INTERNATIONAL SUPPORT ORGANIZATIONS

American Council of Voluntary Agencies for Foreign Service	Leon Marion
Canadian International Development Agency	Paul Dunbar
Caribbean Community Secretariat	Raymond Noel
European Economic Community	Graham Kelly
Inter-American Development Bank	Ricardo Peralta/ David Coore
International Telecommunication Union	Fernand Dubret
League of Red Cross Societies	Rene Carrillo
Office of the United Nations Disaster Relief Coordinator	Jean-Paul Levy
Organization of American States	Michael Greene
Pan American Health Organization	Claude de Ville de Goyet
United Nations Development Programme	Lars Erickson
United Nations Environmental Programme	Dario Sanvincenti
U.S. Agency for International Development Office of U.S. Foreign Disaster Assistance	Joseph Mitchell
World Meteorological Association	Donat Vickers

Plenary Session: Disaster Preparedness in the Caribbean

The search for a means to evaluate disaster preparedness in the Caribbean region evolved out of post-session discussions at the 1979 Disaster Preparedness Seminar in St. Lucia. Distribution of a "self-audit" questionnaire to the governments of the region was suggested; the final format of the self-audit was developed at the October 1979 planning meeting in Kingston, Jamaica, and copies were sent out shortly thereafter. An analsis of eleven self-audits received by the Office of U.S. Foreign Disaster Assistance indicates recurrent preparedness strengths and deficiencies:

- Most of the countries surveyed have disaster plans for hurricanes only, despite widespread seismic and flood hazards. Many plans are out of date or do not address specialized sector needs--most need improvement.

- Emergency operations centers are often inadequate in location, equipment and staffing. Many are located in police headquarters without direct communications with government. Periodic testing of equipment and staff response to warning is lacking.

- Meteorological offices' response to hurricane warnings is generally good, but relaying of warnings to the public may not be adequate.

- Search and rescue operations and emergency relief response in general are less than optimal--only one country reported an ongoing emergency relief organization.

- Most communications equipment is VHF. Better communications equipment, training and maintenance were frequently identified needs.

- Prevention and mitigation programs are seriously lacking.

The team survey of the Eastern Caribbean countries, reported by team leader Grace Pilgrim, reiterated these points, with the following additions: plans are indeed limited to hurricanes and in need of revision; several countries are now reviewing and amending plans; some may need assistance in this matter. An explicit regional plan and special plans for sudden disasters like fires, as well as hotel and hospital emergency plans, are needed. Few countries have ongoing disaster preparedness programs or projects. There are urgent needs for resource inventories, equipment and training, especially in the areas of public health and first aid; a communications survey should be the first priority for the entire region. Public awareness and education programs, for both children and adults, are needed; the media should be involved in this effort. Legislation and budgeting for disaster preparedness are needed in most islands.

Team observations of preparedness levels in the Central and Western Caribbean were covered by Franklyn McDonald. Again, the need for information--at all levels of society--was stressed. Awareness of disaster hazards and risk was low for both disaster preparedness agencies and the general public except in Belize and the Dominican Republic, especially for seismic disasters and landslides. Plans were difficult to obtain. Though warning systems for disasters exist, information dissemination needs improvement. Communications equipment is often incompatible within individual countries as well as within the region. (Police and military systems may be incompatible, for example.) The scientific and technical information available for risk and hazard analysis is not applied in development projects and policies. Existing plans are geared to small disasters and are incapable of handling major disasters. Planning for disasters should be linked to economic planning; its emphasis should be shifted from relief to preparedness.

Questions and Comments

Did the self-audits address the question of insurance for public and private property? No. Disaster insurance is essential.

Should special funds for short-term disaster preparedness be established on a regional basis? It is more important to obtain government commitment to promoting disaster preparedness programs, first by updating emergency plans and establishing priorities. Without this groundwork, money is unlikely to be put to effective use.

Plenary Session: Review of Preparedness Programs

A discussion of regional versus bilateral aspects of program development opened the session. Concern about pressure to develop regional programs was voiced by Jamaica's Jacqueline Mayers (who doubted that most countries were prepared to describe regional projects at the present time); William Dalton of OFDA indicated that regional programs would have to be worked out on a long term basis by donor-recipient teams, since no regional instrumentality now exists; and that the primary regional consideration was to develop compatible systems for international use. The discussion then turned to the substance of the program areas, beginning with Emergency Operations Centers.

Stephen Tripp, an OFDA consultant, characterized the Emergency Operations Center as a multifaceted program comprising several projects. Since an EOC should be located on a "safe site" in a disaster-resistant building, a survey of possible sites is indicated. 24-hour operations necessitate a dependable source of power and good linkage with the communications center (preferably located in the EOC); present locations of many Caribbean EOC's at police headquarters are crowded, isolated from government decision-makers and often have no auxiliary power source. Reliable EOC communications are dependent on good national and international communications networks. Crisis management training, search and rescue techniques and equipment, disaster survey and assessment training, epidemiological surveillance and training in maintenance and operation of radio equipment are all needs associated with effective disaster assistance operations; a crisis management seminar series for senior and cabinet level officials, dealing with such tasks as allocation of resources, relations with news media and delegation of authority, was proposed.

Again the question of regional or sub-regional EOC's was raised--Graham Kelly of the EEC, supported by Raymond Noel, CARICOM, asked if a regional component for manpower resources were under consideration-- and the priority of country-level EOC development (especially communications linkages and maintenance) was reasserted.

Next, Communications Committee priorities were defined, by Sir Carlisle Burton of Barbados, as including not only telecommunications, but also a survey of country communications requirements, system design and development, training in operations, maintenance and emergency operations. The excellent ITU plan must be further developed to describe on-the-ground systems; an outreach program by the University of the West Indies with USAID and NASA assistance to link the scattered island systems via satellite was described; a link between Barbados, St. Lucia and the U.W.I. campus at Barbados would be subjected to a series of tests over an 8-week period; cost effectiveness and ability to meet costs must be carefully assessed; such use of advanced technology enables rapid progress, but requires sharing among the countries of the region. Satellite linkages could improve EOC disaster preparedness by providing facilities for teleconferencing, Caribbean-wide teaching, emergency medical advice to distant islands, radio connections between the EOC's of the region during a disaster and between donor and recipient countries and organizations.

Provision of a global network of data collection stations feeding via satellite to forecasting centers is a prerequisite for improved tropical cyclone warning systems in the Caribbean.

Kenrick Leslie of Belize, Chairman of the Meteorology Committee, discussed ongoing and planned WMO programs, their relevance to meteorology projects in the Caribbean region and the need for international cooperation to accomplish such comprehensive and timely data collection and analysis. The regional project documentation (See Section V of this document) includes minimum observation and communications systems requirements for each Caribbean country (in comparison to levels attained at present). Adequate communications systems, properly trained personnel and coordination of country warning programs under the WMO Region IV Program are high priority projects.

Colin Depradine of Barbados outlined the Caribbean Meteorological Institute's training and research programs (developed and carried out in cooperation with the WMO). In addition to training four classes of meteorologists: meteorological assistants, senior meteorological assistants, forecasters and graduate meteorologists, CMI holds seminars on such topics as flood forecasting, storm surge prediction and short range forecasting and serves as a center for collection of regional data, which is checked and summarized monthly. At present, its services are only available to the English-speaking islands, but a center for Spanish-speaking people is under consideration.

Jean-Paul Levy of UNDRO, chairing the Disaster Planning discussion, emphasized the importance of initial inventories of risks and of resources available for development of a national disaster plan. First priority is the analysis of the most effective and rapid use of existing resources to meet existing risks. Dissemination of warnings, evacuation procedures and mitigation measures all need early consideration. Ideally, a single coordinating agency as high as possible in administrative authority should be appointed to develop and implement plans, including the specific roles of government and non-government agencies, at both national and local levels, with some contribution to regional planning. All agencies involved should participate in training programs to better carry out their appointed responsibilities within the plan. Periodic drills are a necessity. Stockpiling of basic emergency supplies, legislation to circumvent normal bureaucratic procedures in emergencies and effective dissemination of public information before, during and after a disaster should be addressed during the planning process. Previously implemented disaster planning projects need country commitment in order to be successfully completed. New projects ought not be undertaken in a given area if previously existing projects have not received sufficient follow-up.

Public awareness needs were summarized by Grace Pilgrim of Barbados. (Her background paper on the subject is included under Section VIII of this document.) The essential components of a public awareness program include raising the national level of consciousness concerning the types of disaster hazards and their nature, public education concerning disaster warnings and safety procedures and effective use of the mass media for

public information through close working relationships with government and integration into national disaster plans. Disaster information days or weeks have been used effectively in some islands (Barbados, Antigua, St. Lucia) and could perform useful functions in many others. Collection of current literature and audiovisual materials on natural disasters in the Caribbean region can be used to heighten public awareness of disaster hazards.

Opportunities for disaster preparedness action in Seismology were covered by Dr. John Shepherd of U.W.I.'s Seismic Research Unit in Trinidad. As stated in the five regional seismology projects, needs include: installation of seismographs in some islands, communications networks to enable interpretation of seismic data and monitoring of all live volcanoes, especially during an eruption when current data is most important.

Leon Marion of the American Council of Voluntary Agencies for Foreign Service reviewed areas for non-governmental organization's projects. Existing development programs in such areas as agriculture, water resources, nutrition, non-formal education, small industries and construction already have professional staff, funding, training programs and trained indigenous personnel. Voluntary agencies have flexibility for small-scale short term funding for emergency needs. The volags' communication network is tied in to those of OFDA and UNDRO during disaster relief operations. Many volags also produce disaster situation reports and newsletters dealing with disaster assistance topics.

Considerations for a regional first aid project were summarized by Rene Carrillo and Jurgen Weyand of the League of Red Cross Societies. Two major target groups, inhabitants of disaster-prone areas and personnel charged with providing qualified post disaster aid, were identified; the former group's training is most essential because qualified aid may not be available at the disaster site until several hours or days after the disaster. The quality of training and readiness of trainees to apply their skills are vital. Awareness of need for first-aid skills must be created in local populations to obtain trainees--in many places, few attempts have been made to train the general public or those in rural areas, who are most in need of such skills. All national Red Cross Societies in the Caribbean have first aid training programs; unfortunately, most have been exported from the U.S. and Western Europe and are not geared to local needs.

PAHO's Dr. Claude de Ville reviewed public health sector preparedness in the Caribbean. Development of human resources through model plans for country-level public agencies and hospitals and training of managers and health professionals are currently of the highest priority. Programs will move from regional seminars for high-level managers to health professionals to the general public, with national health planners taking increasing responsibility for education programs, though materials must be provided on a regional basis. Communications, public awareness and building code projects all have important implications in the health sector; project development in these areas should be coordinated with public health activities.

Plenary Session: Country Presentations

This session provided country delegates with an opportunity to present their "felt needs" in the area of disaster preparedness. The content of delegates' presentations ranged from specific project proposals to more general statements of need. In the cases where project proposals duplicated the information contained in the project outlines, we have briefly summarized the material and refer the reader to the project outlines in Section V.

Sir Carlisle Burton, the country representative from Barbados, discussed a national project in the area of communications (see Project I-C-2, "Telecommunications Network for CERO, Barbados", Section V). He described CERO (Central Emergency Relief Organization) communication equipment as outmoded (12-27 years old) and unserviceable. In addition, the CERO communication system operates on an AM frequency, has a limited range, and is vulnerable to interference.

A project consisting of two components is proposed to remedy these limitations:

- provision of 15 base stations linking essential services and control points
- establishment of a system linking 16 police centers to collect and disseminate information

Kenrick Leslie reviewed two projects that reflected areas of need in Belize. As background information for the Flood Forecasting Project (See Project XI-C-1, Flood Warning System for Belize, Section V.), he noted that in the past 50 years 27 tropical storms and hurricanes have caused severe damage in Belize. In 1979, 50% of the country's livestock were lost when the Belize River flooded. Since agriculture represents forty percent of the economy, the impact of flooding on development is especially severe. Project objectives were outlined as follows:

- to implement a data collection network
- to establish a communications system for data collection
- to train personnel in data processing and analysis

The second project addresses an inadequate communications system. (See Project I-C-4, "Improvement of Radio Belize AM Transmission Network", Section V.) Belize is served by a single radio station (Radio Belize) which transmits both in the AM and FM bands. Because of the deterioration of the main transmitter, (from 20 kW to 9 kW), AM transmission was unsatisfactory during the recent hurricane. FM transmission has a limited range of 45 miles. Since Radio Belize is used by the Central Emergency Organization for disaster warning and also constitutes the only source of disaster warnings for parts of southern Mexico, northern Honduras and the Bay Islands as well as Belize, Mr. Leslie believes that improved Radio Belize AM transmission is a necessity.

Mr. Dennis A. Foster of Grand Cayman discussed the need for medical and disaster emergency support supplies to mitigate disaster impacts (see Project XI-C-2, "Cayman Islands - Provision of Disaster Emergency Support Supplies, Section V). The Grand Cayman Government would supply protected storage facilities, maintain drug stocks and assume local transportation costs.

The Jamaican delegate, Jacqueline Mayers, stated that, although Jamaica has had an emergency organization for several years, its few staff members were inadequately trained. Assistance in setting up a new EOC, preparing a material plan, training and other related activities was requested. (See the following projects for a concise definition of Jamaica's needs: Project I-C-5, "Development of Disaster Communications System for Jamaica"; Project III-C-4, "Preparation of a National Disaster Plan for Jamaica"; Project IV-C-7, Establishment of EOC Facilities, Jamaica"; Project IV-C-8 "EOC Communications System, Jamaica; Project IV-C-9, "Training of EOC Staff, Jamaica"; Project V-C-1, "Raising Level of Public Awareness, Jamaica"; Project XI-C-5, "Improvement of Flood Warning System, Jamaica", Section V.) Ms. Mayers commented that some countries may need assistance in preparing project documents. The Antiguan representative, Henson Barnes, added that there is a need to identify the interests of countries that have not yet prepared projects. William R. Dalton, USAID, raised the question of whether it would be safe to assume that government endorsement of these projects would follow.

Mr. Franklyn Farier of Montserrat reviewed general areas of need, since no project document(s) had been prepared. (See Project IV-C-10, "EOC Facility, Montserrat", developed after this session, Section V.) Communications has the highest priority, followed by public awareness, and capital for drug stockpiling.

The proposals for drug stockpiling stimulated a discussion of the utility of stockpiles in general. Milton Penn, of the U.S. Virgin Islands, observed that:

- If the communications capability is intact, there is no need for stockpiles.

- An appropriate alternative to stockpiling would be legislation that enables commandeering of existing supplies in case of an emergency.

William R. Dalton, USAID, suggested that a regional stockpile might better suit the needs of the Caribbean area; because it is improbable that several disasters would strike any one country in a given year, cost-effectiveness would not be realized by establishing country stockpiles.

Roy Halstead, representing the Turks and Caicos Islands, outlined two projects based on his government's needs. (See Projects XI-C-9, "Emergency Water Storage, Grand Turk"; and XI-C-10, "Hurricane Shelters, Grand Turk".) Since there is no fresh ground water supply in Grand Turk, drinking water can be obtained only from rainwater. Both the bulk of the population and the water storage tanks are located almost entirely in lowland areas, and are vulnerable to the full impact of a storm surge. Therefore, a storage reservoir was proposed to provide a potable water supply for the people of Grand Turk for a period of 150 days, allowing a consumption of 5 gallons per head per day.

The second project, which proposed several hurricane shelters, addressed the vulnerability of the typical Grand Turk house. Generally houses are small, wooden and situated in lowland areas.

The representative of the U.S. Virgin Islands, Milton Penn, discussed disaster preparedness issues such as the lack of funding for administration of emergency preparedness, public apathy toward disaster preparedness and the need for legislative authority. He also made specific reference to the lack of assured water supply in the Virgin Islands; however, he did not suggest any projects.

Price Pady, the Haitian representative, outlined three areas of interest: fellowships to study disaster preparedness, assistance for implementation of country plans and training of health personnel. A specific project concerning disaster preparedness planning was submitted. (See Project III-C-2, "Preparation of National Disaster Plan - Haiti, Section V.)

Jose Ramon Oviedo, Public Health and Welfare Secretary, and Fernando Schrils of the Meteorology Department presented two aspects of the Dominican Republic's needs: first, priority health requirements in human resources (training) and equipment (See Project VII-C-1, "Priority Health Needs in Disaster Prevention in the Dominican Republic", Section V.) and, second, radar, communications equipment, and hydrological monitoring equipment. (See Project II-C-1, "Improvement of Dominican Republic National Meteorological Service", Section V.)

Stanislaus James, representing St. Lucia, summarized three projects prepared for the conference in the areas of Communications, Emergency Support for Fire Services and Stand-by Emergency Water Supply. (See Project I-C-6, "Emergency Back-up Telecommunications Equipment for St. Lucia, Project XI-C-7, "Emergency Support for Fire Services, St. Lucia" and Project XI-C-8, "Stand-by Emergency Water Supply Project, St. Lucia".)

A summary of the country presentations provided by Jacqueline Mayers listed the following priorities for projects: Communications, Emergency Operations Centers, Preparedness Planning, Public Awareness, Stockpiling, and Vulnerability Analysis. (See the attached "Delegates Report" for other areas of interest.)

The following is a list of country projects which were submitted, but were not presented during the Country Presentation session:

Project 1-C-1, Emergency Communications Plan for Antigua and Barbuda.
Project 1-C-4, Radio Telecommunications Network for Dominica.
Project III-C-3, National Disaster Plan - Guyana.
Project III-C-5, Assistance in Disaster Preparedness - Trinidad/Tobago.
Project IV-C-1, EOC - Communications & Training, Anguilla.
Project IV-C-2, EOC Facility, Antigua.
Project IV-C-3, EOC Facility, Communications Equipment, Training - Dominica.
Project IV-C-5, Development of EOC, Grenada.
Project IV-C-6, EOC Facility/Communications, Guyana.
Project IV-C-11, EOC Communications/Training, St. Kitts/Nevis.
Project IV-C-13, EOC Facility, Turks and Caicos Islands, Belize.
Project IX-C-3, Survey of Hurricane Shelters, Guyana.
Project IX-C-4, Disaster Emergency Shelter, Guyana.

D E L E G A T E S R E P O R T

A) PRIORITY LIST OF PROJECTS:

1. Communications (regional and country) survey of existing systems. Design for new or improved systems. Equipment.

2. Emergency operations centers (regional/sub-regional and country) includes provision and/or identification of building. Assistance in setting up organization.

3. Preparedness planning. Regional and individual country models for various types of risks.

4. Public awareness.

5. Stockpiling (including but not limited to: blankets, beds, tents, first aid equipment, emergency lighting and heating equipment, medical supplies, standby generators, water tanks, Land Rovers, diesel pumps, etc. (regional and country).

6. Vulnerability analysis and damage assessments, flood forecasting.

B) TRAINING REQUIREMENTS ON REGIONAL AND COUNTRY LEVEL (ALL COUNTRIES):

1. First Aid.

2. Media personnel, including government information services in disaster preparedness.

3. Communications (operations and maintenance of equipment).

4. E.O.C. staff.

5. Public awareness. Training and materials for distribution.

6. Health. (Already largely defined in PAHO document).

7. Crisis management.

8. Search and rescue.

9. Shelter management and mass feeding organization.

C) LEGISLATION (ALL COUNTRIES INTERESTED).

1. Disaster legislation.

2. Land use laws, including zoning regulations.

3. Building code. Considerations to be given to the natural hazards to which the countries are subject as well as the economic circumstances of the countries in the region.

4. Regulations dealing with movements of goods in time of disaster, e.g.: customs for incoming goods, taxes, taking over of warehouses and goods in supermarkets, etc.

D) REGIONAL ONGOING PROJECTS: All countries interested would like projects elaborated to include maximum consideration of disaster preparedness needs, where applicable.

1. Seismology.

2. Meteorology.

3. Oil spills.

V. TEXTS OF PROJECTS

I. Emergency Communications
Summary Statement and Comments

Three regional and seven country projects were prepared in this field however, there is some uncertainty at this stage of development as to possible duplication between the regional and national proposals. It is a matter that can easily be sorted out as the project area evolves.

It was agreed during the meeting in the Dominican Republic that communications, a prerequisite to any regional or national disaster relief program, must be given the highest priority among Caribbean disaster preparedness projects.

Taking into account individual country emergency communications projects submitted, together with expressions of interest in disaster communications reflected in disaster preparedness self audits, in previous communications, or at the St. Lucia Caribbean Disaster Preparedness Seminar, most Caribbean countries have now expressed interest in this project area. Nevertheless, it would be useful for all participating countries to go on record at this time.

On this basis, demonstrated emergency communications interest falls into three categories:

1. Local (disaster site),

2. National (from a National Emergency Command Center to all affected parts of a country), and

3. Regional (including subregional and regional networks and international links).

On July 7 a small team sponsored by the Office of U.S. Foreign Disaster Assistance in collaboration with the Government of Barbados, with participation of the Antigua Meteorological Service, commenced travel in the Eastern Caribbean to ascertain what measures might be taken by island governments to improve their emergency operations systems before the full onset of the 1980 hurricane season.

Dalton

Caribbean Disaster Preparedness Projects Conference
Project Proposal

Program Area - Communications Chairman - Sir Carlisle Burton

I. Title - Survey of Communications Requirements for Caribbean Region

II. Description of need or problem:

In order to have full knowledge of the present capability in each country and to determine what improvements are essential, it was agreed that a team of two communication experts should visit all countries in the region. The object would be to complete the partial information held at present. Each country has its own special factors to be considered in that regard.

III. Description of project and objectives:

This survey should state what kind of equipment is necessary, its preferred location and details of emergency equipment already installed. Sometimes the survey would, it is felt, recommend adding to existing networks rather than providing new ones. Topographical radio communication problems should be studied. The location of the installations should be discussed, taking into account strength and suitability of buildings and convenience of use in a disaster situation.

IV. Actions to be taken by the country to enhance this project:

Assistance with manpower and transportation should be given. Information pertinent to the survey should be made available, including all technical details.

V. Justification for bilateral, regional, or international support of the project:

In order to solve the problem fully, it must be treated on a regional basis. As the countries affected are poor, partly due to previous disaster effects, it is necessary to seek regional and international support.

VI. External financial assistance/technical assistance:

Based on estimates of U.S. $300 per day for 3 months for two consultants plus cost of transport, researching information. Cost estimate is $120,000.

VII. Designation of Agency responsible for carrying out the project:

To be determined by negotiation with various agents; however, a significant role for the International Telecommunications Union (ITU) seems probable.

Drafted by: L.P. Stevens

Caribbean Disaster Preparedness Projects Conference
Project Proposal

Program Area - Communications Chairman - Sir Carlisle Burton

I. Title - Emergency Communications System Design and Development for Region

II. Description of need or problem:

When the proposed survey of present equipment has been completed (under another project) it will be necessary to design and create a suitable system for each country. This phasing would avoid duplication and ensure an adequate system for the individual needs of each country. The system for each country should be compatible, subject to integration to achieve a regional network.

III. Description of project and objectives:

An emergency communications system would be on those levels to cover: Phase I local (disaster site), Phase II integrated (national) and Phase III regional (international). The types of equipment i.e., H/F, VH/F, or UH/F, would have to be studied. The requirements of the Emergency Operation Center (EOC) would have to be considered through liaison with appropriate EOC project personnel. The needs of Health Authorities, Meteorological Services and all involved organizations should also be taken into account. A Regional Project for the Improvement of the Hurricane Warning System in Central America and the Caribbean is in preparation and should be encompassed. Security consideration could be met by the use of a limited number of scramblers and special procedures.

The necessity for training in the operation and maintenance of equipment was recognized. Many manufacturers provide on-the-spot training along with installation. Most of the equipment is designed to be simple to operate. The training of a Servicing Technician might be needed, but most countries have some technicians trained to an adequate level. In a few cases, support from neighboring islands may be necessary. A regular routine testing method for the whole network would detect failures early. Some stocks of spares should be held in each country and probably at any regional disaster centers created later. A responsible official would be needed to guarantee that maintenance and testing procedures were followed.

IV. Actions to be taken by the country to enhance this project:

Counterpart personnel to be supplied when installation takes place. Also, full assistance given to the designers and installers. A safe place of installation would also be provided by the government.

V. Justification for bilateral, regional, or international support of the project:

In order to properly address the problem, it is necessary to treat this matter on a regional basis. As the countries affected are poor, partly due to previous disaster effects, it is necessary to seek regional and international support.

VI. External financial assistance/technical assistance:

A first estimate, using the limited information now available, is US$ 1,000,000 to US$ 1,500,000 for a complete regional system.

VII. Designation of Agency responsible for carrying out the project:

To be negotiated with interested international funding agencies; however, the International Telecommunications Union (ITU) is expected to have a significant role.

Drafted by: L.P. Stevens