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ECLAC SUBREGIONAL HEADQUARTERS FOR THE CARIBBEAN

FOCUS

Newsletter of the Caribbean Development and Cooperation Committee (CDCC)

WHAT'S INSIDE:

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ABOUT ECLAC/CDCC

The Economic Commission for Latin America and the Caribbean (ECLAC) is one of five regional commissions of the United Nations Economic and Social Council (ECOSOC). It was created in 1948 to support Latin American governments in the economic and social development of that region. Subsequently, in 1966, the Commission (ECLA, at that time) established the Subregional Headquarters for the Caribbean in Port of Spain to serve all countries of the insular Caribbean, as well as Belize, Guyana and Suriname, making it the largest United Nations body in the subregion.

At its sixteenth session in 1975, the Commission agreed to create the Caribbean Development and Cooperation Committee (CDCC) as a permanent subsidiary body, which would function within the ECLA structure to promote development cooperation among Caribbean countries. Secretariat services to the CDCC would be provided by the Subregional Headquarters for the Caribbean. Nine years later, the Commission's widened role was officially acknowledged when the Economic Commission for Latin America (ECLA) modified its title to the Economic Commission for Latin America and the Caribbean (ECLAC).

Key Areas of Activity

The ECLAC Subregional Headquarters for the Caribbean (ECLAC/CDCC secretariat) functions as a subregional think-tank and facilitates increased contact and cooperation among its membership. Complementing the ECLAC/CDCC work programme framework, are the broader directives issued by the United Nations General Assembly when in session, which constitute the Organization's mandate. At present, the overarching articulation of this mandate is the Millennium Declaration, which outlines the Millennium Development Goals.

Towards meeting these objectives, the secretariat conducts research; provides technical advice to governments, upon request; organizes intergovernmental and expert group meetings; helps to formulate and articulate a regional perspective within global forums; and introduces global concerns at the regional and subregional levels.

Areas of specialisation include trade, statistics, social development, science and technology, and sustainable development; while actual operational activities extend to economic and development planning, demography, economic surveys, assessment of the socio-economic impacts of natural disasters, data collection and analysis, training, and assistance with the management of national economies.

The ECLAC Subregional Headquarters for the Caribbean also functions as secretariat for the Programme of Action for the Sustainable Development of Small Island Developing States (SIDS POA). The scope of ECLAC/CDCC activities is documented in the wide range of publications produced by the Subregional Headquarters in Port of Spain.

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ASSOCIATE MEMBER COUNTRIES:

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British Virgin Islands
Montserrat
Netherlands Antilles
Puerto Rico
Turks and Caicos Islands
United States Virgin Islands

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Regular Features

FOCUS: ECLAC in the Caribbean is a publication of the Economic Commission for Latin America and the Caribbean (ECLAC) Subregional Headquarters for the Caribbean/Caribbean Development and Cooperation Committee (CDCC).

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DISASTER ASSESSMENT - DAMAGE AND LOSS ASSESSMENT METHODOLOGY (DALA)

Leading Caribbean scientists have agreed that in the Caribbean we can expect certain impacts from Climate change. These include rising sea level; warming sea water temperatures; changing weather patterns; more intense hurricanes; warmer temperatures; and more frequent occurrence of extreme weather events.

One of the ways in which ECLAC seeks to respond to the challenges posed by these events is to increase its support to Governments in the subregion in their activities geared to disaster risk reduction and adaptation to climate change.

There is little disagreement that Disaster risk reduction is critically important to adapting to the challenges posed by climate change. These efforts are guided by the Hyogo Framework for Action 2005-2015 which calls for "the substantial reduction of disaster losses in lives and in the social, economic and environmental assets of communities and countries".

Using the DALA (Damage and Loss Assessment) methodology, ECLAC provides technical assistance to Governments in the subregion to capture the full extent of damage and losses incurred by communities and countries in the aftermath of a disaster. ECLAC through its assessments creates a point of departure for national dialogue around disaster risk reduction, vulnerability reduction, sustainable development and adaptation to climate change.

D A L A

Estimation of Damage Assessment and Loss Assessment (DALA)

The methodology developed by the UN Economic Commission for Latin America and the Caribbean (UN-ECLAC) is used to estimate the effects and impact of natural hazards.

DALA was developed in the 1970s and since then has been strengthened, simplified and customized for application in different areas of the world.

DALA bases the assessment of disaster impacts on the overall economy of the affected country as well as on household level. This provides a basis for defining the needs for recovery and reconstruction following any disaster. DALA estimates:

* The replacement value of totally or partially destroyed physical assets that must be included in the reconstruction program
* Losses in the flows of the economy that arise from the temporary absence of the damaged assets
* The resulting impact on post-disaster economic performance, with special reference to economic growth, the government's fiscal position and the balance of payments.

To amplify the scope of the assessment and reduce the cost of conducting parallel needs assessments, DALA

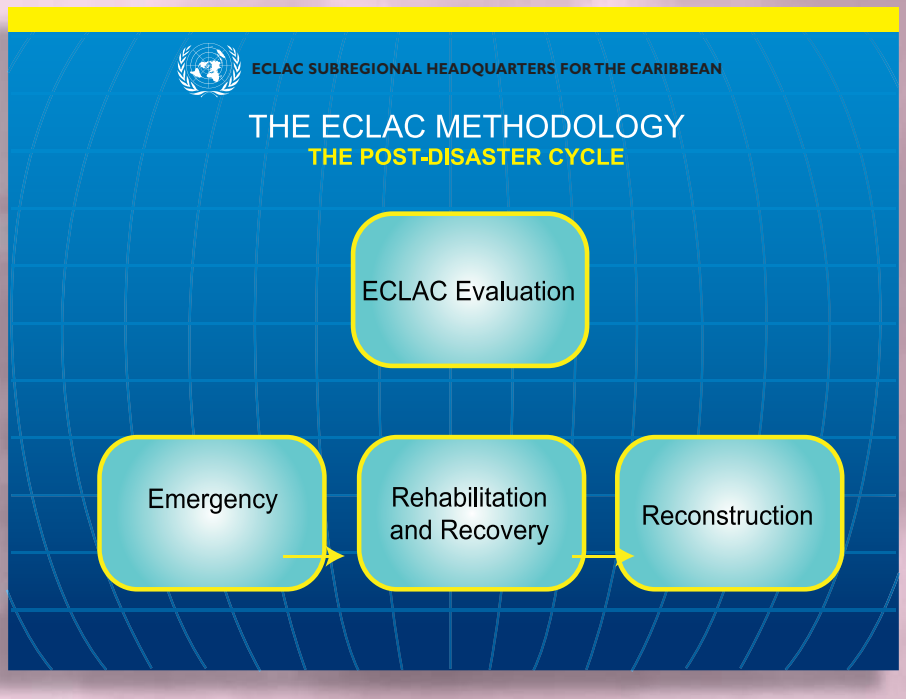
is complemented by sector specific assessment outputs, which provide a more detailed insight into the socio-economic impact. This combination of assessments is then used to formulate the recovery and reconstruction needs into a Joint Damage, Loss and Needs Assessment (JDLNA).

A unique aspect of the JDLNA is that it is led by the Government of the affected country and assisted by a multi-disciplinary, multi-agency team. The JDLNA estimates:

* Damage, loss and macro-economic impact on the affected economy
* Impacts on livelihoods, incomes, and human development
* Short, medium and long term recovery and reconstruction needs
* Measures for Disaster Risk Management.

In addition to undertaking disaster assessments, upon the requests of governments, ECLAC provides training to national personnel in the use of the methodology. ■

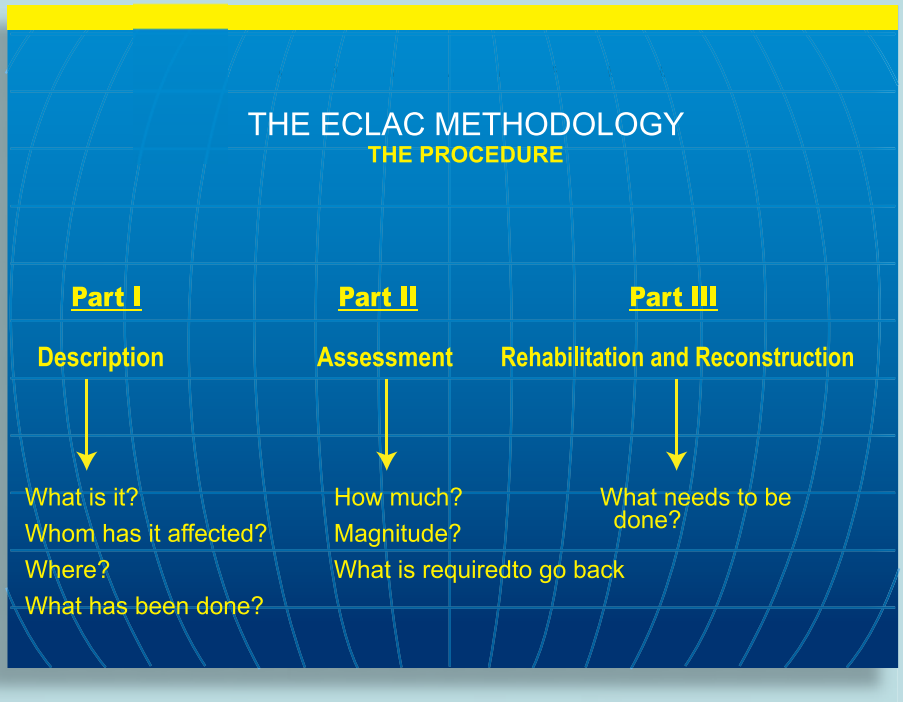
DAMAGE ASSESSMENT - THE ECLAC METHODOLOGY

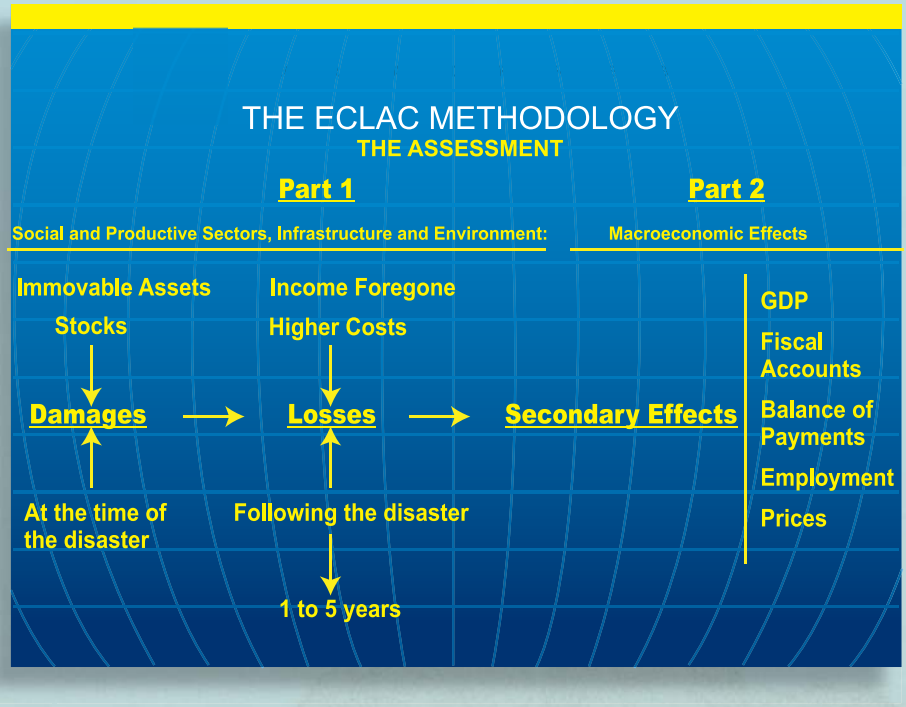


The ultimate goal of the ECLAC assessment methodology is to measure in monetary terms the impact of disasters on the society, economy and environment of the affected country or region. National accounts are used as a means of valuation, supplemented with procedures for specific estimates such as environmental damages and the differential impact on women.

Application of this methodology provides affected countries or regions with the means to determine the value of lost assets and define reconstruction requirements. It enables the identification of the most affected geographical areas and sectors, together with corresponding reconstruction priorities. In addition, it provides a way to estimate effects on economic flows, the affected country's capacity to undertake reconstruction on its own and the extent to which international financial and technical cooperation are needed. Moreover, it can be used to identify the changes to public policy and development programmes/plans needed to deal with needs arising from the disaster and to avoid undesirable effects in economic performance and public well-being.

Assessment activities described should be carried out when emergency stage has been completed or is nearing conclusion, so as not to interfere with those actions and to ensure the availability of the necessary personnel and basic information. They are intended to facilitate the identification of needs and priorities for the reconstruction stage.





Source: ECLAC Handbook for estimating the socio-economic and environmental effects of disasters.

Diagrams: ECLAC Subregional Headquarters for the Caribbean.

TURKS AND CAICOS ISLANDS - MACRO SOCIO-ECONOMIC ASSESSMENT OF THE DAMAGE AND LOSSES CAUSED BY TROPICAL STORM HANNA AND HURRICANE IKE

Following the passage of Tropical Storm Hanna on 31 August to 3 September 2008 and Hurricane Ike on 6 September 2008, the implications of the impact posed a need, apart from the immediate humanitarian response, for a rapid assessment of the social and economic impact. The assessment was carried out using the Economic Commission for Latin America and the Caribbean (ECLAC) disaster assessment methodology (DALA). The DALA has been successfully used in both Latin America and the Caribbean and has been applied in East Asia and Africa.

The assessment was intended to complement and expand on the emergency and humanitarian needs identified previously by the Government of the Turk and Caicos Islands. The result of the assessment is to provide a quantitative approximation of the overall damage to the economy and its impact on the affected population.

Baseline data for the conduct of the Macro Socio Economic Assessment are usually drawn from among official government data sets including: the Population and Housing Census 2001 estimates of population 2007, the Survey of Living Conditions 2000, Social Indicators 2005, Vital Statistics Report 2006, Tourism Statistics 2000-2007, National Accounts Statistics 2000-2007, and other relevant data sets from the Government Central Statistical Offices, Ministry of Finance and Ministry of Planning.

For this assessment, ECLAC was supported by the United Nations Development Programme (UNDP) Jamaica office; and the Planning Institute of Jamaica (PIOJ) through the release of an officer to be part of the ECLAC team.

BACKGROUND

Tropical Storm Hanna

The Turks and Caicos Islands suffered a hit by two meteorological systems within a very short space of time. First, Tropical Storm Hanna hit the island over an extended number of days ranging from Sunday 31 August to Wednesday 3 September 2008. The path of this system was erratic and it effectively circled the chain of islands for the period reported, bringing torrential rainfall and resulting in major flooding in many of the communities of these islands.

Analysis of the historical hurricane tracks over a 105 year period, using data from the National Hurricane Centre (NHC) shows that there are three typical tracks which the hurricanes tend to follow. Either they approach Turks and Caicos Islands from the east and pass south of the islands, approach Turks and Caicos Islands from the east and pass north of the islands, or approach Turks and Caicos Islands from the south and pass west of the islands.

Storm Hanna, the National Emergency Operations Centre (NEOC), the disaster coordinating centre for the Turks and Caicos Islands was activated. A number of persons in low lying flood-prone areas sought shelter with family and friends in higher areas and a number of government-run shelters were also activated. The Caribbean Disaster Emergency Response Agency (CDERA) was also put on standby to provide assistance to the country.

Hurricane Ike

Tropical Storm Hanna served to raise the readiness of the population for these types of events and therefore, on learning that Hurricane Ike was heading directly for the Turks and Caicos Islands, citizens undertook emergency preparedness measures, including boarding up their homes, preparing hurricane kits and following the path of the storm through information channels.

Given the scale of the damage on the most affected islands, especially among the most vulnerable segment of the population, there was an urgent need for relief and assistance. The government and a number institutions and agencies rose to the challenge. The United Kingdom provided assistance by early deployment of HMS Wave Ruler and Iron Duke which came to the Turks and Caicos Islands soon after Hurricane Ike (within the first week) and assisted in early stabilization efforts.

GENERAL

The Turks and Caicos Islands suffered the effects of being in the path of two meteorological systems within a very short space of time. First, Tropical Storm Hanna hit the island over an extended number of days from Sunday 31 August to Wednesday 3 September 2008. The path of this system was erratic and it effectively circled the chain of islands for the duration of the period, bringing torrential rainfall and resulting in major flooding in many of the communities of the islands.

The second system was Hurricane Ike which passed just south of the Turks and Caicos Islands on 6 September, as a Category 4 hurricane, with 135 mph winds, affecting primarily the Turks Islands and South Caicos as a result of its path.

The Islands suffered no loss of life as a result of these systems, but there was much displacement of persons who sought refuge in shelters and at the homes of family and friends. All persons requiring safety, shelter or food support were provided with such, despite the

challenges faced by rapid growth of the TCI population from 19,886 in 2001 to 33,202 in 2006.

In all, 31% of the population or 10,270 people were affected by Tropical Storm Hanna and Hurricane Ike, with 2% of the population or 825 people being severely affected.

Given the scale, duration and intensity of the two events, because Providenciales, the main growth island with the highest cost capital stock, was spared the ravages of the disaster, the financial impact was not as high as would be expected.

Notwithstanding this, there was significant social fall-out that could have some negative impact on people's livelihoods in the short to medium term, and also major environmental damage in an already fragile ecological environment. The engine of growth, tourism, was spared the ravages of the disaster, with the fall-out being mainly in the social sectors and infrastructure. The contained losses stemmed from the fortune of geography, with the spread of the islands allowing for only modest impact on Providenciales.

The per capita total impact of the disaster was relatively high, though not close to that for the Cayman Islands in the wake of Ivan in 2004. Underscoring the relative weight of the disaster, the total impact represented 25.8% of GDP, 96.2% of tourism GDP, which is quite significant, 54.4% of gross domestic investment, 35% of consumption and 350.6% of public debt, highlighting that debt is still at quite manageable levels.

The distribution of impact across the various subsectors of the productive sector, suggests that approximately 57.0 per cent of the total damage and loss was suffered by the tourism subsector while the wholesale and retail trade accounted for 31.4 % Total impact to infrastructure which entails damage and loss to electricity, water supply, transport and roads, telecommunications, airports, seaports and fire services accounted for 26% of the total impact.

The total effect to the social sector caused by Tropical Storm Hanna and Hurricane Ike accounted for 58% in damage and the remainder, 42% in losses. The distribution of the damage and loss within the social sector suggested that 69% of the effect in the social sector was applied to housing, 27% to health and 5% to education.

Recommendations for consideration included preparations for the next hurricane season, review of risk management processes; short-term recommendations which included training in the informal construction sector; strengthening capacity of the emergency and maintenance services; provision of micro credit facility for fisher folk and small and 'backyard' farmers; vulnerability reduction for the telecommunications subsector and advice on the oil storage facility at Cockburn Harbour, South Caicos. Strategic mitigation approaches included the strengthening of disaster management capacity; the call for relocation and/or retrofitting of community homes and structures located in hazard zones and the upgrading of the quality of housing and sanitation of the poor urban centers and outlying communities. ►

MACRO SOCIO-ECONOMIC ASSESSMENT OF THE DAMAGE AND LOSSES

Key Social Dimensions of Disasters

1 Vulnerability of Women

There are issues peculiar to women, which need to be kept in mind as the society seeks to understand how disasters impact on different segments of the population. Through an appreciation of the differing starting points of men and women better recovery and reconstruction programmes can be considered. In the Turks and Caicos Islands, female-headed households (FHH) comprise 34.8% of heads of households in TCI and were more often found among the poor than their male counterparts. FHH traditionally have an increased burden of care than their male counterparts due to their inability to earn similar incomes, and the necessity to meet similar needs with fewer resources; women are in the main employed as domestics with the attendant disadvantages – lack of social security benefits, low wages; and the poorest households had more children than the wealthiest. Women who depend on the informal economy to either support their families outright, or contribute to their family income through backyard gardens, were sorely affected by the destruction of fruit trees, vegetables and women and children tend to be at risk of violence and depravation as male partners may turn to alcohol abuse and other deviant behaviours as the toll of not being able to support their families and earn an income, becomes a reality.

2 Threats to Social Cohesion

Hurricanes have played an important role not only in the economic status of the country shifting from cotton production to salt production and to tourism in the late part of the twentieth century. It has also shaped the country's social development as well. The history of the Turks and Caicos Islands suggests that the effects of the devastation of an early nineteenth century hurricane caused the abandonment of settlements along with enslaved persons. This series of events allowed descendants of those who stayed behind to be known as "Belongers"[1].

In the context of the social dislocation which may be caused in the aftermath of a natural disaster, such as the impact of Tropical Storm Hanna and Hurricane Ike on the Turks and Caicos, it is usually recommended that policy makers be mindful of the social disruption which such events may cause and act swiftly to arrest what may be a deteriorating situation or to strengthen social cohesion.

The dimensions of social cohesion which may be addressed through social policy in the aftermath of the disasters which are pertinent to the Turks and Caicos Islands are:

the material conditions of the

(i) **population affected following the disaster** – their dislocation from housing and schools, and access to health facilities; and the possible deteriorating relationships with others;

(ii) **the restoring of the sense of safety and peace** – the psychosocial trauma which residents of Small Island Developing States (SIDS) experience following a natural disaster cannot be over emphasized and returning people to a sense of safety and peace is important. This is true for the aged and the young and for people from all walks of life. It may require speedy efforts to restore safe housing and normalcy and the provision of psychosocial counseling;

(iii) **strengthening of social networks** – often after a disaster people migrate seeking employment or temporary shelter elsewhere. They send their children off to schools on different islands until things return to normal in their own environment. These various disruptions may affect the normal social networks which are usually available to individuals and families and give people a sense of faith and trust in the society;

(iv) **ensuring social inclusion** – a sense of belonging and non alienation from their own environment. In the reconstruction and rehabilitation phases of addressing the disaster, people must feel a part of the process and that the disaster is not being used as an opportunity to dislocate them and exclude them from their environment or social processes; and

(v) **fostering social equality** – it is important that the various populations, and in the case of Turks and Caicos Islands the Belongers and Non-Belongers, feel that their concerns are being heard and treated equally with those of others. This calls for open and transparent mechanisms for reconstruction.

Description of Damage and Losses by Sector

A Productive Sector

The main productive sectors in the Turks and Caicos Islands as a whole suffered varying degrees of impact by Tropical Storm Hanna and Hurricane Ike. The islands of North and Middle Caicos suffered mainly from flooding caused by Tropical Storm Hanna, while the islands of Grand Turk, South Caicos and Salt Cay bore the brunt of the wind damage associated with Hurricane Ike.

• Tourism

The economy of Turks and Caicos Islands is highly dependent on the tourism sector. In 2007, the tourism sector contributed over 34% of GDP and over 16% of employment. Between 2001 and 2007, jobs grew by 51.0% in the sector, and this trend continued in the months preceding the hurricane. Overall, the extent of damage to the tourism industry was considered to be minimal based on two factors. First, Providenciales, which accounts for some 87% of the hotel room stock, was spared significant damage. Second, the hurricane hit during the low season, when visitor arrivals and activity are minimal. Normally, during this period proprietors use the opportunity to

[1]The status of Belonger according to the Revised Immigration Ordinance of May 15, 1998, is a status gained through birth, being born to a Belonger or acquired by the decision of the Turks and Caicos Government under local legislation.

undertake annual refurbishments.

The experience of Grand Turk, however, was completely the opposite. The hurricane reduced the available room stock, in Providenciales, albeit temporarily, in a very marked way. In the two weeks after Hurricane Ike, an estimated 80% of the hotels on Providenciales remained closed.

DAMAGE

Most of the hotels in Grand Turk, in particular, experienced extensive roof damage or complete loss of roofs which resulted in damage to equipment and furnishings. In addition, Hurricane Ike was particularly harmful to trees and other forms of vegetation.

LOSS

Losses resulting from Hurricane Ike resulted from lower hotel occupancy (particularly in Grand Turk); lower tourist expenditure (partly due to discounted room rates); increased expenditure on energy due to the use of emergency generators to compensate for the loss of electricity; and lower revenues from exit taxes. Cruise ship arrivals were halted due to the passage of the hurricanes even though the cruise ship centre was largely spared any significant impact.

Agriculture

Agriculture constitutes a minor industry in the Turks and Caicos Islands. In 2007, the sector contributed 1% of GDP. At present, agriculture is chiefly a subsistence activity among subsistence farmers on North and Middle Caicos. There are three farms which have the provisional status of developing/ commercial or commercial farms; a 40-acre government farm in Kew, serves as a mother farm.

Crops and Livestock

The passage of Tropical Storm Hanna and Hurricane Ike caused almost complete devastation to crops. The destruction to crops resulted in farmers losing vegetables, root crops and fruits at varying stages of maturity. Tree crops including coconuts, sapodillas, sugar apples, avocadoes and mangoes, were also severely damaged, most of them flattened and/or broken by the power of winds from Hurricane Ike.

Fisheries

Fishing is a major activity in Turks and Caicos with a majority of the commercial fishing taking place mainly on the Caicos Bank. In terms of value, the fisheries resources rank as the third most important industry in the Turks and Caicos Islands economy after tourism and the financial services. Catches are dominated by lobster and queen conch, both of which are processed and exported primarily to the United States. Finfish species such as groupers, snappers and large pelagics are utilised for local consumption or as part of the sport fishery. Fishing infrastructure in Turks and Caicos Islands is characterized by trap boats, electronic reel boats, traps, cold storage facilities and processing plants. Commercial fishers experienced damage or loss of fishing infrastructure which prevented or considerably slowed down fishing activities following the hurricane. In addition, damage to fishing infrastructure by the power outages, led to spoilage of some stock. Damage to the fisheries subsector included structural and roof damage to three processing plants; lost or damaged boats; and lost or damaged traps. Among the fish processing plants, roof and ceiling damage; and damage to packing boxes and pump houses formed the bulk of the damage. South Caicos, one of the predominant commercial fishing areas in TCI, incurred roughly 80.0% of the damage accrued. The disruption of the fishing subsector in South Caicos is expected to lead to severe short-term hardship for the population because of the centrality of this activity to livelihood.

In addition to damage to fishing infrastructure, the subsector also incurred revenue loss due to the inability of fishers to sell their products. It was estimated that it would take three to four months for business to be back to full operation and rebuilding the sector will undoubtedly require considerable capital outlay. ►

Wholesale and Retail Trade

The wholesale and retail trade accounts for approximately 7% of the GDP of the Turks and Caicos Islands and also contributes significantly to employment. Retail establishments are dominant, followed by petty traders, construction and transportation services. Damage as a result of the natural disasters includes the destruction of a wide range of commercial and services activities including supermarkets, small shops, restaurants, and bars.

Grand Turk was by far the most severely affected island with an estimated 80% of the businesses experiencing some form of damage. In a large majority of the cases, wind damage was the predominant source of damage although there were instances of flooding. One large supermarket was completely destroyed and two others received major damage to roof as well as structural damage. There was also considerable loss of stock. In particular, supermarkets, restaurants and small grocers in Grand Turk, Salt Cay and South Caicos suffered losses from their meat and dairy inventory due to power outages or inconsistent power supply during and after the hurricane. As observed in other jurisdictions that have undergone similar hurricane impact losses associated with business interruptions, the losses have been somewhat mitigated by the quick response of merchants to reestablish their businesses. However, the efforts of merchants to resume operations have been hampered by the increased operational costs brought about by the need to use generators for emergency electricity. In analyzing the differential impact of the hurricane and the response of businesses, it was observed that the impact was more pronounced among micro and small businesses which comprise approximately 84% of registered businesses. In general, these types of businesses are more vulnerable to external shocks largely because a majority of them are uninsured; have very little savings and have no other source of income. For these reasons, these types of businesses have tended to reestablish their businesses quickly although with considerable financial difficulty and with an imbedded precariousness and susceptibility to future shocks. It was observed that larger businesses that were insured were better able to cope and resume operations on a less vulnerable footing.

B Infrastructure Sector

Water Storage, Treatment and Supply

Water supply for residents of the Turks and Caicos Islands typically comes from wells that tap into the fresh water lens, which lies beneath some of the islands; from infrequent rains; and from reverse osmosis desalination plants. Many residents in the Turks and Caicos Islands have sizeable cisterns to store water collected from roofs or delivered by truck. For example, until recently, each home built in Providenciales was required to have one of these. For Grand Turk, there was some damage to the roof of the storage tanks next to the water plant. In addition, there was minor damage to pipes at this location. As a result of the loss of electricity following the storm, stand-by generators were borrowed from the Turks and Caicos Utilities Ltd (TCU) and from a local contractor. It should be noted that water for Grand Turk is produced from a desalination process and is operated by the government, and not by a private enterprise, as it is on Providenciales. Throughout the other islands, most people obtain water from cisterns. As a consequence, there were no water supply shortages following the passage of the two storms, unless piping was damaged, or as was the case in many instances, electricity was out and pumps were not able to work. Even in those instances, however, people made an effort to fix damaged piping themselves, or were able to bale water out of the cisterns by hand. Water shortages therefore never became an issue with this event.

Electricity Generation and Transmission

Electricity in the Turks and Caicos Islands is supplied by the Provo Power Company Ltd. (PPC) and by the Turks and Caicos Utilities Ltd. (TCU). PPC supplies the majority of the power to Providenciales, North Caicos, Middle Caicos and South Caicos, while TCU supplies power to Grand Turk and Salt Cay. Approximately 90% of power lines are above ground and are consequently vulnerable to wind and falling trees. New installed cable lines and electrical switch gears are underground; these are vulnerable to flooding during heavy rains from tropical storms and hurricanes. Standby power generators are used in cases of emergency, however, they are limited in number. All the inhabited islands depend on diesel fuel for power generation. Fuel is brought in from Providenciales and Grand Turk to the other islands by ferry. This inter-island transfer of fuel is loaded from an offshore linkage. In the event of heavy seas due to inclement weather, this process could be at risk.

Telecommunications

Telecommunication services (land lines and mobiles) are provided by Cable and Wireless, through a combination of microwave links between the islands. The microwave links also carry VHF nets for emergency telecommunication services used by police officers, Emergency Operations Centre (EOC) officials and other relevant personnel. The Cable and Wireless Office and the microwave towers are located in an area vulnerable to flooding. Mobile services to this sector are also provided by Digicel. To a large extent, damage to fixed lines resulted when utility poles which held telephone cables were brought down. Understandably, mobile services were not too badly affected. Stand-by generators were used where available.

Transportation/Roads

The damage observed to this subsector was restricted primarily to the causeway spanning North and Middle Caicos. This causeway forms a critical link between these two communities, and was severely damaged during Tropical Storm Hanna.

Airports

In Grand Turk, there significant damage to the glass surround and instruments of the control tower, damage to the roof of the main office building, loss of some of the runway lights, damage to the roof

and ceiling of the terminal building, damage to the roof and contents of the workshop facilities building, demolition of an old hangar and damage to the perimeter fencing. The airport was down for a four-day period, and at limited capacity for a further six days for restorations. In South Caicos, the damage recorded included damage to runway lights, destruction of the control tower, including instrumentation, and damage to perimeter fencing. This airport was down for a period of 10 days, plus a further six days for restorations. In Providenciales, the damage recorded included damage to perimeter fencing, damage to the roof of the terminal building; and damage to the windsock. The international airport was down for a period of six days, which led to cancellations of many of the flights of international carriers. The majority of the losses incurred to this subsector were as a result of these cancellations, which led to non-payment of departure tax, landing fees, parking fees and air navigation fees.

Seaports

Damage to seaports was observed in Grand Turk and South Caicos. First, in Grand Turk, there are two ports, a container port and a cruise shipping port. There was limited or no damage to the container port, with the exception of an empty container blown out of the holding area and onto the beach. At the cruise shipping terminal, however, there was significant damage to buildings and landscaping. It is estimated that over 800 coconut trees and thousands of other trees were blown down. In addition, the irrigation system was badly damaged as well as the roofs of many of the buildings housing curio and tourist shops. It is estimated that its closure would have caused significant hardship to a number of people. On a cruise ship day, approximately 500 people work in this facility, while visitor and crew numbers can reach up to 6000. In addition to the on-site facilities, Carnival Cruise Lines provides tours to visitors, which include adventure type trips, as well as tours to heritage and museum sites. In South Caicos, there was damage to the main container dock face and associated edge areas.

Fire and Correctional Services

There was some damage that occurred to the new prison in Grand Turk. It was estimated that the company employs directly or indirectly, up to 70% of the non-Government workforce in Grand Turk. After the disasters there was need for replacement of offices, a new Fire Services building, repair to the detention building, replacement of furnishings and repair to vehicles.

C Social Sectors

The DALA methodology includes, within the social sector, an estimation of the housing, health and education subsectors. The housing subsector estimates damage and losses to all structures used as dwellings within the Turks and Caicos Islands, whether privately or publicly owned. The education subsector in addition to estimation of damage and losses to publicly and privately-owned educational facilities also includes sporting facilities and heritage sites.

Housing

Approximately 33% of the stock of dwellings was damaged in the Turks and Caicos Islands, with the majority of the housing stock, some 69%, remaining undamaged. When the impact of the disasters by Island, it was recognized that some islands such as Grand Turk, Salt Cay and South Caicos suffered damage to virtually every house. Some islands such as Providenciales, although having a large absolute number of houses damaged, proportionately suffered less damage to its housing stock, 8%, than any of the other islands. The other islands, North Caicos, suffered 67%, and Middle Caicos suffered 49% damage to their housing stock. Such a serious blow to a country's housing stock may be as a result of the nature of the event itself and/or the quality of housing. For Turks and Caicos both factors seemed to have played a part in the damage to the housing stock. In the case of Providenciales, its location took it out of the direct impact of the hurricane, although it was affected severely by Tropical Storm Hanna.

But the quality of its housing which is newer than that found on Grand Turk or Middle and South Caicos, would have acted as a safeguard in the face of a natural event. Providenciales has experienced a development boom since 1990 and its housing and other structures such as hotels and villas, by and large, possess outer walls built of concrete. ►

Education

Education on Turks and Caicos Islands is provided by a complement of some 39 schools spread across the islands in a mixture of public and private ownership. In the Turks and Caicos Islands, education for all students of school age is mandatory and virtually free in the pubic sector. Schools cover all levels of education. Minimal fees are charged in the public sector. All schools were closed due to the impact of Tropical Storm Hanna and Hurricane Ike some for a longer period than others. There were schools that were forced to remain closed because of water damage caused by the flooding or roof damage from the winds and others because of their use as shelters. Still others which were neither affected by wind nor water were affected because of the lack of electricity and water which affected the totality of at least five of the six islands affected, in the aftermath of the disaster. Although the absolute number of schools that were damaged appears small, in some instances as in Salt Cay where the only school on the island suffered damage then such damage can become a severe setback for the students on the island.

In the case of Grand Turk at least 33% of the school stock was damaged. In North Caicos 60% of its schools were damaged, while in South Caicos just over 60% were affected. In real terms it means that the school life of a significant proportion of students was disrupted.

Not only was the school life of children been disrupted but also family life, as many parents reported, particularly in Grand Turk, of having to send their children off island to attend school elsewhere, and stay with family and/or friends until life returned to some degree of normalcy.

Health

The Ministry of Health provides a wide range of services to the population of Turks and Caicos Islands at both the primary and secondary care levels. A network of health centres, one each on the main islands of Grand Turk, Providenciales, North Caicos, Middle Caicos, South Caicos and Salt Cay, exist. Hospital care is provided through the two government hospitals one on Grand Turk and the other on Providenciales. Middle and North Caicos are supplied with outreach specialist care from one facility. If treatment cannot be provided in Turks and Caicos Islands, then patients are referred abroad for treatment through the Treatment Abroad Programme paid for by Government. In addition to the public health facilities, four private clinics are available on the Islands. The government is seeking to address the acute shortage of hospital care on the island by the construction of a new hospital in Grand Turk and Providenciales. The hospital is projected to be completed during 2009 and is expected to become operational early in 2010.

Thirteen of the 16 government health institutions reported damage. Of the health facilities most affected, the Grand Turk Hospital was the most seriously impacted. The Grand Turk Hospital serves not only the island of Grand Turk but also receives referrals from other islands of Turks and Caicos.

Outpatient and emergency services resumed immediately after the storm and the operating theatre was functional within 48 hours, with the assistance of personnel from HMS Iron Duke and Wave Ruler and also the contractors for the new hospital under construction nearby. General Ward, Maternity Ward and the Geriatric Ward were reported to have suffered major damage so as to make them non-functional. Other parts of the hospital such as the kitchen, laundry, maintenance and medical stores were severely damaged.

C The environmental Sector

The impacts of Tropical Storm Hanna and Hurricane Ike on the environmental sectors were felt primarily in damage to beaches, clean up requirements for these beaches, damage to equipment in national parks; and damage to vegetation and signage in national parks.

The Department of Environment and Coastal Resources maintains a system of national parks in and around Grand Turk. These areas include the Columbus Landfall National Park, the South Creek National Park, the Grand Turk Cays National Park and the Long Cay Sanctuary. These areas are typical of a variety of plant and animal life, healthy coral reefs and extensive white sand beaches. The first of these four national parks is devoted primarily to more active uses, and includes zoned areas for diving, swimming, picnicking, cruise ship berthing and a trans-shipment port. By contrast, the latter three national parks have traditionally been known for less active pursuits such as bird watching and kayaking. The Columbus Landfall National Park is bordered by a system of historic, but now derelict saltwater ponds that discharge directly to the park. These all form a part of the attraction base of the island's national park system. As a result of Hurricane Ike, one of the main public beaches in the park system, Governor's Beach, was badly eroded and had a significant amount of debris left on the beach face and back of beach areas, which required extensive cleanup activities. In addition to beach erosion damage and cleanup requirements, all of the swim zone markers were removed from the Columbus Landfall National Park. These markers are very important, as these swim zones border areas of varying interests such as the approach of large boats and water sports vessels. On the southeast corner of the island, the South Creek National Park provides a unique experience for visitors to interact with a mangrove-lagoon type of environment. The passage of Hurricane Ike resulted in very significant hurricane surge in this section of the island, resulting in damage to many of the mangrove plants in the park. The surge and wave action also destroyed sections of the boardwalk throughout the park, as well as the kayak landing stages.

- **Solid waste and Debris Disposal and Clean-up**

A major feature of Hurricane Ike is that it resulted in the accumulation of solid waste. The debris produced consisted mainly of household articles, white goods, tree limbs, leaves and silt deposits.

A major area of concern relates to the co-mingling of all forms of waste for disposal in the disposal sites designated for municipal waste. Another issue is insect vector control in the aftermath of the hurricane. The Government of the Turks and Caicos Islands is responsible for the removal of debris from public places and households after a storm or any other related event. The private sector is usually responsible for removal of its own debris. The population affected by Ike in Turks and Caicos was about half the population affected in Cayman in 2004.

CONSIDERATIONS TO THE RECOVERY AND RECONSTRUCTION PROCESSES

In light of the impact of Tropical Storm Hanna and Hurricane Ike it was recommended that it may be useful for the policy makers of the Turks and Caicos Islands to consider inter alia the following for action:

* Help prioritize actions for the short-term preparation and improvement before the tourism season begins
* Prepare adequately for the next hurricane season
* Make clear government policies which will link the recovery and reconstruction to the medium- and long-term development plans of the country. Especially important will be (a) Poverty and its attendant ills; (b) Fast pace of growth; (c) The engines of growth of the economy and their vulnerability to global shocks; (d) The structural rigidities of the economy; (e) The social dynamics of inequality and marginalization; and (f) Strained carrying capacity and physical vulnerability of the islands to storm surge.

In conclusion, the recovery and reconstruction framework to be constructed in the post-disaster scenario should be seen not only as a "build back better" programme but a resilience building one that enhances the viability and sustainability for their development strategy. It should be recognized that the disaster poses an additional gap to the pre-disaster development gap, both in terms of financial resources and in other crucial aspects such as planning, regulations and legal and institutional implications. Among these, the adoption of appropriate financial protection instruments to protect against extreme events such as this one and to enable efforts for the adaptation to climate change. Issues of insufficient use of insurance and other risk transfer mechanisms and the inappropriate pricing of risk, leading to a vicious circle in which public goods become public calamities should be noted.

Short term recommendations include support efforts to meet the basic needs of the poorest; provision of training for the informal construction sector in risk reduction practices at community level; strengthen capacity at the Emergency and Maintenance Services (EMS); design financial mechanisms to ensure reconstruction with mitigation of homes and government buildings; provide micro credit facility for fisher folk and small and 'backyard' farmers to ensure quick resumption of economic activity; ensure restoration and safeguarding of heritage sites; and establish vulnerability reduction for the telecommunications subsector.

Strategic mitigation approaches to advance sustainable livelihoods and development include strengthening disaster management capacity at the micro, meso and macro levels; building capacity in the capture of information regarding damage and loss at the community level; strengthening baseline information systems especially national statistical systems to produce timely and periodic data; make use of risk assessment in the location of all critical facilities; strengthening economic diversification efforts (through provision of incentives to fisher-folk, subsistence farmers, meso and micro entrepreneurs) to generate alternative employment opportunities and as a risk reduction strategy; providing special incentives to increase the participation of youth and female producers, particularly those who are heads of households, in the economic development process; addressing the relocation and/or retrofitting of community homes and structures located in hazard zones; upgrading the quality of housing and sanitation of the poor urban centers and outlying communities; exploring the location of electricity distribution systems underground in critical areas; ensuring structurally sound design and construction of critical road network systems; safeguarding and/or halting the erosion of costal zones and the destruction of mangroves; and develop long term plans for solid waste management. ■

The entire Disaster Assessment Report is available online at http://www.eclac.org/publicaciones/xml/2/35272/L.185.pdf

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Fourteenth Monitoring Committee meeting of the CDCC

Meeting of the Technical Advisory Committee of the Regional Coordinating Mechanism

Meeting of experts to examine macroeconomic policy coordination in the Caribbean, with special focus on fiscal and monetary policy regimes

Expert group meeting to review the achievements regarding the implementation of major global and regional programs of action in the area of population and development

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