394
97204 Fort-de-France, MARTINIQUE
(809) 71.88.68
Public Telex: 718868

See also Participating International
Voluntary Organizations: LORCS

GRENADA

Francis, Mr. Roy
Ministry of Health
Government of Grenada
St. Georges, GRENADA

Smith, Mr. Leonard
Hurricane Relief Organization
Cable & Wireless
P. O. Box 119
St. Georges, GRENADA
(809) 2983

GUYANA

Roberts, Mr. Robert
Director, Civil Aviation
Georgetown, GUYANA
02-65275

Chin, Dr. Walter
Medical Superintendent
Georgetown Hospital
Georgetown, GUYANA
02-61835

HAITI

Cantave, Agr. Montaigu
Ministry of Agriculture
Damien, HAITI
(809) 2-4485

Jadotte, Eng. Louis
Engineer and Senior Planning Officer
Director, Service d'Amenagement du
Territoire
Ministry of Planning
Port-au-Prince, HAITI
(809) 2-3263

Jospitre, Eng. Gerard
Director
Service de Methode et Organization
Ministry of Public Works
Port-au-Prince, HAITI
(809) 2-2164

See also Participating International
Voluntary Organizations

JAMAICA

Blake, Mr. John
Acting Director
Jamaica Meteorological Service
Manley International Airport
JAMAICA

Facey, Mr. Cleveland
Acting Chairman
Central Emergency Relief Committee
Ministry of Social Security
14 National Heroes Circle
P. O. Box 10
Kingston 5, JAMAICA
(809) 92-26087

McDonald, Mr. Franklyn J.
Chief Geologist
Ministry of Mining and Natural
Resources
Geological Survey Division
P. O. Box 141, 189, 191
Hope, Kingston 4, JAMAICA
(809) 92-77636/77630

Thelwell, Mr. Richard
Principal Director
Ministry of Mining
Natural Resources Conservation
Department
53-1/2 Molyne's Road
Kingston 10, JAMAICA
(809) 92-35155/35166

See also Participating International
Voluntary Organizations

MONTSERRAT

Cabey, Mr. George
Permanent Secretary
Manpower and Administration
Government Headquarters
P. O. Box 292
Plymouth, MONTSERRAT
(809) 2114 or 2444
Cable: c/o Governor

See also Participating International
Voluntary Organizations: LORCS

PAKISTAN

Baz, Brig. Sher Ali
Director General
Disaster Preparedness and Relief Cell
Cabinet Division
Government of Pakistan
Rawalpindi, PAKISTAN

PORTUGAL

Nicolau, Dr. José Afonso Solas
Member of Civil Protection Committee
Rua da Bela Vista a Lapa 57
1200 Lisboa, PORTUGAL
675683/674288

Oliveira, Eng. Carlos Sousa
Researcher
Laboratorio Nacional de Engenharia
Civil
Avenida do Brasil
1700 Lisboa, PORTUGAL
882131 X84

Victor, Prof. Dr. Luis Alberto Mendes
General Director
National Institute of Meteorology and
Geophysics
Rua C-Aeroporto
1700 Lisboa, PORTUGAL
802221 or 802022

ST. KITTS

Hector, Mr. Oriel
Permanent Secretary
Ministry of Education, Health
and Social Affairs
Church Street
Basseterre, ST. KITTS

Wycliffe-Morton, Mr. Herbert
Assistant Secretary, External Affairs
Government Headquarters
Church Street
Basseterre, ST. KITTS
(809) 2521 X50

See also Participating International
Voluntary Organizations: LORCS

ST. LUCIA

Arthur, Ms. Martina
Community Development Officer
c/o Stanislaus James
P. O. Box 474
Castries, ST. LUCIA

Charles, Mr. Gabriel
Forestry Department
Ministry of Agriculture
Castries, ST. LUCIA

Cyril, Mr. Haynes
Fire Officer
Fire Service Headquarters
Castries, ST. LUCIA
(809) 455-3064, 2373/4

Devaux, Mr. David
Island Flyers Ltd.
P. O. Box 930
Castries, ST. LUCIA

Forde, Mr. Alexander
Forestry Division
Ministry of Agriculture
P. O. Box 682
Castries, ST. LUCIA

Gajadher, Mr. Archibald
Senior Forestry Assistant
St. Lucia Forest Service
Castries, ST. LUCIA

Gustave, Mr. Peter
President
St. Lucia Jaycees
P. O. Box 330
49 Chaussee Road
Castries, ST. LUCIA

James, Mr. Timothy
Information Assistant
Government Information Service
Castries, ST. LUCIA
(809) 455-5524

James, Mr. Stanislaus
Liaison Officer
Voluntary Organizations
P. O. Box 474
Castries, ST. LUCIA

Louisy, Dr. Greaham
Secretary to the Cabinet
Office of the Premier
Castries, ST. LUCIA
(809) 455-3980

Lubin, Mr. Cornelius L.
Hospital Administration
Victoria Hospital
Castries, ST. LUCIA

McFarlane, Ms. Felicia
P. O. Box 327
Castries, ST. LUCIA

Myers, Mr. Alvin, B.E.M.
Police Department
Castries, ST. LUCIA

Scott, Mr. Terrence
Airport Manager
Hewanorra Airport
P. O. Box 225
Vieux Fort, ST. LUCIA

Sutherland, Mrs. Doreen
U.S. Weather Service
P. O. Box 1H3
Castries, ST. LUCIA
(809) 455-5832

Sutherland, Mr. Tyrone W.
Meteorological Office
Hewanorra International Airport
P. O. Box 225
Vieux Fort, ST. LUCIA
(809) 455-6550/1156

Thomas, Mr. Leton F.
Permanent Secretary
Ministry of Education
Castries, ST. LUCIA

ST. VINCENT

Martindale, Mr. Hutson
Permanent Secretary
Ministry of Home Affairs and
Tourism
Kingstown, ST. VINCENT
(809) 61111 X16 or 71426

Tannis, Hon. Hudson
Deputy Premier
Minister of Home Affairs and
Tourism
Kingstown, ST. VINCENT

TRINIDAD and TOBAGO

Borel, Mr. Michael
Secretary/Manager
National Emergency Relief Organization
Ministry of National Security
Republic of Trinidad and Tobago
St. Augustine, TRINIDAD and TOBAGO
(809) 62-38004/32113

See also Participating International
Voluntary Organizations: LORCS

TURKS and CAICOS

Been, Mr. Charles E.
Secretary
Chief Minister's Office
Turks and Caicos Government
Grand Turk, TURKS AND CAICOS
(809) 2300-7
Telex: 227 Hiefmin

Delance, Mr. Daniel
Architect
Turks and Caicos Government
Grand Turks, TURKS AND CAICOS
(809) 2300-7
Telex: 227 Hiefmin

PARTICIPATING INTERNATIONAL
ORGANIZATIONS

Caribbean Community Secretariat

Boyd, Dr. Philip
Chief Medical Officer
Caribbean Community Secretariat
(CARICOM)
Third Floor, Bank of Guyana Building
P. O. Box 607
Avenue of the Republic
Georgetown, GUYANA
02-66102
Cable: CARIBSEC GUYANA

Noel, Mr. Raymond
Public Health Engineer
Caribbean Community Secretariat
(CARICOM)
Bank of Guyana Building, Third Floor
P. O. Box 607
Avenue of the Republic
Georgetown, GUYANA
02-66102

Caribbean Meteorological Institute

Farnum, Mr. Frank
Hydrometeorologist
Caribbean Meteorological Institute
(CMI)
P. O. Box 130
Bridgetown, BARBADOS
(809) 42-03145

Rudder, Mr. Geoffrey M.
Principal
Caribbean Meteorological Institute
(CMI)
P. O. Box 130
Bridgetown, BARBADOS
(809) 42-03145

Caribbean Food and Nutrition
Institute

McIntosh, Dr. Curtis
Agricultural Economist
Caribbean Food and Nutrition
Institute (CFNI)
St. Augustine, TRINIDAD
(809) 42524/43476
Telex: Port-of-Spain 398

European Economic Community

Russell, Mr. Jeffrey
DG VIII/D/S
Commission of European Economic
Community (EEC)
200 Rue de la Loi
B-1049
Brussels, BELGIUM

Organization of American States

Labarca, Mr. Sergio
Unit Chief, Office of Coordination
and Support
Organization of American States (OAS)
1735 Eye Street, N.W.
Washington, DC 20006
UNITED STATES

Pan American Health Organization

Carefoot, Eng. Neil
Area Advisor on Environmental Health
Pan American Health Organization
P. O. Box 508
Bridgetown, BARBADOS
(809) 63891

de Ville de Goyet, Dr. Claude
Disaster Relief Coordinator
Emergency Preparedness and Disaster
Relief Coordination Unit
Pan American Health Organization
525 23rd Street, N.W.
Washington, DC 20037
UNITED STATES
(202) 331-5245

Hamilton, Dr. Patrick S. J.
Director
Pan American Health Organization
Caribbean Epidemiology Center
(CAREC)
P. O. Box 164
Port-of-Spain, TRINIDAD
(809) 62-24261
Telex: Port-of-Spain 398

Henry, Dr. Mervyn
Caribbean Program Coordinator
Pan American Health Organization
P. O. Box 508
Jemmotts Lane
Bridgetown, BARBADOS
(809) 42-35080
Telex: Bridgetown Barbados 236

Leus, Dr. Xavier
Pan American Health Organization
Caribbean Epidemiology Centre
(CAREC)
c/o P. O. Box 164
Port-of-Spain, TRINIDAD
(809) 62-24275
Telex: Port-of-Spain 398

O'Colmain, Dr. Colm
Medical Officer
Liaison Office with International
Organizations
Pan American Health Organization
525 23rd Street, N.W.
Washington, DC 20037
UNITED STATES
(202) 331-5218

Pantoja, Dr. Mario
Medical Officer
Pan American Health Organization
Santo Domingo, DOMINICAN REPUBLIC

Roisin, Dr. Alain
Associate Epidemiologist
Pan American Health Organization
OPS/ORS Office
Port-au-Prince, HAITI

Whalley, Dr. Barry
Pan American Health Organization
Country Representative
P. O. Box 898
Port-of-Spain, TRINIDAD
(809) 42424/44376
Telex: Port-of-Spain 398

United Nations Disaster Relief
Office

Lévy, Mr. Jean-Paul
Chief, Latin American Section
United Nations Disaster Relief
Office (UNDRO)
Palais des Nations
CH-1210 Geneva, SWITZERLAND

Rossborough, Mr. Robert J. B.
Director
United Nations Disaster Relief
Office (UNDRO)
Palais des Nations
CH-1211 Geneva, SWITZERLAND
31.02.11

United Nations Environmental Program

Keckes, Dr. Stephan, Director
United Nations Environmental Program
Regional Seas Program Activity Centre
Palais des Nations
CH-1210 Geneva, SWITZERLAND
98.58.50

Rodriguez, Mr. Arsenio
Joint UNEP/ECLA
Caribbean Environmental Project
P. O. Box 1113
Salvatori Building, Room 200
Port of Spain, TRINIDAD
Cable: UNCEP Port-of-Spain

United Nations Children's Fund

Anakawa, Mr. Yoshiaki
Assistant Program Officer
c/o UNICEF Caribbean Area Office
P. O. Box 305
Kingston, JAMAICA
(809) 92-67584

Walker, Mr. Robert, Coordinator
Emergency Operations
UNICEF
866 UN Plaza
New York, NY 10017
UNITED STATES
(212) 754-1990

University of the West Indies

Pereira, Dr. John
Seismic Research Unit
c/o Physics Department
University of the West Indies
Mona, JAMAICA
(809) 92-70751

Shepherd, Dr. John
Seismic Research Unit
University of the West Indies
St. Augustine, TRINIDAD

Tomblin, Dr. John, Head
Seismic Research Unit
University of the West Indies
St. Augustine, TRINIDAD
(809) 662-4659
Telex: WF 303 UWI

PARTICIPATING INTERNATIONAL
VOLUNTARY ORGANIZATIONS

Cadogan, Rev. Claude L., Coordinator
Disaster Emergency Relief and
Welfare Programs (DERAW)
Caribbean Conference of Churches
P. O. Box 527
Kingston 10, JAMAICA
(809) 92-66990/67114

Lamy, Father Roland
CARITAS
P. O. Box 1230 (temporary)
Port-au-Prince, HAITI
(809) 24855
Telex: 329-9510

Marion, Mr. Leon O.
Executive Director
American Council of Voluntary
Agencies for Foreign Service
200 Park Avenue South
New York, NY 10003
UNITED STATES
(212) 777-8210

Nelson, Major John
Disaster Coordinator for the
Caribbean
The Salvation Army
P. O. Box 153
Kingston, JAMAICA
(809) 92-23351
Cable: SALVATION KINGSTON

Picard, Mr. Serge, Program Director
Catholic Relief Services (CRS)
P. O. Box 947
Port-au-Prince, HAITI
(809) 2-0654
Telex: 329-9510/9511
Cable: CATHWEL

Roberts, Ms. Lesley
Director (Regional)
OXFAM
B.P. 947
Port-au-Prince, HAITI
(809) 2-5654/7-1242

White, Mr. Robert
CADEC, Caribbean Conference of
Churches
P. O. Box 527
Kingston 10, JAMAICA
(809) 92-67114/66990/67007
Telex: 2385
Cable: CADKINGJA

League of Red Cross Societies

Bain, Mr. Delton
Director of Training
The Bahamas Red Cross
P.O. Box N-8331
Nassau, THE BAHAMAS
(809) 322-4640/2454

Balfour, Ms. Susan
International Aid Department
British Red Cross Society
9 Grosvenor Crescent
London, SW1
UNITED KINGDOM
01-235-5454

Bighinatti, Mr. Enso
Under-Secretary General
Disaster Relief Sector
League of Red Cross Societies
P.O. Box 276
CH-1211 Geneva 19, SWITZERLAND
34.55.80

Carrillo, Mr. René
Assistant Director
Disaster Preparedness Bureau
Disaster Relief Sector
League of Red Cross Societies
P. O. Box 276
CH-1211 Geneva 19
SWITZERLAND

Fink, Mr. Milford
Disaster Communications Specialist
American Red Cross
18th and E Streets, N.W.
Washington, DC 20006
UNITED STATES
(202) 857-3535

Franklin, Mr. William
Chairman
Jamaican Red Cross Society
Disaster Relief Committee
c/o Cerfact Laboratories
P.O. Box 276
Kingston 5, JAMAICA
(809) 92-67246

Irastorza, Mr. Anibal
Assistant Manager, Dade
County Chapter
American Red Cross
Miami, Florida
UNITED STATES
(305) 576-4600

Jeunesse, Dr. Claude
French Red Cross
Hospital Clarac
Fort-de-France, MARTINIQUE

Joseph, Dr. Volvick Remy
Coordinator, External Assistance,
Department of Public Health
Director, Disaster Relief Sector,
Red Cross
Port-au-Prince, HAITI
(809) 2-5423

Kusters, Mr. A. J. P.
Netherlands Red Cross
P. O. Box 41 or 286
Curacao, NETHERLAND ANTILLES
(809) 37311/37316
Telex: 1153 KTCCO
1275 INTUR

Meade, Mr. Sydney, O.B.E.
Vice President
Montserrat Red Cross
P. O. Box 61
Plymouth, MONTSERRAT
(809) 2699
Cable: Montserrat Red Cross

Moosai-Maharaj, Dr. S.
C.M.T. Chairman
Trinidad and Tobago Red Cross
P. O. Box 357
National Headquarters
Regional Community Park
Wrightson Road Extension
Port-of-Spain, TRINIDAD
(809) 62-27220
Cable: TRINREDCROSS

Simo-Clark, Mr. Ernesto
Inspector General
Dominican Red Cross
Santo Domingo, DOMINICAN REPUBLIC
(809) 682-2682

Taaffe, Mrs. Dorothy
American Red Cross
18th and E Streets, NW
Washington, DC 20006
UNITED STATES

Torrence, Mr. Bryce
Director, Disaster Services
American Red Cross
18th and E Streets, NW
Washington, DC 20006
UNITED STATES
(202) 857-3722/23

Walker, Canon George
State Director
British Red Cross Society
St. Kitts-Nevis-Anguilla
St. Peter's, ST. KITTS

PARTICIPATING MEDIA ORGANIZATIONS

Best, Mr. Richard Anthony
Caribbean Broadcast Corporation
BARBADOS

Caesar, Ms. Lillian Cynthia
c/o Antilles Radio Corporation
P. O. Box 930
MONTSERRAT

Charles, Mr. Emmett
Antilles Radio Corporation
P. O. Box 930
MONTSERRAT

Grosvenor, Mr. Neville
Publisher and Managing Director
Advocate News
Bridgetown, BARBADOS

Rogers, Mr. Julian, Program Manager
Head of English Language Service
Antilles Radio Corporation
P. O. Box 930
MONTSERRAT
(809) 2755 X23
Cable: ARC
Telex: MK 717 ARC

PARTICIPATING UNITED STATES
GOVERNMENT ORGANIZATIONS

Defense Civil Preparedness Agency

Zenowitz, Mr. Allan R.
Regional Director
Defense Civil Preparedness Agency
Region 1
Federal Regional Center
Maynard, Massachusetts 01754
UNITED STATES
(617) 223-6230

Federal Aviation Administration

Fenn, Mr. Michael T.
Area Manager, Eastern Caribbean
Federal Aviation Administration
San Juan,, PUERTO RICO
(809) 791-2310/1037

International Communications Agency

Collinge, Mr. Robert
Director, ICA
c/o American Embassy
Bridgetown, BARBADOS
(809) 42-75806

Moore, Mr. Carl D.
Senior Information Specialist
International Communications Agency
Bridgetown, BARBADOS

National Hurricane Center

Frank, Dr. Neil, Director
National Hurricane Center
Gables One Tower, Room 631
1320 South Dixie Highway
Coral Gables, Florida 33146
UNITED STATES
(305) 350-5547

National Oceanic and Atmospheric
Administration

Steyaert, Dr. Louis
Research Meteorologist
National Oceanic and Atmospheric
Administration
Federal Building, Room 116
600 East Cherry Street
Columbia, MO 65201
UNITED STATES
(314) 445-3035

Peace Corps

Barnes, Mr. Robert F.
Acting Peace Corps Director
Eastern Caribbean Region
P. O. Box 696-C
Bridgetown, Barbados
(809) 42-77931

The Smithsonian Institution

Fiske, Dr. Richard, Curator
National Museum of Natural History
Smithsonian Institution, NHB 119
Washington, DC 20560
UNITED STATES
(202) 381-4037
Telex: 895-99 SCINET-WSH

U.S. Agency for International
Development

Dalton, Mr. William R.
Assistant Director
Office of U.S. Foreign Disaster
Assistance
Agency for International Development
Room 1262A N.S.
Washington, DC 20523
UNITED STATES
(202) 632-8746

Davidson, Mr. Oliver
Operations Officer
Office of U.S. Foreign Disaster
Assistance
Agency for International Development
Room 1262A N.S.
Washington, DC 20523
UNITED STATES
(202) 632-9758

Feeney, Ms. Paula
Mission Disaster Relief Officer
U.S. Agency for International
Development
c/o American Embassy
P. O. Box 302
Bridgetown, BARBADOS

Helmick, Ms. Mary
Secretary
Office of U.S. Foreign Disaster
Assistance
Agency for International Development
Room 1262A N.S.
Washington, DC 20523
UNITED STATES
(202) 632-8746

Johnson, Mr. Dwight
USAID/Barbados
P. O. Box B
FPO
Miami, Florida 34054
UNITED STATES

Johnson, Mr. Henry P.
Mission Disaster Relief Officer
U. S. Agency for International
Development
c/o American Embassy
2 Oxford Road
Kingston 5, JAMAICA

Martindell, Mrs. Anne C.
Director
Office of U.S. Foreign Disaster
Assistance
Agency for International Development
Room 1262A N.S.
Washington, DC 20523
UNITED STATES
(202) 632-8924

Raullerson, Mr. Calvin H.
Assistant Administrator
Bureau for Private and Development
Cooperation
Agency for International Development
Washington, DC 20523
UNITED STATES
(202) 632-8298

Siegel, Ms. Carole
Administrative Officer
Office of U.S. Foreign Disaster
Assistance
Agency for International Development
Room 1262A N.S.
Washington, DC 20523
UNITED STATES
(202) 632-5916

Tamari, Mr. Elias
Community Development Officer
U.S. Agency for International
Development
c/o American Embassy
Port-au-Prince, HAITI
(809) 2-0094

U.S. Forest Service

Kunkle, Dr. Sam
Conservation Specialist
U.S. Forest Service
P. O. Box 2417
Washington, DC 20525
UNITED STATES
(202) 254-8890/7386

U.S. Government Consultants and
Contract Staff

Boudreau, Mr. Richard
Practical Concepts Incorporated
1730 Rhode Island Avenue N.W.
Suite #200
Washington, DC 20036
UNITED STATES
(202) 833-1040

Buttimer, Mr. James
Cresap, McCormick and Paget
Management Consultants
1776 K Street, N.W.
Washington, DC 20006
UNITED STATES
(202) 833-8350

Cohen, Mr. Bruce
Practical Concepts Incorporated
1730 Rhode Island Avenue, N.W.
Suite #200
Washington, DC 20036
UNITED STATES
(202) 833-1040

Drobot, Ms. Lucy
Evaluation Technologies, Inc.
c/o Agency for International
Development
Room 1262A N.S.
Washington, DC 20523
UNITED STATES
(202) 632-1745

Gratt, Dr. Lawrence B.
5463 Coral Reef
La Jolla, California 92037
UNITED STATES
(714) 454-3811 X2473

Herrera, Mr. Ted, Interpreter
Language Services Division
OPR/LS, Room 2212 N.S.
Department of State
Washington, DC 20520
UNITED STATES
(202) 632-0508

Ingle, Mr. Marcus
Practical Concepts Incorporated
1730 Rhode Island Avenue N.W.
Suite #200
Washington, DC 20036
UNITED STATES
(202) 833-1040

Kaps, Ms. Helen, Interpreter
Language Services Division
OPR/LS, Room 2212 N.S.
Department of State
Washington, DC 20520
UNITED STATES
(202) 632-3492

Levin, Ms. Cynthia, Interpreter
Language Services Division
OPR/LS, Room 2212
Department of State
Washington, DC 20520
UNITED STATES
(202) 632-3492

Lockard, Mr. James, Consultant
c/o Office of U.S. Foreign Disaster
Assistance
Agency for International Development
Room 1262A N.S.
Washington, DC 20523
UNITED STATES
(202) 632-8746

Montenegro, Mr. Mario, Interpreter
3000 Spout Run Parkway
Arlington, VA 22201
UNITED STATES

Pichot, Mr. Andre, Interpreter
Language Services Division
OPR/LS, Room 2212
Department of State
Washington, DC 20520
UNITED STATES
(202) 632-3492

Rock, Mr. Edward, Interpreter
2 Beacon Hill Lane
Charlotte, North Carolina 28211
UNITED STATES
(704) 525-5100

Sigurdsson, Dr. Haraldur
Graduate School of Oceanography
University of Rhode Island
Narragansett Bay Campus
Rhode Island 02881
UNITED STATES
(401) 792-6159

Tripp, Mr. Stephen, Consultant
c/o Office of U.S. Foreign Disaster
Assistance
Agency for International Development
Washington, DC 20253
UNITED STATES
(202) 632-5916

Watts, Ms. Sylvia
Practical Concepts Incorporated
1730 Rhode Island Avenue N.W.
Suite #200
Washington, DC 20036
UNITED STATES
(202) 833-1040

Young, Mr. Arthur
Audio-Visual Specialist
OPR/VS, Room B-258 N.S.
Department of State
Washington, DC 20520
UNITED STATES
(202) 632-1634