

**Hurricane Georges Reconstruction and Recovery
in the Eastern Caribbean
USAID Grant Agreement with the Organization of Eastern Caribbean
States (SO # 538-003)
Grant Agreement for \$3.5 million signed September 30, 1999
(CACEDRF - \$3 million; DA - \$300,000; CS-\$200,000)**

**Special Objective Completion Report
February 2002**

Project Status and Summary

The Hurricane Georges Reconstruction and Recovery Special Objective was designed for the countries of St. Kitts and Nevis and Antigua and Barbuda. The strategy was approved by June 1999 and the SO was successfully completed on December 31, 2001. USAID/J-Car signed a Grant Agreement with the Pan American Health Organization (PAHO) on December 23, 1999, to effect activities under **IR-1**. A Cooperative Agreement was signed with the Organization of American States (OAS) on January 13, 2000 to manage activities under **IR-2**. Activities under **IR-3** were done by the Foundation for National Development (FND) in St. Kitts under a Grant signed on November 28, 2000. A Project Manager and Project Engineer were hired directly by USAID to manage the project on its behalf.

The Special Objective was successfully completed on December 31, 2001 in the countries of St. Kitts and Nevis and Antigua and Barbuda. The project achieved all the objectives set out with the following outcomes.

- Pediatric ward (24 beds) completed in St. Kitts
- Procurement of priority equipment for both hospitals in St. Kitts and Nevis
- Training of personnel in the management of supplies for disasters
- Mitigation Policies and Plans in place for Antigua and Barbuda
- Stronger national emergency institutions and systems
- Hazard maps for at risk vulnerable areas developed
- Building codes strengthened and disseminated. Compliance systems also improved
- National emergency and shelter policies and programs completed and implemented
- Sample shelter retrofitted
- More aware and informed population, including schools, on disaster management
- 106 businesses assisted in St. Kitts

Background

On September 20-22, 1998, Hurricane Georges, a major (category III) storm struck the Eastern Caribbean islands of Antigua and Barbuda and St. Kitts and Nevis. The

hurricane caused severe damage to economic and social infrastructure and dealt a serious blow to both islands' economies. Damage was most serious in St. Kitts and Nevis. Following the passage of the hurricane, initial response was provided by local neighboring governments, donor agencies and other nations including the U.S. to deal with the most immediate and pressing basic needs of Hurricane Georges' victims. However, additional support was required to assist both governments in the reconstruction and rehabilitation efforts within the relatively short time of 24 months. The Hurricane Georges Project was therefore established to assist the recovery task in very specific areas. The following activities were therefore designed into the Project: IR-1: Hospital Services Restoration (St. Kitts and Nevis only) - \$1.6 million; IR-2: Local Mitigation Capacity Enhancement (St. Kitts and Nevis, Antigua and Barbuda) - \$1.15M; and IR-3: Economic Activities Reactivated - \$0.45M.

IR-1 Hospital Services Restoration (St. Kitts & Nevis only)/PAHO

Hospital Reconstruction

The construction of the pediatric ward was managed on behalf of USAID/J-Car by PAHO. Work started on September 4, 2000 and was completed in July 2001. The ward is a 24-bed facility with doctors and nurses offices, play area/classroom for children as well as other supporting medical rooms. A picture of the completed ward is shown attached to this report. Other donors including the World Bank, the European Union and the Caribbean Development Bank are financing the development of other wards. These include a new obstetrics/genecology ward, a male/female surgical ward, laboratories and operating rooms as well as an administrative block.



Equipment

Procurement

Procurement of equipment for the hospital in St. Kitts as well as in Nevis was carried out by PAHO as well as by USAID/J-Car under a direct procurement. All equipment is on site. A list of equipment procured is attached to this report under Appendix 1.

Training

A small training program was carried out in the area of ‘management of supplies in times of disaster’ for personnel at both hospitals in St. Kitts and Nevis. A total of 15 persons were trained.

PAHO’s Performance

The decision to use PAHO’s expertise to manage this IR proved fruitful based upon their knowledge of the health industry, and ability to draw on their head office resources when needed. The component was managed by one of their managers based at their Barbados office. Since PAHO did not have the construction management expertise on staff, they contracted with the firm of Design Collaborative (DC), a Barbados based architectural and project management firm, to design and manage the construction of the pediatric ward. In addition, PAHO also contracted with one of the leading structural engineering consultants in the region to provide oversight to the work done by DC. The result was an enhanced facility, which is expected to endure storms with winds of up to 150 mph. A construction joint to enable differential settling of the building during an earthquake was another feature of the facility, as a result of the consultant’s input.

The overall Hurricane Georges project was scheduled for completion on July 30, 2001, however additional resources were reassigned within the project to enable PAHO to procure additional equipment for the hospitals. As a result the project completion date was extended to December 31, 2001 to facilitate this process.

IR-2 Local Mitigation Capacity Enhancement/OAS (St. Kitts & Nevis and Antigua & Barbuda)

Development and implementation of effective national hazard mitigation policies and operational plans

Under this component the following activities were completed for St. Kitts and Nevis, and Antigua and Barbuda: *Beach erosion* hazard assessments; *Inland flooding* hazard assessments; *Drought* hazard assessment for Antigua, Barbuda and Nevis. Drought was not identified as a priority hazard for St. Kitts; *Storm surge and tropical windstorm* hazard assessments; *Inland erosion* hazard assessments were completed for Antigua, Barbuda and St. Kitts. Inland erosion was not identified as a priority for Nevis; *Volcanic* hazard assessment for St. Kitts and Nevis was submitted by the University of the West Indies Seismic Research Unit as a part of a broader volcanic hazard work it is undertaking in the Eastern Caribbean.

In addition over 250 facilities have been inventoried and mapped in Antigua and Barbuda, and St. Kitts and Nevis. Resulting vulnerability assessments for each facility were also completed. Copies of the draft national disaster policies and planning documents, developed under the project, were handed over to the respective governments.

Building Codes Adopted, and Building Practices Improved

The project assisted in the publication of the St. Kitts and Nevis building codes, which are now on sale to the general public. In addition, 24 copies each of small format versions of the building codes and building guidelines for both countries were prepared and delivered. Roundtable meetings were also held on hazard mitigation in the banking and insurance sectors. Highlights of the meeting were (i) Upgrading Public Awareness (ii) Effective Dissemination, Application, and Enforcement of Building Codes, and (iii) Establishing effective cooperation going forward between bankers, insurers, construction professionals and trades people.

Establish comprehensive national emergency shelter policies and programs

National policies and handbooks developed by the Caribbean Disaster Emergency Response Agency under the project were handed over to the respective governments.

Increased public awareness

The development of hazard mitigation education and promotional materials for use in various sectors was completed and disseminated appropriately.

OAS's Performance

The OAS contracted with various consultants throughout the region to assist in project implementation. A significant feature of the OAS's approach was to gather information from the ground up as far as identifying hazards are concerned. As a result, persons from a wide cross section of government entities, the private sector and persons simply living in an area were consulted during the development process. A comprehensive list of documents produced under the project is attached under Appendix 2.

IR-3 Economic Activities Reactivated

Credit to the FND

USAID/J-Car established a Grant Agreement with the FND in St. Kitts on November 28, 2001. The amount allocated to this IR was reduced from the originally planned amount of \$450,000 to \$350,000. The full amount of \$350,000 was given to the FND and was issued, as loans, to 106 clients by them. A sample audit of the files was carried out with all files investigated found to be in order. A summary of loans issued showed that of the 106 loans, 79 were to male clients and 27 to female.

An external audit stipulated under the Grant with the FND will be initiated by them with an external audit firm in March 2002.

Agricultural Facilities Rehabilitated

The funds previously assigned to this component were reassigned within the project and used to procure additional equipment for the hospitals in St. Kitts and Nevis.

USAID Project Management

The Project Management Specialist aided by the Consulting Engineer who was based in Grenada, managed the project for USAID. This team liaised with the Grantees under the project on a continuous basis and attended relevant site meetings. The inputs from the USAID contracted Consulting Engineer at site meetings were valuable as the individual had previous USAID experience and is also currently in the construction trade in Grenada.

As is common practice in the construction industry, the pediatric ward is currently under the retention period of the contract, which will expire on June 30, 2002. During this period, any defects which surface as a result of poor workmanship by the contractor, will be their responsibility to make good. Limited monitoring of the facility will therefore continue until the end of the period. The formal handing over of the facility will take place on March 19, 2002. The financial summary of the project is attached as an appendix to this report.

During the execution of the project monthly and quarterly reports were issued. In addition, reports were done for the R4 process in 2000 and 2001.

Lessons Learnt/Proposed Future Activities

The information provided below was based on the input of the OAS following the completion of the Hurricane Georges project. The recommendations were presented at the USAID semi annual review in December 2001.

The support given to the project by the various government and related entities to the project was commendable. Unfortunately, having policies and plans in place does not necessarily mean that they are adhered to, and the concern has been expressed that the relevant authorities need to improve on the enforcement of such policies and plans. The spectacular double failure of Port Zante in St. Kitts and Nevis (1998, Hurricane Georges; 2000, Hurricane Lenny) is a prime example and calls into question the effectiveness of the assistance provided to that country over the last decade in building capacity to mitigate and prevent natural disasters. The decision process that led to the design and construction of Port Zante had obviously ignored the principles and practice of thorough hazard assessment and use of appropriate standards.

Similar, though less spectacular, examples of failure to apply prudent design and construction practices in major public or private sector investments can be found throughout the Caribbean. There seems to exist, in several Caribbean countries, a definite disconnect between the decision making process that underlies some very important economic or physical infrastructure investments, and the natural hazards-and-environment conscious development practice which is being introduced in the planning apparatus of these countries, with technical and financial support from international donors. This raises the question: how can a donor agency, dedicated to promoting vulnerability reduction and more resilient development, ensure that it's technical

assistance support and rehabilitation assistance have a measurable impact on reducing disaster losses?

A two pronged strategy for future action by donors was proposed. The strategy would be applied to selected countries, and would consist of: (a) the donor would support the country in a sustained effort to put into practice the institutional capacity and training provided under the various disaster mitigation assistance programs that were offered in the recent past, or are still ongoing; and (b) the donor would simultaneously announce to the selected country that any relief and reconstruction assistance following a future disaster would be dependent on the country's progress in implementing effective disaster mitigation programs sponsored by the donor/s.

To implement such a strategy in selected countries, the following activities are proposed:

1. Establish a baseline of the existing disaster management practices and vulnerabilities in the country. Future progress by the country in improving its practices, and in reducing its vulnerability would be measured against this baseline.
2. Assist the country to build on the specific disaster mitigation interventions provided under previous programs. Most countries in the Caribbean have received technical assistance in the basic elements of disaster mitigation: hazard assessment, mitigation planning, building codes, structural vulnerability audits, etc.

Assist the national mitigation council in setting realistic targets for implementation of the disaster mitigation plan, and in the formulation and implementation of yearly work programs. Where no such councils exist, start with the establishment

- Carry out periodic reviews of progress made in implementation, and present the results of the review to the council for discussion and adjustments to the work program.
 - Assist with the incorporation of hazard information and maps in the formulation of land use plans and land development policy.
 - Organize a training and sensitization program for the effective administration of the building code, targeting builders, homeowners, and the insurance and mortgage financing sector.
 - Set targets for improved administration and enforcement of the building code, and monitor progress towards the target.
 - Update the Pre-disaster Plan for Post-disaster Reconstruction already existing for the housing sector in some countries, and expand the formulation of similar plans to other priority sectors such as tourism, fisheries and agriculture.
 - Assist with the implementation of the retrofitting of critical facilities based on the existing vulnerability audits.
3. Organize yearly reviews with key stakeholders to determine progress in the introduction of mitigation practices and in the reduction of vulnerability to natural hazards.

APPENDIX 1

Equipment Procured By PAHO

Joseph N. France Hospital

1	Siemens X-Ray Unit
1	X-Ray
1	Computer Printer, UPS (Maintenance Dept)
2	Vital Signs Monitor
3	Infusion Pumps
1	Infant Warmer
2	Incubators
3	Nebulisers
1	Oxygen Concentrator
1	Bilirubin Meter
1	Ventilator
1	Ventilator Pressure cycle
8	Infant beds
10	Adolescent beds
1	Fetal Monitor and Cart
24	Bedside lockers
1	Material for drapes, sheet and bed covers
2	High chairs
1 lot	Assorted toys
1 lot	Assorted utensils for kitchen

Alexandra Hospital

1	Operating table
1	Vital signs monitor
1	Anesthetic machine
1	Computer, Printer, UPS (Maintenance Dept)

Equipment procured by USAID/J

6	Code Response Carts
1	Electrosurgical Generator
1 lot	Assorted electrodes for Generator
1	Stand with drawer
1	Traction table
3	Adult push buttoning crutches
4	Wooden Canes
4 lot	Strecher accessories
1	Lakeside food trolley
1	Hypocollator heating unit
1	Video duodenoscope
1	Video colonoscope
1	Video sigmoidoscope
1	Video color processor
1	14" color monitor

APPENDIX 2

POST-GEORGES DISASTER MITIGATION PROJECT OUTPUTS BY THE OAS IN ANTIGUA AND BARBUDA AND ST. KITTS AND NEVIS

NO	ITEMS	DATE
1.	CD's "Post-Georges Disaster Mitigation Project in Antigua and Barbuda, and St. Kitts and Nevis"	
2.	Drought Hazard Assessment and Mapping for Antigua and Barbuda	April 2001
3	Structural Vulnerability Assessment of Selected Government Facilities: Antigua and Barbuda	July 2001
4.	Inland Flood Hazard Assessment and Mapping for Antigua and Barbuda	May 2001
5.	Housing Sector Recovery Plan St. Kitts and Nevis	October 2000
6.	Activity Descriptions and Web Resources	September 2001
7.	Inland Erosion Hazard Assessment and Mapping for Antigua, Barbuda and St. Kitts	April 2001
8.	Natural Hazard Mitigation Policy and Plan for The Federation and St. Kitts and Nevis	July 2001
9.	St. Kitts and Nevis Hazard Vulnerability Assessment: Final Report	June 2001
10.	Government of Antigua and Barbuda Draft - Natural Hazard Mitigation Policy and Plan for Antigua and Barbuda	July 2001
11.	Atlas of Probable Storm Effects in Antigua and Barbuda, and St. Kitts and Nevis	April 2001
12.	Antigua and Barbuda Hazard Vulnerability Assessment Project: Final Report	May 2001
13.	An Assessment of Coastal Erosion Hazards in St. Kitts and Nevis	January 2001
14.	An Assessment of Beach Erosion Hazards in Antigua and Barbuda	January 2001
15.	Housing Sector Recovery Plan Antigua and Barbuda	November 2000
16	Structural Vulnerability Assessment for St. Kitts and Nevis	July 2001
17.	Drought Hazard Assessment and Mapping for Nevis	April 2001
18.	Hazard Assessment and Mapping for St. Kitts and Nevis	July 2001
19.	Hazard Assessment and Mapping for Antigua and Barbuda	July 2001
20.	Inland Flooding Hazard Assessment and Mapping for St. Kitts and Nevis	April 2001
21.	An Assessment of Coastal Erosion Hazards in St. Kitts and Nevis	January 2001

APPENDIX 3

Financial Summary

The following table presents a summary of the financial details as of December 31, 2001 and indicates the final obligation amounts by program elements.

<u>Program Element</u>	<u>Obligated (\$)</u>	<u>Expended/ Accrued (\$)</u>
IR-1 Hospital Restoration	1,800,000	1,800,000
IR -2 Local Mitigation	1,150,000	1,150,000
IR - 3 Economic Reactivation	368,000*	350,000
USAID Project Management	182,000	140,740
TOTAL	3,500,000	3,440,740

- \$18,000 set aside to fund the audit of the FND

List of Instruments and Reports

- Grant Agreement between the United States Agency for International Development and the Organization of Eastern Caribbean States
- Grant Agreement between the United States Agency for International Development and the Pan American Health Organization
- Cooperative Agreement between the United States Agency for International Development and the Organization of American States
- Grant Agreement between the United States Agency for International Development and the Foundation for National Development (St. Kitts)

- Monthly progress reports
- Quarterly progress reports
- Reports used for the R4 process
- Final report from PAHO
- Final report from the OAS

- Closeout reports on the individual grants are in progress.

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