

X. Regional Activities
Summary Statement and Comments

One project entitled "Uniform Building Code (for the Commonwealth Caribbean) - Disaster Mitigation" was submitted in this category.

The project proposes editing and revising existing codes, preparing missing sections of the code and printing and distributing the final code document or documents. The questions of the interest of the non-Commonwealth Caribbean in such a program and the applicability of the building code proposed (perhaps with appropriate modifications) for use in the non-Commonwealth Caribbean countries should be addressed.

In reacting to this proposal countries of the non-Commonwealth Caribbean are requested to indicate whether they have such a code in force. Such material might be of use in the formulation of the proposed Commonwealth Caribbean code.

Dalton

X-R-1

Caribbean Disaster Preparedness Projects Conference
Project Proposal

Program Area - Regional Activities

Chairman - Raymond Noel

I. Title - Uniform Building Code (for the Commonwealth Caribbean) - disaster mitigation

II. Description of need or problem:

With the exception of the Bahamas no commonwealth Caribbean country has a building code and no minimum standards of safety or amenity are required for any building. Practices differ from country to country, from organization to organization (within the same country) and from person to person (within the same organization). Many of these practices are ill-informed and substandard, leading to persons and properties being exposed to unnecessary risks. Other ill-informed practices lead to unnecessarily high construction costs.

There is an urgent and long-standing need for a code to rationalize design and construction practices in the region.

Much work in this regard has been done voluntarily by CCEO members during the past 11 years, but the remaining task is beyond the means of the Council of Caribbean Engineering Organizations.

III. Description of project and objectives:

- A. Editing and revising existing CCEO codes on earthquake-resistant structures, wind loads, gravity loads, load-bearing masonry, structural timber, plumbing and electrical works.
- B. Preparing the missing sections of the code.
- C. Printing and distributing the final code document or documents.

A and B will be carried out in full, continuous consultation with professional and government bodies. Two regional meetings will be held as part of this exercise.

The project is estimated to take 2 years and is aimed at bringing some order to the construction industry, to protect lives and property and thus to mitigate future potential disasters.

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

The professional groups and the territorial governments should provide liaison and advisory personnel on an ad hoc basis. Such personnel would initially provide the full-time project coordinator with information on the state of the art in various territories and they would subsequently review and discuss interim drafts of the code or sections thereof.

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

The project should be of vital interest to international lending (and donor) agencies who fund capital works projects in the Commonwealth Caribbean as a means of protecting their investments.

Many (or most) of the construction problems are similar in all of the Commonwealth Caribbean territories. A uniform regional code is therefore appropriate and desirable (rather than individual national codes).

VI. External financial assistance:

Funds as follows:

Project management (24 man-months)	- US\$ 100,000
Secretarial services, office accommodation, equipment, supplies, telecommunications and travel	- 60,000
Short-term consultants	- 30,000
Regional meetings	- 40,000
Publishing	- 30,000
Contingencies	- 20,000
Total (1980 dollars)	- 280,000

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

CARICOM (in close cooperation and continuous consultation with the Council of Caribbean Engineering Organizations)

Drafted by: Tony Gibbs

XI. Special Country Projects Summary Statement and Comments

This category was established to provide for the submission of individual country projects which would not fit under other areas of preparedness activity. Among projects submitted are two on flood warning, three on emergency support supplies and equipment and four on emergency shelter and emergency pure water supply. Because most of the countries of the Caribbean are prone to floods, flood warning systems and special preparedness for floods are properly highlighted in this disaster pre-planning project. The present state of hydrological knowledge and available technical equipment should encourage threatened countries to consider hydrological and flood warning activities.

The project, "Establishment of a Real Time Flood Warning System for Belize", might be used as a model for other country projects. While it does not provide hydrological data, the flood warning system prepared for Jamaica clearly cites a need for such action.

Project submissions for the Cayman Islands, Montserrat, and St. Lucia describe the need for emergency supplies and equipment. Water supply is listed as essential in projects from Turks and Caicos Islands, Montserrat and St. Lucia. Montserrat, St. Lucia and Cayman Islands projects describe needed search and rescue equipment and medical/health supplies. Emergency shelters and shelter services are identified by several government representatives as being important to preparedness.

These and several other projects require technical assistance to describe the need in more detail and to develop specifications and cost estimates. External financing is required.

Dalton

Program Area: Special Country Projects

I. Title - Establishment of a Real Time Flood Warning System for Belize

II. Description of need or problem:

Two types of natural disasters plague Belize in regular recurring cycles: a) tropical storms and hurricanes with associated flooding during the months of June to November each year; b) temporals or northers also affect Belize during the early winter months, causing heavy rainfall and severe flooding.

Statistics show that within the past 50 years, 27 tropical storms and hurricanes caused considerable flood damage to Belize. The disastrous floods of November/December 1979 were the result of a severe norther.

Since Belize's economy is based on agriculture productivity, it is obvious that it will suffer many setbacks on an almost annual basis due to these occasions of severe flood damage.

Minimizing flood damage would therefore prove a significant economic benefit for Belize. This can be done in two ways: a) through the provision of timely flood warnings which will allow preventive and precautionary measures to be taken for safeguarding crops, livestock, and other property; b) by providing long term flood frequency analyses for the planning of flood control, and water conservancy programs.

III. Description of project and objectives:

This project seeks to provide a service for forecasting flood events on a timely basis for the purpose of taking preventative measures. Activities of a flood forecasting service will also provide flood frequency analysis for future design of flood control structures, etc., and other long term planning of water conservancy programs.

Its objectives are: to implement an appropriate hydrological data collection network in the river basin of Belize; to set up a communication system for the collection of real time hydrometeorological data; and to train personnel in the collection and analysis of hydrometeorological data as well as in flood forecasting techniques and procedures. The data network will include instrumentation for continuous recording of the following hydrological variables: rainfall amount and intensity, river stage and stream flow.

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

The Belize Government will provide the personnel and other works necessary to install and maintain the new equipment. The processing of collected data will also be the responsibility of the Belize Government. No technical advisors are requested. Appendix (2) gives a breakdown of the project funding.

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

This project does not relate to activities elsewhere in the Caribbean, but may provide a model for flood warning systems in other Caribbean countries.

VI. External financial assistance requirements:

External assistance will be in the form of equipment, such as field instruments and a vehicle, and training of personnel. Costing is detailed in appendix (2).

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

The National Hydrometeorological Service will have primary responsibility for project design, management, and for contact with donor organizations through the Ministry of Energy and Communications.

Instrumentation

<u>River Basin</u>	<u>Area (mi)</u>	<u>Recording Rain Gauges</u>	<u>Stage Recorders</u>	<u>Crest Stage Gauges</u>	<u>Pendulum Vane Rec</u>
		Max			
Belize	1700	8	5	3	5
Sibun	471	2	2	1	2
N. Stann Cr.	118	1	1	1	1
Sittee	185	1	2	1	1
S. Stann Cr.	110	1	1	1	1
Monkey R.	460	2	3	1	1
Deep	186	1	2	1	1
Golden Str.	55	1	1	1	1
Rio Grande	320	2	2	1	
Moho	329	2	2	1	
Temash	133	1	2	1	
		22	23	13	13

Project Funding:

1. Local Contributions:

- a) Personnel salaries for 2 forecasters and 6 technical officers
- b) Data processing computer tapes/time
- c) Field instruments 23 Rivergauges

2. External Contributions:

a) Equipment (hydrometeorological)

22 Recording Raingauges

23 Stage Recorders

13 Crest Stage Gauges

13 Pendulum Vanes

b) Transportation:

1 Vehicle

c) Data Collection System

DARDC

d) Training

2 Forecasters

2 Hydrology Technicians

XI-C-2

Caribbean Disaster Preparedness Projects Conference
Project Proposal

Program Area - Special Country Projects

Chairman - James Lockard

I. Title - Cayman Islands - Provision of Disaster Emergency Support Supplies

II. Description of need or problem:

There is a need for medical and disaster emergency support supplies to mitigate the immediate impact effects of disaster in the Cayman Islands.

Experience in previous natural disasters has shown that island communities are often subjected to several days delay in the arrival of relief personnel and supplies from overseas. During this period there may be loss of life and great hardship to survivors because emergency equipment and supplies are not available. In addition, it is important that following a major disaster the morale of the affected population should be maintained; this is difficult if tools and supplies are not available to enable the people to begin rescue and clearance operations. It is also good psychologically for local people to be seen in action when the first outside help arrives.

III. Description of project and objectives:

The Government of the Cayman Islands, recognizing that there are certain basic indispensable requirements necessary for the implementation of a viable disaster preparedness program, advocates a project for the acquisition of a limited amount of emergency and disaster impact mitigation supplies as one of these requirements. Whilst it is conceded that this project has as its main objective the on the spot availability of these materials in the event of need, these supplies would also be held in readiness to be dispatched to other areas of the region should their disaster needs so require.

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

Government would undertake to provide appropriately protected facilities for the storage of the supplies.

In the case of drugs, government would undertake to maintain the updated currency of such stock as well as ensuring that these supplies and equipment are adequately safeguarded and maintained.

Government will also assume responsibility for local costs incidental to the handling, transporting, and shipping of any of these supplies should this be required.

VI. External financial/technical assistance:

Due to acute budgetary limitations caused by the demands placed on the government's resources because of social, economic, and other needs related to developing countries, this government is constrained to request the financial assistance necessary for the implementation of this project.

It is of primary concern for our peace of mind and well being in addition to the improvement of our degree of self-sufficiency during the immediate period following a disaster.

Accordingly we wish to request your special consideration and hopefully your kind approval of such a necessary project.

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

Management of this project will be the direct responsibility of our Public Health and Medical Department Medical Officer who has liaison with the heads of other departments involved with the implementation of this program.

Contact with donor organizations will be established through the Honorable Chief Secretary of the Cayman Islands.

Drafted by: Dennis Foster

XI-C-3

Caribbean Disaster Preparedness Projects Conference
Project Proposal

Program Area - Special Country Projects Chairman - J. Lockard

I. Title - Special Regional Project - Survey of Hurricane Shelters

II. Description of need or problem:

Recent experience in Dominica and elsewhere has indicated that many buildings, such as schools and churches, which have been designated as hurricane shelters are not safe in extreme conditions.

III. Description of project and objectives:

Grave danger exists in the utilization of structurally unsuitable buildings as hurricane shelters, hence the objective of the project is to encourage governments to carry out a survey of their hurricane shelter programs wherever appropriate, and to provide technical advice when required.

The project allows for alerting governments of dangers which exist and offering engineering survey assistance. Subsequently, a consultant engineer would be appointed.

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

Countries would be expected to update the list of hurricane shelters, taking into account structural suitability designated buildings. Under the project engineering advice would be made available.

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

Developing countries in the region which do not have the necessary engineering expertise would otherwise not be able to afford the cost of a visiting consultant.

VI. External financial/technical assistance:

Expert Services - 12 man months.

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

UNDRO

Drafted by: Ave Brewster

XI-C-4

Caribbean Disaster Preparedness Projects Conference
Project Proposal

Program Area - Special Country Projects

Chairman - J. Lockard

I. Title - Government of Guyana - Disaster Emergency Shelter

II. Description of need or problem:

A need exists in the urban area of Guyana for a substantial emergency shelter to cater to people whose homes have been lost following a disaster. High density housing areas in Georgetown are particularly prone to hazard by fire. When a fire occurs in windy conditions it spreads very rapidly and many homes are affected by the conflagration. The authorities are geared to deal with an event but not for dealing with the aftermath and subsequent misery caused to a large number of homeless people.

III. Description of project and objectives:

The objective is to provide accommodation for up to 150 people who may have lost their homes and belongings by fire, or indeed any other disaster.

The purpose is to house such people for a limited period in a community shelter.

To this end it is proposed to erect a building allowing 40 sq. ft. per person including toilet, bath, and dining facilities. This would give an overall floor area of 6,000 sq. ft. It is recognized that such a building would be only in full or part use as an emergency shelter from time to time. It is therefore proposed that the living area should be equipped with removable partitions to enable mobilization for other community purposes. The building would be at all times recognized for its primary function, namely, as an emergency shelter.

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

Government would provide land for the purpose and would on completion undertake supervision and maintenance of units.

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

The government of Guyana is not in a position at this time to provide funds to meet this need. Nevertheless, it is submitted that this project falls within the description of disaster preparedness and indeed would be more readily used than, for instance, a hurricane shelter.

VI. External financial/technical assistance:

It is anticipated that the cost of constructing a building of this nature would be in the vicinity of US\$ 250,000.

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

The implementing Ministry would be the Ministry of Health and construction by the Ministry of Works.

Caribbean Disaster Preparedness Projects Conference
Project Proposal

XI-C-5

Program Area - Special Country Projects

Chairman - J. Lockard

I. Title - Improvement of Flood Warning Systems in Jamaica

II. Background and Justification:

Intense rainfall in the steep mountainous interior areas leads to sudden flooding of inhabited regions downstream. No adequate system now exists to provide warning of the onset of such flood events which in the past have led to severe property damage and loss of life.

III. Project Objectives and Description:

The project would evaluate the hydrological conditions in selected catchments and seek to provide the monitoring capability appropriate to predicting flood events. Areas sensitive to flood events would be identified and a system designed to incorporate monitoring and warning of local inhabitants. Flood plain zoning and the design of storm evacuation systems will also be undertaken.

IV. Country Inputs:

Personnel to operate the system and make forecasts.
Materials for construction and maintenance of hydrometric stations.

V. External Inputs:

Equipment required to establish station network and telemetric system for data collection.

Training in the interpretation of data collected.

Short term consultants (3-6 months) to design system.

VI. Justification for External Support/Interest:

Lack of foreign exchange for equipment.

Applicability of the technique to similar environments in the Caribbean.

The equipment provided will strengthen the normal hydrological monitoring network.

Lack of indigenous expertise.

VII. Responsible Agency:

Office of Disaster Preparedness in collaboration with the Water Resources Division of the Ministry of Local Government.

XI-C-6

Caribbean Disaster Preparedness Projects Conference
Project Proposal

Program Area - Special Country Projects

Chairman - J. Lockard

I. Title - Emergency Relief Supplies for Montserrat

II. Description of need or problem:

The experience of island communities who have suffered from a major natural disaster has been that outside help takes several days to arrive. The initial help is usually in the form of willing volunteers who arrive without the knowledge of immediate requirements and it may be several days more before the necessary emergency equipment arrives. The major disasters most likely to befall the island of Montserrat are hurricanes and earthquakes, both of which would result in a high degree of damage to water supplies and property, and lead to many people being trapped injured and without potable water. There is, therefore, the need for water storage facilities to ensure the availability of potable water for a reserve of very basic equipment for rescue operations and immediate care of the injured and homeless. It is felt that these are necessary for the following reasons: 1) the sooner help can be taken to the trapped and injured, lives may be saved and suffering alleviated; 2) there is the lesson learned from the disaster in Dominica that the population should feel that it is, from the outset, in a position to begin to fend for itself. Without basic tools and supplies, it cannot do this and morale suffers greatly. There is a need to prevent the occurrence of water-borne disease outbreaks.

III. Description of project and objectives:

The objective of the project is to provide a reserve of basic materials for purposes of search, rescue, and immediate after care to enable the local people to undertake rescue and clearing operations following a natural disaster.

The project provides for the supply of sectional sheet steel tanks, together with the tools and equipment listed on the attached sheet.

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

Government would undertake to provide a secure and structurally suitable building for the storage of equipment and materials. Periodic inspection, care and preservation would also be undertaken.

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

Government does not have the resources to provide the tools and materials listed. In the event of a natural disaster befalling the island, if these materials were not at hand, presumably the international community would come to the aid of government. This would involve costly airlifting and lives could be lost in the period taken for assistance agencies to mobilize.

VI. External financial/technical assistance:

It is anticipated that, subject to receipt of firm quotations, the cost of the project would be on the following order:

Provision and erection of sectional steel tanks	US\$ 70,000
Provision of tools and equipment	20,000
Provision of emergency medical supplies	<u>10,000</u>
TOTAL	100,000

List of Equipment and Tools for Montserrat

50 Sectional Steel Water Storage Tanks (800 gals. ea.)
12-Man Canvas Tents or equiv.
90 Ground sheets
90 Cots
180 Blankets
12 Norwegians
12 5-gal Jerry Cans
100 Flashlights
36 Hurricane Lanterns
12 Stretchers
10 10-gallon Fuel Storage Tanks
20 5-gallon Fuel Storage Tanks
100 pairs Water Boots
90 pairs Working Gloves
36 Cutlasses
36 Picks
24 Hammers
36 Shovels
12 Axes
12 Saws
Field Cooking Equipment for 90

XI-C-7

Caribbean Disaster Preparedness Projects Conference
Project Proposal

Program Area - Special Country Projects

Chairman - J. Lockard

I. Title - St. Lucia Emergency Support/Relief Preparedness Project

II. Description of need or problem:

While the government of St. Lucia has a plan for the coordination of emergency action in the event of a major disaster, there is a lack of stand-by support and relief equipment with which the responsible authorities can take effective and immediate action. In fact, equipment is lacking in some cases for optimal operation of normal fire control, land and sea rescue, and salvage work. The St. Lucia Fire Service is the only government agency which has equipment, consisting of fire tenders and ambulances, and is located in Castries and Vieux Fort. A disruption of the transportation systems, whether caused by landslides or other natural disasters, or increased requirements for rescue operations resulting from widespread disaster, are considered impossible to cope with for an adequate response by authorities.

In sum, a need has been established by the government for certain equipment which is not normally required for day to day rescue operations but is considered essential for more effective land and sea emergency support and relief.

III. Description of project and objectives:

The objective is to improve the fire control and emergency rescue capability of the St. Lucia Fire Service by providing needed equipment.

Minimum equipment requirements are the following: 1 emergency rescue tender (fully equipped), 1 personnel transport/cargo vehicle, 6 ambulances with support equipment, 2 sea rescue launches, and 1 standby generator for Fire Service Headquarters.

First aid equipment includes stretchers, bandages, oxygen sets, and salvage sheets (polythine sheeting for protective covering).

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

The government has ordered five fire tenders and two ambulances for Castries and other areas. The equipment provided under the project will complete the requirements for an adequate emergency response capability.

The government will be responsible for maintaining the equipment in good operating condition and will provide government salaried operators for the equipment as required.

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

St. Lucia's financial and budgetary resources are not sufficient to purchase the equipment to be provided under the project. The Government considered that the equipment is essential in order to respond immediately and as effectively as possible to disaster rescue needs before foreign assistance could be expected.

VI. External financial/technical assistance:

External technical assistance is required to assist the St. Lucia Fire Service establish the specifications and special requirements of the equipment to be provided as well as to possibly train the operators in-country.

Financial assistance is required to purchase the equipment and for related technical assistance costs.

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

The St. Lucia Fire Service, operating under the Prime Minister's Office, will be responsible for implementing the project.

XI-C-8

Caribbean Disaster Preparedness Projects Conference
Project Proposal

Program Area - Special Country Projects Chairman - J. Lockard

I. Title - St. Lucia Standby Emergency Water Supply Project

II. Description of need or problem:

St. Lucia's potable water is provided by four river pump (electric powered) diversion stations. The electric power is provided by an electrical grid. One of the four stations has a full diesel standby, one partial, and the other two have no means of standby power. The possible loss of electric power, and/or damage to any of the diversion stations and/or distribution system during a major disaster, requires that standby power and alternative distribution systems be planned for to assure immediate restoration of minimal water supply services. The immediate restoration and provision of safe water after a disaster is essential to prevent health hazards and the outbreak of disease.

III. Description of project and objectives:

The objective of the project is to provide standby emergency equipment to the Central Water Authority of St. Lucia to assure its capability to take immediate corrective action in the event of extended periods of loss of electrical power to headquarters, the water diversion/supply pump stations, as well as to the normal water distribution system.

The Government has established that the minimum equipment requirements to accomplish the above is the following: 1 portable diesel-powered pump--standby for pump stations 300 days. Gallon capacity at 450 foot head; 1 10 kW diesel generator--standby power for Central Water Authority Head Office; 4 portable water tanks--two rigid and two flexible tanks for vehicle distribution of water; 10 bottles of water purification tablets for use in conjunction with portable tanks.

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

The Government of St. Lucia will provide standby power sources for water distribution pumping stations as part of its capital program.

The Government will provide maintenance and manpower resources to insure effective use of the equipment and will provide the vehicles to transport the portable tanks as required.

The Government will make the equipment available to another sister island in the event a disaster affects it and not St. Lucia.