

ND1: NATURAL DISASTERS BY YEAR**PH****Concept and Definition**

A *disaster* is a situation or event, which overwhelms local capacity, necessitating a request to the national or international level for external assistance or an unforeseen and often sudden event that causes great damage, destruction and human suffering. (Please refer to *International Strategy for Disaster Reduction's website at <http://www.unisdr.org/disaster-statistics/introduction.htm>*.)

A *natural disaster* is a physical natural event that kills people or overwhelms local capacity for damage control or recovery. Natural disasters include avalanches, floods, hurricanes, tropical storms, earthquakes, cyclones, torrential rains, volcanic eruptions, typhoons, droughts, landslides, mudslides, fires, blizzards and tsunamis, to name a few.

Categories

Dead refers to persons confirmed dead and persons missing and presumed dead.

Injured refers to people suffering from physical injuries, trauma or an illness requiring medical treatment as a direct result of a disaster.

Missing: A person is considered missing when someone reports to the police that they are not reasonably aware of the whereabouts of the missing person since the disaster struck.

Homeless: These are persons who are in need of immediate assistance in the form of shelter as a consequence of a disaster.

Affected people: People requiring immediate assistance during a period of emergency, i.e. requiring basic survival needs such as food, water, shelter, sanitation and immediate medical assistance

Total Affected: Appearance of a significant number of cases of an infectious disease introduced in a region or a population that is usually free from that disease.

Damages refer to the economic impacts that disasters usually have on the local economy. The consequences of the disaster may be either direct (damage to infrastructure, crops, housing, etc) or indirect (loss of revenues, unemployment, market destabilisation, etc).

International Agreed Glossary of Basic Terms Related to Disaster Management (1992)
UN-DHA, IDNDR, Geneva

Method of Computation

The date that the disaster started establishes the date when the disaster occurred. For sudden-impact disasters, the

date that the disaster started is the onset date, while for gradually developing disasters, the date that the disaster started is the date of the first call for national or international assistance. The *starting date* for disasters that develop over time is gathered from scientific and governmental sources.

The *disaster type* describes the disaster according to a pre-defined classification scheme. The *disaster type* may be classified as sudden onset (such as earthquakes and floods) or long-term onset (such as drought). In addition, two or more disasters may be related or other disasters may occur as a consequence of a primary event. In cases such as these, each disaster is counted and recorded individually.

The *total population affected* covers all casualties, as well as individuals whose basic requirements for food, shelter, water, sanitation and medical attention are adversely affected.

Damages refer to the value of all damages and economic losses directly related to the occurrence of a disaster. There is no standard procedure for determining the global figure for the economic impacts of a disaster, but the host government, the United Nations and other major non-governmental organizations quantify the losses using methodologies that have been developed specifically for their domain.

Indicator Relevance

Natural disasters cause loss of life; disruption of economic activities and urban productivity; major resettlement of populations; and environmental change, such as loss of fertile agricultural land and water contaminations. In addition, the growing vulnerability of populations (population pressures on land, increasing urbanization and risky land use, marginalization of populations, civil unrest, etc) implies that the impacts of disaster events are becoming greater. At the same time, decreasing national and donor budgets to the prevention of natural disasters reflect the need for better planning, preparedness and coordination.

The value of this indicator is a function of the different factors that define the risk of death and damage, that is, the frequency of events; the size of the population and capital in the affected area; and the capacity of the local population and government to prevent or respond to future disasters. The indicator, natural disasters by year, also lends itself for use in development assessment that takes into account the yearly changes in the aforementioned areas.

Data Assessment

Of the eighteen (18) Member States and Associate Members in the Community who submitted data under the CARICOM Programme, nine (9), provided data for this indicator. The nine (9), countries were the Bahamas, Belize, Dominica, Guyana, Jamaica, Saint Lucia, Trinidad and Tobago, Bermuda and The Turks and Caicos Islands. The data provided by these countries for this indicator were sparse and contained numerous gaps.

Usually, when two or more disasters are related or other disasters occur as a consequence of a primary event, each disaster is counted and recorded individually. Dominica reported three concurrent hurricanes in 1995 as one natural disaster.

Data Sources

Data for this indicator were obtained from the Central Statistical Offices of the individual Member States and Associate Members. Details are given in **Appendix 2.4.1**.

Evaluation

Table 4.1 shows the natural disasters occurring in the Region by year and type and other variables. Data was reported for seven Member States and two Associate Members. The most common types of disasters occurring in the Region were *Hurricanes* and *flooding*.

Among Member States, Jamaica reported ten (10) events since 1991 of which flooding and earthquakes were most common. A tropical storm in 1994 affected 4 families and flooding in 1995 affected 416 families while torrential rains in 1998 left 3 persons dead. Flooding damages were estimated at US\$24.87 million in 1991, US\$7.07 million in 1995, US\$3.21 million in 1993 while an earthquake in 1993, a tropical storm in 1994 and torrential rains in 1998 caused an estimated total of US\$7.03 million in damages.

Trinidad and Tobago also reported ten (10) events consisting eight (8) floods, one (1) earthquake and one (1) Hurricane. Floods occurred in 1990, 1991, 1993, 1996, 1999, 2000, 2002 and 2004 leaving 18 casualties among which 16 persons died and 2 persons were injured. Damages from the floods were an estimated US\$43.8 million throughout the period with the heaviest damage estimated at US\$31.9 million in 2004. The earthquake in 1997 caused US\$2.88 million in damages with no reported casualties while the Hurricane in 2004 affected 1,000 persons of which 22 persons were left homeless and one fatality. Damages from this hurricane were estimated to be US\$4.90 million.

Nine (9) disasters were reported for Saint Lucia including three Tropical Waves in 1996, 1998 and 2003, two (2) Tropical Storms in 1994 and 2002, two (2) hurricanes which occurred in 1999 and 2004 and two (2) landslides. The highest reported casualties in this Member State were, 125 families homeless after the Tropical storm in 2002 followed by 102 families homeless after the 1999 Landslip, 49 persons homeless after the 1999 Landslide, 3 families homeless and 1 fatality following the Tropical Wave in 1998. Natural disasters caused an estimated US\$107.73 million in damages with the highest (US\$85.19 million) reported in 1994 after the tropical storm.

The Bahamas reported seven (7) hurricanes disasters from 1992 to 2004 which left 6 persons dead, 4 in 1992, 1 in 1999 and another in 2004. Persons affected by flooding, power outage or general inconvenience totalled 1,143,862 ranging from 16,443 persons after Hurricane Lili in October 1996 to 303,611 following Hurricane Floyd in September 1999. The estimated damages following Hurricanes Frances and Jeanne in 2004 totalled US\$200 million with Hurricanes Frances reportedly the most expensive.

Dominica reported six (6) natural disasters including four (4) Hurricanes in 1979, 1989, 1995 and 1999, one (1) tropical storm in 1994 and one (1) Earthquake/Landslide in 2004. The Hurricane in 1979 caused devastation to 75,000 persons leaving 60,000 homeless, 3,000 injured and 42 dead and an estimated US\$32.15 million in damages. Three (3) hurricanes in 1995 left one fatality and US\$135.56 million in damages while the hurricane in 1999 displaced 602 persons and caused US\$11.48 million in damages. The Earthquake/Landslide in 2004 left 19,527 persons homeless and caused an estimated US\$33.33 million worth of damages. In the Central American region, Belize reported Hurricane Keith in 2000 and Hurricane Iris in 2001 where a total of 93,289 persons were affected and damages estimated at US\$380 million. Among the casualties of Hurricane Mitch were 3,279 homeless and 10 dead while Hurricane Iris left 5 persons injured and 23 persons dead. Guyana reported one (1) flood in 2005 which left 34 persons dead and 354,718 persons affected.

During the period 1960 to 2004, Associate Member The Turks and Caicos Islands reported seven (7) disasters which included four (4) Tropical storms occurring in 1995, 2001, 2003 and 2004 and three (3) Hurricanes in 1960, 1985 and 2004. Bermuda reported one (1) disaster, Hurricane Fabian in 2003 which affected 50,000 persons, leaving 4 persons dead and causing an estimated US\$300 million in damages.

Table 4.1 - Natural Disasters by year: 1960 – 2005

Country	Year	Disasters			Total casualties					Total population affected (number)	Affected persons by flooding, power outage, or general inconvenience	Damage (US\$ million)
		Type of disaster	Name of disaster	Date started	Total	Dead	Injured	Missing	Homeless			
BS	1992	Hurricane	Andrew	17-Aug	...	4	...	0	...	...	192,596	...
	1995	Hurricane	Erin	31-Jul	...	0	...	0	...	...	60,203	...
	1996	Hurricane	Lili	18-Oct	...	0	...	0	...	...	16,443	...
	1999	Hurricane	Floyd	13-Sep	...	1	...	0	...	...	303,611	...
	2001	Hurricane	Michelle	4-Nov	...	0	...	0	...	...	227,567	...
	2004	Hurricane	Frances	1-Sep	...	1	...	0	...	...	283,278	150,000,000.00
	2004	Hurricane	Jeanne	25-Sep	...	0	...	0	...	...	60,164	50,000,000.00
BZ	2000	Hurricane	Mitch	28-Oct	3,289	10	...	...	3,279	57,400	...	280.00
	2001	Hurricane	Iris	08-Oct	28	23	5	0	0	35,889	...	99.50
DM	1979	Hurricane	...	29-Aug	63,042	42	3,000	...	60,000	75,000	...	32.15
	1989	Hurricane	...	17-Sept	...	...	...	...	...	...	...	25.56
	1994	Tropical Storm	...	...	...	...	...	...	...	...	...	11.11
	1995	Hurricane	...	27-Aug 05-Sept	...	1	...	...	...	...	...	135.56
	1999	Hurricane	...	18-Sept	...	...	...	...	...	602	...	11.48
	2004	Earthquake/ Landslide	...	21-Nov	...	0	...	0	...	19,527	...	33.33
GY	2005	Floods	...	16-Jan	...	34	...	...	...	354,718	...	...
JM	1991	Flooding	...	...	...	0	...	...	...	...	...	24.87
	1992	Earthquake	...	...	...	0	...	...	...	...	...	...
	1993	Flooding	...	...	...	0	...	...	...	...	...	3.21
	1993	Earthquake	...	...	...	0	...	...	...	...	...	0.62
	1994	Tropical storms	...	...	...	0	...	...	4 families	...	...	0.11
	1995	Flooding	...	...	...	0	...	...	416 families	...	...	7.07
	1996	Flooding	...	Nov	...	...	...	...	...	...	...	...
	1996	Landslides	...	...	...	...	...	...	...	...	...	...
	1996	Earthquakes	...	...	...	...	...	...	...	...	...	...
	1998	Torrential rains	...	...	...	3	...	...	...	0	...	6.30

Table 4.1 Contd. Natural Disasters by year: 1960 – 2005

Country	Year	Disasters			Total casualties					Total population affected (number)	Affected persons by flooding, power outage, or general inconvenience	Damage (US\$ million)
		Type of disaster	Name of disaster	Date started	Total	Dead	Injured	Missing	Homeless			
LC	1994	Tropical Storm	...	09-Dec	...	3	...	...	...	...	...	85.19
	1996	Tropical Wave	...	26-Oct	...	0	...	...	...	...	...	4.44
	1998	Landslide	...	14-Oct	49	0	...	...	49	...	...	...
	1998	Tropical Wave	...	21-Oct	...	1	...	...	3 families	...	...	0.23
	1999	Landslip	...	01-Sep	...	0	...	...	102 families	...	...	0.37
	1999	Hurricane	...	09-Nov	...	0	...	...	...	...	...	6.26
	2002	Tropical Storm	...	22-Sep	...	0	...	...	125	...	...	7.52
	2003	Tropical Wave	...	07-Jul	...	0	...	...	0	...	...	1.14
2004	Hurricane	...	09-Sep	...	0	...	...	0	...	...	2.59	
TT	1990	Flood	...	15-Dec	2	2	...	...	...	...	...	1.65
	1991	Flood	...	08-Mar	1	1	...	...	...	...	...	...
	1993	Flood	...	10-May	6	6	...	...	...	...	...	...
	1996	Flood	...	23-Jul	3	3	...	...	...	...	...	...
	1997	Earthquake	...	22-Apr	...	...	...	...	...	...	...	2.88
	1999	Flood	...	16-Aug	1	1	...	...	...	...	...	...
	2000	Flood	...	26-Nov	...	...	...	...	...	...	...	...
	2002	Flood	...	11-May	...	...	...	...	...	...	...	10.30
	2004	Hurricane	...	11-Jul	23	1	...	...	22	1000	...	4.90
2004	Flood	...	11-Dec	5	3	2	...	...	...	...	31.89	
ASSOCIATE MEMBERS												
BM	2003	Hurricane	Fabian	09-May	4	4	...	...	...	50000	...	300.00
TC	1960	Hurricane	Donna	...	...	...	...	...	...	...	...	...
	1985	Hurricane	Kate	...	...	...	...	...	...	...	...	...
	1995	Tropical Storm	Erin	...	0	0	0	0	0	0	...	...
	2001	Tropical Storm	Dean	Aug	0	0	0	0	0	0	...	...
	2003	Tropical Storm	Mindy	Oct	0	0	0	0	0	0	...	...
	2004	Hurricane	Frances	Sep	0	0	0	0	0	0	...	...
	2004	Tropical Storm	Jeanne	Sep	0	0	0	0	0	0	...	...

Appendix 1.4 Exchange Rates

1.4.1 National Currency Per United States Dollar

COUNTRY	NATIONAL CURRENCY	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
THE BAHAMAS	Bahamas Dollar - B\$	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
BARBADOS	Barbados Dollar - Bd\$	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
BELIZE	Belize Dollar - BZ\$	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
GUYANA	Guyana Dollar - G\$	48.26	118.54	124.95	126.85	138.89	141.85	140.05	141.93	150.46	177.07
JAMAICA	Jamaica Dollar - J\$	7.18	12.76	22.89	25.58	33.16	35.35	36.88	35.48	36.52	39.18
SURINAME	Suriname Guilder - Sf	1.79	1.79	1.79	74.12	201.05	412.00	406.00	406.00	406.00	995.00
TRINIDAD AND TOBAGO	Trinidad and Tobago Dollar - TT\$	4.25	4.25	4.25	5.34	5.87	5.89	5.99	6.25	6.28	6.27
OECS COUNTRIES	EC\$	2.70	2.70	2.70	2.70	2.70	2.70	2.70	2.70	2.70	2.70

1.4.1 Contd. National Currency Per United States Dollar partitions

COUNTRY	NATIONAL CURRENCY	2000	2001	2002	2003	2004	2005	2006
THE BAHAMAS	Bahamas Dollar - B\$	1.00	1.00	1.00	1.00	1.00	1.00	1.00
BARBADOS	Barbados Dollar - Bd\$	2.00	2.00	2.00	2.00	2.00	2.00	2.00
BELIZE	Belize Dollar - BZ\$	2.00	2.00	2.00	2.00	2.00	2.00	2.00
GUYANA	Guyana Dollar - G\$	181.01	187.11	190.60	195.34	199.79	199.88	201.09
JAMAICA	Jamaica Dollar - J\$	43.19	46.10	48.07	58.24	60.99	61.99	65.87
SURINAME	Suriname Guilder - Sf	1339.20	2200.00	2349.98	2628.33	2733.58	2.73	2.74
TRINIDAD AND TOBAGO	Trinidad and Tobago Dollar - TT\$	6.28	6.20	6.21	6.26	6.27	6.27	6.28
OECS COUNTRIES	EC\$	2.70	2.70	2.70	2.70	2.70	2.70	2.70

Notes:

Guyana: 1991-2002 are average annual Market Exchange mid-rates.
 Jamaica: Mid rates calculated from the Purchases and Sales rates
 Trinidad and Tobago: TT/US rates are mid-rates (average of buying and selling rates)

Sources:

Guyana: 1991-2002 Statistical Bulletin (BOG)
 Jamaica: Statistical Digest, Dec 94, Sep 95, Dec 96, Dec 97, Dec 98, Nov 99, May 2000, Jan 2003(BOJ)
 Trinidad and Tobago: 1980-1985: Central Bank of Trinidad and Tobago
 1986-1998: The Balance of Payments of Trinidad & Tobago, 1991, 1998 (Central Bank of T&T)
 1999-2001 www.central-bank.org.tt
 2002 www.central-bank.org.tt (TT Dollar Exchanges Rates)
 Annual Economic Survey 2004
 Jamaica: Bank Of Jamaica Website, http://www.boj.org.jm/exchange_rates_annual.php

Appendix 2.4

2.4.1 (a) Sources of Data for Table 4.1 - Natural Disasters by Year: 1960 - 2005

Country	Data Source
THE BAHAMAS	Bahamas Department of Meteorology and Department of Statistics
BELIZE	Land Information Centre and Ministry of Natural Resources
DOMINICA	Disaster Coordinating Unit and OECS Macro-socio Economic Assessment
GUYANA	Bureau of Statistics
JAMAICA	Statistical Institute of Jamaica
SAINT LUCIA	National Emergency Management Office
TRINIDAD AND TOBAGO	Central Statistical Office
BERMUDA	Department of Statistics
THE TURKS AND CAICOS ISLANDS	Hurricane Command Centre

2.4.1 (b) Notes for Table 4.1 - Natural Disasters by Year: 1960 - 2005

Country	Notes
DOMINICA	A combined assessment was done for the landslide and earthquake in 2004 since the occurrence was about the same time.
BERMUDA	Total population affected represents only persons in households who lost electricity.