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**THE MACRO-ECONOMIC EFFECTS AND RECONSTRUCTION
REQUIREMENTS FOLLOWING HURRICANE LUIS
IN THE ISLAND OF ANGUILLA**

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SUMMARY

On 5 September 1995 the island of Anguilla, in the British West Indies, was struck by Hurricane Luis enduring very strong winds and its 20-foot storm surge. The island's housing and hotel infrastructure as well as its basic services of water supply, electricity and telecommunications were adversely affected. Beaches —the island's most attractive feature in its upscale tourism activities— were eroded and the environment in general was negatively impacted.

While in dollar terms the physical damages may be considered low, the hurricane impacted Anguilla's main source of national and personal income —the tourism sector— just when the main tourism season was about to begin. Furthermore, living conditions of the population have suffered a setback, since housing and other social sectors sustained severe damages and income will be reduced albeit temporarily due to reduced tourism activities.

The macro-economic position of the island —which had been improving steadily in recent years— will be negatively affected. Gross domestic product experience significant losses in growth both during 1995 and the following year. The island government's finances will incur into a deficit, reversing previous trends. Prices for construction materials are expected to rise as a result of the abnormal reconstruction demand. Imports of equipment, materials and specialized labour for reconstruction are expected to further increase the foreign exchange deficit.

The Government and the private entrepreneurs of the hotel sector are making special efforts to restore the island's infrastructure and services to pre-disaster conditions. For that purpose, use of insurance reimbursements is being made. However, the size of the reconstruction effort requirements for the public sector facilities and infrastructure is such that the government's financial capacity is already surpassed by demands.

The cooperation of the international community is essential if the reconstruction of the island's infrastructure and services is to be achieved. In brief, unless external cooperation is forthcoming the danger exists that the problems faced by the affected population may take longer to solve or may not be solved at all.

This study has been prepared at the request of the Government of Anguilla. It describes the results of an independent, objective assessment of the situation imposed by the disaster, together with the repercussions on the population and on the island's economic position. It also presents a number of projects and activities that are essential for the rehabilitation and reconstruction of the island, some of which require the technical and financial cooperation from the international community.

It is expected that the document will assist the Government of Anguilla to expedite its programme of reconstruction following the disaster, and to facilitate the obtention of external cooperation.

I. INTRODUCTION

1. Background

a) General considerations

On 5 September 1995 a very strong hurricane struck the island of Anguilla. In its path, Hurricane Luis' strong winds and accompanying storm surge and sea waves destroyed or damaged infrastructure and caused severe negative impacts on the island's environment.

While in dollar terms the damages may be considered low when compared to the effects of other natural disasters that have occurred in the Caribbean, Hurricane Luis affected Anguilla's main source of national and personal income —the tourism sector— at a time when the tourism season was about to begin.

This disaster is part of a series of similar calamities that have affected the Caribbean region in the present year. Indeed, the hurricane season of 1995 has been extremely active, with more than 16 tropical storms or hurricanes in the year. Furthermore, the island of Montserrat has been suffering the effects of a volcanic eruption.

The effects of this and other natural disasters in the Caribbean subregion are setting back the governments' efforts for social and economic development. Similar setbacks are occurring in the wider context of the entire Latin America and Caribbean region.^{1/}

While the damage sustained by Anguilla in this occasion has mainly affected the private tourism sector, the effects of the disaster on the other sectors and areas of the country's economy cannot

sectors as well as the effects to the macro-economic position of the island. The evaluation has been conducted using a comprehensive damage assessment methodology developed by the Economic Commission for Latin America and the Caribbean (ECLAC).^{2/}

The evaluation identifies the economic and social sectors that were hardest hit by the disaster, which will consequently require preferential attention during the reconstruction phase.

The report includes at the end a number of proposals for reconstruction projects for which no financing capacity exists in the island and which can be presented for consideration by the international donor community.

c) **The mission**

The mission was fielded by ECLAC, with financial support from the United Nations Development Programme (UNDP), at the specific request of the Chief Minister of the Government of Anguilla.

The team was composed of staff members of ECLAC that have a wide-ranging experience in damage assessment work following natural disasters, and which covered all fields that deserved attention in the case.

During the period 19 to 26 September the ECLAC mission worked very closely with the appropriate Anguillan Government officials. It held numerous meetings with them and with private sector representatives, and conducted on-site inspections of the affected areas to gather existing data and develop its own observations of the effects of the disaster.

This report describes the result of the work of the ECLAC mission. It takes into consideration numerous partial reports prepared by both government offices and private individuals and entities. It is the result of an independent study to assess the effects of the disaster as objectively as possible under the circumstances.

2. Description of the phenomenon and its overall effects

Luis was a hurricane that originated near Cape Verde and wreaked havoc on the northern Leeward Islands, causing more than a dozen deaths and thousands of millions of dollars in economic losses.

It followed a path described in Figure 1 since its initial stage as a tropical depression, its subsequent conversion into a tropical storm and into a full-fledged hurricane of category 4 in the Saffir/Simpson scale, and its eventual disappearance in the North Atlantic Ocean.^{3/}

^{2/} See ECLAC, *Manual para la estimación de los efectos socioeconómicos de los desastres naturales*, Santiago, Chile, 1991.

^{3/} Lawrence, Miles, *Preliminary Report on Hurricane Luis*, National Hurricane Center, Miami, November 1995.

The center of the hurricane passed directly over Barbuda and very close to Antigua, St. Barthelemy, St. Maarten and Anguilla; its southern portion of the eye wall affected these islands with full force. (See Figure 1.)

In the particular case of Anguilla, it is reported that Luis exhibited sustained winds of up to 140 knots (250 kilometers per hour) and wind gusts of up to 325 kilometers per hour.^{4/} These winds caused many building roofs to collapse, some structures were damaged considerably, and many window glasses were broken; these buildings included not only private houses and hotels and restaurants that had to close for several weeks, but public facilities such as schools, community centers and offices as well. Electricity, telephone and cable television poles and lines were also broken or brought down and these services were interrupted for considerable periods of time depending on the location and extent of the damage they sustained. Water supplies that depend on electricity to run pumps in well systems were also interrupted for similar periods, although they may not cover the whole island. Many trees —most notably palm trees— were toppled and even uprooted by the strong winds, and cannot be recovered; they sometimes fell over buildings causing further damage and destruction.

The hurricane was accompanied by a storm surge and sea waves of up to 6 meters in height that had a very negative effect on beaches, boats and infrastructure of all kinds located near the coast. Beaches in the western-most area of the island, where the main tourism facilities are located, were eroded in a very noticeably manner. Very large amounts of sand were eroded from the beaches and deposited in the adjoining sea bed. Some hotel facilities were left without sand at some key beach locations, and the footings of some hotels and ancillary structures were severely compromised by the loss of sand.^{5/}

Furthermore, the sea waves washed over and flooded some keys where other tourism facilities were located, damaging or destroying them completely. The storm surge also made many fishing boats to capsize or sent them aground, and destroyed many fishing traps used by artisan fishermen, thus crippling the small-sized fishery activity. In addition, sea waves entered into inland pools or lagoons, damaged existing levees and mangroves, and modified water salinity there with the corresponding effects on animal and vegetal life.

In parts of the eastern coast, the waves deposited large amounts of debris that had been collected by the storm in nearby islands. Many tree trunks and even small to medium pieces of coral reef were deposited in the beaches, and are being buried into the sand by the effect of the tides, rendering the beaches unsafe and unattractive to tourists. Heavy earth moving machinery would be needed to clear long stretches of these beaches of the debris and restore them to pre-disaster conditions.

^{4/} Oral communication by the meteorological officer at Anguilla's airport.

^{5/} In order to understand the matter it should be borne in mind that the quality of beaches has been one of the main attractions for the tourists that come to Anguilla.

The hurricane produced rainfall of up to 346 millimeters as measured at the local airport in The Valley, which figure represents 65 per cent of the total amount that falls in an average year. These heavy rains have damaged or rendered useless furniture and other goods and materials that were in the buildings that lost their roofs, and have damaged the road network in the island.

The disaster therefore caused damages not only to infrastructure and services of many sectors as will be described later on, but also imposed considerable damage to the already fragile ecosystems of the island.

II. DAMAGE ASSESSMENT

1. Introduction

Estimates of the damage caused by Hurricane Luis on Anguilla were made on the basis of partial information. Authorities of the Anguillan Government had gathered some information concerning damages and losses on some social and economic sectors; private enterprises had made damage assessments that concerned their own activities.

In view of the urgent need to define reconstruction plans it was decided to undertake the assessment based on such preliminary and partial information, even though some degree of accuracy had to be sacrificed.

The information that was available came from Anguilla Government ministries and top managers of private enterprises, as well as from some individuals who—due to their recognized professional expertise—had relevant knowledge concerning a given subject. The ECLAC mission conducted on-site observations that made it possible to verify, supplement, adjust or discard the information received.

The data was then processed using a special damage assessment methodology developed by ECLAC on the basis of experience acquired in many other similar situations of disasters.^{6/} This entailed estimating direct damages on the basis of replacing capital stock and inventories that had been totally destroyed^{7/} and the cost of repairs to what had only been damaged. It also required calculating indirect damages from lost output in production and lost revenues in services brought about by the direct damages, and the higher outlays required to return the affected activities to normal conditions.

The results thus obtained provide an idea of the damage and can be considered to be sufficiently reliable for purposes of planning and programming investments to be made during the reconstruction period.

The value of damages was estimated in local currency (Eastern Caribbean Dollars)—at November 1995 prices—and converted into United States Dollars at the rate of 2.68 EC\$ to the Dollar.

^{6/} See ECLAC, *Manual para la estimación...*, *op. cit.*

^{7/} Even though it is recognized that the value of lost assets is less than their replacement cost, the latter is a truer measure of the manner in which the national economy will be affected as a result of the reconstruction program to be undertaken. Replacement also includes some elements of improved technology for some items, such as higher-quality specifications for low-cost housing.

2. Social sectors

The winds of the hurricane, its high sea waves and the accompanying rainfall imposed direct and indirect damages in the housing, health and education sectors.

a) Housing

Even though most of the houses in Anguilla are made out of reinforced concrete —as a result of the devastation caused by Hurricane Donna which struck the island in 1960— damages of varying degree occurred as a result of the strong winds of Hurricane Luis and the accompanying rains.

The houses were damaged due to the entire or partial loss of the roof, partial or total loss of the roofing structure, rupture of the house ceilings together with their thermal isolation and electrical wiring, breaking of window panels and damage to window and door sills, damage to wall painting caused by the falling roof and ceiling or by rain, etc. On the outside electrical connections were damaged by falling trees or branches, and perimeter fences were destroyed or damaged. Some home furnishings were also damaged as a result of rain falling directly on them due to the absence of the roof and ceiling.

The above type of damages was common to all housing, regardless of size and quality. More intense damages were caused to houses owned by lower income families, where lower-quality construction techniques or inadequate maintenance were utilized by the owners.

It was estimated that 35 per cent of the houses in the island sustained damages of varying intensity. The number of houses that were completely destroyed, heavily damaged or only partially affected, classified by different types of housing, was determined as follows:

Quality of construction	Number of houses that were affected			
	Total	Destroyed	Major damage	Minor damage
Total	455	30	155	270
High	55	-	15	40
Medium	91	-	21	70
Medium-low	136	-	46	90
Low	173	30	73	100

For each category of damaged houses unit costs for reconstruction or repair were estimated. In addition to the housing infrastructure, replacement or repair costs were calculated for household goods and perimeter fencing.

The total direct cost of reconstruction and repair of housing was estimated as US\$ 7,571,000. The large majority of these homes did not carry insurance. No indirect costs were identified for the sector. (See Table 1).

b) Health

Due to opportune forecasts and warnings no lives were lost and no major injuries were suffered by the population in Anguilla during and after the hurricane.

Health facilities in the island—including the new main hospital, the old hospital building and several clinics— were only slightly damaged due to the strong winds, partially losing roofs, ceilings and fencing. The rains that fell after the hurricane damaged some furniture and supplies that were under the damaged roofs. A mobile dental care unit was destroyed by the winds.

A clinic was found to be located in the immediate vicinity of a flood-prone area; it should be moved to a safer location in the near future, before the next hurricane season.

Mosquitoes proliferated in certain areas of the island due to the pooling of rain waters and the spillover of large waves near the coast. This posed the possibility of mosquito-carried diseases such as dengue and others. Spraying of these areas was initiated promptly.

The direct damages to infrastructure, equipment and supplies of the health sector have been estimated at US\$ 218,000. Damages to infrastructure were insured so that net direct losses will be lower. Indirect losses that include the relocation of a clinic and the mosquito-control campaign amount to an estimated US\$ 90,000. Total damages in the health sector reach US\$ 308,000. (See Table 1).

c) Education

Existing school infrastructure sustained damages of the same nature as housing units, although no building was completely destroyed. Roof covers and structures, ceilings, window panels, and outside fencing were either destroyed or damaged. Painting of walls, furniture, books and other teaching materials were damaged or destroyed by the rains.

Some schools were temporarily used as shelters during the critical hours of the hurricane and suffered minor damages as a result. Classes have been resumed using alternative classrooms while repairs are being undertaken.

Direct damages to the education sector are estimated at US\$ 506,000. These damages were not

covered by insurance. The indirect costs of repairing and painting the school buildings due to damages caused by uses as hurricane shelters were estimated as US\$ 17,000. Total damages to the sector were thus US\$ 523,000. (See Table 1.)

Table 1
DAMAGE AND LOSSES IN THE SOCIAL SECTORS
(Thousands of US Dollars)

Sector and subsector	Estimated damages and losses		
	Total	Direct	Indirect
Total	8,402	8,295	107
Housing	7,571	7,571	-
Total reconstruction (30 units)	1,881	1,881	
Major repairs (155 units)	3,550	3,550	
Minor repairs (270 units)	2,140	2,140	
Health	308	218	90
Repair of hospitals	142	142	
Mobile dental care unit	50	50	
Repair of clinics & material	26	26	
Relocation of clinic	40	-	40
Mosquito control programme	50	-	50
Education	523	506	17
Repair of 7 school buildings	420	403	17
Replacement of furniture, equipment and books	103	103	

Source: ECLAC, on the basis of official figures and direct field observations and estimates.

3. Infrastructure

Infrastructure was damaged in the subsectors of water supply and sanitation, electricity generation and distribution, ports and airports, communications, and roads. In some cases, there occurred losses of revenue in the utilities that render these services. Losses were partially covered by insurance.

a) Water supply and waste water disposal

Water supply systems in the island cover about eighty per cent of the island's population; the remainder collect and store rain waters and are also served through communal water connections. Most major hotels and resorts have individual water supply systems.

Waste water disposal is done mainly through septic tanks. Hotels and resorts have their own treatment plants and use treated sewage discharge to irrigate gardens.

The hurricane did not damage the wells or pumps that provide water to the system, nor were the transmission and distribution lines damaged; hotel water supply systems suffered only minor damages. However, since electrical power to run the pumps was unavailable for a relatively long time period, water service was interrupted. No water was supplied during the month of September and the aqueduct operated at half its capacity during October. It is expected that the system will function at between 85 to 90 per cent of full capacity through March of 1996 due to the reduced demand from many commercial clients.

Some individual home septic tanks were flooded and overflowed due to the heavier than normal rains that accompanied the hurricane and may not have been cleaned properly. However, no major health problems have resulted.

The subsector suffered indirect losses, from projected lost revenues, that amount to an estimated US\$ 41,000; no direct losses were identified. (See Table 2).

b) Electricity

Electrical power is supplied by the Anguilla Electricity Company (ANGLEC), a privately owned utility. Winds of the hurricane and its accompanying rains damaged buildings and ancillary equipment at the power plant, but the main damage was sustained by the transmission and distribution grids where 75 per cent of the lines were downed, and by residential connections.

While power transmission and distribution capacity was restored by the utility within a month of the disaster, the latter's revenues have been diminished due to decreased power demand given the absence of economic activity mainly in the tourism sector. The level of pre-disaster sales is not expected to be recovered until the end of August 1996.

It has been estimated that direct damages to infrastructure and equipment, transmission and distribution grids and in-house connections amount to US\$ 1,817,000. Net direct losses will be lower, however, since the infrastructure that was damaged or destroyed was insured. The amount of revenues lost during the recovery period already mentioned is estimated as US\$ 1,609,000. Thus, total gross losses in the subsector were estimated at US\$ 3,426,000. (See Table 2 again).

c) Ports and airports

The building and a hangar at the international airport were partially damaged. The night lighting system at the landing strip was destroyed and landing of planes at night was interrupted for two months. The asphalt cover of the landing strip was also damaged due to the long period in which it was covered by rain waters.

At the main cargo port of the island, the pier and the jetty suffered minor damages from the action of the waves. The main Customs warehouse lost its roof and steel doors due to wind action, and goods in transit were damaged by rain.

Several cargo and passenger transport boats were destroyed or rendered useless and beached by the sea waves. The boats that were beached near the main port will have to be removed using heavy machinery.

The waves also produced silting of the jetty area and reduced the available depth for docking of ships. Dredging will have to be undertaken in order to restore the port to pre-disaster conditions.

The total amount of direct damages to infrastructure and boats in this subsector is estimated at US\$ 1,285,000; however, there will be some recovery of these losses through insurance. The indirect loss imposed by the need to dredge the port area and remove beached boats is estimated at US\$ 180,000 more. The total amount of losses for the subsector is therefore US\$ 1,465,000 (See Table 2).

d) Communications

The subsector losses caused by the disaster were sustained by the telecommunications system of Cable and Wireless—a privately owned enterprise—, two radio broadcasting companies (Radio Anguilla and Caribbean Beacon), and the local cable television company.

Physical damages in the case of Cable and Wireless were caused by the wind and rains on the physical plant, premises and ancillary equipment, the aerial telephone lines (which share the same poles with the electric utility), and in home connections. No buried telephone cables were affected. Repairs to the telephone system have nearly been completed, but a reduced quality in service is expected to last through March 1996. Revenues have decreased and will continue below normal levels throughout the aforementioned period.

Satellite dishes, an FM antenna, a transmission tower and guy wires, buildings, fencing and equipment of both radio stations were destroyed or damaged by the wind. Again due to absence of electrical power, both radio companies were off the air for about three weeks. Normal operational levels are expected to be resumed by year end.

The cable television company also suffered damages on its aerial cable distribution network, which share the same poles with the electricity and telephone systems. At the time of the writing of this

report, the cable television service was only partially restored. It is expected that replacement of the cable network will be completed by year end. Revenues of the company have been reduced significantly and are expected to take until the first quarter of 1996 to recover pre-disaster levels.

Total direct damages to the subsector are estimated at US\$ 4,775,000 although they will be partially offset by insurance payments. Lost revenues are calculated at US\$ 1,765,000. Total gross losses for the subsector will reach US\$ 6,540,000. (See Table 2.)

e) Roads

The long time that paved roads were under rain water damaged their asphalt cover a total length of 15 kilometers; unpaved roads also received some erosion damages.

The cost of repaving the above mentioned roads is estimated at US\$ 1.4 million. Earth moving machinery for an amount of US\$ 550,000 will be required to repair other unpaved roads. No estimate has been made of increased operational costs of vehicles due to use of the damaged roads, but they are considered to be small since the time for making road repairs is relatively short. The total direct damages for the subsector are thus estimated at US\$ 1,950,000. (See Table 2.)

4. Production and services sectors

If the social sectors and infrastructure suffered damages, the production and services sectors sustained effects of a more grave nature, especially in the tourism activities that are the backbone of Anguilla's economy.

a) Agriculture and livestock

The hurricane winds, rain and flying debris affected the agricultural sector and rural areas, damaging the crops which were just being planted and affecting poultry producers, livestock owners and backyard gardeners across the island. In addition, many types of shade and ornamental plants were destroyed, and palm and fruit trees were uprooted or partially damaged. Some infrastructure was also damaged or destroyed. Given the intensity of the disaster and the physical characteristics of the terrain, no part of the island was spared.

Physical infrastructure, including buildings of the public and private sector, suffered direct damages amounting to US\$ 98,000.

Fruit trees that were destroyed or partially destroyed included papaws, mangoes, citrus, avocados, soursops, sugar apples, guinep, coconut palms, sapodilla and some banana plants cultivated in small-scale. Full recovery of their pre-disaster size and production levels may take at least two seasons. The direct losses of trees were valued at US\$ 30,000 and the estimated indirect production

losses at US\$ 5,000.

Table 2
DAMAGE AND LOSSES IN INFRASTRUCTURE
(Thousands of US Dollars)

Sector and subsector	Estimated damages and losses			Insurance recovery +/-
	Total	Direct	Indirect	
Total infrastructure	13,422	9,827	3,595	2,342
Water supply	41		41	
Losses of revenue	41	-	41	-
Electricity	3,426	1,817	1,609	987
Power plant contents	56	56		
Buildings, vehicles	302	302		
Radio, tools, etc.	84	84		
Transmission/distribution	840	840		
Home connections	535	535		
Decrease in revenues	1,609	-	1,609	
Ports and airport	1,465	1,285	180	373
Buildings, fencing, night lighting system and runway at airport	434	434		
Pier, jetty and warehouse at port	69	69		
Cargo/passenger boats	782	782		
Dredging of port	80	-	80	
Removal of beached boats	100	-	100	
Communications	6,540	4,775	1,765	982
Telecommunications	4,700	3,200	1,500	
Physical plant/equip	2,550	2,550		
Outside plant	250	250		
Home connections	100	100		
Other losses	300	300		
Decrease in revenues	1,500	-	1,500	
Radio broadcasting	110	75	35	
Equipment and buildings	75	75		
Lost revenue	35		35	
Cable television	1,730	1,500	230	
Satellite dishes and aerial network	1,500	1,500		
Lost revenue	230	-	230	
Roads	1,950	1,950	-	

Repavement of roads	1,400	1,400	--
Other road repairs	550	550	--

Source: ECLAC, on the basis of official figures and direct estimates in the field.

/ When available.

Ornamental and shade trees and plants were lost, causing a direct loss valued at US\$ 274,000.

Edible crops cultivated in the island for the 1995 season had already been harvested; the present year's production suffered little or no loss. Seeding had already begun for the next harvest, including cabbages, carrots, onions, pigeon peas, string beans, eggplants, sweet peppers, herbs, pumpkins and other cucurbitatae. This will result in a reduction of the 1996 crop and a corresponding increase in imports of these vegetables. These indirect losses in future agricultural production have been estimated as US\$ 239,000.

The livestock sector—including poultry, pigs, rabbits, sheep and goats, bees and cattle—was the most affected. Infrastructure, animal stock, feed inventories and production were destroyed or damaged. Special reference is to be made of poultry production where the island was making strides to become self sufficient in egg and meat supply for the local market, tending to the needs of the tourist and hotel demand. Direct losses were estimated as US\$ 345,000; indirect damages were valued at US\$ 728,000.

Following the destruction of the hurricane, farmers have continued to suffer losses, not only in terms of revenues lost but sustaining damages associated to the actions of stray animals, such as sheep and goats. Winds have dispersed seeds creating a hard to control problem of weeds since there had been a long-standing campaign to avoid the abuse of herbicides islandwide. In addition, the increase of weeds has led to a loss of soil nutrients. The reduced stock of bees and birds will affect the normal patterns of pollination.

Total direct losses for the agriculture and livestock sector were valued at US\$ 747,000. Indirect losses of production amounted to US\$ 972,000. Total losses for the sector reached US\$ 1,719,000. (See table 3).

b) Industry

Anguilla's industrial sector is confined to a narrow range of activities, linked to boat building and repairs, concrete processing for the construction sector, and some small cottage-level production of furniture and wood products for housing.

While minor damages were sustained by the infrastructure of the sector's industries, on balance the effects of Hurricane Luis were positive since there was no appreciable loss of equipment, machinery or stock.

In the immediate aftermath of the disaster, production was stopped due to the absence of power.

After this initial set back, these industries are slightly increasing their activities. The reconstruction and repairs already underway will enable a prompt recovery of the quarrying and concrete processing activities, and demands on local wood manufactures is also to grow over the last couple of years low performance. The local boat industry is facing increasing demands for repairs and orders for new vessels will be on stream, as insurances are collected and assistance is channelled to the fishermen affected.

Direct damages to this sector were estimated at US\$ 125,000 and net indirect losses at US\$ 40,000, so that total sector losses amount to US\$ 165,000. Insurance recoveries are estimated to amount US\$ 50,000. (See Table 3).

c) Fishery

Fishing activities in Anguilla are mostly of an artisan nature and aim to supply the local hotel and restaurant markets, with a minimal proportion of produce being exported.

Around 46 per cent of the total number of fishermen that operate commercially in Anguilla suffered the loss of their boats, engines and apparel, as well as small infrastructure they had near the mooring areas. The sea currents dislodged and sunk a vast amount of the fishing traps and buoys used by the fishermen.

Due to the losses in boats and gear, production was severely disrupted for the first two months and will take several more months, well into 1996, to recover to pre-disaster levels. In addition to the fishermen's production losses for two months and the reduction in catch that will ensue for a more extended period, they have faced lower prices in the local market due to the marked decrease in demand, in particular in the case of lobster.

Finally, the ecological conditions of the reefs, seaweed, mangroves and ponds has suffered damages that will alter the fish, conch and lobster growing areas. Most of the damage is of a temporary nature but will affect for some time the breeding and natural development of the resources and may alter the actual location of fishing areas. This may entail some drop in catch and increase the cost of fishing since boats will have to look for new grounds.

Direct damages to the sector were estimated at US\$ 775,000; indirect losses due to reduced catches were valued at US\$ 485,000. Total gross losses were estimated at US\$ 1,260,000. The sector's fishermen had only limited insurance coverage. (See Table 3.)

d) Wholesale and retail commerce

Commercial activity in the island was virtually paralyzed as an immediate consequence of the hurricane. After emergency repairs had been completed, commercial activities resumed their pace with varied intensities.

On the one hand retail outlets and commerce linked to tourism —such as taxi transportation, small shops and beach services— have experienced a continued downfall of their business. The sharp drop of day visitors has seriously affected their survival. In the case of taxi owners this entails financial consequences since most of them have modern units that are not paid in full. Attention to this matter is required to avoid default and losses in the local banking sector.

On the other hand, wholesale businesses related to the provision of construction materials and gear for the necessary repairs have experienced —after the emergency period— a surge in their business. This is associated with the pressure experienced by the hotels and restaurants to come back in at least partial operation in time for the high tourist season that begins at the end of the year.

No damages were suffered in the area of international business and financial services and its prospects seem to be of a continued positive nature as the government recently modified its legislation in order to attract offshore operations.

The quick response given by insurance companies to pay claims and the prompt and efficient actions taken by local businessmen —namely the hoteliers and restaurant operators— in the wake of the disaster can be projected as a positive sign that may attract foreign investors to partake in the local initiatives aimed at a diversification of the local economic base.

It was estimated that the infrastructure of the sector suffered direct damages amounting to US\$ 300,000, and indirect losses of US\$ 200,000 more. The total damages to the sector were thus valued at US\$ 500,000. (See Table 3.)

e) Tourism

Anguilla is considered as one of the most up-scale tourism destinations in the Caribbean.

The total number of visitors per year reached 125,780 in 1994, after growing steadily at an annual rate of 8.4 per cent in the past 10 years. Total expenditure by tourists in the island reached US\$ 51 million last year, which figure is equivalent to 80 per cent of Anguilla's gross domestic product (GDP).

Of the total number of visitors, 65 per cent are one-day tourists coming from St.Martin/Sint Maarten under "package touring" arrangements; the remaining 35 per cent stay an average of slightly over 9 days in the island's resorts. Expenditures by day-tourists in 1994 amounted US\$ 3.5 million; expenditures by tourists that stay longer have a seasonal variation, with an expenditure of US\$ 25.8 million in the winter months and of US\$ 21.7 million during the summer. These expenditures are incurred not only in hotels and inns but in restaurants and shops as well.

There are a total 951 rooms available in the island, located in 14 hotels, 26 villas and apartment complexes, 14 inns and 5 guests houses.

The hurricane winds affected the hotel infrastructure in much the same manner as other government and private owned buildings, damaging or destroying roofs, window panes, fences, etc. The storm surge and sea waves made the most damage since they eroded the beaches, exposing rocks and depositing sand into the sea bed, and even undermining building footings, parts of which collapsed. Due to damages to electrical, telephone and cable television networks, these services were interrupted at the hotels that were open at the time for periods as described for other buildings and facilities in the island.

These damages occurred, however, at a time when there is a seasonal low of tourists arrivals. Repairs to buildings and services at the hotels are proceeding at a fast pace, and it is estimated that nearly full room capacity will be restored by year end. Damage to beaches are a different matter, however, since—as will be indicated in the section on damages to the environment—their width has been reduced significantly and thus the main tourist attraction of Anguilla has been affected. While it is expected that the beaches and dunes will recover naturally within a 6-month to 2-year period, some hotel owners are undertaken artificial rebuilding of their beaches through dredging of the sea beds adjacent to their hotels or through importing sand from nearby sand mines.

The hotel owners are trying to reduce their losses to the minimum by restoring their facilities as much as possible before mid-December, when the maximum number of tourists begin their arrival. In the meantime, occupation is at a minimum level due both to the normal descent in demand in the period September to November and to the fact that repairs are going at full speed. International tour operators have been invited to visit the island in order to get acquainted with the reconstruction process and be in position to advertise the availability of facilities for the forthcoming winter season.

The one-day tourists have ceased to arrive altogether due to their direct relation to the situation of tourism to St.Martin/Sint Maarten. The resumption of these visits depends on factors beyond the control of Anguilla, and may require joint action with the other islands' authorities.

Restaurants and other related shops were similarly damaged in their infrastructure, and repairs are also underway. Some of them will have to be relocated farther from the sea in view of the modification of the beach. Those that are already operational are having lowered income due to the marked absence of the day-tourists.

There are other groups of people affected by the reduction in tourism activity caused by the disaster, including taxi drivers and others that cater to day-tourists demands. They are undergoing a period of nearly zero revenue whose end is uncertain.

Using information provided by insurance companies, the Anguilla Tourism Board, and selected hotel and restaurant owners and operators, as well as the mission's direct field observations, an estimate of damages and losses has been made for the sector. Direct damages to infrastructure of hotels and restaurants were estimated to be US\$ 25,050,000. Indirect costs that include relocation of some infrastructure, estimated losses of revenue, and the cost of rebuilding sand beaches projects underway, were estimated at US\$ 4,400,000. (See Table 3.)

Two points deserve special mention, however. First, that both direct infrastructure damages and revenue losses are partially covered by insurance, whether locally or abroad, so that the net effect on the hotel industry will not be as bad as the figures would indicate. Second, that the cost of rebuilding sand beaches and dunes may increase in the future if the rate of natural regeneration of the beaches is found to be slow.

Table 3
DAMAGES AND LOSSES IN PRODUCTION AND SERVICES SECTORS
(Thousands of US Dollars)

Sector and subsector	Estimated damages and losses			Insurance recovery ^{*/}
	Total	Direct	Indirect	
Total	33,094	26,997	6,097	19,165
Agriculture & livestock	1,719	747	972	75
Buildings	98	98		
Fruit plants and produce	35	30	5	
Ornamental plants	274	274		
Vegetable production	239	-	239	
Livestock	1,073	345	728	
Fishery	1,260	775	485	30
Boats and engines	139	139		
Fishing traps and buoys	606	606		
Other damages	30	30		
Catch reduction	485	-	485	
Industry	165	125	40	50
Infrastructure	125	125		
Production, net loss	40	-	40	
Commerce	500	300	200	10
Buildings	300	300		
Revenues	200	-	200	
Tourism	29,450	25,050	4,400	19,000
Hotels	23,500	21,300	2,200	
Other accommodation	3,800	2,300	1,500	
Restaurants	2,150	1,450	700	

Source: ECLAC, on the basis of official and private figures, and direct estimates.

^{*/} When available.

5. Environmental consequences

The island of Anguilla faces a number of critical environmental issues, some of which have been intensified as a result of Hurricane Luis. They include the degradation of soils considered poor for intensive agricultural production, the loss of woodlands, and the erosion of beaches and dunes, among others.^{8/}

The strong winds of the hurricane contributed to the further loss of trees in the island, overturning and uprooting many palm and other large trees. The island's natural landscape after the hurricane shows more limestone and thorn-scrub vegetation than large trees.

The storm surge and sea waves negatively impacted on all shores of the island. The sea water reached well into the vegetation behind the beaches, flattened dunes and stripped the sand from the beaches, leaving barren rocks exposed. The sand from the beaches and dunes was deposited in the nearby seabed. In many cases, beach width has been reduced from more than 30 to less than 5 meters.

It is anticipated that natural rebuilding of sand beaches and dunes will slowly occur in a period of between 6 months to more than 2 years, depending on local conditions; however, there is considerable doubt that full recovery is possible.^{9/} Artificial rebuilding of the beaches with sand recovered from the sea bed or imported from other sand deposits in the island are alternatives to aid or accelerate nature's actions. In fact, a tourism resort is already undertaking an expensive project of dredging the sea bottom near the beach and rebuilding the beach and dunes. Since these alternative solutions may have negative impacts on other variables of the environment, careful environmental impact analysis should precede them and continuous monitoring of their implementation should be conducted.

In other beach areas located in the eastern side of the island, the storm surge and sea waves brought and deposited many tree trunks, coral reef sections and debris. The damage thus imposed to coral reefs and the beaches have not been analyzed but may be extensive.

Several low-rise keys and small islands located in the west and north areas of Anguilla were washed over by the storm surge and waves, causing erosion and some sedimentation. This fact may also have a negative impact on animal life that has to be studied.

Further soil erosion has occurred as a result of the intensive rainfall that accompanied the hurricane, especially in those areas where the top soil depth was very limited. Agricultural production in these soils was thus further jeopardized.

It has been reported that the officially designated sand mining site at Windward Point Bay has been subjected to extensive exploitation in recent years. The erosion caused by the hurricane at this site

^{8/} A comprehensive description of environmental issues can be found in *Anguilla: Environmental Profile, 1993*.

^{9/} See Gillian Cambers, *Report on the damage to the beaches of Anguilla following Hurricane Luis*, October 1995.

has further diminished sand availability to a few months' supply.^{10/} Studies will have to be undertaken to identify other potential sites for sand mining to meet the future demand for beach and dune rebuilding and for infrastructure reconstruction aggregates. Due consideration will have to be made to the possibility of importing sand and to the need of ensuring its environmental compatibility. Possible damage to coral reef during transport of sand by boats should also be avoided.

In brief, the hurricane had a very negative impact on the tree cover of the island, caused erosion of beaches and the flattening of dunes, deposited sand in nearby sea beds, further eroded agricultural soils, and may have negatively affected animal life. Environmental impact assessments are still to be conducted before artificial restoration of beaches can be safely undertaken.

The damage to the environment of the island is thus enormous and cannot be measured in dollar terms. Indirect costs estimated in the tourism sector for the rehabilitation of beaches and dunes are only a minor reflection of the direct damage caused to the environment.

6. Other damages

Sports and recreation facilities were damaged by the action of the hurricane's winds and rainfall. They include several sports parks and courts that were eroded in their surface, damage to buildings and equipment of stadiums, and fencing of many other recreation facilities.

In addition 10 churches of different religious denominations suffered total or partial damage to their roofs and windows due to the strong winds, as well as damage to furniture and paintings by subsequent rains.

The direct cost of repairing these facilities has been estimated as US\$ 403,000.

7. Summary of damages

Despite the preliminary nature of the sectoral damages described in previous sections —since no completely reliable information was available at the time of the assessment— the magnitude of the total damage caused by Hurricane Luis on Anguilla can be quantified, and the sectors that have been affected the most and that will require preferential attention during reconstruction can be identified.

The total amount of damages and losses caused by the disaster is estimated at US\$ 55 million. This amount can be broken down in damages to infrastructure and natural resources of US\$ 47.4 million (86 per cent of the total) and losses in future production and *lucro cessans* of US\$ 7.6 million (14 per cent). However, there are potential insurance reimbursements for physical damages and revenue losses of up to US\$ 21.5 million. (See Table 4.)^{11/}

^{10/} Gillian Cambers, *Report on the damage...*, op. cit.

^{11/} It must be borne in mind that the above estimate of losses may vary with time. Indirect losses resulting from the possible acquisition and transport of

These figures acquire their right magnitude when comparing them to macro-economic variables. First, total damages and losses imposed by the disaster are equivalent to nearly 94 per cent of a year's gross domestic product in the island. Second, estimated physical damages amount to 2.3 times the annual amount of gross capital formation for the island as a whole. Were it not for the existence of insurance, replacement or repair of lost assets would be expected to require more than two years. Third, the estimated production and revenue losses are equivalent to about 12 per cent of GDP for the island. Since these losses will be spread out through the end of 1996, and there is partial insurance coverage on them, the annual setback in GDP will not be as acute for the present year and for 1996 as will be discussed in the following chapter. Nevertheless, the disaster will be a serious setback to previous years' trends in economic growth and performance.

An analysis of damages and losses by sectors is also of interest to identify where the effects of the disaster were concentrated. In the case of damage and destruction to infrastructure and natural resources, most affected were the tourism sector (55 per cent of the total), housing (17 per cent), and communications (11 per cent). For the case of production and revenue losses, the most affected sectors were tourism —again— (45 per cent of the total), communications and electricity services (23 and 21 per cent respectively), and agriculture and livestock (13 per cent).

While the above figures and comparisons provide a sectoral view of where damages and losses were concentrated, it must be borne in mind that the main effects of the hurricane were on the natural resources of the island, on which its main activities are based, as well as on its social and physical infrastructure. This fact must be recognized for its potential negative effect on the reputation of Anguilla as a top tourism destination.

However negative those effects may be, the efforts of the people of the island—including its government and the private sector— seem to be channeled in the right direction as far as reconstruction and rehabilitation of the economy are concerned.

A special comment is due in regard to insurance in this particular disaster. Contrary to what occurs in most developing countries of Latin America and the Caribbean, Anguilla has extensive insurance coverage that will produce significant benefits. Potential reimbursements from insurance policies would amount to nearly 40 per cent of the estimated total damage and losses imposed by the hurricane; they refer to both damage to infrastructure and losses in revenue and production although no quantitative breakdown was provided. These reimbursements will be spread out in 1995 and 1996.

Table 4
SUMMARY OF DAMAGES AND LOSSES CAUSED
BY HURRICANE LUIS IN ANGUILLA

(Thousands of US Dollars)

Sector and subsector	Estimated damages and losses			Insurance recovery %/
	Total	Direct	Indirect	
Total for island	55,321	45,522	9,799	21,507
Social sectors	8,402	8,295	107	..
Housing	7,571	7,571	-	
Health	308	218	90	
Education	523	506	17	
Infrastructure	13,422	9,827	3,595	2,342
Water Supply	41	41	-	
Electricity	3,426	1,817	1,609	987
Ports and airport	1,465	1,285	180	373
Communications	6,540	4,775	1,765	982
Roads	1,950	1,950	..	

III. IMPACT ON ECONOMIC PERFORMANCE

After determining the damage and losses sustained by the different social and economic sectors, described in the previous chapter of this report, it is possible to evaluate the effects of the disaster on the macro-economic position of the island. Such evaluation includes an analysis of the impact on overall production, the external sector, internal prices and employment, and government budget performance. The analysis is based on a comparison of anticipated economic performance before the disaster with the expected performance in view of the damage and losses sustained by the economy.

1. Economic position of the island before the disaster

a) Anguilla's economic position in 1994

In 1994 Anguilla's development objectives remained focused on raising the standard of living of its population through developing the island's productive potential and the provision of a wide range of employment opportunities. Tourism continued to be considered as the major vehicle for growth, notwithstanding the government's concern for diversification of the economy and the strategic importance of achieving a balanced sectoral growth. Joint ventures between the public and private sectors were envisaged as a means to attract foreign investment. Steps were taken to attract foreign offshore companies to assist in the diversification of economic activities, providing new employment opportunities, and raising income levels and government revenues.

Anguilla has recorded increasing numbers of tourist visitors for several years, bringing about a significant increase in gross domestic product (GDP). Although construction has been sluggish, some services such as communications, banking and insurance, and government have experienced high rates of growth over time.

Overall GDP growth in 1994 was over 8.3 per cent, a rate higher than that of the previous five years, largely dependent on the performance of the tourism sector as its lead engine.

In regard to productive sector evolution, industrial development continues to be centered on a narrow range of activities of small and medium scale. After abandoning the production of salt, construction of wooden boats, some traditional quarrying operations and the processing of concrete remain the main activities. Manufacturing grew by less than 3.5% in 1994, a slower pace than the previous three years.

Agricultural activities are also limited due to the scarcity of arable lands and irregular rainfall. Nevertheless, it is a government policy goal to increase the degree of self-sufficiency in basic foodstuff production. Overall growth in agriculture during 1994 was almost 13 % due to the recovery of livestock and fisheries.

Lobster and fish catches represent the most important activities, namely through the extraction by means of fish traps.

Crop production showed a persistent declination both in terms of physical production and value, in spite of very recent efforts at diversification and the introduction of some export-oriented activities —mangoes, cabbages and other vegetables and fruits such as egg plants, water melons and broad beans— as well as the promotion of corn and sorghum production. The most dramatic falls since 1989 occurred in the production traditional crops such as pigeon peas and sweet potatoes.

The construction sector remained stagnant in 1994, after an almost 15 % decline in 1993 and well below of its peak values of 1989-1990. This is noticeable not only in value added to the GDP but also in terms of building permits, which reached over 207 in 1990 and dropped to 133 in 1994. Total area under construction (according to the building permits) also peaked in 1990 (at 552 thousand square feet), dropping to 335,000 sq.ft. in 1994.

In connection with essential services sectors, in 1994 electricity and water supply generated a value added slightly below that of 1993 (almost 4 % less). Transport services also grew less than the overall GDP rate and only communications and banking services showed significant increases (17.3 and 12% respectively).

In regard to the financial sector (money and credit) during 1994 total deposits in the commercial banks grew at 11.8 %, mostly in the form of foreign currency deposits which traditionally represent over 68% of all deposits.

An easing of liquidity through the reduction of the ratio of loans and advances to deposits occurred —from 80 % in December of 1993 to 70 % in December 1994. The dynamism of deposits was accompanied by a decline of 1% in loans and advances. In fact domestic credit contracted by 2.3% in 1994, compared to a rise of 8.5% in 1993. Most that contraction was attributable to a decrease of 1.6% in credit granted to the private sector and a contraction of credit granted to the Central Government of over 48.4%.

The largest amount of loans were to individuals for housing and land purchases (over 25% of all loans in 1994). Commercial and distribution activities accounted for the remaining amount of which 10.7% went to tourism activities. Transport loans have dramatically declined over the last ten years (they represented over 32% of all loans in 1984 and accounted for less than 5% in 1994). Loans to the government and to statutory bodies amounted to less than 3.2% of total loans and advances of commercial banks for the period 1984-1994.

Interest rates remained fairly stable during 1994. Minimum and maximum prime lending rates increased by 1.5 and 2.5 percent respectively during 1994.

In the tourism sector hotel and restaurant services generated almost 40% of GDP in 1994, showing an increase of 16.1% over the previous year. Tourist and one-day visitor expenditure reached 51 million U.S. dollars (an increase of almost 18% over the previous year), and a far larger figure than the average of 35 million registered during the 1990-1992 period. The number of total visitor arrivals

also showed a significant increase (almost 13%). The average expenditure per visitor rose to US\$ 405 in 1994, an increase of 3.8 per cent since the previous year.

The number of hotel accommodations peaked in 1993 at 978 available rooms, mostly in hotels (518) and apartment complexes (398). The number of guest house rooms has been slowly decreasing over the years, from almost 100 six years ago to 50 in 1994. Average annual occupancy rates fluctuate around 30 to 35%, seasonally peaking in the December to April winter season, exceeding 50% for the whole island and reaching over 65% in the hotels. The length of stay, however, has diminished since 1990 from 10.6 to 9.4 days on average.

In regards of the external sector, in 1994 —after achieving surpluses averaging around 2% in the 1992-1993 period— the overall balance of payments of Anguilla showed a deficit equivalent to 0.3% of GDP. This occurred despite a narrowing in the current account deficit, as net capital inflows fell substantially and were insufficient to offset net current outflows.

The current account deficit, as a ratio of GDP, moved from 16.2% in 1993 to 13.5% in 1994. During the year and reflecting the expansion in economic activity, imports rose by 11.4% while exports grew by more than 36.5%. The increase in imports was associated to a substantial increase in the number of motor vehicles. The net effect was a widening of the trade deficit by 10.5%. As a ratio of GDP, however, the trade deficit narrowed marginally from 51.7% in 1993 to 51.3% in 1994.

The services account continued to be the major recipient of inflows. Net inflows from services increased by over 29.5% (equivalent to 26.6% of GDP). Net receipts from travel —increases in visitor arrivals staying at paid accommodations— are the underlying factors that explain the rise of 15.2% of gross earnings from tourism.

As regards investment and capital flows in 1994, net investment income payments were 13.1% above the total for 1993, partly reflecting increased profits remitted as a result of the higher economic activity, while net receipts from international transfers declined by 1.2%. This latter evolution is associated with a reduction in official transfers of 5.1% as some projects came to completion and others were winding down.

In the capital account, net inflows are estimated to have contracted by 17.4%, falling as a ratio of GDP from 17.9% in 1993 to 13.2% in 1994. A net decline occurred despite an increase in long term capital of over 48.5% in 1994 given the substantial increase in private capital outflows. These were mainly capital movements by commercial banks.

In connection with prices and employment, the evolution of the Anguilla Consumer Price Index shows single digit figures of 3.5 per cent for 1993 and 1994. On a November to November basis inflation in 1994 reached 4%; the highest increases were in clothing and footwear and in services.

The most recent rate of unemployment —dating back to 1992, when the latest population census was conducted— is of 7.2% of the labour force. The ratio of participation of the population of 15 years and over total population was estimated as 71.4% at that time, while the economically active

population was estimated at 60.7%.^{12/} By sector of activity in 1992, the largest source of employment were retail and wholesale activities (35% of the employed), followed by community and social services (which includes government employees (23.5%) and the construction sector (18.3%)). More recent data refer only to the employees registered by the Social Security Board.^{13/} The number of registered workers was 1054 in 1994, out of a total work force that would be in the vicinity of 4,790.

In connection with government income and expenditures, during 1994 the overall operation of the Central Government in Anguilla showed a surplus equivalent to 6.9% of its total revenues or 2.1% of GDP in current value terms. This surplus shows an increase of 3.3 times over that which occurred in 1993; it is associated with an 11.4% increase in current revenue and a 20.3% reduction in capital expenditure.

The main source of tax revenues were import duties, which grew by more than 25.6% in 1994, mainly due to a significant 25.7% increase in the number of vehicles imported. Revenue collected from the importation of vehicles —the island's largest import item— rose by 65.4 in 1994. Revenues from the duty on gas and fuel rose by more than 53.5%, associated with the increase in duties levied on gasoline, which grew from fifty cents to one EC dollar. Other significant sources of tax revenue, as the embarkation and accommodation tax levied on travellers and the import duty on alcohol registered minor increases.

Current expenditures grew by more than 11.1% in 1994, the largest item of expenditure being the general public service (which accounts for 33.5%). The combined expenditures on education and health represent over 30.2%; public order and safety amounted to 9.3%.

b) Prospects for 1995 before Hurricane Luis

Prior to the advent of Hurricane Luis, continued economic growth was expected in Anguilla for 1995. Tourist arrivals were expected to increase in spite of the continued weakening of the U.S. dollar. During 1995 it was expected that Anguilla would be promoted as a tourist destination in new not yet tapped markets such as Germany, Italy, Canada and selected portions of United States (like Florida, California and Illinois).

Additionally, the offshore sector was expected to expand during 1995, starting work on a new on-line computerized company registration system. Possible links between tourism and offshore sectors were to be explored. New banking and foreign investment legislation had been recently adopted.

Government borrowing activities was not expected to increase substantially as a result of these activities since it was intended to use portions of the surplus to finance a capital expenditure

^{12/} The remaining 39.3% is classified as inactive, and includes homemakers, students, retired persons and the sick. In 1992 the labor force was estimated at 6,224, out of a total population of 9,660 inhabitants.

^{13/} Its coverage in 1992 stood at 22%: 906 workers registered by the employers out of an estimated total employed labor force of 4,121.

programme.

GDP growth was expected to be over 4.5% in 1995, reflecting the fact that activity in the tourism sector during the first quarter was less buoyant than in the corresponding period in 1994. Nevertheless, until end August the trend for total visitors in 1995 was leading to an increase of over 4%.

Construction, the other major contributor to economic activity, also showed a slower growth, continuing its four year trend of deceleration. Building permits showed a decline of nearly 10% by September. In the case of agriculture, although an overall decline was expected, poultry production was reaching levels sufficient to guarantee reaching self-sufficiency in eggs in the short term.

In the financial sector, the dynamism of total deposits continued in 1995, growing almost 9% in the one year period ending in May. More recently, loans from the commercial banks, although slightly reduced in 1994, showed an increase of 1.7 % in the one year period to May 1995.

On the basis of quarterly data, the external sector was performing satisfactorily and prices and employment were stable. preliminary available data.

The central government budget, as programmed and in comparison to 1994, showed an increase in current revenue, associated with an increase in the accommodation tax as well as on the foreign exchange and embarkation taxes that are contributed by visitors and tourists. Non-tax revenue was also expected to grown significantly, generating a marginal surplus in the current balance. A further decline in capital expenditure was foreseen in the budget.

Notwithstanding the declining dynamism of some elements of the national economy in the first three quarters of 1995, the finances of the Central Government showed some improvement (current revenue increased by 3.7% in the period January-September 1995 in respect of the same nine months of 1994. Meanwhile, prices increased marginally during the period under review (less than 2% for the 12 months ending in August.

2. Impact of the disaster on economic performance

a) Economic activity

Table 5 shows overall and sectoral economic activity for Anguilla in 1994, the projections of economic activity based on performance measured prior to the occurrence of the disaster, and the projections of same taking into consideration the estimated figures for damages and losses indicated in the preceding chapter of this report.

Instead of achieving a figure of US\$ 60.2 million in 1995 and a growth of 3 % with respect to 1994, GDP will now only reach an estimated US\$ 51.5 million which represents nearly a 12% decrease

in comparison to last year's. Furthermore, since production and revenue losses in the most affected sectors are expected to continue well into 1996, GDP will continue to be affected next year.

Table 5
EFFECTS OF THE DISASTER ON GROSS DOMESTIC PRODUCT
(Thousands of US Dollars)

	Projections for 1995		
	1994	Without disaster	After the disaster
Gross domestic product (factor cost, constant prices)	58,474	60,251	51,620
Agriculture	2,464	2,254	1,630
Fisheries	1,626	1,351	1,026
Manufacturing	445	461	421
Mining and quarrying	351	344	344
Construction	6,785	6,785	8,142
Wholesale and retail	3,585	3,743	3,585
Hotels and restaurants	21,570	24,413	19,530
Electricity and water	1,404	1,350	1,080
Transport	3,509	4,074	3,258
Communications	5,732	6,724	5,379
Banks and insurance	5,777	6,524	5,220
Real estate and housing	2,174	2,228	2,005
Government services	7,709	8,102	9,722
Other services	898	925	185
Less, imputed service charge	-5,555	-7,104	-6,100

Source: ECLAC, based on available information and on its own projections.

In the productive and services sectors, the major effects will be felt in the tourism area, where the loss of assets, the increased maintenance, repair and reconstruction costs and the diminished installed room capacity will result in a net fall in the sector's activity.

Of the goods producing sectors, fisheries was the most affected due the number of fishermen that have been inactive for more than two months and need financial assistance to obtain boats and materials for the reparation or building of new traps.

On the other hand, the construction sector will experience an increase in activity as it undertakes all the repairs, renovations and reconstruction. This positive evolution will have a carry-over effect on economic activity for 1996.

For the purpose of assessing the total impact of the disaster on economic performance, the following is the estimated breakdown of production losses per sector for 1995 and 1996 (in Thousands of US Dollars):

Sector	1995	1996
Water supply	41	-
Electricity	1,126	483
Communications	1,009	758
Agriculture	194	778
Fishery	485	-
Industry	40	-
Commerce	60	140
Tourism	750	1,650

b) Effect on Government finances

An analysis was made of the anticipated effects of the disaster on Government finances. It is expected that instead of nearly reaching a balance of its finances as was expected from initial projections for 1995, as a result of facing the consequences of the hurricane, the overall balance will reach a negative value of five times the figure for the preceding year of 1994. The current account balance is expected to fall into negative values of the order of 11,775 US Dollars. (See Table 6.)

An increase in government revenue, through higher import tax collection, will —at least partially— offset the increased outlays caused by the emergency and immediate hurricane-related actions.

Major increases in Government expenditure were associated with relief and emergency actions

in the first few days after the hurricane and —specially in the following weeks and months— with the repair of social services and the restoration of public utilities. In addition, the government provided special funding to some home owners whose houses had been completely destroyed, drawing from a special Emergency Relief Fund.

Based on the above figures, it can be stated that the government will not be in a position to finance on its own whatever reconstruction outlays are not covered by insurance reimbursements and domestic private sector contributions. International cooperation will have to be sought for that purpose.

c) The external sector

The overall balance of trade in goods will be very negatively affected by the disaster. It will show a deficit higher than what it had in 1994 or than what was anticipated in 1995 before the hurricane struck, due both to a partial decline in exports of goods (mainly some agricultural and fishing products) and to a substantial increase in almost all imports, mostly associated with building and repair material for reconstruction and increased need of foreign supplies in the tourism service's sector. An increase in fuel imports will also occur as house and small electricity generating units were operating for several weeks until electrical distribution lines were reestablished along the territory.

The loss of transportation equipment will result in a further increase in vehicle imports, even though this will be minor. More importantly, vessels —both for fishing and cargo— will be imported to replace losses. At least four cargo vessels were beached and will almost certainly will not be salvageable. Import of materials for the construction of small fishing units and fishing utensils (fishing traps and buoys) will increase.

d) Price levels and employment

In spite of the decline of the catch of fish and lobster, the steep drop in their demand has brought a sharp reduction in prices. On the other hand, the loss of almost 3/4 of the local production of poultry and eggs has resulted in a shift to imported supplies, thus causing a small increase in prices for local consumption. In the case of construction materials, even though imports have dramatically increased, no major price variations have been detected since these goods would be always purchased externally.

Some of the services prices, particularly in the smaller restaurants and hotels, have been somewhat reduced in order to attract the return of business levels. The major providers, nevertheless, have kept their rates at the international levels that had been reached previous to the hurricane's occurrence.

Employment evolved in different direction for the various sectors. Activities associated mostly to tourism evolved negatively on relative terms. Most services to day visitors have been severely affected from the outset. According to data from the Customs and Immigration Services, the flow of

visitors entering the country by ferry from St. Martin/Sint Maarten stopped almost completely immediately after the hurricane and has been slow in regaining momentum; until the end of November it was still very much below its normal levels. This has had negative consequences for small businesses, restaurants, bars and coffee shops along the most popular beaches. Also severely reduced were the business activities of taxi drivers.

Major hotels —some of which were closed at the time of the hurricane and their major occupancy season begins in the first or second week in December— have had time to partially or completely refurbish in order to be ready for the main tourism season. Some delays have occurred in reconstruction and some cancellations have occurred; a lower hotel occupancy for the season — compared to that of previous years— is anticipated. Due to partial closure of some of the facilities, employees have been laid off or not rehired at the anticipated levels.

Table 6
ESTIMATED EFFECTS OF THE HURRICANE ON GOVERNMENT FINANCES
(Thousands of US Dollars)

	Projections for 1995		
	1994	Without disaster	After the disaster
OVERALL BALANCE	-2,521	-970	-13,170
Current balance	1,287	162	-11,775
Current revenue	15,808	16,969	17,633
Tax revenue	10,653	10,900	10,957
On property	49	123	37
On domestic goods/services	2,332	2,681	1,993
Accommodation tax	1,849	2,264	1,572
Bank deposit levy	355	302	297
Other	128	115	124
On international trade and transactions	8,272	8,096	8,927
Import duty	6,921	6,604	7,595
Foreign exchange tax	475	566	532
Embarkation tax	604	642	544
Other	272	284	256
Non-tax revenue	5,155	6,069	6,676
Current expenditure	14,521	16,807	18,488
Capital expenditure	3,808	1,132	1,358

Source: ECLAC.

IV. REQUIREMENTS FOR RECONSTRUCTION

1. General comments

A programme of reconstruction is to be implemented in order to overcome the consequences of the disaster caused by Hurricane Luis. Concerted action by the Anguillan Government and the private sector is essential for the plans to succeed.

Reconstruction projects should respond to the priority demands that were identified in Chapter II as a result of the damage assessment. They include many subjects that can be grouped under the following major headings: rehabilitation and conservation of natural resources and the environment, reconstruction of housing and other social infrastructure, restoration and diversification of productive sector capacity, rehabilitation of essential services and infrastructure, and reinforcement of disaster prevention and mitigation capacities.

2. Reconstruction programme

A preliminary description of the reconstruction programme and projects to overcome the effects of Hurricane Luis is presented in the following sections.

The reconstruction programme must comply with two requirements. First, it must not jeopardize in any way the on-going governmental efforts of social and economic development for the people of Anguilla. Second, its execution must be oriented exclusively towards the prompt and effective solution to the problems caused by the disaster. In that respect, reconstruction programme activities and those of normal development are to reinforce each other; resources assigned to reconstruction should be additional to those of normal development activities.

Funding for the reconstruction programme is expected to come from a number of sources. First, from direct insurance reimbursements to policy holders; second, special appropriation from the Government's budget; third, banking loans under adequate terms to finance reconstruction of productive activities that can generate future income; and fourth, donations to fund reconstruction activities in some of the social sectors where investment returns are not possible.

The following sections describe the main activities to be included in the reconstruction programme of Anguilla following the natural disaster caused by Hurricane Luis.

a) Natural resources and the environment

In view of the lack of sufficient knowledge and understanding of the negative impact of the hurricane on the environment and natural resources of Anguilla, and to ensure that no man-made actions are implemented that may further complicate matters, a number of studies and surveys must be

carried out at the earliest possible time.

These should include an environmental impact analysis of alternatives for artificial rebuilding of sand beaches and dunes; a field survey for the identification of domestic sources of sand for rebuilding of beaches and for utilization in the preparation of construction aggregates; an analysis of alternatives to import sand that will be compatible with the environment in eroded beaches and dunes and study of ways to avoid damaging coral reefs during transportation by boat to Anguilla beaches; field studies and preparation of guidelines to define adequate location for beach-side buildings to conform with the new position of the high water lines; a comprehensive survey of coral reefs to determine their damage and propose appropriate corrective and preventive measures; and a study to determine possible negative impacts of the hurricane on fish life and future catch.

In addition, projects for clearing and rehabilitation of those beaches where tree trunks and debris have been deposited, and sand dredging and beach reconstruction in selected locations, should be undertaken.

b) Social infrastructure

In order to ensure that the restoration and reconstruction of housing and other social infrastructure in the island is made according to disaster-related conditions, it is essential to undertake the definition of wind-resistant standards for house and building construction and reconstruction, and to reformulate the technology for the design of low- and intermediate-cost housing.

In addition, many investment projects are to be undertaken in order to repair and reconstruct housing, government buildings, school infrastructure (including the replacement of furniture and supplies) and sports and recreational facilities; relocate a health clinic; and restore and repair the roofs and other infrastructure of 10 churches.

c) Essential services and infrastructure

A number of projects —some of which are already underway— are to be implemented in the most immediate future in order to re-establish essential services for the functioning of the island's economic activities.

They include repairs to the electrical system, port facilities and warehouses; the dredging of the main port's docking area to facilitate operations and the removal of destroyed boats from beaches adjacent to the jetty; the restoration of the telecommunications system and to cable television facilities, as well as repairs to radio broadcasting stations' equipment and infrastructure; the re-paving of 15 kilometers of main roads and the acquisition of road building machinery to repair unpaved roads; and, finally, the re-paving of the airport's runway, the repair to the airport building and the reconstruction and equipping of the night lighting system for the airport.

d) Productive sector capacity

In order to reactivate the tourism demand, it is proposed to design and implement promptly an aggressive promotion campaign to inform the main potential users about Anguilla's readiness to resume tourism activities, and to enter into special agreements between the Governments of Anguilla and St.Martin/Sint Maarten to organize jointly an expansion of day-tours.

Direct rehabilitation of tourism capacity requires that several projects be undertaken for the rehabilitation and reconstruction of large hotel infrastructure, the reconstruction of medium-size hotel infrastructure and facilities, and the relocation and reconstruction of beach-side restaurant and other businesses.

In connection with the agriculture and livestock sector, projects must be started for reconstruction of buildings of the Ministry of Agriculture; the rehabilitation of livestock production, stock and infrastructure; the design and implementation of a programme for vegetable production to supply domestic consumption demands; the local manufacturing of fish traps and buoys and the repair and acquisition of fishing boats and apparel. Projects for the reconstruction of infrastructure for livestock and small animal raising—including poultry, pigs, rabbits, etc.— as well as for recovering the corresponding animal stock, are also to be undertaken.

Finally, a project to establish a small capacity for local production of construction blocks using domestic aggregate materials is required to increase the value added in the construction industry sector.

e) Disaster prevention and mitigation

In view of the vulnerability of the island to the future occurrence of tropical storms and hurricanes, several activities and projects related to disaster prevention and mitigation are to be implemented.

On the one hand, training of officials on disaster management techniques to increase and improve the island's capacities in this respect would be essential. On the other, projects should be undertaken for the reinforcement of the existing meteorological station at airport through provision of equipment for storm/hurricane tracking and forecasting, as well as for establishing a network of self-contained hurricane shelters that include wind-resistant buildings, individual power generators and independent water supply and sanitation facilities.

3. International cooperation required

Partial funding for the reconstruction is available in the form of insurance reimbursements. In addition, the Government of Anguilla has made special appropriations of current and capital resources to meet both the emergency and relief stage and parts of the reconstruction requirements; its capacity to finance the remainder of reconstruction, however, is severely compromised by other development and normal operation requirements, as indicated in the preceding chapter. Additional funds have been received or pledged from international and bilateral sources either as donations for emergency operations or as financing for reconstruction. The combined resources and pledges—whether public, private, domestic or international—are still insufficient to meet the total demands of reconstruction.

This is an opportunity for the international community to assist the efforts already underway in Anguilla and ensure that on-going development efforts are not placed in jeopardy for the need to concentrate on reconstruction activities alone.

As indicated before, international cooperation for reconstruction should be provided in addition to—and not instead of—whatever commitments have been already made to support normal development efforts in the island. Also essential is that reconstruction cooperation be provided at the earliest possible date so that activities can be started immediately. Cooperation funds should be made available in the way of donations to finance non-productive activities, and in loans under suitable conditions to finance projects that will produce economic returns.

When considering the possibility of providing such cooperation, the international community should give due consideration to the effective manner in which Anguillan officials and entrepreneurs have been facing previous activities of initial rehabilitation and reconstruction.

The following table presents in summarized form the list of projects for reconstruction and their estimated funding requirements, the corresponding Anguillan counterpart organizations that would execute them, and possible donor entities. The latter information is shown as a potential source of cooperation only, since no commitment of any kind has been made beforehand.

The information included in the following table is expected to be used by the Government of Anguilla in its search for cooperation partners in the execution of the reconstruction programme following the disaster. There exists the possibility that the Government might request the assistance of the United Nations Development Programme (UNDP) to convene a donors' conference to inform the world of the cooperation needs of the reconstruction programme.

Table 7

**ANGUILLA: LIST OF RECONSTRUCTION PROJECTS FOLLOWING
NATURAL DISASTER CAUSED BY HURRICANE LUIS**

Programme	Proposed activities	National executing agency	Possible cooperation sources	Amount required, (Thousands of US\$)
1. Environment and natural resources	Environmental impact analysis of alternatives for artificial rebuilding of sand beaches and dunes	Ministry of Home Affairs, Tourism and Lands	UNDP UNEP Bilateral donors	25
	Field survey for the identification of domestic sources of sand for rebuilding of beaches and for utilization in the preparation of construction aggregates	Ministry of Communications, Public Utilities and Works	UNDP HABITAT Bilateral donors	10
	Analysis of alternatives to import sand that will be compatible with the environment in eroded beaches and dunes and study of ways to avoid damaging coral reefs during transportation by boat to Anguilla beaches	Ministries of Home Affairs and Public Utilities and Works	UNDP UNEP Bilateral donors	15
	Field studies and preparation of guidelines to define adequate location for beach-side buildings to conform with the new position of the high water lines	Idem	UNDP HABITAT Bilateral donors	20
	Comprehensive survey of coral reefs to determine their damage and propose appropriate corrective and preventive measures	Idem	UNDP UNEP Bilateral donors	50
	Study to determine possible negative impacts of the hurricane on fish life and future catch	Department of Fisheries	UNDP UNEP Bilateral donors	40
	Clearing and rehabilitation of Eastern beaches where tree trunks and debris have been		Bilateral sources	...

Programme	Proposed activities	National executing agency	Possible cooperation sources	Amount required, (Thousands of US\$)
	deposited			
2. Social infrastructure	Sand dredging and beach reconstruction in selected locations	Lands and Surveys Department	Private banks Insurance reimbursements	2,000
		Private individuals		
	Formulation of wind-resistant standards for house and building construction and reconstruction	Lands and Surveys Department	UNDP HABITAT Bilateral donors	25
	Repair and reconstruction of housing	Individual home owners	Insurance reimbursements Private banks	7,600
	Repair of government buildings	Various ministries	Insurance reimbursements	250
	Repairs to sports and recreational facilities	Ministry of Social Services	Bilateral sources	150
	Relocation of a health clinic	Ministry of Social Services	Bilateral sources	40
	Replacement of mobile dental unit	Ministry of Social Services	Insurance reimbursement	50
	Restoration of 10 churches	Churches		265
3. Basic services	Repair of school infrastructure, replacement of furniture and supplies	Ministry of Social Services	GOA, Insurance reimbursements Bilateral sources	500
	Repairs to the electrical system	ANGLEC	Insurance reimbursements	1,800
	Repairs to port facilities and warehouses	Ministry of Public Utilities and Works	CDB Bilateral sources	250

Programme	Proposed activities	National executing agency	Possible cooperation sources	Amount required, (Thousands of US\$)
	Dredging of docking area to facilitate port operations	Idem	CDB Bilateral sources	250
	Removal of destroyed boats from beach adjacent to jetty	Idem	Bilateral sources	120
	Restoration of telecommunications system	Cable and Wireless	Insurance reimbursements	3,600
4. Productive sectors	Repairs to radio broadcasting stations' equipment	Radio Anguilla, Caribbean Beacon	GOA, Insurance reimbursement	150
	Restoration of cable television service	Cable TV company	Insurance reimbursements	1,500
	Re-paving of 15 kilometers of main roads	Ministry of Public Utilities and Works	CDB	1,400
	Acquisition of road building machinery to repair unpaved roads	Idem	CDB	600
	Reconstruction of airport lighting system, and re-paving of runway	Idem	CDB	400
	Design and implement promptly an aggressive promotion campaign to inform the main potential users about Anguilla's readiness to resume tourism activities	Chief Minister, Ministry of Tourism and Lands, Tourism Board, Hotel Owners Association	GOA, Tourism Board Hotel Owners Association	20
	Negotiate agreements between the Governments of Anguilla and St. Martin/Sint Maarten to organize jointly an expansion of day-tours	Chief Minister	GOA, Governments of St. Martin and Sint Maarten	--
Rehabilitation and reconstruction of large hotel infrastructure	Individual hotel owners	Insurance reimbursements Private banks	12,000	

Programme	Proposed activities	National executing agency	Possible cooperation sources	Amount required, (Thousands of US\$)
	Reconstruction of medium-size hotel infrastructure and facilities	Individual hotel owners	Insurance reimbursements CDB	8,000
	Relocation and reconstruction of beach-side restaurants and other business	Individual entrepreneurs	Insurance reimbursements CDB	5,000
	Reconstruction of buildings of the Ministry of Agriculture	Ministry of Agriculture	Bilateral donors CDB	200
5. Disaster prevention and mitigation	Rehabilitation of livestock production, stock and infrastructure	Individual producers	Private banks Insurance reimbursements	1,000
	Design and implementation of programme for vegetable production to supply domestic consumption demands	Ministry of Agriculture, Individual producers	Private banks	500
	Establish a small capacity for local production of construction blocks using domestic aggregate materials	Ministry of Works, Private sector	Private banks	50
	Manufacturing of fish traps and buoys	Individuals	Private banks	100
	Repair and acquisition of fishing boats and apparel	Individual fishermen	Insurance reimbursements	800
	Training of Anguillan officials on disaster management techniques	Ministry of Social Services	CDERA UNDHA PAHO/WHO	10
	Reinforcement of existing meteorological station at airport through provision of equipment for storm/hurricane tracking and forecasting	---	UN-WMO Bilateral sources	60

Programme	Proposed activities	National executing agency	Possible cooperation sources	Amount required, (Thousands of US\$)
	Establish network of self-contained hurricane shelters that include wind-resistant buildings, individual power generators and independent water supply and sanitation facilities	Ministry of Social Services	Bilateral sources	250