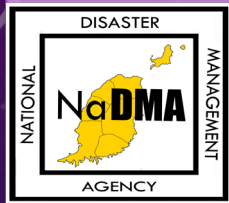


Impact of Natural Disasters on Grenada



By Roxanne Bonaparte

Hazards that have impacted Grenada Recently



HURRICANE IVAN

- Date: September 7, 2004
- Wind speed: 120mph, gust 135mph
- Classified : Category 3 hurricane

Assessment

- ❖ 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.
- ❖ 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) gave us some of the data we will look at today.

ESTIMATED DAMAGE AND LOSS

- **Gross Domestic Product:** Over US\$800 Million in damages. The cost of the damages was twice Grenada's GDP

The total damage of Hurricane Ivan is estimated to be 2,4 billion EC\$, that is more than twice the current value of GDP. The bulk is concentrated in direct damages. These account for 89% of the damage, 201% of GDP. For its part indirect damage accounts for 11% of the damage (26% of GDP)

The results highlight the fact that, as described in this report, most of the damage was concentrated in infrastructure and in particular in housing, as 89% of the housing stock registered some or other type of damage caused by the Hurricane.

SUMMARY OF DIRECT AND INDIRECT DAMAGES IN EASTERN CARIBBEAN DOLLARS

Sector	Direct Damage	Indirect Damage	Total
Agriculture	54	46	100
Manufacturing	18	4	22
Wholesale and retail trade		11	11
Tourism	305	101.2	406.2
Electricity	70	21	91
Water/Sewage	7	1	8
Telecommunication & broadcasting	76.5	62.4	138.9
Cable	8	5	13
Education	195	1	196
Transportation	10.3	1.2	11.5
Housing	1,372	9	1381
Health	11	0	11
Total	2,127	263	2389.6

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.
- Just under 28,000 houses or 89% of the country's housing stock of 31,122 houses have been damaged by Hurricane Ivan. Near 10,000 houses, or 30%, have been so badly damaged that they require complete replacement.
- Approximately 22,000 or 70% require repair. The cost of damage to the housing sector has been estimated at **\$EC1,380 million dollars**, 36% represents costs of repair and 64% reconstruction costs.

EDUCATION

All but two of the primary and secondary schools were affected

Damage to the education sector was second only to the housing sector in its severity. The estimated cost to the sector is **\$EC196 million dollars**, A more correct figure however, would be approximately **\$EC215 million**. This figure would accurately reflect the damage to the entire network of schools and skills training institutions in the country.

HEALTH

11 health facilities, including the second largest hospital, were seriously damaged. The damage to the major public hospitals, health centers and other health care institutions has been estimated at **\$EC 11 million dollars** following the aftermath of hurricane Ivan.

The medical laboratory at the two hundred bed St. George's General hospital suffered the worst damage within the hospital compound; the laboratory lost approximately 40 % of its roof, 25 % windows, and all reagents.

ENVIRONMENT

Environment Asset	Intensity of Damage	Extent of Damage	Function of Asset	Duration of Impact	Recovery of Asset
Mangroves	Medium	70%	Adverse Effect	Short to Medium term	Natural/requires appropriate environmental protection measures
Sea grass beds	Minor	<10%	No Effect	Short term	Natural
Coral reefs	Minor	<10%	No Effect	Short Term	Natural
Beaches	Major	>50%		Short /medium term	Natural
Forest & natural vegetation	Extreme	100%	Intense impairment of the functioning of the Asset	Long term	Irreversible damage. Requires concentrated Environmental protection measures
Wildlife	Extreme	100%	Impairment of the functioning of the asset	Medium to long term	Requires concentrated Environmental protection measures
fisheries	Minor	<10%	No Effect	Potential medium to long term impact	Natural

TOURISM

Tourism: 70 percent of the hotel infrastructure was rendered inoperable.

Hurricane Ivan severely affected the performance of the tourism industry. The sector suffered both direct and indirect damages. The former refer to damages suffered by productive assets, equipment, inventory and soft furnishings at the time of the disaster.

Indirect damages refer to damages that are a result of the interruption to the flows of goods and services and income. It is defined as the sum of income foregone and increases in costs and expenditures. More to the point indirect effects are a combination of supply side and demand side effects

AGRICULTURE

- **Nutmeg crop:** nearly 85 percent of the (Grenada is the second biggest nutmeg producer in the world) was affected and 60 percent was completely destroyed.
- **Banana crop:** The hurricane also destroyed virtually the entire banana for the year. The banana industry, which has some level of importance both for local consumption and export was demolished. The 350 acres grown throughout the parishes suffered 100 percent damage. The total estimated damage to the industry is estimated to be EC\$1,440,134.

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.

AGRICULTURE

- Cocoa trees: The extensive cocoa building infrastructure used for buying, propagation and servicing the industry suffered substantial damage. The estimated value of the damage, which includes the private operators, such as Belmont, which is also a tourist attraction is approximately EC\$1.8 million. The effect on employment is expected to be drastic on all dependents of the industry along the commodity chain.

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AGRICULTURE

- The minor fruits which include sapodilla, papaya, passion fruit, golden apple and others were demolished. They were either uprooted, toppled or scorched beyond regeneration. The damage to minor fruits is estimated at EC\$2,792,000.
- Citrus also suffered similar type damage to the other tree crops. Of the 120 acres planted island-wide, 18.50 acres were destroyed. The estimate of direct and indirect cost for citrus is EC\$2,610,623.

MANUFACTURING SECTOR

- The manufacturing sector in Grenada is relatively small, accounting for approximately 6.0 per cent of GDP. The sector is dominated by the production of beverage and tobacco; garments; grain mill products and bakery products; and chemicals and paints.
- the direct damage is much higher than the indirect damage, and this is associated with the high cost of buildings and equipment. The direct damage to the sector was estimated at \$17 million EC\$ and the indirect cost at \$4 million EC\$.

LIMITATIONS OF THE REPORTS

This report was undertaken over a four day period, twelve days after Hurricane Ivan swept through the island.