

# **Grenada: A Nation Rebuilding**

An assessment of reconstruction and economic recovery one year after Hurricane Ivan

The World Bank



Washington, DC

October 31, 2005



## Abbreviations and Acronyms

---

AGIC	Association of Grenada Insurance Companies
ARD	Agency of Reconstruction and Development
ART	Agency for Rural Transformation
BCPR	Bureau of Crisis Prevention and Recovery
CARICOM	Caribbean Common Market and Community
CARILEC	Caribbean Electric Utility Services Corporation
CDB	Caribbean Development Bank
CDERA	Caribbean Emergency Disaster Relief Agency
CDPC	Caribbean Policy Development Center
CDRU	Caribbean Disaster Relief Unit
CHAP	Caribbean Hurricane Assistance Program
CIDA	Canadian International Development Agency
C&W	Cable and Wireless
DFID	UK Department for International Development
ECLAC	UN Economic Commission for Latin America and the Caribbean
EOC	Emergency Operation Center
EU	European Union
FAO	Food and Agricultural Organization
GDP	Gross Domestic Product
GRENCODA	Grenada Community Development Agency
GSWMA	Grenada Solid Waste Management Authority
IFRC	International Federation of the Red Cross
IMF	International Monetary Fund
MOU	Memoranda of Understanding
NaDMA	National Disaster Management Agency
NAWASA	National Water and Sewerage Authority
NERO	National Emergency Recovery Organization
NGOs	Non-Governmental Organizations
NIS	National Insurance Scheme
OAS	Organization of American States
OECS	Organization of Eastern Caribbean States
PAHO	Pan American Health Organization
SFA	Special Framework for Assistance
SMEs	Small and Medium Enterprises
UNDP	United Nations Development Program
UNICEF	United Nations Children's Fund
USAID	US Agency for International Development



# Table of Contents

---

<b>PREFACE</b> .....	<b>VII</b>
<b>ACKNOWLEDGEMENTS</b> .....	<b>VIII</b>
<b>EXECUTIVE SUMMARY</b> .....	<b>1</b>
<b>I. COUNTRY BACKGROUND</b> .....	<b>7</b>
PROGRESS IN ECONOMIC DEVELOPMENT .....	7
VULNERABILITY TO NATURAL DISASTERS.....	7
REGIONAL DISASTER RELIEF AND MITIGATION.....	7
<b>II. HURRICANE IVAN</b> .....	<b>9</b>
CHARACTERISTICS OF HURRICANE IVAN.....	9
OVERVIEW OF THE DAMAGE .....	9
<b>III. IMMEDIATE RESPONSE</b> .....	<b>11</b>
RESPONSE OF THE INTERNATIONAL COMMUNITY.....	11
EMERGENCY CLEARANCE OF SOLID WASTE.....	12
PORTS AUTHORITY RESPONSE AND RECOVERY.....	13
RELIEF PROGRAMS.....	15
COUNSELING.....	16
THE AGENCY OF RECONSTRUCTION AND DEVELOPMENT .....	17
<b>V. HOUSING</b> .....	<b>18</b>
SECTOR OVERVIEW.....	18
PROGRESS TO DATE.....	19
<b>VI. EDUCATION</b> .....	<b>22</b>
SECTOR OVERVIEW.....	22
PROGRESS TO DATE.....	23
<b>VII. HEALTH</b> .....	<b>25</b>
SECTOR OVERVIEW.....	25
PROGRESS TO DATE.....	25
<b>VIII. AGRICULTURE</b> .....	<b>27</b>
SECTOR OVERVIEW.....	27
<i>Hurricane Ivan</i> .....	27
<i>Hurricane Emily</i> .....	27
<i>Main Challenges</i> .....	27
PROGRESS TO DATE.....	28
<i>Nutmeg</i> .....	29
<i>Cocoa</i> .....	30
<b>IX. UTILITIES</b> .....	<b>31</b>
ELECTRICITY.....	31
WATER SUPPLY .....	34
TELECOMMUNICATIONS.....	34
<b>X. RECOVERY OF THE PRIVATE SECTOR</b> .....	<b>36</b>
TOURISM.....	36
<i>Effect on Employment</i> .....	36
<i>Recovery Effort</i> .....	36

MANUFACTURING .....	38
RETAIL/DISTRIBUTION .....	39
<b>XI. DISASTER PREPAREDNESS AND RESPONSE .....</b>	<b>41</b>
<b>XII. FINANCING THE RECOVERY .....</b>	<b>43</b>
DONORS RESPONSE .....	43
INSURANCE .....	44
NATIONAL INSURANCE SCHEME (NIS) .....	44
BANKING .....	45
REMITTANCES .....	45
DEBT RESTRUCTURING .....	46
<i>Bilateral Debt</i> .....	46
<i>Multilateral Debt</i> .....	47
<i>Commercial</i> .....	47
INCREASED REVENUE COLLECTION MEASURES .....	48
<b>XIV. ECONOMIC RECOVERY .....</b>	<b>49</b>
MACROECONOMIC OVERVIEW .....	49
EMPLOYMENT .....	49
COST OF INPUTS .....	50
CONCLUSION .....	51
<b>ANNEX 1. PERSONS INTERVIEWED DURING THE MISSION .....</b>	<b>53</b>
<b>ANNEX 2. SUMMARY OF DONOR ACTIVITIES .....</b>	<b>55</b>
<b>ANNEX 3. SUMMARY OF DONOR CONTRIBUTIONS .....</b>	<b>59</b>

## Preface

---

Hurricane Ivan struck Grenada on September 7, 2004. The international and local communities responded with a massive reconstruction and recovery effort. Although the job is far from finished, the reconstruction to date is substantial. Large-scale efforts have been mounted by Grenadian Government agencies, the private sector and civil society in Grenada. Several bilateral and multi-lateral agencies as well as international non-governmental organizations (NGOs) have provided considerable assistance. The purpose of this report is to provide an overview of the relief and reconstruction programs that have taken place through the efforts of the Grenadian authorities and outside agencies during the past year. While this report was prepared to provide a reference for future analyses of disaster response, it is hoped that it will also be useful to stakeholders in the reconstruction efforts, in the allocation of resources, and in preparation for future programs.

This report was prepared by the Hazard Risk Management Unit of the Latin America and Caribbean Region Vice Presidency of the World Bank under the supervision of Francis Ghesquiere, Sr. Urban Specialist. Between August 25 and September 2, 2005, a three-person team comprised of Blair Glencorse, Marc Forni, and James Wright visited Grenada and Barbados to document the reconstruction that had been achieved during the one-year period after Hurricane Ivan. The mission met with representatives of Government ministries, donor agencies, utility companies, civil society, NGOs and the private sector. A list of persons interviewed by the mission is available in Annex 1.

## **Acknowledgements**

---

A team from the World Bank visited Grenada in September 2005 to assess recovery one year after the passage of Hurricane Ivan. The team would like to extend its appreciation to the Project Coordination Unit of the Ministry of Finance and Planning, who provided valuable information and organized over 40 appointments for the team during a five-day period, and to Curlan Gilchrist, Director of Statistics, Ministry of Finance, and his team for the data they provided.

The following organizations also provided valuable assistance: the US Agency for International Development (USAID), the Canadian International Development Agency (CIDA), the UK Department for International Development (DfID), the Caribbean Development Bank (CDB), the International Monetary Fund (IMF), the Grenada Ministry of Education, the Grenada Ports Authority, the Grenada Hotel and Tourism Association, Grensave (NGO), Grenlec (electric company), the Trans-Nemwil Insurance (Grenada) Ltd, the Grenada Housing Authority and Emergency Committee, the Grenada National Insurance Scheme, the Nutmeg and Cocoa Associations, the Food and Agricultural Organization (FAO), OXFAM, and the Pan American Health Organization (PAHO). The team also appreciates the contribution of the U.S. Peace Corps, who administered a field survey. A list of persons interviewed is provided in Annex 1. Annex 2 highlights the contributions of several donors involved in the reconstruction program.



## Executive Summary

---



Hurricane Trajectory

Hurricane Ivan struck Grenada on September 7, 2004. Classified as a Category 3 hurricane with sustained winds of 120 mph and gusts of up to 135 mph, Ivan left tremendous devastation in its wake. A damage assessment jointly conducted by the Organization of Eastern Caribbean States (OECS) and the United Nations Economic Commission of Latin America and the Caribbean (ECLAC) estimated damage over US\$800 million or *twice Grenada's Gross Domestic Product (GDP)*. Specific losses can be distilled as follows: **Housing**, 89 percent of the country's housing stock was damaged, almost 30 percent of which required complete replacement, with only 15 percent of private homes insured, representing a significant problem of underinsurance; **Public Buildings**, in excess of 80 percent of building structures on the island sustained some form of damage;

**Education**, all but two of the primary and secondary schools were affected; **Health**, 11 health facilities, including the second largest hospital, were seriously damaged; **Environment**, 91 percent of the forest lands and watershed were stripped of vegetation; **Tourism**, close to 70 percent of hotel infrastructure was rendered inoperable. Other areas severely affected include the **Power Sector**, where nearly the entire electricity distribution system was destroyed, and the **Agricultural Sector**, which suffered a near complete loss of the year's crop. Nearly 85 percent of the nutmeg crop (Grenada is the second biggest nutmeg producer in the world) was affected and 60 percent was completely destroyed. The hurricane also destroyed virtually the entire banana crop and roughly 60 percent of the cocoa trees. Damages were compounded with the passage of Hurricane Emily in July 2005, a Category 1 hurricane. Losses related to Emily, while not nearly as severe, had a serious impact on the agriculture sector in particular.

**Immediate Assistance:** International assistance mobilized almost immediately. Military assistance was sent by Barbados, Guyana, Trinidad, and the OECS. Supplies, along with relief assessment teams, began arriving within two days. The Caribbean Disaster Emergency Relief Agency (CDERA) coordinated operations with the support of PAHO, the Red Cross, OXFAM, USAID, and other agencies.

In addition to distributing relief supplies, teams sent by Martinique and Venezuela started clearing roads and access ways, while the United Nations Development Program (UNDP) and OXFAM, in cooperation with the Grenada Solid Waste Management Authority (GSWMA) initiated programs to clear some 800,000 cubic meters of debris.

**Port Response:** Although overwhelmed in the immediate aftermath of the hurricane, Port Authorities began accepting relief supplies within a week. After a brief period of hesitation, the authorities waived all duties on relief imports. The Port recovered to pre-Ivan traffic volumes within one month and increased handling to 150 percent of average

demand by January 2005. Over the past 8 months, construction materials have passed through the port without significant delay.

## **Sector Overview**

**Housing:** Damage to housing was one of the most serious effects of Ivan. An estimated 27,000 homes were affected (89 percent of the housing stock), displacing over half of the population from their homes. While all sectors suffered, the rural poor have been particularly affected due to substandard home construction prior to Ivan. Over the entire territory, few homeowners were insured, making it difficult for families to reconstruct their homes independently.

A variety of Government and donor-supported programs—including the provision of technical advice, concessional loans, the distribution of construction material and the construction of new homes—are ongoing. Homeowners have also benefited from the flexibility of banks, who agreed on a case per case basis to a debt repayment moratorium. Lastly, the sector benefited from an increase in remittances and from materials sent by relatives abroad. While reconstruction continues, the Chamber of Commerce estimates that about 56% of the damaged houses have been repaired to pre-Ivan levels. The provision of assistance to the poorest who have not been able to rebuild remains a key challenge to the government.

**Education:** Hurricane Ivan affected nearly every school on the island, prompting the government to declare it a priority sector. Various programs continue, financed by USAID, the World Bank and the European Union (EU). While reconstruction has experienced some delays, only 12 percent of schools could not re-open on the first day of the September 2005 school year. It is hoped that nearly all schools affected by the hurricane will be rehabilitated within the next calendar year.

**Health:** Sixty-nine percent of infrastructure in the health sector was damaged. As a result, health services continued to be available in the immediate aftermath of the disaster only on limited scale. Many of the health facilities have been or are currently being rehabilitated and the main hospital is now fully operational. According to a government-executed survey in June 2005, 82 percent of citizens perceive recovery in the health sector to be well underway.

**Agriculture:** The pre-existing decline of the agriculture industry was accelerated by the passage of Hurricane Ivan and compounded by Hurricane Emily ten months later. This general trend, the hurricane damages and socioeconomic factors combine to pose particular challenges to recovery efforts. A majority of both nutmeg and cocoa farmers use the crop as a source of retirement income and older generation farmers dominate the industry. Thus, the severity of the losses and length of recovery time make many reluctant to clear fields and replant. Exacerbating rehabilitation challenges, the destruction of the watershed from Hurricane Ivan has led to the loss of topsoil and

nutrients. Runoff was particularly significant as a result of rainfall during Hurricane Emily, which additionally thwarted the sector's recovery.

**Forestry:** Ivan damaged a large part of the Grenada's watershed, affecting roughly 90 percent of forest vegetation. Initial fears of water supply shortages—stemming from the watershed's inability to absorb rainwater—have abated, but the poor condition of the watershed resulted in flash floods and landslides during hurricane Emily. The Government has elected to focus on conservation and natural re-growth, as opposed to planned human interventions.

**Water:** The sector escaped major damages mainly because Hurricane Ivan was a dry storm which did not affect the principally underground water distribution network. The main challenge confronted by the National Water and Sewerage Authority (NAWASA), was the restoration of electricity at water pumping stations throughout the country. Grenlec responded quickly to this need, and water supply was restored to pre-Ivan levels within three weeks of the hurricane. Hurricane Emily had a greater impact on the sector, as flash flooding severely affected water distribution infrastructure.

**Electricity:** Ivan destroyed the entire electricity distribution network, which had to be rebuilt. Grenlec, a private corporation, benefited from a regional hurricane recovery agreement already in place. As a result, critical service to the hospital resumed almost immediately, and was completely restored by April 2005.

**Telecommunications:** Hurricane Ivan destroyed much of the land line telephone network. The pace of rehabilitation of telephone lines has been slower than for other utilities, with 2,100 homes still lacking service. This has been partially compensated by an increase in the use of cellular services.

**Tourism:** Grenada's main source of foreign exchange was seriously affected by the closing of a majority of hotels for reconstruction in the aftermath of the disaster. National occupancy levels hovered at 10 percent of average rates through the usual peak season of December 2004 to March 2005. Since Easter 2005, hotels have been reopening and the hotel industry aims to return to 90 percent capacity by December 2005, in time for the next tourist season.

**Manufacturing:** Larger-scale manufacturing was better prepared for Ivan and was rebuilt within six weeks of the disaster, while medium and light industries have had more difficulty due to limited financial resources. Nonetheless, the majority of manufacturers returned to some level of production within three to five months after Ivan. To date, the sector has recovered to 60 to 70 percent of pre-Ivan production.

**Retail:** In addition to experiencing damage to business infrastructure, many retail outlets also suffered losses from looting in the days that followed the hurricane. The cost of looting roughly equaled the loss to infrastructure. Since insurance coverage does not extend to looting, these losses have been particularly difficult for the sector to absorb.

Despite these difficulties, most establishments were functioning at pre-Ivan levels within four months.

***Disaster Preparedness and Response:*** Hurricane Ivan has made the Government and the public more cognizant of the need for disaster preparedness. In October 2004, the National Emergency Recovery Organization (NERO) formally changed its name to the National Disaster Management Agency (NaDMA) to reflect a broader approach to disaster management. With assistance from CIDA, through CDERA, NaDMA has been steadily working to improve disaster preparedness at the national level. This has been done by revising the national disaster plan, mapping hazards and developing contingency plans. In addition, local disaster committees, in place before Ivan, have been strengthened. NaDMA has received increased exposure to all levels of Government and has benefited from a greater public awareness communication program.

### **Financing the Recovery**

***Donor Support:*** Donors responded particularly strongly to the needs of Grenada. International donors met twice within twelve weeks of Hurricane Ivan, and pledged in excess of US\$150 million to assist in the reconstruction of the island. USAID led contributions by offering US\$40.3 million in new grant funds. The EU, DfID, CIDA, CDB and the World Bank also contributed significant amounts, together with non-traditional donors such as Venezuela, Taiwan and China, which also contributed to reconstruction both in kind and financial resources. As of September 2005 donors had disbursed close to US\$100 million to finance the reconstruction program.

***Insurance:*** All 13 members of the Association of Grenada Insurance Companies (AGIC) have met their financial obligations. Of the 5,042 settlements by domestic firms, worth a total of US\$154 million, roughly 75 percent of funds went to households. Of this, US\$140 million have already been disbursed to claimants. In addition to this sum, hotels and some businesses also received funds from insurance claims from international companies based outside of Grenada. However, in many cases the amounts paid out were not sufficient to rebuild homes. While hotels on the island have had some difficulties in meeting deductibles and obtaining funds for additional repairs, all but one hotel has settled with insurers.

***National Insurance Scheme (NIS):*** NIS is a Government old-age pension program. Responding to the Ivan's devastating effects on employment in the short term, the government expanded the program's mandate to pay benefits in the form of unemployment insurance. The Temporary Unemployment Program, budgeted for US\$3.7 million, assisted employees displaced as a direct or indirect result of Ivan for a total of US\$2.3 million. Only 58 percent of the funds earmarked for the program were disbursed to 3,400 claimants – indicating a stronger recovery than expected.

***The Banking Sector:*** After Ivan, banks on the island agreed to a blanket moratorium on debt payments until the end of December 2004. Beginning in 2005, banks agreed to

extend moratoriums on debt payments on a case-by-case basis. As borrowers resumed economic activity, payments on loans resumed. Flexibility offered by the banking sector has dramatically decreased the number of expected mortgage defaults. A portion of insurance claims paid to clients also buffered the industry from defaults as some borrowers used a portion of these proceeds to service their debt.

**Remittances:** Although money transfer services did not operate during September, the largest money transfer business on the island, Western Union, had all centers operational within seven weeks. Inflows of funds increased by roughly 40 percent over previous monthly averages, before declining to current levels of around 10 percent above pre-Ivan levels. In addition to financial remittances, shipment of goods and supplies from families abroad in the months immediately following Ivan played an important role in supporting affected families on the island.

**Debt restructuring:** Public sector debt increased from 110 percent of GDP in 2002 and 2003 to 130 percent in 2004, and continues to rise, making the Government's international debt position problematic. With financial and legal assistance financed by USAID and DfID, the government has been working on an exchange offer to its creditors in order to restructure a significant portion of the country's debt load. At the time of this report, creditors holding over 85 percent of the Government commercial debt (approx. US\$265 million) had agreed to an exchange offer. A settlement is expected by November 15, 2005 and would greatly reduce the current financing gap of the government.

## **Economic Recovery**

**Macro overview:** Hurricane Ivan caused an estimated 24 percent decline in GDP, representing a loss of US\$26 million in the fourth quarter of 2004. Since then, expansion in the construction sector has partially offset slowdowns in tourism and agriculture, leading to a projected positive rate of growth for 2005 of about 1 percent.

**Employment:** Prior to Hurricane Ivan, unemployment, estimated to be between 12 and 13 percent, represented an important challenge for the Government, with unemployed youth being of particular concern. The disaster further compounded this problem with an additional eight percent of the workforce displaced from their jobs in the aftermath of the disaster. The gradual increase of activity in the construction sector appears to have absorbed some of this unemployment, particularly in the urban areas.

**Cost of Inputs:** Distributors faced significant challenges in sourcing supplies, but this has now improved. For the first six months, it is estimated that all suppliers combined could meet only 60 percent of Grenadian market demand. By end March this had risen to 80 percent. Immediately after the passage of Hurricane Emily, nearly 100 percent of demand was met. Compounding this obstacle of attracting and distributing materials, high demand in Florida following a particularly active hurricane season, together with

China's economic growth and the high price of oil have combined to drive commodities and building material prices upward.

**Conclusion:** Although the job is far from finished, the reconstruction to date is substantial. Large-scale efforts have been mounted by Grenadian Government agencies, the private sector and civil society. Bilateral and multi-lateral agencies as well as international non-governmental organizations (NGOs) have also provided considerable assistance.

Line ministries, not typically tasked with major construction work, have performed well. Rehabilitation in the education sector remains the Government's main priority and should be substantially completed within the coming calendar year. Health infrastructure, particularly the main hospital and health centers throughout the island, has been repaired.

The restoration of utility services has been particularly successful. Grenlec, the electricity company, benefited from a regional hurricane recovery program in place before the passage of Ivan, as well as a reserve fund for just such natural disasters.

The private sector recovered particularly quickly. The Chamber of Commerce estimates that most of its 200 members were operating at pre-Ivan levels of activity by May 2005. One significant exception is the Agriculture sector which was already in decline prior to Ivan and was further affected by the passage of Hurricane Emily in July 2005. As a result of both hurricanes, the sector has been virtually dormant for the entire year, and many farmers are left without the resources to rebuild their homes and livelihoods.

Unfortunately, recovery of livelihoods has been fairly asymmetric, with rapid improvements in urban areas contrasted by slower progress in rural part of the country. Generally, urban dwellers have rebounded more quickly, with many of the previously unemployed benefiting from the construction boom. Not only have people found new means of employment, but wages in the construction sector have increased significantly (although recent data show that salaries are slowly returning to pre-Ivan levels). With additional disposable income in urban areas, retailers and other business owners have also benefited. In contrast, rural and people previously employed in the agricultural sector have had greater difficulty returning to normalcy.

In the face of all these challenges, balancing the government budget remains a key challenge. Public debt, which measured roughly 110 percent of GDP in 2002 and 2003, had increased to nearly 130 percent of GDP by the end of 2004, leading to a financing gap of 4.5 percent of GDP in 2005. The full recovery of Grenada will depend on the government capacity to address these challenges and on continued assistance from the donor community.

## **I. Country Background**

---

Grenada is one of the southern most islands of the Eastern Caribbean chain and lies north of Trinidad and Tobago. It has a population of about 100,000 and a land area of approximately 133 sq. miles, including the islands of Carriacou and Petit Martinique. The main island, Grenada, is divided into six parishes with St. George's, the capital, located at the southern end of the island and St. Patrick to the north.

### **Progress in economic development**

Grenada's economy is based primarily on the service sector, which accounts for 67 percent of its GDP of US\$440 million, much of it from tourism. Agriculture accounts for just under 10 percent of GDP and is a large source of employment. During 1997-2000, Grenada had the best performing economy in the OECS with growth rates averaging 7 percent per year.

In 2001, the economy contracted by four percent due to the impact on tourism of the events of September 11, 2001 and the global economic slowdown. In late 2002, the authorities successfully floated a US\$100 million bond on the international capital markets to refinance previous public investment on more favorable terms. This raised the public sector debt to GDP ratio to 110 percent of GDP in 2003. In 2003, the economy experienced a significant rebound with growth of 5.8 percent. It was expected to grow by nearly four percent in 2004, driven by the recovery in tourism, until Hurricane Ivan altered this expectation.

### **Vulnerability to natural disasters**

Situated in the southern end of the hurricane belt, Grenada's location makes it vulnerable to natural disasters, particularly hurricanes and flooding but also occasional volcanic and earthquake activity. These natural disasters can severely affect the economy, property, human health and welfare, and the country's natural resources. During the last century, three major hurricanes have struck Grenada, in addition to several tropical storms and northerly hurricanes causing peripheral damage. The country is annually subjected to coastline storm surges. In 1999, it suffered damage from flooding caused by Hurricane Lenny.

### **Regional Disaster Relief and Mitigation**

After Hurricanes Luis and Maryanne in 1995, CDERA initiated a comprehensive program to deal with natural disasters, offering a range of assistance depending on the severity of the disaster. In instances where a disaster overwhelms a country's response capacity, a Regional Response Mechanism can be triggered, activating military forces from CARICOM to assist with logistical support and delivery of relief supplies. This includes the activation of the Caribbean Disaster Relief Unit (CDRU), the operational arm of the Regional Response Mechanism.

In addition to building regional relief capacity in CDERA, the OECS countries have taken steps to mitigate the potential of damage from hurricanes. Grenada and other OECS countries have partnered with international organizations such as the World Bank, the Organization of American States (OAS) and PAHO to formulate disaster preparedness programs. Countries have named National Disaster Coordinators to coordinate government and private sector actors to undertake disaster mitigation works, promote preparedness and prepare to coordinate relief operations.



## **II. Hurricane Ivan**

---

### Characteristics of Hurricane Ivan

Hurricane Ivan struck Grenada on September 7, 2004 between 14:00 and 19:00. As it passed over the island, the hurricane was classified as a Category 3 hurricane with sustained winds of 120 mph and gusts of up to 135 mph. Although Ivan affected the entire country, the more densely populated southern region sustained the brunt of the damages. The hurricane did not produce a large volume of rainfall, so damage from flooding and mudslides was not extensive, although some streams flooded as a result of debris piling up behind bridges and culverts. The storm surge did not cause major damage as sea defenses resisted damage from wave action.

High winds caused the majority of the damage. Losses included the partial and total destruction of many structures, broken and uprooted trees, fallen utility poles and damaged vehicles. Roadways were blocked by debris and fallen trees but generally remained intact with limited landslides or washouts. Based on the pattern of downed trees and distribution of damage, microburst downdrafts appear to have been a major source of damage. In the southern parishes, cars and trucks were blown over, telephone poles snapped at the top, and many structures were completely destroyed – indicating downward windblasts of 135 to 145 mph. During the storm, the capital area of St. George’s was exposed to the eye-wall of the storm, where the greatest concentration of microburst activity occurred.

In addition to loss of infrastructure, watershed loss was extensive due to the large number of fallen and damaged trees. Damage to the watershed increased even more 10 months later when Hurricane Emily brought a larger amount of rainfall, leading to serious flooding and mudslides. Hurricane Ivan severely affected the agriculture sector. While water sources and agricultural lands were left in relatively good condition immediately after Ivan, loss of the watershed has led to a decreased amount of nutrient rich topsoil.

### Overview of the Damage<sup>1</sup>

Government’s capacity to manage the disaster was quickly overwhelmed, due to the extensive damage to the seat of government and large losses suffered by public employees. Because the hurricane was a category 3 event, under CDERA’s guidelines relief activities by CDRU were initiated.

The UN Economic Commission for Latin America and the Caribbean estimated damages resulting from Ivan to be double the nation’s GDP. The housing sector was devastated, with 89 percent of the country’s housing stock being damaged. Almost 30 percent of the damaged housing would require complete replacement and only one-third of private

---

<sup>1</sup> This section is summarized from the World Bank ‘Preliminary Damage Assessment Report’ and the OECS/ECLAC report ‘Grenada: Macro-Socio-Economic Assessment of the damages caused by Hurricane Ivan.

homes were insured. More than 80 percent of public and commercial building structures on the island sustained some form of damage. All but two (both built/retrofitted with Bank support) of the primary and secondary schools were affected and 11 public health institutions, including the second largest hospital, were leveled. An estimated 91 percent of the forest lands and watershed were stripped of vegetation. Close to 70 percent of the tourism infrastructure, which supports 60 percent of all export earning, was made unusable. Other areas severely affected included the power sector, as the entire electricity distribution system was destroyed, and the agricultural sector, which suffered a near complete loss of the year's crop. Table 2.1 shows the distribution of persons affected. The most heavily populated regions suffered the greatest losses.

**Table 2.1 - Estimated Affected Population**

<b>Parish</b>	<b>Total Population</b>	<b>Affected Population</b>	<b>Percentage Affected</b>
St. George's	37,057	35,575	96%
St. Andrew's	24,749	23,759	96%
St. John's	8,591	7,732	90%
St. David's	11,486	10,337	90%
St. Mark's	3,994	779	20%
St. Patrick's	10,674	2,135	20%
Carriacou	6,081	1,216	20%
<b>Total</b>	<b>102,632</b>	<b>81,533</b>	<b>79%</b>

### III. Immediate Response

---

#### Response of the international community

Local capacity to respond to the disaster was adversely affected by the level of damage inflicted by Ivan. At the local level, community and church groups could not meet the needs of their members. Recognizing the inability of the Government to respond to a disaster of such a magnitude, international assistance mobilized almost immediately. Directly after the hurricane, a British military frigate arrived in Grenada. At the same time, Patrick Manning, Prime Minister of Trinidad, began organizing the relief operation from that island. Military assistance was sent immediately by the Trinidadians and was sustained with troops throughout the OECS and Barbados assisted in maintaining order. Within two days a staging area was set up in a military compound near the airport to distribute supplies throughout the country. At the same time, relief operations were formalized under the command of CDERA. This coordinated international response helped to ensure that relief supplies arriving in the country were distributed to all affected areas. Despite initial challenges, relief operations flowed smoothly within one week. A relief and assessment team arrived soon thereafter, coordinated by CDERA, which included PAHO, the Red Cross, OXFAM, and USAID, among other institutions. Over the course of the first two weeks, Caribbean Community (CARICOM) troops arrived, along with a French frigate from Martinique, to assist with the distribution of relief supplies and clean-up debris.

**Picture 3.1 - View of St. George's from the Emergency Operations Center**



September 14, 2004



August 21, 2005

Foreign military missions remained in Grenada about two months to help maintain order while international relief organizations maintained a presence of up to six months. OXFAM and UNDP structured their relief operations as cash-for-work programs. PAHO focused its efforts on solid waste management and technical assistance to the Ministry of Health, and CDERA worked with the NaDMA to improve its capacity to prepare for, and respond to, natural disasters.

An initial donor meeting took place on October 4, 2004 under the auspices of the World Bank, taking advantage of the presence of various donors at its Annual Meetings in Washington. Donors reviewed the damage assessment and agreed to convene again in Grenada for a formal meeting six weeks later. The formal pledge meeting took place in Grenada on November 19, and donors pledged more than US\$150 million (over 30 percent of the country's annual GDP) to assist in the reconstruction of Grenada. The US\$43.5 million contribution of new funds by the United States was several times larger than any other donor and was comprised entirely of grant funds.

### Emergency Clearance of Solid Waste

The GSWMA, a statutory body of the Government, has responsibility for household waste collection and landfill management. GSWMA's privatized collection system mobilized two days after Hurricane Ivan to begin a three-month operation to clear a portion of the 800,000 cubic meters of debris generated by Ivan, including about 4,000 tons of galvanized metal and 480,000 tons of wood<sup>2</sup>. On September 10, the GSWMA resumed household waste collection, bringing a sense of normalcy and a reduction in post-disaster health risks.

Solid waste authorities worked closely with PAHO on public health and safety issues and benefited from funding and technical advice from OXFAM UK on the prioritization and planning of the national cleanup program. The program involved the opening of four large temporary solid waste sites across the island, three of which are still in operation. In implementing the national cleanup program, GSWMA was able to collect 180 percent of average collection levels between September and January, and today continues to collect 130 percent of pre-Ivan levels.

With assistance from OXFAM, GSWMA also organized a cash-for-work program to supplement the workforce supporting the clean-up effort. This involved the collection and transport of waste, agricultural land clearance, removal of debris from schools and churches, technical assistance and training. The program lasted 18 weeks and employed 344 people.

To address its medium-term needs GSWMA, with assistance from the World Bank, purchased waste management equipment including a wood chipper, a tire shredder and a metal bailer. The chipper now grinds green waste, which is used to reconstitute the watershed. The tire shredder has played a role in containing the mosquito population and the baler is on site at the national stadium to assist in the compression of metal sheeting.

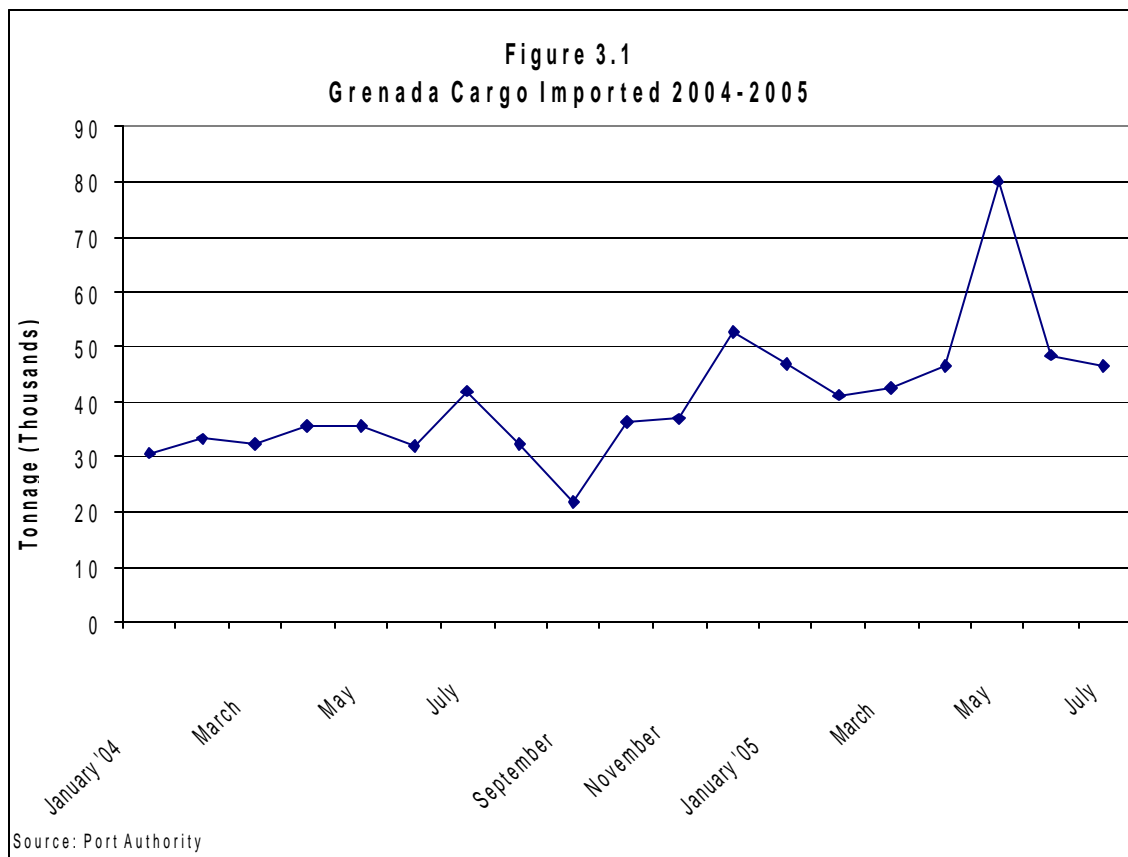
---

<sup>2</sup> OXFAM solid waste report

## Ports Authority Response and Recovery

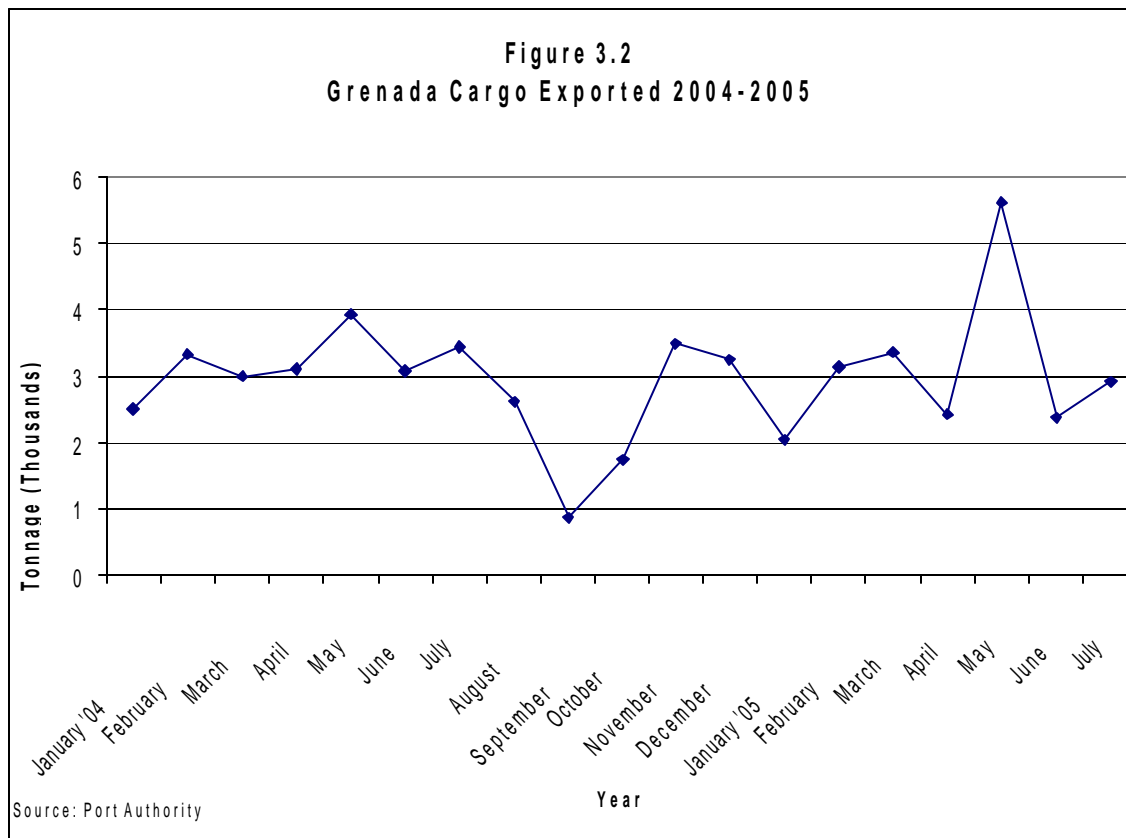
The Ports Authority responded quickly and effectively to the influx of relief supplies and construction materials. The Trinidadian Coastguard and the St. Lucia Ports Authority provided initial supplies and support to port employees as well as fuel to power the port's generators. This assistance allowed the Ports Authority to resume operations three days after Ivan and to begin processing relief supplies.

Reopening the main port was a notable achievement, given that most containers are opened while still in the port, rather than moving them by truck to their ultimate destinations, a labor-intensive process. Given the volume of imports after the hurricane, a large amount of manpower and organizational resources were needed to process and move the goods. After the initial recovery effort, sustained demand for construction materials put a heavy strain on the infrastructure and resources of the Ports Authority. The challenge of handling key imports was further constrained by the damage or destruction of all six main storage sheds. To overcome these obstacles, the Ports Authority drew heavily on available short-term labor to ensure continued operations.



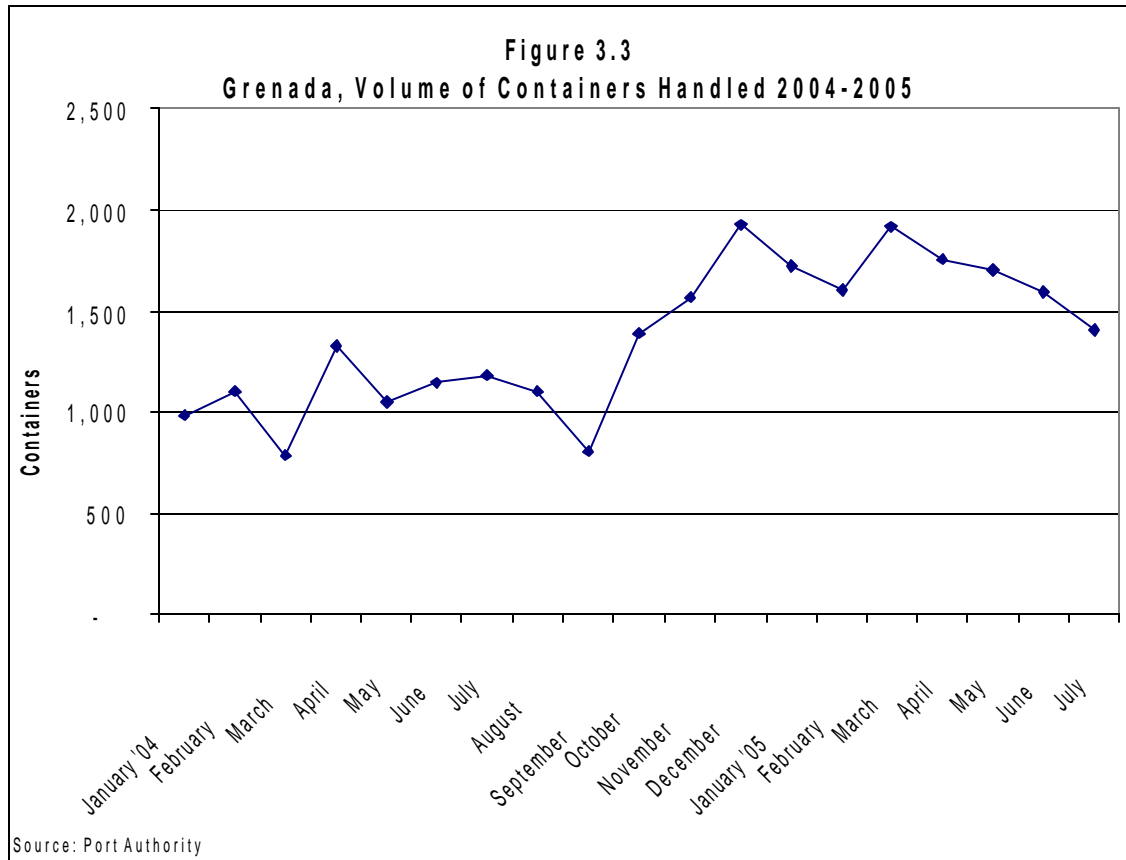
Although overwhelmed immediately after the hurricane, the port recovered to previous volumes within one month. Prior to Ivan, imports averaged about 34,000 tons per month. They fell to 22,000 tons in September 2004, but rebounded to normal levels in October 2004. The importation of relief and reconstruction supplies increased import levels

dramatically after December 2005. Since December 2005, average monthly import tonnage has averaged 51,000 (see Figure 3.1).



Exports averaged just over 3,100 tons per month prior to Ivan and fell by 60 percent during September and October (Figure 3.2). In spite of the devastation of the two main export crops, nutmeg and cocoa, exports rebounded to an average of 3,170 tons after December 2004, buoyed by the sale of nutmeg held in reserve before Ivan.

Until the end of 2004, construction materials (timber and galvanized metal) could not be held at the port due to the lack of storage space and manpower. Since December, when the port transitioned from relief to reconstruction, throughput has increased by 54 percent (Figure 3.3). Three storage sheds have been rebuilt with heavier storm-resistant gauge sheeting, while two have temporary coverings and will be rebuilt soon. The Ports Authority now has some excess capacity to respond to future emergencies. In addition, it has signed Memoranda of Understanding with Grenlec and Shell/Texaco for the provision of electricity and fuel in disaster situations. Port managers have also reviewed disaster procedures and supply provision for emergencies. Recommendations planned for implementation include increasing the number of fuel storage sites and constructing underground storage tanks.



### Relief Programs

Local NGOs, supported by international NGOs, played an important role in livelihood projects. A group of local NGOs had an emergency plan dividing responsibilities between its members to ensure coordination and to avoid duplication of effort. These NGOs acted as liaisons between communities and donors, assisting poor communities in identifying needs and developing action plans, which could then be transmitted to donors for financing.<sup>3</sup> They also played a critical role in providing food and water, clothing, shelter and building materials for rehabilitation (see Table 4.1).

<sup>3</sup> Some programs were already ongoing. For example, prior to Ivan, the community-based Grenada Rural Enterprise Project sought to reduce rural poverty through support for local community groups to mobilize and pool resources. In the aftermath of the hurricane, these community groups came together to identify needs, agree on plans and work with NGOs.

Table 4.1 - Main form of assistance provided

Source of support	% receiving support	Food/water	Clothing	Shelter	Building material	Labour	Counseling/advice
Family	50.7	81.7	2.2	9.3	0.7	0.8	0.5
Community	22.2	75.4	4.4	3.4	1.1	15	0.6
Church	31.8	89.2	3.4	4.5	2.5	0	0.1
NGOs	37.1	91.4	2.5	1.3	4.9	0	0
Insurance	4.3	9.5	2.1	0	1.1	0	0
Private sector	3.9	72.7	9	1.7	6.7	4	0
Government	12.3	68.2	2.2	4.4	21	0.8	1.1

The Government of Grenada's Ministry of Social Development was active in a number of programs for post-hurricane reconstruction. The Ministry has supported the reconstruction of public daycare centers and to date 11 damaged and two destroyed centers have been reconstructed. The Ministry has also disbursed grants of US\$37 per month to elderly and disabled citizens, benefiting 3,500 people so far.

One such project, the Grenada Relief and Development Project, funded by outside assistance and implemented through the Agency for Rural Transformation (ART) and the Grenada Community Development Agency (GRENCODA), helped meet the basic needs of approximately 8,000 people in twelve communities. Principle local implementing agencies for these projects were the. The program included training in poultry production and management combined with cash-for-work activities,. An education component provided meals at schools, replacement of school materials and after school programs for children, and a program for teenage mothers.

In coordination with the government, the donor community also implemented various training programs aimed at improving skills while supporting individuals left jobless by the hurricane. Participants gained skills in the construction, hotel and agricultural sectors, while earning compensation for attending classes. These programs have helped participants acquire the means to reintegrate into the labor market while supporting their families. USAID alone has trained over 1,438 Grenadians and will continue its training activities through December 2005. OXFAM also offered training in agro-processing and farming.

### Counseling

The Ministry of Social Development (in conjunction with UNICEF<sup>4</sup>) trained 35 people to counsel hurricane victims disorder. In addition, the Ministry created a 'wellness caravan.' Using pamphlets and a 'Playback Theatre,' the caravan helped hurricane victims to deal with emotional problems using various mediums. The Government has also expanded a 'roving caregivers' program funded by the Van Leer Foundation for additional counseling and care-giving. UNICEF and USAID have provided financing for the protection of children and women through the child welfare authority.

<sup>4</sup> UNICEF also worked with the Agency for Rural Transformation (ART) through 12 schools to implement the 'Return to Happiness' Program, another psycho-social counseling scheme for hurricane victims.



## The Agency of Reconstruction and Development

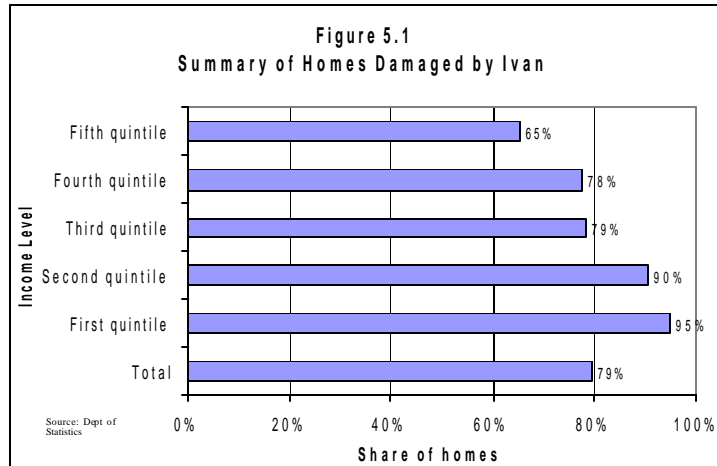
The Government incorporated the Agency of Reconstruction and Development (ARD) in November 2004 to facilitate the reconstruction of Grenada with a long term strategic view. ARD was tasked with mobilizing resources and the monitoring of project implementation. Beyond reconstruction, ARD is also responsible for looking at creating an improved policy and institutional framework for national development. The Agency attained a critical mass of staff by March 2005.

## V. Housing

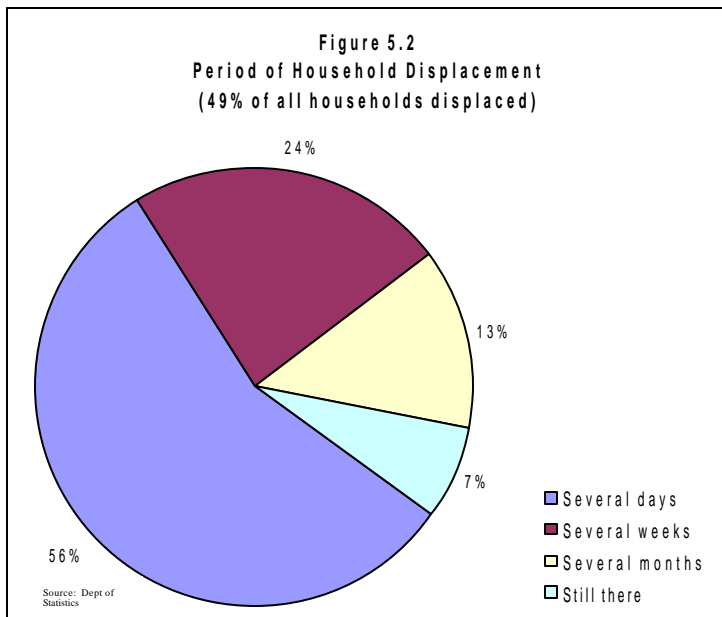
### Sector Overview

Damage to housing was one of the most serious effects of Ivan. Initial estimates concluded that 27,000 homes were affected- 89 percent of the housing stock.<sup>5</sup> Many

homes suffered from inadequate structural design, making them highly vulnerable to hurricanes. Even the majority of the more structurally sound houses did not survive such a powerful storm (see figure 5.1), particularly because of the strong microburst activity. In June 2005, a more formal Quick Assessment, carried out by the Department of Statistics, found that Ivan had damaged



79 percent of homes. Poorer households were the most severely affected as their homes were less likely to be structurally sound. At the same time, 65 percent of the sturdiest homes on the island suffered damages.



Over half of the population was displaced from their homes in the aftermath of the hurricane. Seven percent continued to be homeless through June 2005 (see Figure 5.2). This displacement highlights the fact that many low-income households have not been able to reconstruct their homes because of the high cost of labor and construction materials. Moreover, demand for housing has led some unqualified workers to enter the market as contractors, compromising the quality of

<sup>5</sup> OECS/ECLAC report 'Grenada: Macro-Socio-Economic Assessment of the damages caused by Hurricane Ivan,'

some construction.<sup>6</sup> Only 10 percent of households had home insurance, which also has constrained reconstruction (see table 5.1). Finally, issues concerning land ownership and titling, land use, and development regulations have hindered access for some households to reconstruction assistance from local sources and international donors.

### Progress to date

Of the roughly 27,000 homes affected by Hurricane Ivan, an estimated 15,100 (56 percent) have been repaired to date. In addition to insurance payouts, personal savings and remittances, homeowner have benefited from a variety of Government and Donor financed programs. Much effort was made to encourage people to rebuilt using hurricane resistant standards. However, many are still using similar materials and standards as before, leaving them vulnerable to future disasters. The provision of assistance to the poorest who have not been able to rebuilt and efforts to ensure that people rebuild using appropriate standards remain a key challenge to the government.

**Table 5.1 - Status of home reconstruction**

	Damaged	Share of Homes Protected by Insurance		Share of Homes being rebuilt	
		Yes	No	Yes	No
Total	79%	10%	90%	38%	62%
First quintile	95%	0%	100%	38%	62%
Second quintile	90%	1%	99%	30%	70%
Third quintile	79%	2%	98%	45%	55%
Fourth quintile	78%	13%	87%	38%	62%
Fifth quintile	65%	31%	69%	41%	59%

After Hurricane Ivan the Government, through the Emergency Housing Committee, initiated a reconstruction program with four components:

1. **Construction of new homes for vulnerable populations.** At a cost of US\$4.5 million to date, the government has built 404 homes.<sup>7</sup> After initial problems the program is now proceeding rapidly, and 600 additional homes should be rebuilt by the end of 2005.
2. **Distribution of construction materials.** At a cost of US\$8.2 million, the government has provided rebuilding supplies, including galvanized roofing and wooden blocks for housing frames. These materials have been distributed to 5,500 households. The program is expected to benefit 7,000 households by the end of 2005. In some areas, government and donor assistance was distributed through community committees that

<sup>6</sup> The demand for skilled construction workers was so high, and the quality and timeliness of some projects so poor, that the government had to source labor from Guyana. The *August 2005 Housing Recovery Review* published by the government stated that: “85 skilled Guyanese construction workers were hired. This move has proven to be effective. The speed and efficiency of the Guyanese has been one of the reasons for the increased pace at which homes are constructed. Four to 5 Guyanese teams have been building wooden houses in 3-5 days.”

<sup>7</sup> As of August 27<sup>th</sup> 2005

were established in the wake of the hurricane to organize rehabilitation at the local level (see box below).

3. **Concessional Loan Program.** At a cost of US\$1.9 million, 190 households have borrowed up to US\$15,000 each to rebuild their homes. These concessional loans (three percent interest) are made for 10 years with a one-year grace period. Parliament has authorized a US\$16 million loan from the Government of Trinidad, US\$10 million of which will be for housing construction and business revitalization activities. Of the total sum of US\$10 million, US\$3.3 million is earmarked for the Concessional Loan Program and US\$1.1 million for infrastructure in La Calome. The remaining US\$5.6 will be used for re-roofing and assistance for building materials.
4. **Post-Hurricane Emily Re-roofing Program.** Hurricane Emily damaged many homes and set back the reconstruction of houses destroyed by Ivan. The Government recently developed a re-roofing program to provide labor and materials to re-roof 115 homes for the elderly and handicapped. Some 2,000 houses should be repaired by December 2005.

**Picture 5.1 - Progress made in home reconstruction**



September 14, 2004



August 21, 2005

The Government, with assistance from donors, has made efforts to ensure that new and rebuilt houses adhere to hurricane-resistant standards.<sup>8</sup> Immediately after the passage of Hurricane Ivan, UNDP financed workshops for contractors, foreman and private individuals on safe building techniques. In addition, two homes constructed with funds provided by CDERA are currently being used to train contractors, carpenters, and other skilled laborers in hurricane-resistant construction. The Housing Authority of Grenada and NGOs transport these demonstration houses throughout the country. To reach parishes throughout Grenada, hurricane-resistant reconstruction techniques have been further reinforced using the ARD social mobilization and awareness ‘caravan.’ The Emergency Housing Committee, with assistance from the Bureau of Standards, is also organizing a training workshop on hurricane-resistant construction.

---

<sup>8</sup> These include: roof pitches at greater than 30 degrees, hurricane straps, measures to ensure that homes are anchored to the ground and employ 4x4 frames (as opposed to 2x4 frames).

**Table 5.2 - Number of Homes Repaired/Rebuilt to date**

<b>Provider</b>	<b>Number</b>
Government of Grenada	6,000
Insurance Claims	6,000
USAID	560
Venezuela	130
NGOs	100

USAID has committed over US\$10 million to home reconstruction. Thus far, they have completed repairs on over 560 homes with a revised estimate of 906 to be treated by the end of 2005. Construction is underway on 41 of a planned 60 new homes.

The Venezuelan Government has also provided materials and labor for a new residential settlement in La Calome, St. David's with the infrastructure, including roads, water, and electricity, provided by the Grenadian government. Fifty of the 130 planned homes are under construction.

Non-Governmental Organizations and church groups have also assisted in home reconstruction. Combined, these groups have repaired over 100 homes throughout the island.

**Box 5.1 - Post-Disaster Community Committees in Action:  
Bosco George and Aprestoute**

The highland farming town of Aprestoute is nestled in the remote mountainous area of St. David's Parish. Like other area in Granada, the settlement was devastated by Hurricane Ivan, with most of the houses damaged and agricultural crops lost. Since Hurricane Ivan, the community has organized itself and used donor funding and supplies to replace temporary shelters with new houses using hurricane straps and other hurricane resistant techniques. It has also revitalized agriculture through land clearance programs organized by OXFAM and UNDP and administered by local NGOs. The community is now better prepared for future emergencies. When Hurricane Emily hit, far more people safely evacuated to shelters before the storm and the community head, Mr. Bosco sheltered just 39 locals in his small two room house, instead of 148 as during Hurricane Ivan. At the same time, Challenges remain for Aprestoute. Hurricane Emily further damaged the newly replanted crop. The demand for construction material has pushed price upwards, preventing many from making further repairs to their homes. The impending school year and need for books and materials, puts further financial burden on families. Nevertheless, the people of Aprestoute are resolved to meet the challenges facing their community.

## VI. Education

---

### Sector Overview

Hurricane Ivan affected nearly every school on the island.<sup>9</sup> At the Government's request, donors have directed a significant portion of funding to rehabilitate education infrastructure. Rehabilitation or reconstruction of nearly every school on the island has

**Picture 6.1. Wesley College**



September 14, 2004



August 21, 2005

been a tremendous challenge for a Ministry of Education that is not typically charged with comprehensive public infrastructure projects. Unlike rebuilding small homes, the rehabilitation of schools requires significant technical capacity. As a result, the number

**Picture 6.2 - St. George's Anglican**



September 14, 2004



August 21, 2005

---

<sup>9</sup> All but two primary, secondary and tertiary schools were affected by the passage of Ivan

of consultants and contractors with the capacity to design and build schools is limited, and consequently, reconstruction has been slower than expected. The demand for construction skills has abated recently, allowing school reconstruction to proceed more quickly.

### Progress to date

Over the course of the first months following Ivan, temporary measures were put in place to allow students to return to school. Under temporary arrangements, most schools resumed operations within two to three months. The Venezuelan military, for example, re-roofed several schools within two months allowing classes to resume in numerous locations<sup>10</sup> Additional measures taken by the Ministry included relocating classrooms to churches and community centers and developing shift systems. Table 6.1 summarizes these efforts below.

**Table 6.1 - Summary of Temporary Measures**

	<b>Total Schools</b>	<b>Relocated Schools</b>	<b>Temporary Classrooms</b>	<b>Shift System Implemented</b>
Pre Primary	74	7	0	1
Primary	58	3	0	4
Secondary	19	1	1	1
Other	5	0	1	0
<b>Total</b>	<b>156</b>	<b>11</b>	<b>2</b>	<b>6</b>

Table 6.2 shows the status of school availability. Despite the Government efforts 12 percent of schools did not re-open on September 5, 2005, the first day of the new school year; all secondary schools opened on time. This progress accurately reflects the public impression of school reconstruction work, demonstrated in Figure 6.1. Of those surveyed in the summer of 2005, 71 percent indicated that schools had either been fully restored or soon would be.

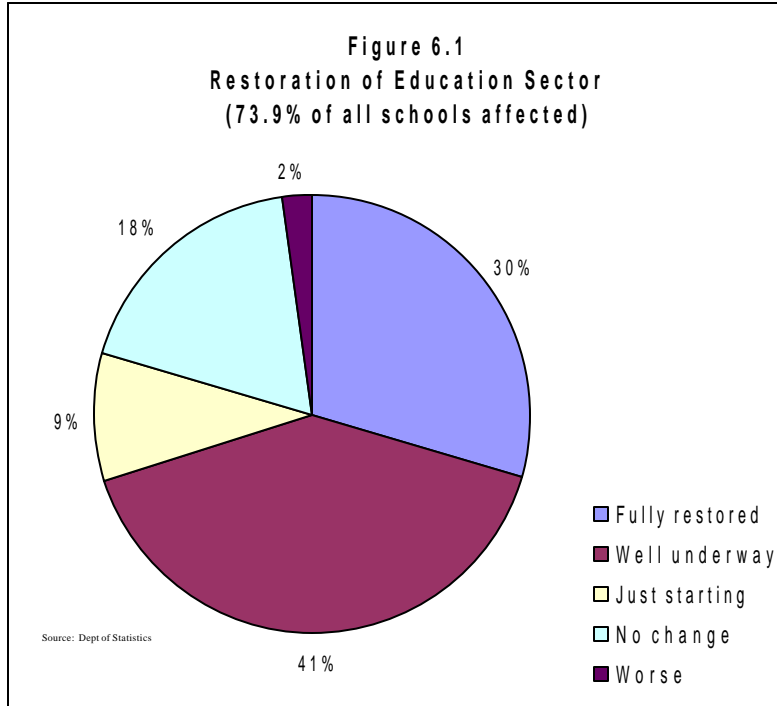
**Table 6.2 - Status of Schools opening new school year**

	<b>Total Schools</b>	<b>Schools not open</b>	<b>Adequate for Opening</b>	<b>Rehabilitation needed</b>
Pre Primary	74	10	55	1
Primary	58	8	35	9
Secondary	19	0	15	1
Other	5	0	4	0
<b>Total</b>	<b>156</b>	<b>18</b>	<b>109</b>	<b>11</b>

<sup>10</sup> Unfortunately, the material used for these schools is asphalt based and will need to be replaced as it represents a fire hazard.

Assistance has been provided by several donors: (i) USAID has contracted 23 primary schools to be rehabilitated, as well as part of T.A Maryshow College, all of which will be completed by the end of 2005; (ii) the World Bank, has committed US\$10.3 million to school reconstruction, primarily for secondary schools. Work on three schools has been completed and work is ongoing at three other sites. Work on an additional 8 schools is expected to start soon; and (iii) the EU has contributed roughly US\$10 million which will support the rehabilitation of schools. The World Bank and EU have pooled their resources and hope that in addition to six school, an addition 15-18 schools will be completed.

The Ministry of Education expects that most school will be back to their pre-Ivan operational level by the end of 2006.





## VII. Health

---

### Sector Overview

Sixty-nine percent of health sector infrastructure was affected by the hurricane, ranging from minor damage to clinic, to the total destruction of Princess Alice Hospital in St. Andrew Parish. The Ministry of Health, with support from PAHO, responded quickly and effectively to health sector needs. Although much of the infrastructure was damaged or destroyed, health services continued on a limited basis, even in the immediate aftermath of the disaster. Of the infrastructure damaged, all but two health centers, and the reconstruction of with Princess Alice Hospital to its previous level of care, are being repaired with donor assistance, as can be seen below in Table 7.1.

**Table 7.1 - Summary of Health Infrastructure Damaged by Hurricane Ivan**

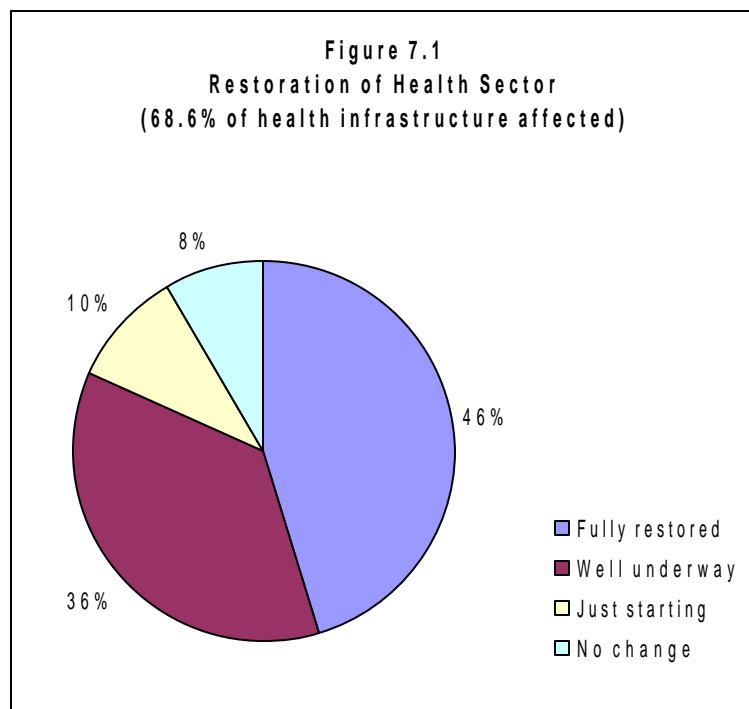
<b>Health Infrastructure</b>	<b>Status</b>
16 Health Centers damaged	11 completed - USAID 3 being designed by CDB 2 without funding (one damaged by Emily, one by Ivan)
Carlton House ( <i>drug rehabilitation</i> )	USAID prepared drawings, about to tender works
Richmond Home ( <i>low income retirement home</i> )	Repaired after Ivan, damaged during Emily – PAHO developing designs and responsible for reconstruction
Hospital Laundry	Repaired by PAHO and Guyanese Defense forces
Hospital Laboratory	Laboratory equipment lost during Ivan has been replaced by World Bank
Princess Royal Hospital	Reconstruction design ongoing by World Bank
Central Medical Stores	Reconstruction to be financed by World Bank
Vector Control building	Reconstruction to be financed by World Bank
Princess Alice Hospital	Leveled during Ivan; PAHO recently submitted proposed plan for reconstruction

### Progress to date

An important indicator of the successful response to Ivan was the prevention and control of major outbreaks of vector-borne or water-borne diseases. This can be attributed in large part to the swift resumption of water services, GSWMA and OXFAM's efforts to

quickly remove debris and a program of fogging by the Ministry, using foggers donated by PAHO.

A major challenge faced by the Ministry of Health in the restoration of service was the absence of electricity, which prevented medical cold storage. Generators were donated by several agencies (Grenelec, NaDMA, PAHO, USAID) and placed in health centers to help maintain services. The Ministry of Health, in cooperation with PAHO, overcame several other obstacles, including the lack of access to damaged health centers. To address these issues, 11 District Medical Officers deployed throughout the country, and with the assistance of international relief agencies, maintained health services in the months following Ivan. By June 2005, eighty-two percent (Figure 7.1) of persons surveyed in June 2005 perceived health services to be either fully restored or that rehabilitation is well advanced.



*A note on disaster preparedness*

The Ministry has taken steps to improve their level of disaster preparedness. First, following Grenlec's lead, the Ministry has proposed Memoranda of Understanding with several agencies, including Grenlec, NAWASA, Solid Waste Management, Texaco, Cable and Wireless, Funeral Directors, and the port and airport authorities. The Ministry has also reviewed the health sector disaster plan and developed a new draft incorporating lessons learned from the response to Ivan. The revised plan also involves public health sensitization (dissemination of information) and health safety measures to be taken following a disaster. All reconstruction in the health sector infrastructure is being implemented using disaster-resistant standards.

## VIII. Agriculture

---

### Sector Overview

Grenada has three staple crops: nutmeg, cocoa and bananas. The country produces other fruits and vegetables, including mangos, chilies, spices, beans and flowers, on a smaller scale. The preexisting decline in this agriculture industry further exasperated by the damaged inflicted by Hurricane Ivan to the island's fixed agricultural capital, notably nutmeg, cocoa and banana trees.

### *Hurricane Ivan*

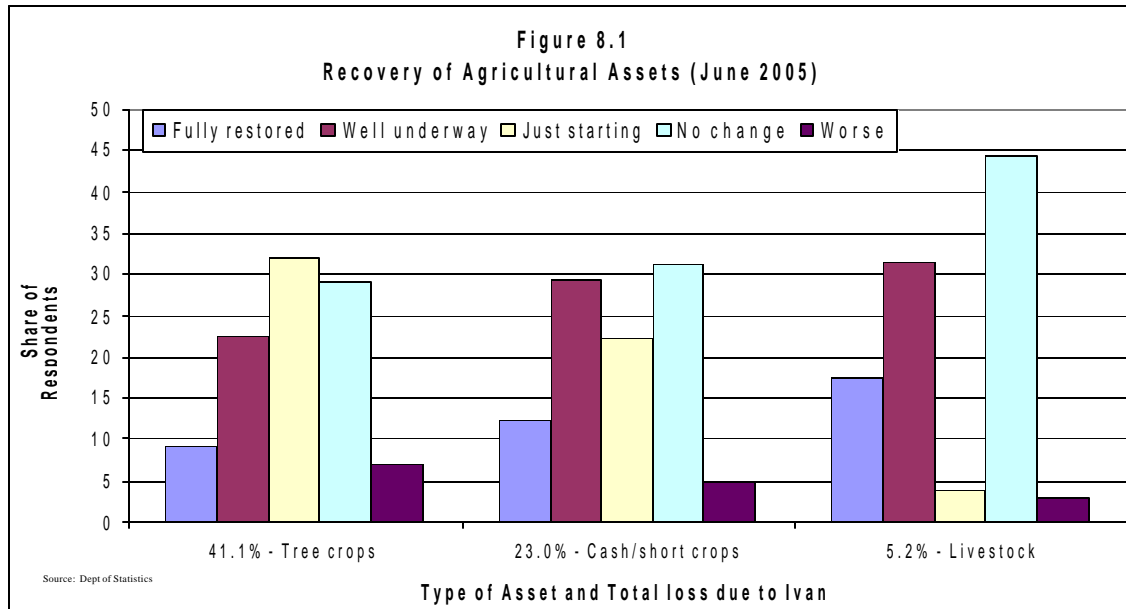
Hurricane Ivan destroyed much of the watershed and ninety percent of forest vegetation was lost. The destruction of a substantial portion of the watershed during Ivan resulted in the loss of topsoil and nutrients crucial to agricultural production. Up to 85 percent of the island's largest agricultural export, the nutmeg crop, was damaged by Hurricane Ivan, with 60 percent of the trees completely destroyed. Hurricane Ivan destroyed 60 percent of the cocoa tree stock and the vast majority of shade crops - such as bananas. The banana crop was devastated by Hurricane Ivan to the extent that Grenada, previously an exporter of bananas, became a net importer.

### *Hurricane Emily*

More recently, flooding from Hurricane Emily compounded the damage to the staple tree-crops, the root-based vegetables and the agricultural infrastructure. The hurricane destroyed many of the cash crops (crops with high rates of turnover, such as vegetables and chilies) that farmers had planted to quickly generate income after the passage of Hurricane Ivan. Nutmeg and cocoa trees were relatively unaffected by Emily, while a enough of the banana crop was lost for the country to have to look again to St. Vincent & the Grenadines for bananas.

### *Main Challenges*

Agricultural reconstruction has been slow, partly because of the time required for tree-crops, including the staples, to mature. Slow recovery can also be attributed to limited capacity within the Ministry of Agriculture and high labor costs resulting from increased construction activity, constraining the supply of farm labor. Figure 8.1 demonstrates the slow pace of recovery for the sector.



Compounding these obstacles is the fact that the majority of rural farmers are of the older generation. Many of those who live in rural areas choose to move from urban centers to cultivate nutmeg and carry on with the maintenance of family farms. Proceeds from nutmeg sales, are viewed by many Grenadians as a type of pension plan.<sup>11</sup> These individuals have been constrained by their advanced age to clear their fields and replant lost trees, bringing into question the likelihood of a full recovery in nutmeg and cocoa to pre-Ivan levels. In addition to the older population of nutmeg and cocoa farmer, the rural poor have had great difficulties in recovering from Ivan. They lack the resources to rebuild their homes, and their crops have been decimated twice over the past year.

### Progress to date

Over the last year, Government and donors have been encouraging new growing techniques and crops that would provide growth, competitiveness and diversity. The Government of Grenada sponsored an US\$5.5 million agricultural rehabilitation program between October 2004 and January 2005 that provided tools, fertilizer and income to farmers. The project resulted in over 5,000 acres of land cleared and replanted, benefiting over 3,000 farmers before running into difficulties. It was closed sooner than expected, due to accounting issues and questions relating to the legitimacy of beneficiaries.

Donors have supported several initiatives to restore agricultural production. USAID has played an important role in rejuvenating lost crops, rehabilitating damaged infrastructure, and guiding the sector towards a more competitive market position by exploring and exploiting niche markets that do not require large economies of scale. By linking agriculture to local tourism, a USAID has worked to enable key agricultural actors to supply local hotels and restaurants with fresh fruits, vegetables, and ornamental plants

<sup>11</sup> The nutmeg association refers to their younger farmers as those who are approximately 60 years of age.

year round, facilitated by the procurement of 20 shade houses. Under this program, farmers have been working with local groups to seek out niche tourism markets to exploit.

In the immediate aftermath of Ivan, international NGOs implemented local agricultural recovery programs. For example, OXFAM and the Red Cross have distributed fertilizer, seeds, tools and plants. More comprehensive programs quickly followed and the FAO is administering US\$2.5 million for assistance to farmers and fishermen affected by Hurricane Ivan (US\$600,000 from USAID, US\$1.57 million from CIDA and US\$400,000 from FAO). Some 500 metric tons of fertilizer have been distributed to 7,000 farmers. Poultry farmers received building materials, chicks, feed, medications, and training.<sup>12</sup> Two hundred fishermen were given supplies, communication equipment, infrastructure improvements and financing for engine repairs. FAO, with some support from has also financed direct assistance to farm owners in addition to the purchase of shade houses and crates.

Donor interventions in the agriculture sector also included the rehabilitation of a nursery, chainsaws for land clearing and training for 20 people in log conversion techniques. Vegetable farmers received tools and hybrid vegetable seeds to restart livelihoods and curb the vegetable shortage. Additionally US\$240,000 was earmarked to assist in the construction of a plant propagation station, as well as the restoration of a water pipeline and propagation equipment. USAID has also supported the sector through the importation of planting materials for yams and pineapples, among others.

### *Nutmeg*

The Grenadian Nutmeg Association hopes to motivate farmers to restart production so as to reach 50 percent of pre-Ivan production levels within three years. This plan is facing major challenges as a majority of nutmeg farmers use the crop as a source of retirement income, and are now reluctant to replant.

The Nutmeg Association's hurricane recovery plan involves three stages. The first stage is to secure those trees still standing. USAID provided US\$126,000 to enable pilot teams to clean fallen trees and brush for easier access to fields.<sup>13</sup> A total of 400 acres have been cleared and there are ambitious plans to clear all debris from the fields in five years. The second phase is to revitalize deeply pruned trees, a time consuming task that requires advanced technical skills. It is hoped that the 25 percent of nutmeg trees that were deeply pruned can be back in production next year. The third phase is to replant nutmeg trees. Replanted seedlings will take five to six years to produce fruit, and 10 years to fully mature. In some areas, this will be accelerated by planting mockings (young trees) that take three years to bear fruit and six years for full maturation, indicating the long-term nature of nutmeg recovery.

---

<sup>12</sup> Poultry-rearing was the main source of income of single female parents. A total of 41 farmers received supplies; 96 received training.

<sup>13</sup> Teams of 7 included 1 team leader, 3 chainsaw operators and 3 assistants.

Since Ivan, approximately 1.25 million pounds of premium nutmeg have been sold, in comparison to the five million pounds of processed nutmeg typically sold annually by Grenada. This drop in volume was somewhat offset by an increase in the price of Nutmeg in the international markets, which experienced a 50 percent rise after the Asian Tsunami. Nutmeg sold immediately after Ivan came from Grenada's Nutmeg Association's reserve of approximately 6 million pounds (equal to three million pounds of processed spice).<sup>14</sup> This year only 800,000 pounds of unprocessed spice were produced, in addition to the 400,000 pounds that were salvaged from the fields immediately after Ivan. Thus, a total of 1.2 million pounds of nutmeg has been harvested this year and processed into 600,000 pounds of premium spice.

### *Cocoa*

Similar to nutmeg farming, older farmers who may lack the incentive to replant such long-term sources of income, dominate the cocoa industry. Efforts to resuscitate the crop have been further hindered by difficulty in accessing the trees (which are located in deeper fields) and by the loss of shade trees needed for re-growth. To date some 55,000 pounds of cocoa have been produced in contrast to previous average annual production of 1.7 million pounds. This year the Cocoa Association expects output to grow to 440,000 pounds and predicts it to double to 880,000 the following year. It hopes that full production could be restored within five years.

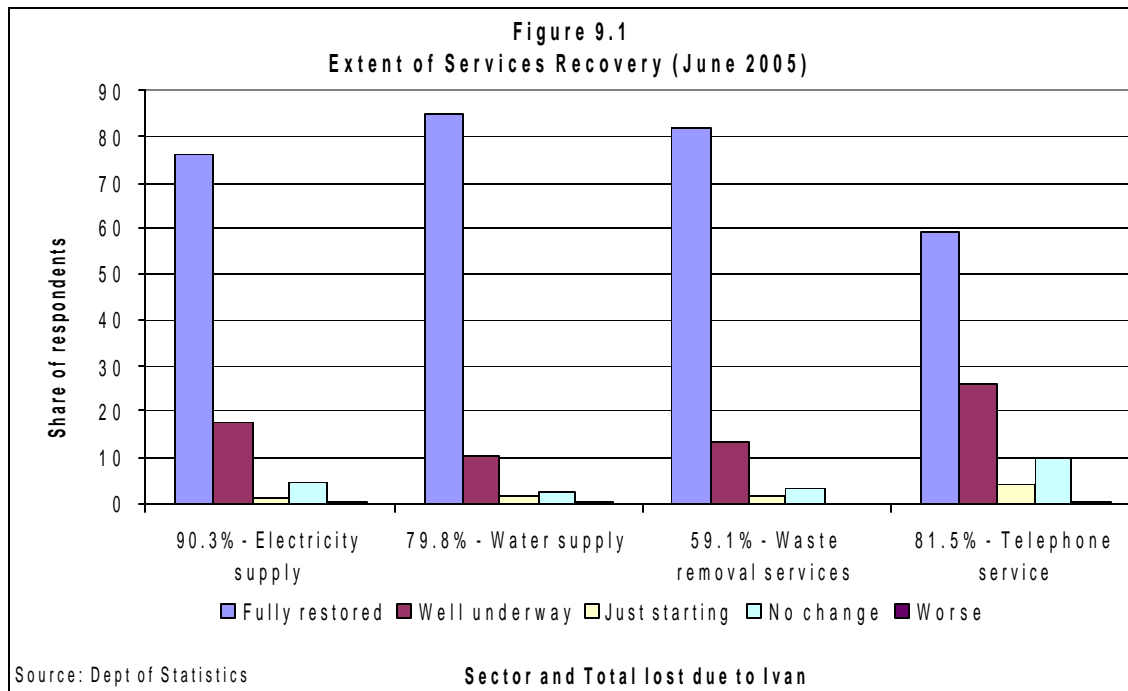
---

<sup>14</sup> Of this reserve, however, roughly 40 percent was affected by water damage and thusly downgraded. The remaining 60 percent could be sold at premium prices.

## IX. Utilities

Above-ground power and telecommunication infrastructure was particularly affected by Hurricane Ivan. Although also affected, water and waste removal services were able to resume services fairly quickly after the hurricane.

As shown in figure 9.1, 90 percent of households lost electricity service, while roughly 80 percent lost access to water and telephone services. Restoration of utilities is nearly complete (although homes not rebuilt have not been reconnected to utility services), with the exception of landline telephone service where forty percent of customers were without service through June 2005 and ten percent remained without a connection by September.



### Electricity

Grenlec, a private corporation, benefited from regional agreements already in place for mutual emergency assistance through the Caribbean Hurricane Assistance Program (CHAP) - the only utility agreement of its kind in the Caribbean (see Box 9.1 below). The program was organized by CARILEC, the consortium of electricity producers in the English speaking Caribbean.

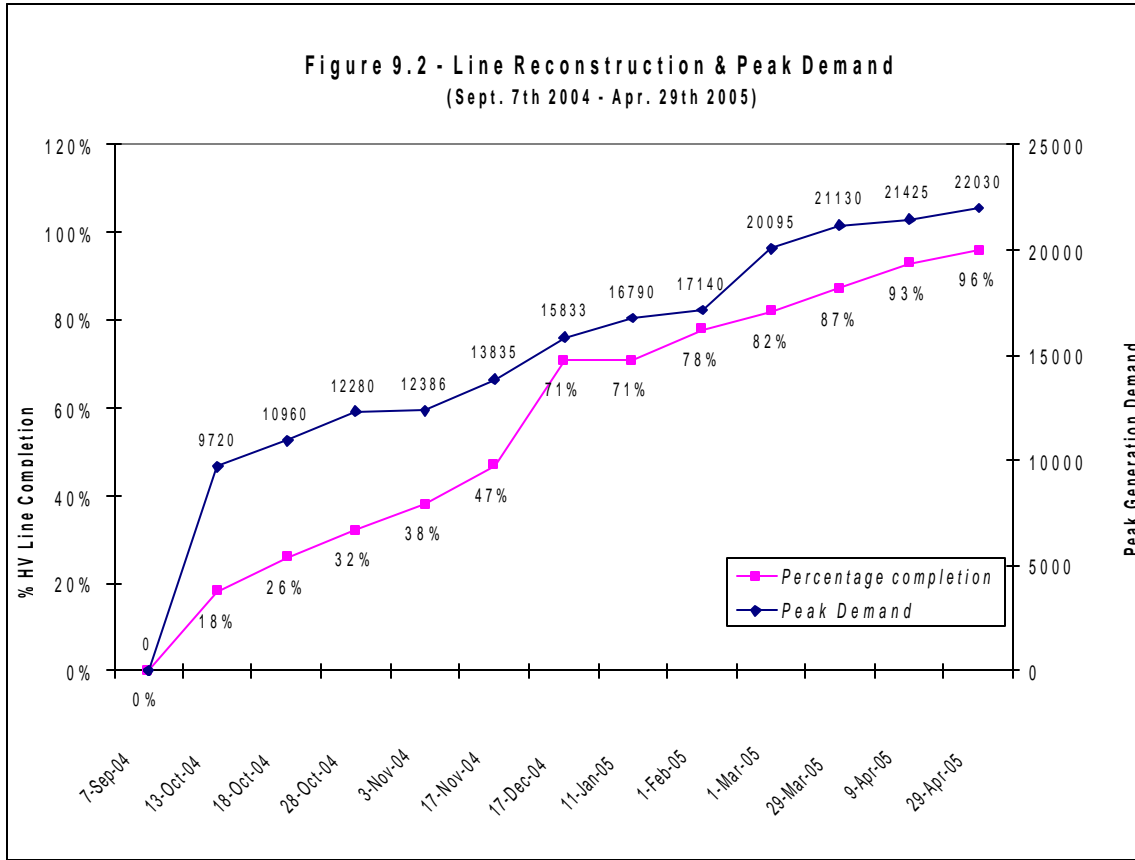
**Box 9.1 - Regional Cooperation in Emergencies: The Caribbean Electric Utility Services Corporation (CARILEC) Hurricane Action Plan (CHAP)**

The Caribbean Electric Utility Services Corporation (CARILEC) facilitates communication among its members and serves as a focal point for information, advocating reform in the electric utility industry throughout the Caribbean. It provides services to members including the CARILEC Hurricane Action Plan (CHAP). CARILEC created CHAP to provide for the assembly, dispatch and coordination of emergency teams of linesmen from member utilities. Their role is to help restore electric transmission and distribution systems in a country affected by a serious hurricane. To be eligible for assistance and training under the program, each utility pays an annual fee of US\$2,000 to the Hurricane Fund. After Hurricane Ivan, Grenlec requested assistance through the CHAP, which deployed 100 linesmen from the region to help repair and restoration of Grenlec's operations. This assistance provided an important boost to recovery in the immediate aftermath of the hurricane.

In addition to assistance provided through the CHAP, Grenlec developed its own comprehensive Hurricane Disaster Plan, including action cards and responsibilities. This allowed the company to act immediately following the disaster. Within days of Ivan, Grenlec strategically placed two large generators in Grenville and near St. George's University. Small generators were also brought to water pumping stations to ensure the continuity of service. The full compliment of Grenlec employees worked continuously to bring power back on-line. All 75 line-workers worked to rebuild the distribution network, while the 40 technicians continued to generate electricity for areas where lines were still intact. The office staff of 40 employees provided logistical support to line workers. In terms of foreign assistance received, 100 workers from neighboring countries deployed under CHAP, and 20 power technicians seconded from Trinidad assisted Grenlec in restoring power.

Through these efforts, critical service to hospitals and health centers resumed almost immediately and 18 percent of the electricity grid had been restored within a month (see figure 9.2). Repairs to the entire grid was completed on April 15, 2005 at a cost of US\$6 million. Over the past eight years, Grenlec had been setting aside US\$750,000 million annually in a disaster reserve fund. They were able to draw US\$6 million from this reserve and required only another US\$375,000 million for the repair work.





Demand for power is slowly returning to pre-Ivan peak levels of 25.5 MW. Peak demand has continued to increase since July, and by the week ending August 27 it had reached 23.6 MW. The passage of Hurricane Emily had very little impact on generation and transmission infrastructure (the network experienced minor damages to about 10-15 poles), except for the Island of Carriacou, where it took close to a month to restore power.

To improve its response in the future, Grenlec has reviewed its Hurricane Disaster Plan and expanded it to be able to deal with all types of disasters, including earthquakes, volcanic activity and flooding. In addition, Memoranda of Understandings have been signed between Grenlec and Government ministries, the port and airport authorities, the hospital and other utilities to coordinate and prioritize the restoration of electricity in another emergency.

## Water Supply

Roads and underground infrastructure, including water distribution pipes, suffered minimal damage as a result of Hurricane Ivan, which traveled through Grenada fairly fast and did not generate important rainfall. The most immediate obstacle confronted by NAWASA, a statutory body of the government, was the restoration of electricity at water pumping stations throughout the country. Grenlec responded quickly to this need and NAWASA restored water services to near pre-Ivan levels within three weeks after the hurricane. Many areas experienced water loss for only one or two days.

The main problem confronting the water sector remains the degradation of the watershed, which was almost completely destroyed by Hurricane Ivan and is only slowly regenerating. Evidence of its vulnerability became apparent during Hurricane Emily when it could not absorb the heavy rainfall. The weakened watershed exposed the island to flash flooding that affected above ground water distribution infrastructure. Damage to the water sector during Emily included the siltation of water intakes and the destruction of low-lying surface water pipes.

Despite these recent damages, the water sector is faring relatively well. Nonetheless, the sector remains vulnerable to adverse weather conditions, a situation made worse by the lack of water shut-off valves. In addition, treatment facilities are old and susceptible to damage. To assist NAWASA to return to normal operations after Hurricane Ivan, USAID is providing US\$700,000 to refurbish and re-equip the main water control laboratory. This will ensure and upgrade water quality throughout the St. George's area.

## Telecommunications

Cable and Wireless (C&W), a private company, manages the landline telephone service in Grenada. The company also competes in the wireless market with Digicel. While landline service was seriously damaged by Hurricane Ivan (80 percent of infrastructure), cellular towers were left intact, and other remaining wireless infrastructure experienced only minor damages. As a result, while landline service has been seriously disrupted, cellular service was restored within days. As a result, anecdotal evidence points to the fact that the number of wireless phone customers has increased markedly in the past year.

C&W assessed critical wire service areas, such as to the government and businesses, and restored service as time permitted. By mid-November 2004, service was restored to the Ministerial Complex. Although the core network was reestablished within three months, the restoration program is still in progress for some residential and rural areas. Roughly 2,100 homes with previous service still do not receive service and many currently receive interrupted service.

The phone company has been slower than other utilities because, unlike Grenlec, C&W does not employ linesmen. Instead, the company contracts line-maintenance work to small firms. These firms, distracted by the personal problems of their employees, and an increased demand for services, could not rapidly respond to the disaster induced

restoration needs. Moreover, C&W lacked sufficient supplies to rebuild infrastructure and experienced delays in the importation of key materials.

To assist in the restoration process, C&W procured materials and personnel from C&W business units across the Caribbean, including Barbados, Trinidad, St. Lucia, St. Vincent, Dominica and Antigua. These units arrived four weeks after Ivan and remained on island for six months. External line contractors from Trinidad and Barbados also worked on the restoration with the local and regional teams.

C&W is currently working at improving its disaster preparedness to ensure more rapid recovery in the future. Most importantly, it has changed contractual arrangements to make certain that contractors can respond immediately to a similar event in the future. Tangentially, C&W is developing employee/contractor action plans to allow for a coordinated and organized response to such a disaster. In addition to working with contractors, Hurricane Emergency Plans have been revised to incorporate lessons learned from Ivan. For example, once the country is in hurricane alert, recovery teams will be deployed to their respective districts to facilitate a faster response, rather than deploying after a hurricane strikes.

Finally, following Carilec's lead, C&W has begun discussions to promote a regional approach to hurricane recovery. Centered in St. Lucia, teams from each country would be trained in emergency management and recovery. The plan would facilitate the deployment of a regional team immediately following a disaster to the affected area, along with reserve material stocks from neighboring countries to improve disaster response and recovery.

## **X. Recovery of the Private Sector**

---

### Tourism

Tourism, the main source of foreign exchange earnings in Grenada, accounting for over one-third of GDP, was the most severely affected commercial sector hit by Hurricane Ivan. Nearly all hotels closed for reconstruction and about half of all rooms were lost. Recovery has progressed quickly and the hotel industry aims to restore 90 percent of capacity by December 2005.

#### *Effect on Employment*

Between 35 and 40 percent of the Grenadian workforce is employed either directly or indirectly in the tourist sector. With the destruction of the hotels, hotel and hotel restaurant employees suffered the greatest secondary effects of the passage of Ivan. In fact, the majority of the 10 percent spike in unemployment immediately following Ivan can be attributed to tourism workers losing their jobs. To assist in the restoration of their livelihoods, the National Insurance Scheme went outside of its old age pension plan mandate to assist those displaced by Ivan, particularly those in the tourism sector. Over half of the 3,400 workers who received unemployment payments worked in the industry.

**Table 10.1 - Share of Rooms available for Rent**

<b>Month</b>	<b>March</b>	<b>April</b>	<b>May</b>	<b>June</b>	<b>July</b>	<b>Dec 05*</b>
<b>Rooms</b>	56%	58%	59%	60%	77%	92%

\* projected

#### *Recovery Effort*

Grenada benefits from one of the largest airports in the Eastern Caribbean, which allows for the arrival of large commercial jets. While the airport facility was left relatively unscathed (with the exception of damage sustained in the check-in area), security infrastructure was damaged. The World Bank, through their ongoing security enhancement project, provided financing for these repairs. In step with the rehabilitation of hotels, air traffic has returned to near pre-Ivan levels.

USAID has also been involved with assisting the Government in promoting its comparative advantage in the tourism industry. In an effort to increase the level of customer service on the island, training programs have been provided to those previously employed in the sector. While they updated their skills, students received a cash stipend. Working with the Department of Statistics within the Ministry of Finance they have increased statistical gathering capacity for the tourism industry. With a better understanding of the market, USAID, in tandem with the Government, has worked with international tourism agencies and local groups to promote alternative tourist activities

and exploit niche markets. Two promising examples of niche market development include rare flower tourism (similar to bird watching) and the promotion of cultural heritage sites – such as Belmont Estates.

Small tourist enterprises have been supported by USAID financially through the disbursement of grant monies to assist in their recovery. Between 15 and 20 percent of all Small and Medium Enterprise (SME) grants have been made to the tourism/agro-tourism industry, including two anchor grants<sup>15</sup>. These two grants have been given to Belmont Estates and the Grenada Marine. The first anchor grant aims to boost cultural heritage while the other supports a niche industry (yachting) experiencing strong growth over the past five years.

**Picture 10.1 – View of Grand Anse hotels**



September 14, 2004



August 21, 2005

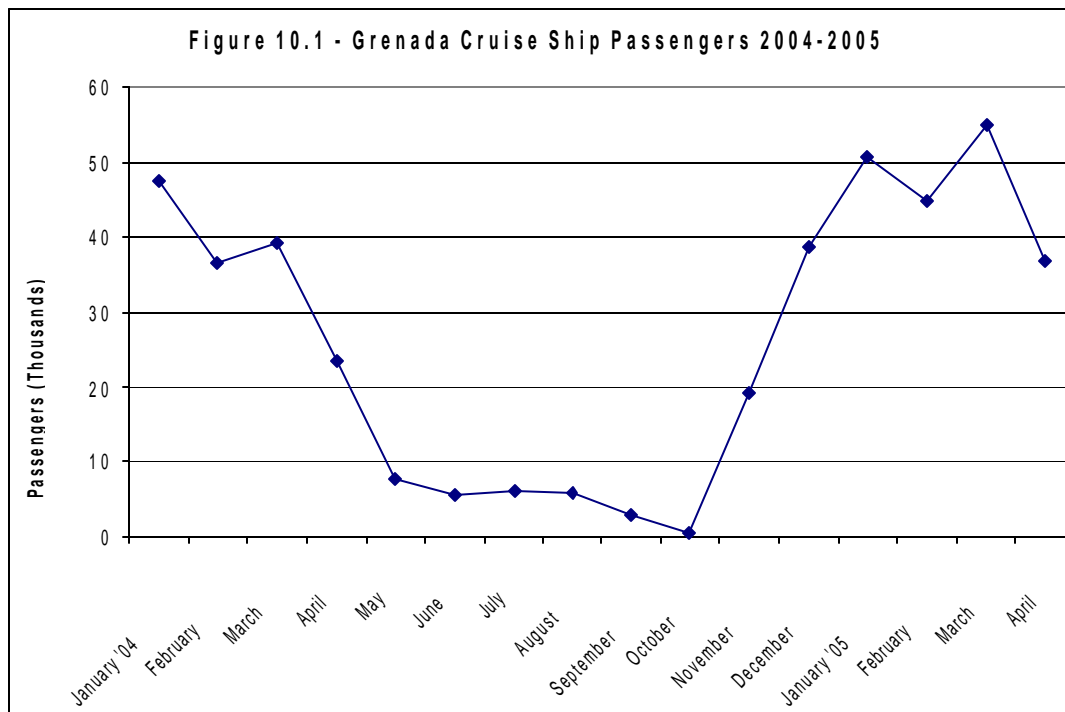
Between September 2004 and Easter of 2005, the peak of the tourist season, room occupancy hovered at roughly 10 percent of pre-Ivan levels. The majority of guests accommodated in the few operational hotels were international aid workers. Most hotels resumed operations around April 2005 and room occupancy has increased steadily. To date, about 75 percent of hotels on the island are operating, although some on a limited basis and all but one large scale hotel is expected to be in operation by the end of 2005.

In contrast to hotels, the cruise ship sub-sector, representing between seven and 10 percent of tourism revenues on the island, was relatively unaffected by the hurricane. In fact, Grenada benefited from an increase in port calling during the last season (See Figure 10.1). The number of passengers who visited Grenada between January and April 2005 rose 27 percent from the previous year, with 187,000 visits during those four months alone.

---

<sup>15</sup> USAID has contributed 5 anchor grants, funded with at least US\$100,000, designated for projects which are expected to have a regional impact.

Yachting, a smaller sub-sector, has also experienced a strong recovery and is now larger than before Hurricane Ivan as a result of improved services and facilities. This success has stimulated growth in related industries as well. As a result of high growth in the yachting sub-sector, demand for skilled yachting services, including repairs, are in greater demand. Training programs, funded by USAID, have helped prepare workers to meet this demand. Additional activities are underway to expand the sub-sector, evidenced by the planned development of two new marinas on the island.



### Manufacturing

Manufacturing, which accounted for 7.5 percent of GDP prior to Ivan, can be classified into large, medium and light industries. Beer, liquor and other goods, such as paint, comprise the large industries. Medium-sized manufacturers produce furniture and textiles. Light industry is more diverse, and produces specialty goods such as T-shirts.

The manufacturing sector has now recovered to levels of 60 to 70 percent of pre-Ivan production. Large manufacturers currently operate at 80-90 percent of pre-disaster levels and furniture, textiles and light industry produce at rates of roughly 50 percent of pre-Ivan levels. Manufacturing is expected to recover fully over the next six to eight months.<sup>16</sup>

Large-scale manufacturing, was better prepared for Ivan because their facilities were built to a higher disaster resistant standard. As a result, they could repair their productive infrastructure within six weeks of the disaster. Medium and light industries, on the other

<sup>16</sup> According to Chamber of Commerce and Manufacturing firm estimates

hand, had more difficulty in recovering. Nonetheless, the majority of manufacturers returned to limited production within three to five months after Ivan. Unfortunately, several firms are now facing some difficulty in recapturing lost export markets which switched to alternative sources after the hurricane.

**Picture 10.2 - Manufacturing/Distribution Center**



September 14, 2004



August 21, 2005

Medium and light manufacturing have had a harder time to recover due to their limited financial resources, which constrained their return to full-scale production. Moreover, while the replacement of fixed assets could be financed largely from insurance proceeds, effort to re-stock products lost to looting<sup>17</sup> has been challenging.

Regardless of size, all operations have made better preparations for future storms. After witnessing the resilience of larger reinforced structures, smaller and medium-sized firms now apply more hurricane-resistant building standards. Across the industry, firms now focus greater attention on building codes and mitigation efforts.

#### Retail/Distribution

In relation to other segments of the private sector, retail and distribution suffered disproportionately from Ivan. Not only did the sector lose infrastructure, but also stocks were lost to looting immediately following Ivan. One firm reported losses from looting at US\$785,000 and a loss to infrastructure of US\$940,000. Unlike buildings, inventories were not insured, which put many retail firms under greater financial pressure than other private sector businesses.

---

<sup>17</sup> Losses to looting cannot be insured

**Figure 10.3 - Retail Center**



September 14, 2004



August 21, 2005

Retail stores replaced most of their stocks by the end of October, and by December distribution outlets had fully replenished stock levels. Over the past six months, sales have increased beyond pre-Ivan levels, as previously unemployed workers now have increased income from the construction boom. Within the next two to three years as the reconstruction activity subsides, unemployment will likely rise and sales will fall from their current high levels.



## **XI. Disaster Preparedness and Response**

---

Hurricane Ivan has led to greater interest in preparing for natural disasters on the part of the Government and the public as a whole. As of October 18, 2004, the National Emergency Recovery Organization (NERO) formally changed its name to the National Disaster Management Agency (NaDMA) to highlight the organization's involvement in emergencies and emphasizes its role in disaster preparedness and contingency planning. While strides have been taken to improve national and local level disaster management, and improve public information, these initiatives will need to be sustained as memories of Hurricane Ivan fade away. Ensuring that key staff members are hired and trained will be critical to NaDMA's long-term sustainability.

With financial assistance from CIDA, CDERA has teamed with NaDMA to improve disaster preparedness through four main activities:

At the national level, with the help of international consultants, NaDMA has revised the National Disaster Plan and improved contingency planning. It also consulted with 40 stakeholders from government, the private sector, civil society and NGOs to improve and promote planning, policies and procedures. A Contingency Planning Framework and a structure for future damage/needs assessments are under preparation. To date, key staff positions have not been filled, although changes to improve the Agency's organizational structure have been proposed to government.

At the local level, the 16 District Committees responsible for all aspects of disaster management have been strengthened. Plans and committees were in place prior to Ivan, although only six of the 16 of the plans were put into action because committees had limited operational capacity and lacked enthusiasm. For example, an average monthly meeting of national committee leaders would attract only half of the district leaders, few of whom participated consistently. Today, all 16 committee leaders regularly attend monthly District Coordinator meetings. Each District Committee is composed of seven to nine subcommittee heads. Over the past two months, NaDMA has conducted two day training workshops for each of the 16 District Committees.

NaDMA has received increased exposure to, and commitment from, all levels of Government. At the time of Hurricane Ivan, no senior members of Government worked with NERO, but during Hurricane Emily the Minister of National Security, the High Commander of the State and Security, and several high level members of government worked within the Emergency Operation Center (EOC) to coordinate national response. Senior public officials are thus recognizing the importance of NaDMA to the functioning of government in emergency situations.

Increased focus has been placed on public information and the accuracy of data dissemination – which is crucial to effective disaster management, preparedness and response. Measures taken include: (i) a weekly newspaper or written press releases; (ii)

weekly radio interviews; and (iii) plans to develop a radio station dedicated to disaster management and response.

## **XII. Financing the Recovery**

---

### Donors Response

Since September 7, 2004, the international donor community has played a critical role in the recovery process. Foreign governments and relief organizations responded directly after the passage of Hurricane Ivan, mobilizing and pledging support to the country. An initial donor meeting took place on October 4, 2004 under the auspices of the World Bank, taking advantage of the presence of various donors at its Annual Meetings held in Washington DC. Donors reviewed the results of the OECS/ECLAC damage assessment and agreed to meet again in Grenada for a formal pledging conference six weeks later.

This second meeting took place in Grenada on November 19<sup>th</sup>, during which donors pledged in excess of US\$150 million to help rebuild Grenada. The donation by the United States government should be highlighted; its contribution of US\$43.5 million accounts for the majority of grant funds pledged and 10 percent of Grenada's Gross Domestic Product.

In addition to the grants provided by the US Government, the EU contributed roughly US\$11 million of grant funds for the reconstruction of schools affected by Ivan. The British Government responded as well with roughly US\$11.5 million, of which US\$10 million was disbursed as much needed budget support. The Canadian Government donated roughly US\$3 million in large part to assist the Agency of Reconstruction and Development.

Taiwan also contributed to the effort disbursing US\$4.5 million before December 2004. More was to be contributed, however, diplomatic relations with Taiwan ended in December 2004 when Grenada established diplomatic relations with the People's Republic of China. Since that time, the Peoples Republic of China has contributed US\$90 million over 10 years for the reconstruction of the stadium and the construction of 2,000 homes, among other expenditures.

Multilateral institutions, including the World Bank and the Caribbean Development Bank also contributed. The World Bank offered US\$10 million in additional funds for the financing of critical imports, school reconstruction and the rehabilitation of the health sector. To compliment these new monies, US\$10 million was reallocated from ongoing disaster management, education and health projects. The Caribbean Development Bank provided US\$500,000 in financing for the relief effort and US\$8 million to assist the government in meeting financial obligations in order to sustain an economic recovery. The CDB also reformulated their ongoing Basic Needs Trust fund to assist in reconstruction.

Nearly US\$100 million have been disbursed within one year of Hurricane Ivan. Further information regarding the donor's role in reconstruction can be found in Annex 3 of the report.

## Insurance

It is estimated that the domestic insurance payout following hurricane Ivan amounted to about 35 percent of GDP. Despite the extent of the damage, all 13 members of AGIC were able to meet their financial obligations. In total and as of July 5, 2005<sup>18</sup>, 5,042 out of a total of 5,184 received by AGIC member firms had been settled, representing about US\$154 million in insurance payout. Of the total of 5,042 settlements, roughly 75 percent went to households.

While this number is substantial, its contribution to reconstruction in the housing sector was constrained by two factors. First, the use of insurance is not prevalent in the Eastern Caribbean (see Figure 12.1) and is generally limited to mortgage holders, which are a minority in Grenada. Second, insurance payouts were not always sufficient to finance full rehabilitation due to factors ranging from undervaluation of the insured assets to the rise in construction prices following the Hurricane.

**Table 12.1 - Share of households insured**

	<b>Yes</b>	<b>No</b>	<b>Total</b>
Dwelling Insured	5,709	27,768	33,477
Contents insured	3,204	30,273	33,477

## National Insurance Scheme (NIS)

The NIS is a government old-age pension program. It raises funds through a nine percent tax on wages, with employees covering four percent of the burden and employers shouldering the remaining five percent. The mandate of the NIS is to provide pensions, but because of the devastating effects of Ivan on employment in the short term, its role expanded to help unemployed persons by paying benefits. The Temporary Unemployment Program, budgeted for US\$3.75 million, assisted employees displaced as a direct or indirect result of Ivan for a total of EC\$6.3 million.

NIS launched the program in December 2004, which ran through the following summer, paying each beneficiary for a period of up to six months. Claimants received payments retroactively, as they were first disbursed approximately three months after the hurricane. Therefore, although the program began in December 2004, those receiving benefits (the majority of whom were women in the hotel sector) were initially issued a single large check covering the first three months of lost wages, with subsequent smaller sums disbursed thereafter. As can be seen in Table 12.2, the program was structured in a progressive manner so as to convey the idea of its temporary nature.

The resilience of the labor force and the success of the recovery effort are demonstrated by the fact that NIS disbursed only US\$2.4 million, or 58 percent, of funds earmarked for

---

<sup>18</sup> According to a AGIC press release

the program. In total, 3,400 claimants received benefits, 65 percent of whom were women. Of the 3,400 beneficiaries, 2,149 (or 58 percent) received one payment and 850 received two payments. Only 400 people needed more than two payments.

**Table 12.2 - NIS benefit payments**

<b>Weeks</b>	<b>Benefits</b>
1 - 10	50% of salary, up to EC\$3,000
11 - 20	45% of salary, up to EC\$3,000
21 +	40% of salary, up to EC\$3,000

### Banking

With the high losses and a virtual freeze in economic activity from September 2004 through November 2004, banks agreed to moratoriums on mortgage payments on a case-by-case basis. Nearly all borrowers were granted a three-month moratorium almost immediately, and most were granted an additional three months. As borrowers resumed normal economic activity, payments on loans resumed. Overall banking liquidity has remained strong and there have been virtually no defaults on loans over the past year.

In the aftermath of Ivan, increased demand for new commercial lending did not materialize as expected, although many private homeowners took out additional monies. Many firms cited high interest rates as the key factor in their decisions not to borrow additional funds to finance their recovery. More than half of those receiving insurance payments borrowed an additional 10-30 percent of their mortgage value to finance the full cost of home reconstruction and rehabilitation.

### Remittances

Assistance from relatives abroad in the form of wire transfers and goods helped to sustain many families immediately after the hurricane. Over the past year, remittances have grown by an estimated 15 percent over the previous year, although the two main operators in the country (Western Union and MoneyGram) were unable to service customers for the first month. Over this period, citizens relied instead on goods shipped from relatives abroad. The value of these goods is estimated to have surpassed the value of financial support sent to family members during the year after the hurricane.<sup>19</sup> While money transfer services did not operate during September, Western Union had all centers operational within seven weeks after Ivan. Over the next three months, inflows of funds increased by roughly 40 percent over previous monthly averages, before declining to levels that are currently around 10 percent over the monthly average of the previous year.

---

<sup>19</sup> Results from an informal survey administered by the Peace Corps

## Debt Restructuring

As of June 30, 2005, Grenada's Public Debt stood at US\$560 million or 130 percent of GDP. The Public Debt includes US\$407 million in external debt, and US\$153 in domestic Debt. Following the passage of Hurricane Ivan, Grenada experienced a dramatic decline in revenues. Between September and December 2004, the revenue shortfall was approximately 5 percent of GDP. As a consequence, it became immediately apparent that Government would not be able to meet its debt obligations as they fell due. Accordingly, the Ministry of Finance issued a press release on October 4, 2004 announcing Grenada's intention to seek the cooperation of creditors in light of the economic crisis precipitated by the hurricane.

In late December 2004, when coupon payments were due on Grenada's largest bond issue, Government issued a statement requesting the rollover of these claims pending the orderly restructuring of debt obligations. The aim of the debt restructuring exercise is to return Grenada to a sustainable debt profile, that is, a position where it can meet all its debt obligations in a timely manner.

The financing gap for 2005 (pre restructuring agreement) was 4.5 percent of GDP and for 2006 and beyond, predicted to be in excess of 12 percent of GDP with total debt projected to increase to 150 percent of GDP.

On January 10, 2005, Government announced the appointment of Cleary Gottlieb, Steen and Hamilton as Legal adviser and Bear Stearns & Co. Inc as Financial adviser for its debt restructuring exercise. This technical assistance was made possible with the support of USAID and DFID.

In May 2005, Grenada posted its debt sustainability analysis (DSA) on its website and presented the findings to creditors. The DSA showed that even with pledged donor assistance, a significant fiscal gap exists throughout the period 2005-2008 and beyond. The overall deficit (after grants) was projected as follows:

2005 – US\$41.9mn  
2006 – US\$58.8mn  
2007 – US\$52.1mn  
2008-2020 (avg.) – US\$75.7mn

The fiscal gap demonstrates the imperative of sharing Grenada's reconstruction burden among the people of Grenada (its Government), the donors and the country's creditors.

### *Bilateral Debt*

The current bilateral debt is US\$60 million, including US\$7mn from the Paris Club and another US\$15-18 million in guaranteed debt. In April 2005, Grenada held meetings with country representatives of the Paris Club following previous requests in September

2004 for debt forgiveness. All countries have been sympathetic, however, to date, no debt forgiveness has been granted.

### *Multilateral Debt*

Notwithstanding their preferred creditor status, the international financial institutions have given financial support. The IMF provided a loan of US\$4.4 million in November 2004. Subsequently, it reduced the interest rates on this loan and the Tropical Storm Lili loan from 3.5 percent to 0.5 percent. Moreover, the IMF staff has provided technical support to the Ministry of Finance throughout the past year.

The World Bank provided a quick disbursing facility of US\$2.0 million as part of its US\$20 million Hurricane Ivan Emergency Recovery Package approved in November 2004, waiving all counterpart financing on ongoing projects.

The Caribbean Development Bank, at the request of the Ministry of Finance, waived all counterpart financing requirement for existing projects including the Bridges and Improvement Project. Moreover, CDB approved US\$8.1 million in October 2004 to help Grenada meet its debt payments to CDB up to December 2005.

### *Commercial*

On September 9, 2005, Grenada launched an exchange offer to all its commercial creditors (domestic and external) save and except for holders of treasury bills. It also included selected guarantees and totaled US\$275 million. These terms were slightly improved in a supplementary offer on October 5, 2005.

To date, Creditors holding over 85 percent of Grenada's commercial debt have agreed to the revised offer and it is expected that debt restructuring should be completed by November 15, 2005. The exchange offer should result in a substantial cash flow relief in the near term. With the debt agreement nearly agreed to, the financing gap for 2005 is mostly filled, however, for 2006 and beyond the gap remains substantial.

It must be noted that the Government of Grenada in support from CARTAC is developing a medium term framework to address fiscal reform, growth and poverty reduction.

### Increased Revenue Collection Measures

The 2005 budget, approved in April, includes revenue-enhancing measures yielding over 2 percent of GDP. Yet, the fiscal situation remains challenging and financing gaps for 2005 and beyond remain. These include: (i) an increase of about 45 percent in the retail price of fuel, which has been fixed since December 2000; (ii) an increase in excise taxes on alcohol and tobacco; (iii) a special levy on incomes over US\$375 per month for a five year period; and (iv) improved tax administration. The Government has already implemented the first two measures while the third one is planned for implementation in January 2006. The planned levy, expected to expire after five years would impose a special 5 percent tax on individuals income between US\$375 and US\$1,872, with an additional flat fee of US\$ 84 on monthly incomes up to US\$3,370, and a second flat fee of US\$131 for monthly incomes above US\$3,370.



## **XIV. Economic Recovery**

### Macroeconomic Overview

The Grenadian economy, growing at an expected four percent in 2004, contracted sharply after the passage of Hurricane Ivan, to negative three percent for the year. This roughly translates to a 24 percent decline in GDP for the fourth quarter 2004.

The economy has recovered in the first eight months of 2005, largely as a result of a construction boom that has driven the economy through significant growth in the sector. At the time of this report, the IMF projected a positive rate of growth for 2005, albeit by about one percent. Annual inflation, typically measured to be around 2 percent was 4.2 percent at the end of September 2005. The economic stimulus from construction as well as private commerce and industry has been an important contributor of growth, as well as source of inflation, and helps compensate for the devastation of the agricultural sector and the contraction of the tourism industry.

### Employment

Prior to Hurricane Ivan, unemployment in Grenada hovered between 12 and 13 percent and represented an important challenge for the government, unemployed youth being a particular issue. The disaster further compounded this problem with an estimated eight percent of employees displaced from their jobs, according to the National Insurance Scheme (NIS). In the immediate aftermath, national unemployment peaked, with more than one in five people out of work. As a result of the ensuing economic boom (particularly in the urban construction sector), unemployment has begun to drop and is now near pre-Ivan levels.

The reconstruction program has led to a shifts in the labor market, with the number of employees in the construction sector increasing dramatically and the number of employees in agriculture and in the hotel/tourism sector shrinking considerably. Construction wages have also risen above pre-Ivan levels in response to the high demand for construction services among the population. One consequence of high demand for construction labor has been the migration of workers from neighboring countries, particularly Guyana. A second consequence has been an increase in construction wages, which has unbalanced the national labor structure. An informal survey of business leaders and government officials indicate that the average daily wage for unskilled labor has increased from EC\$35 per day prior to Ivan to EC\$55 today. Similarly, skilled labor average wage of EC\$80 has increased to EC\$110 over the course of the past year - although recent evidence points to a gradual return to normal levels over recent months.

**Picture 13.1. View of Downtown St. George's**



September 14, 2004



August 21, 2005

In contrast to other sectors, employment in agriculture has been slow to recuperate. Exact figures of those employed in the sector are difficult to ascertain as much of the work is conducted in the informal economy. Regardless, with crops lost twice in the span of 10 months, laborers in the industry have had difficulties finding employment. Moreover, as the majority of nutmeg cultivators are of retirement age, they have been constrained in their efforts to clear their fields and replant lost trees they have been less active in production post-Ivan.

Thus, the recovery has been unbalanced, with urban centers experiencing growth and rural areas experiencing recession. Many urban workers who were unemployed prior to Ivan or had low paying jobs now have much higher construction related incomes.

### Cost of Inputs

An often cited reason for delays in any large scale reconstruction program is difficulties encountered in sourcing materials. Reconstruction in Grenada is no different as suppliers initially had difficulties delivering materials. The main warehouses on the island, severely damaged during Ivan, created initial challenges in the distribution of materials. To overcome this obstacle, site vendors located throughout the country supplied materials before the main distribution centers came back on line. For the first four to six months post-Ivan, distributors faced significant challenges in sourcing supplies, although this has now improved. For the first six months, it is estimated that all suppliers combined could meet only 60 percent of Grenadian market demand. By end March this had risen to 80 percent. Immediately after the passage of Hurricane Emily, nearly 100 percent of demand was met, which remains the case today.

Compounding this obstacle of attracting and distributing materials, high demand in Florida following a particularly active hurricane season, together with China's economic growth and the high price of oil have combined to drive commodities and building

material prices upward. The four serious hurricanes that hit Florida in 2004, as well as Hurricane Katrina have also strongly contributed to not only regional, but global demand for building materials. Major construction supplies imported over the past year, including timber, zinc sheets, galvanized roofing materials, nails and cement have all been affected by appreciating commodity markets.

Demand for a specific building material, including much needed hurricane straps has risen exponentially. These straps, virtually non-existent on the island prior to Ivan,<sup>20</sup> are today being used by every aid organization involved in the reconstruction effort. Moreover, individuals with the financial resources necessary to rebuild their own homes stronger are consistently installing these straps.

Besides the significant increase in the price of commodities and construction materials over the past year, the cost of shipping has also risen. Throughout the region, freight carriers increased their fees on April 15, 2005 by roughly 25 percent, a trend generally attributed to the higher price of oil and increased demand on freight services.

### Conclusion

Overall, significant reconstruction progress has been made in the past year. Recovery is on its way, but much remains to be accomplished if the country is to return to a stable development path. The economy, which contracted by close to 24% in the last semester of 2004, has rebounded thanks to the increased activity in the construction sector, which absorbed a large share of those left unemployed in the aftermath of the disaster.

The reconstruction has been financed from a variety of sources, including the Government budget, insurance proceeds, donors support, concessional credit from private banks, savings and remittances and a debt restructuring program. As of October 2005, donors had disbursed close to US\$100 million and 85% of the country's private creditors had accepted Grenada's debt restructuring offer. For such a massive undertaking—the reconstruction of *an entire country*—coordination of efforts has by and large been successful. Harmonization of efforts through informal channels between donors and the government and line agencies in each sector have also played a critical role in central guidance of the reconstruction effort.

After some mobilization delays, line ministries not typically tasked with major construction work have performed well. Work in the education sector remains the government's main priority. St. George's Hospital is now fully stocked and operational and many of the health centers have been rehabilitated. An Emergency Housing Committee has been established to help guide home repairs and rehabilitation.

The restoration of utility services has been particularly successful. Grenlec, the electricity company, benefited from a regional hurricane recovery program in place before the passage of Ivan, as well as a reserve fund for just such natural disasters.

---

<sup>20</sup> According to an informal survey administered by the Peace Corps, only 2 percent of homes had hurricane straps before Ivan.

The private sector also recovered faster than expected. Tourism, which suffered a loss of nearly 90 percent of revenue during the 2004/2005 season, expects to return to 90 percent of capacity for the 2006 season. The drop of revenue last season was partially offset by a 27 percent increase in cruise-ship passengers. The retail and distribution sector, which rebounded within four months of Ivan, has experienced the most robust recovery. Challenges remain in the manufacturing sector, particularly for smaller and medium scale producers which are still struggling to recapture markets lost in the aftermath of the hurricane.

While urban areas appear to have recovered strongly, rural and agricultural area still face significant problems. The pre-existing decline of the agriculture industry was accelerated by the passage of Hurricane Ivan and compounded by Hurricane Emily ten months later. This general trend, the hurricane damages and socioeconomic factors combine to pose challenges to the recovery efforts. Exacerbating rehabilitation challenges, the destruction of the watershed from Hurricane Ivan has led to the loss of topsoil and nutrients. Runoff was particularly significant as a result of rainfall during Hurricane Emily, which additionally thwarted the sector's recovery.

In the face of all these challenges, balancing the government budget remains a key challenge. Public debt, which measured roughly 110 percent of GDP in 2002 and 2003, had increased to nearly 130 percent of GDP by the end of 2004, leading to a financing gap of 4.5 percent of GDP in 2005. The full recovery of Grenada will depend on the government capacity to address these challenges and on continued assistance from the donor community.

## **Annex 1. Persons Interviewed during the Mission**

---

Lennox Andrews, Deputy Permanent Secretary, Ministry of Finance and Planning  
Richardson Andrews, CEO, Agency for Reconstruction & Development  
Timothy Antoine, Permanent Secretary, Ministry of Finance and Planning  
Rebecca Arias, Representative, UDNP  
Gemma Bain-Thomas, Permanent Secretary, Ministry of Health  
Rob Bateson, DFID  
Andrew Bierzynski, Executive, Western Union  
Ben Brathwaite, Finance Manager, Grenada Electricity Services Ltd.  
Samuel Brathwaite, Financial Manager, Grenada Nutmeg Association  
Ed Butler, Director, Wingerts  
Alvin Cauldin, Representative, Cable and Wireless  
Simeon Collins, Chairman, Grenada Housing Authority and Emergency Committee  
Michael Creft, Deputy General Manager, National Water and Sewerage Authority  
Ian DaBreo, President, Grenada Hotel and Tourism Association  
Selby DaBreo, General Manager, Grenada Solid Waste Management Authority  
Kriss Davis, President, Grensave  
Christopher DeAllie, Deputy General Manager, Sissons Paint  
Ron Dubrisingh, Director Carana  
Ian Evens, Grenada Port Authority  
Sandra Ferguson, Secretary General, Agency for Rural Transformation  
Russ Fielding, Deputy Director, Grenada Hotel and Tourism Association  
Cryilla Germon, President, Bankers Association, RBBT Bank Grenada Ltd.  
Curlan Gilchrist, Director of Statistics, Ministry of Finance  
Carson Gough, Director, Projects Department, Caribbean Development Bank  
Joanne Goulet, Head of Development, CIDA  
Rishi Goyal, IMF  
Margaret Harris, Program Coordinator, OXFAM  
Andrew Hastick, General Manager, Grenada Cocoa Association  
Reynaldo Holder, Representative, PAHO  
Clive Houstain, Acting General Manager, Grenada Electricity Services Ltd.  
Ronald Hughes, Managing Director, Trans-Nemwil Insurance (Grenada) Ltd  
David James, Director, Infrastructure, Agency for Reconstruction & Development  
Craig Keller, Director, PADCO  
Desmond John, Project Officer, European Development Unit  
Nigel John, President, Chamber of Commerce  
Peron Johnson, Project Coordinator, World Bank Project Management Unit  
Allen Joseph, Forestry Department, Ministry of Agriculture  
Raphael Joseph, Foreign Service Officer, Ministry of Foreign Affairs  
Lerona Lewis, National Consultant, Emergency Coordination Unit of FAO  
Alfred Logie, Deputy Director, National Insurance Scheme  
Arturo Lopez, Disaster Consultant, National Disaster Management Agency  
David Louis, Project Officer, Ministry of Works  
Hugo Martinez, Representative, PAHO

Glen McCarvell, Project Manager, Caribbean Development Bank  
Nancy McGuire, Agency for Reconstruction and Development  
Sylvan McIntyre, Disaster Coordinator, National Disaster Management Agency  
Sergio Merinelli, Counselor, EC Delegation in Barbados and the Eastern Caribbean  
Rebecca Revaire, Representative, USAID  
Angus Minors, Executive, Bryden and Minors  
Promil Paul, Director, Economic Recovery, Agency for Reconstruction & Development  
Lyden Ramdanny, Executive, LL Ramdhanny and Co. Ltd  
Alice Roberts, Executive Director, Grenada Hotel and Tourism Association  
Cynthia Rozell, USAID, Grenada Based Management Team  
Deodatt Singh, Financial Director, Huggins and Money Gram  
Tessa Stroud, Chief Planning Officer, Ministry of Health  
Robin Swaisland, Senior Projects Manager, Agency for Reconstruction & Development  
Jeanine Sylvester, Deputy Chief Welfare Officer, Ministry of Social Development  
Dexter Telesford, Project Officer, Caribbean Development Bank  
Cecil Winsborough, National Correspondent, FAO

## **Annex 2. Summary of Donor Activities**

---

### United States Agency for International Development (USAID)

USAID assistance to Grenada, post-Hurricane Ivan, encompasses one relief phase and two recovery phases. The United States Government provided a total of US\$40.3 million in grants to assist in the reconstruction process. The Emergency Relief Program provided emergency supplies in direct support of the government and international organizations. The Phase I Immediate Recovery Program provided assistance to restore and revitalize rural communities and small businesses, including house rebuilding, job training and micro loans. It also supported clean-up activities, repairs to schools and health centers, and the reestablishment of productive and export capacity among small and SMEs. Phase II, the Expanded Recovery Program, now nearing completion, expanded upon these activities.

*Emergency Relief Program:* Immediately following the hurricane, the US Government emergency operations got underway, with the US Office of Foreign Disaster Assistance (OFDA) providing \$2,300,000 for emergency supplies in direct support of the efforts of the Government of Grenada and international organizations, such as the Red Cross, the Salvation Army, and others.

*Phase I Immediate Recovery Program:* As the emergency program was winding down, USAID moved quickly, developed a short-term recovery program valued at \$3,200,000 aimed to immediately restore and revitalize rural communities and small businesses, repair schools and health centers, and reestablish productive and export capacity among SMEs. The Phase I Business Revitalization Component ended on March 31, 2005, and the Phase I Community Revitalization Component ended on May 31, 2005. Activities and achievements under the Phase I Immediate Recovery program are below. Phase 1 funding has been fully expended.

<b>Component</b>	<b>Targets</b>	<b>Achievements</b>
Community Revitalization Contractor: PADCO Amount: \$1.7 million	38 houses repaired 5 land stabilization and clean-up activities 11 medical clinics repaired 4 schools repaired	38 housing repairs completed 5 land clean-up activities completed 11 medical clinics completed 3 primary schools completed and 1 college completed
Grenada Business Revitalization Contractor: Carana Amount: \$1.5 million	638 people trained in job skills 215 micro loans \$400,000 in new loans 215 restructured loans \$400,000 in restructured loans	805 people trained 319 firms received micro loans \$589,952 in new loans 252 restructured loans \$537,379 in restructured loans
Support for Government Operations Contractor: Wingerts Consulting	Start-up activities	Start-up activities completed

*Phase II. Expanded Recovery Program:* In November 2004, the U.S. Congress approved a \$40.3 million supplemental reconstruction program for Grenada, which expands on the activities introduced in the Phase I program. This program is in full execution rebuilding infrastructure, revitalizing the business sector and restoring economic management capacity. The Phase II program is scheduled to end on December 31, 2005. To date, \$23,689,000 (59 percent) of the funding has been expended. Activities and achievements to date under this program are shown below.

<b>Component</b>	<b>Targets</b>	<b>Achievements to Date</b>
Community Rehabilitation Contractor: PADCO Amount: \$13.379 million	675 houses repaired, 60 new houses built, 5 tourist sites repaired*, 4 community centers repaired*, 1 drug rehab center repaired	558 houses repaired, 41 houses under construction, 1 site repaired, 2 centers repaired, Repair pending
Grenada Business and Agriculture Rehabilitation Contractor: Carana Amount: \$8.016 million	1,600 people trained in job skills, 200 SME's received technical assistance (TA), 200 SME grants (with TA)*, 1,482 farms, agri-businesses, fisheries benefit from grants*	1,438 people trained to date, 269 SME's received technical assistance, 187 SME grants (with TA), 967 farms, agri-businesses and fisheries benefit from grants
School Rehabilitation and Re-supply Contractor: PADCO Amount: \$8.942 million	20 schools repaired, More than 3,000 students and 250 teachers benefited from program	8 C-CETT schools completed and 9 non-C-CETT schools repaired totals 17 schools repaired. 4,345 students and 213 teachers benefiting to date
Support for Government Operations Contractor: Wingerts Amount: \$8.0 million	GOG commercial debt restructured, ARD staffed and coordinating recovery assistance, GOG budget supported to maintain basic operations	GOG offer to commercial creditors launched 9/9/05, ARD staffed and coordinating assistance within GOG, \$4,068,720 reimbursed to GOG for basic operations

### Caribbean Development Bank (CDB)

The Caribbean Development Bank sponsored several projects in direct relation to Hurricane Ivan. Under CDB's Operational Guidelines for Natural Disaster Management, in event of a declaration of a disaster in any of its borrowing member countries, CDB may approve a grant funds to CDERA to assist in undertaking rapid disaster assessment and providing emergency aid. A US\$500,000 Natural Disaster Mitigation Immediate Response Project, for the clearing and cleaning of affected areas and emergency restoration of services was granted on a concessional basis to Grenada. A second intervention, the US\$8 million Hurricane Reconstruction Support Loan provided assistance in meeting financial obligations in order to sustain an economic recovery program disbursed roughly US\$4.3 million of funds. Third, the Basic Needs Trust Fund, financed by CIDA and the CDB, was reformulated to fund the rehabilitation of educational facilities identified in collaboration with local communities and prioritized by the Government. Finally, CDB modified ongoing assistance, reallocating priorities in bridge and road improvement as well as schools rehabilitation projects.



### UK Department for International Development (DFID)

DFID funded relief operations after Hurricane Ivan included food and shelter material distribution through the International Federation of the Red Cross (IFRC), livestock distribution, house repair and education through Christian Aid, and farm clearance through OXFAM. The majority of DFID funding has been put to budget support, with funds directly disbursed to the Grenadian government, but DFID has also funded the provision of school furniture and technical assistance for an Education Sector Plan. Finally, through PAHO, DFID has supported health service stock replenishment, disease surveillance, psychological counseling and reconstruction of the roof of the Richmond elderly/special needs home.

### The World Bank

The World Bank Reconstruction Program involves four ongoing projects and a new Hurricane Ivan Project. Loan balances from the four ongoing projects were reallocated to meet reconstruction needs resulting from Ivan, including the reallocation of US\$5.3 million of existing funds under the OECS Education Development Project, US\$1.3 million from the HIV/AIDS Control and Prevention Project, US\$450,000 from the Emergency Recovery Project and US\$2.95 million from the Emergency Recovery and Disaster Management Project. In addition, a new project was created, which funds three main components, including: (i) critical imports, such as low-sulphur diesel fuel, chainsaws, tire shredder and mobile bailer for solid waste disposal; (ii) education, which has financed ongoing work to rehabilitate several schools and (iii) health, which has financed repairs to the hospital, central medical stores, and the purchase of equipment.

### European Union

The EU contribution to Hurricane Ivan relief has focused on education, by funding school repairs. The EU has signed a framework agreement with the World Bank to administer roughly US\$10 million of funds through a trust fund. In addition, EU assistance has included a project for water pipeline rehabilitation and institutional strengthening of the water authority, as well as small interventions in the agricultural sector through the Special Framework for Assistance (SFA).

### Canadian International Development Agency (CIDA)

In the immediate aftermath of Hurricane Ivan, CIDA worked primarily to support international appeals and humanitarian relief through OXFAM and the International Federation of the Red Cross (IFRC). A large portion of CIDA funding is now allocated for the management and administration of the Grenada Reconstruction & Development Fund through the Agency for Reconstruction and Development (ARD). Other ongoing projects include grants to support cocoa farming, forestry, fishing, plant propagation and the poultry industry through the FAO, and the strengthening of NaDMA by CDERA including several post-disaster, system review exercises, including regional review exercises. Canadian funding has also supported NGO's & CBOs through the Canada Fund for Local Initiatives, and re-profiled social infrastructure projects under CDB BNTF Basic Needs Trust Fund envelope. A Canadian contribution to BNTF for Grenada will fund pre-primary/nursery schools & day care centers.

### United Nations Development Program (UNDP)

The UNDP deployed a Rapid Needs Assessment Team, the UN Disaster Assistance Committee and a Bureau of Crisis Prevention and Recovery (BCPR) Team to Grenada after Hurricane Ivan to conduct national and sector assessments, assist with communications and logistics and coordinate external assistance. UNDP also assisted with the preparation of donor conferences, organized and launched a 'flash appeal' to mobilize financing for the emergency period, and assisted with the creation of a national development plan. Additional financing has been allocated for capacity building, rural development and reconstruction and strengthening of governance systems. Further additional funding was allocated after Hurricane Emily for a macro-assessment, training in hurricane resistant building techniques and a core-welfare indicators survey.

### Annex 3. Summary of Donor Contributions

(All numbers are in thousands of US Dollars; G- Grant; L- Loan; M-Mix of Loan and Grant)

<b>United States Agency of International Development</b>				
<b>SECTOR</b>	<b>Terms of Aid</b>	<b>Reallocated Commitments</b>	<b>New Commitments</b>	<b>Disbursed</b>
<b>Budget Support</b>	G		8,000.0	See Annex 2
<b>Agriculture</b>	G		2,000.0	
<b>Education</b>	G	300.0	9,050.0	
<b>Health</b>	G	486.0		
<b>Housing</b>	G	1,150.0	13,150.0	
<b>Manufacturing</b>	G	1,928.0	3,500.0	
<b>Tourism</b>	G		2,500.0	
<b>Water/Sewage</b>	G		500.0	
<b>Other/Multi Sector</b>			1640.0	
<b>TOTAL</b>		<b>3,864.0</b>	<b>40,340.0</b>	<b>23,689.0</b>

<b>Caribbean Development Bank</b>				
<b>SECTOR</b>	<b>Terms of Aid</b>	<b>Reallocated Commitments</b>	<b>New Commitments</b>	<b>Disbursed</b>
<b>Critical Imports</b>	L		8,100.0	4,285.0
<b>Emergency Assistance</b>	L	107.0	500.0	480.0
<b>Project Support</b>			100.0	
<b>Agriculture</b>	L	2,339.0		58.0
<b>Education</b>	L	2,213.0		180.0
<b>Transport</b>	L	17,095.0		13,169.0
<b>Other/Multi Sector</b>	G	2,722.0		
<b>TOTAL</b>		<b>24,476.0</b>	<b>8,700</b>	<b>18,172.0</b>

<b>UK Department for International Development</b>				
<b>SECTOR</b>	<b>Terms of Aid</b>	<b>Reallocated Commitments</b>	<b>New Commitments</b>	<b>Disbursed</b>
<b>Budget Support (1)</b>	G		10,000.0	10,000.0
<b>Emergency Assistance (2)</b>	G		1,484.2	1,447.0
<b>Project Support</b>	G	730.0		
<b>Agriculture (3)</b>			38.2	38.2
<b>Education (4)</b>		630.0	145.5	145.5
<b>Health (5)</b>			154.5	154.5
<b>Other/Multi Sector (6)</b>		50.0	8.1	8.1
<b>TOTAL</b>		<b>1,410.0</b>	<b>11,830.0</b>	<b>11,793.3</b>

\* Using an exchange rate of 1GBP= US\$0.55

- (1) Grenada Emergency Program Aid
- (2) Support for Grenada Harmonized Reporting consultancy, emergency relief supplies, emergency help through the International Federation of the Red Cross, relief and rehabilitation through Christian Aid and relief operations through Oxfam
- (3) Assessment to Forestry Damage
- (4) Grenada OECS Education Development Project (post Ivan component)
- (5) Health services through the Pan-American Health Organization
- (6) Grenada Government Buildings Assessment

<b>The World Bank</b>				
<b>SECTOR</b>	<b>Terms of Aid</b>	<b>Reallocated Commitments</b>	<b>New Commitments</b>	<b>Disbursed</b>
<b>Critical Imports</b>	M	450.0	2,000.0	2,450.0
<b>Project Support</b>	M		500.0	300.0
<b>Disaster Management</b>	M	2,950.0		2,950.0
<b>Education</b>	M	5,300.0	5,000.0	3,250.0
<b>Health</b>	M	1,300.0	2,500.0	430.0
<b>TOTAL</b>		<b>10,000.0</b>	<b>10,000.0</b>	<b>9,380.0</b>

<b>European Union</b>				
<b>SECTOR</b>	<b>Terms of Aid</b>	<b>Reallocated Commitments</b>	<b>New Commitments</b>	<b>Disbursed</b>
<b>Education</b>	G	1,980.0	10,290.0	N/A
<b>TOTAL</b>		<b>1,980</b>	<b>10,290.0</b>	<b>0</b>

<b>Canadian International Development Agency</b>				
<b>SECTOR</b>	<b>Terms of Aid</b>	<b>Reallocated Commitments</b>	<b>New Commitments</b>	<b>Disbursed</b>
<b>Budget Support</b>	G	800.0	4,000.0	
<b>Emergency Assistance</b>	G	1,344.0		
<b>Project Support</b>	G	100.0		
<b>Agriculture</b>	G	1,680.0		1,344.0
<b>Disaster Management</b>			1,344.0	940.0
<b>TOTAL</b>		<b>3,924.0</b>	<b>5,638.0</b>	<b>2,548.0</b>

\* Using an exchange rate of CAD\$1= US\$0.84

<b>UNDP</b>				
<b>SECTOR</b>	<b>Terms of Aid</b>	<b>Reallocated Commitments</b>	<b>New Commitments</b>	<b>Disbursed</b>
<b>Emergency Assistance</b>	G		1625.0	1625.0
<b>Project Support</b>	G	13.0	400.0	
<b>Agriculture</b>	G	30.0	1300.0	
<b>Tourism</b>	G	30.0		
<b>TOTAL</b>		<b>73.0</b>	<b>3,325.0</b>	<b>1,625.0</b>



## **THE WORLD BANK**

**Disaster Risk Management Unit  
Latin America and The Caribbean Region**

1818 H Street, N.W.  
Washington, DC 20433 USA

World Wide Web: <http://www.worldbank.org>