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SUMMARY

The West Indies island of Sint Maarten/Saint Martin was struck by Hurricanes Luis and Marilyn in September 1995. Their strong winds, storm surge and subsequent torrential rains destroyed or damaged the island's hotel and commerce infrastructure, housing and other social facilities, and the basic services of water supply, electricity and telecommunications.

Total damages —measured in dollar terms— are very high especially for a territory of the size of Sint Maarten. The disaster affected the island's main source of income and employment —the tourism sector— and will cause important reductions in the expected gross domestic product for Sint Maarten in the present year and in 1996 as well as significant losses in personal income and employment. Furthermore, the negative economic and social consequences will spill over to the national economy of the Netherlands Antilles.

The island government finances will suffer a serious setback due to the expected reduction in revenues and the increased outlays required to face emergency and immediate rehabilitation needs. Despite significant insurance reimbursements and the assistance already given or pledged by the Governments of the Netherlands and of the Netherlands Antilles, the island government of Sint Maarten is not in a position to finance on its own the financial requirements for the reconstruction.

Therefore, the cooperation of the international community is essential if the reconstruction of the island is to be achieved. To put it differently, unless further external cooperation can be obtained, there exists the danger that the problems faced by the affected population may take too long to solve or may not be solved at all.

This document has been prepared at the request of the Government of the Netherlands Antilles. It describes the results of an independent, objective assessment of the situation caused by the disaster, on the repercussions on the living conditions of the population and on the island's economic position. It also presents a number of projects and activities for the reconstruction of the island, some of which will require technical and financial cooperation from the international community.

It is expected that this document will assist the Governments of the Netherlands Antilles and of Sint Maarten to expedite the execution of the reconstruction programme and to facilitate the obtention of external cooperation.

I. INTRODUCTION

1. Background

a) General considerations

The island of Sint Maarten and St. Martin was struck by two hurricanes in September of 1995: Hurricane Luis from 4 to 5 September and Hurricane Marilyn on 15 September. The strong winds and storm surge of Hurricane Luis destroyed or damaged housing, buildings and other infrastructure, negatively affected production activities and services, and impacted on the island's natural resources and environment. The subsequent heavy rains from Hurricane Marilyn caused greater damage to furniture and other household goods of roofless buildings.

The total damage, measured in dollar terms, is very high especially for an island of the size of Sint Maarten/St. Martin. The disaster's impact was concentrated on both the social infrastructure and basic services and, most notably, in the island's main source of income and employment —the tourism sector— at a time when the main tourism season was about to begin.

The disaster is not an isolated one; it is part of a series of events that have affected the Caribbean subregion during the present year. In fact, the hurricane season of 1995 has been unusually active, with a total of 17 tropical storms or hurricanes traversing the subregion. In addition, the island of Montserrat has been suffering from the effects of a volcanic eruption.

Without a doubt, the effects of these natural disasters in the Caribbean subregion are setting back the governments' efforts to improve the living conditions and economic development prospects for their population. Similar setbacks are occurring in the wider context of the entire Latin America and Caribbean region. 1/

The large damage sustained by the island of Sint Maarten/St. Martin under this disaster has affected not only private property and investment but government buildings and services as well. In addition, the economic inter-relation of the island with the rest of the Netherlands Antilles as well as with other nearby islands is such that the disaster effects spillover to the latter. Reconstruction and rehabilitation demands cannot be met by using the island's financial resources alone; international cooperation is essential to restore pre-disaster living and economic conditions.

1/ ECLAC has estimated that on an average year the region suffers material and production losses valued at more than US$ 1,500 million, and more than 6,000 deaths. See Roberto Jovel, *Natural disasters and their economic and social impact*, CEPAL REVIEW, number 38, Santiago, Chile, 1989.

b) Purpose of this report

This report has been prepared at the request of the Government of the Netherlands Antilles, of which Sint Maarten forms part. Its purpose is to provide an independent, objective assessment of the damages caused by the disaster, as well as to outline the requirements for reconstruction activities to be undertaken by the island government with support from the international community.

The document presents a quantitative assessment of the damages sustained by the different sectors as well as the effects on the macro-economic position of Saint Martin. 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 most intensively affected by the disaster and which will, consequently, require preferential attention in the reconstruction.

The report includes a number of proposals for reconstruction projects, most of which require a financial capacity beyond that of the island's government.

c) The mission

The mission that prepared this report was fielded by ECLAC, with financial support from the United Nations Development Programme (UNDP), at the request of the Prime Minister of the Netherlands Antilles.

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 this particular case. The mission also conducted a similar evaluation for the neighbouring island of Anguilla. 3/

The mission worked in very close cooperation with officials of the Government of the Netherlands Antilles as well as with those of the local government in Sint Maarten. It held numerous meetings with them as well as with private sector representatives, and conducted many on-site inspections of the affected areas in order to gather existing data and reports and to develop its own observations of the effects of the disaster.

This report describes the result of the ECLAC mission in Sint Maarten. It takes into consideration numerous sectoral reports prepared by both island 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 prevailing circumstances.

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

3/ See ECLAC, *The macro-economic effects and reconstruction requirements following Hurricane Luis in the Island of Anguilla* (LC/MEX/L.289, LC/CAR/L.462), 5 December, 1995.

2. Description of the phenomena and their overall effects

Luis was a hurricane that originated near Cape Verde, off the African coast, and wreaked havoc in the northern Leeward Islands, causing more than a dozen deaths, disrupting living conditions, and imposing thousands of millions of dollars in economic losses.

It followed a path as 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. The center of the hurricane passed directly over Barbuda, Antigua, St. Barthelemy, Sint Maarten/St.Martin and Anguilla. The southern portion of its eye wall affected these islands with full force. 4/ The path followed by Marilyn is also described in Figure 1; it can be noted that this hurricane's center passed about 130 kilometers South of Sint Maarten.

In the case of Sint Maarten/St. Martin it is estimated that Luis had maximum sustained winds of up to 76 knots (140 kilometers per hour) and wind gusts of up to 185 kilometers per hour. The rainfall produced by Luis amounted to 231 millimeters. Marilyn had maximum wind gusts of up to 98 kilometers per hour, and produced a rainfall of 85 millimeters. 5/ Thus the combined rainfall of both hurricanes was of 316 millimeters, or 32 per cent of the total rainfall of a normal year.

The winds of hurricane Luis directly impacted housing and other buildings in the island. Many houses of poor quality construction were destroyed completely; others lost their roofing and sustained damages to rain gutters and windows. Hotels, restaurants and other commercial buildings were similarly damaged and had to close for weeks. Government buildings and services were also affected and interrupted their activities. Basic services of water and electricity, as well as telecommunications, were interrupted for considerable periods of time since the winds damaged buildings and power plants, equipment and poles and cables. Many trees were toppled and uprooted, sometimes falling over buildings and parked vehicles, causing further damage and destruction.

Hurricane Luis was accompanied by a storm surge of about 6 meters in height, and had a very negative impact on beaches, boats 6/ and infrastructure located along the coast line, bays and ponds. Beaches were eroded and sand was deposited in the nearby sea bed. Many boats capsized and sunk, while others were beached and damaged or destroyed completely. The main port was severely crippled.

The accompanying rainfall of both Luis and Marilyn further damaged or destroyed furniture and household goods of roofless houses and buildings, and eroded roads and ancillary structures.

4/ See Lawrence, Miles, *Preliminary report on Hurricane Luis*, National Hurricane Center, Miami, Florida, November 1995.

5/ Written communication by the Meteorological Service of Sint Maarten, November 30, 1995.

6/ Ironically, the bays of Sint Maarten had always been considered a safe heaven for boats during storms; this time, however, the winds and storm surge impacted them directly.

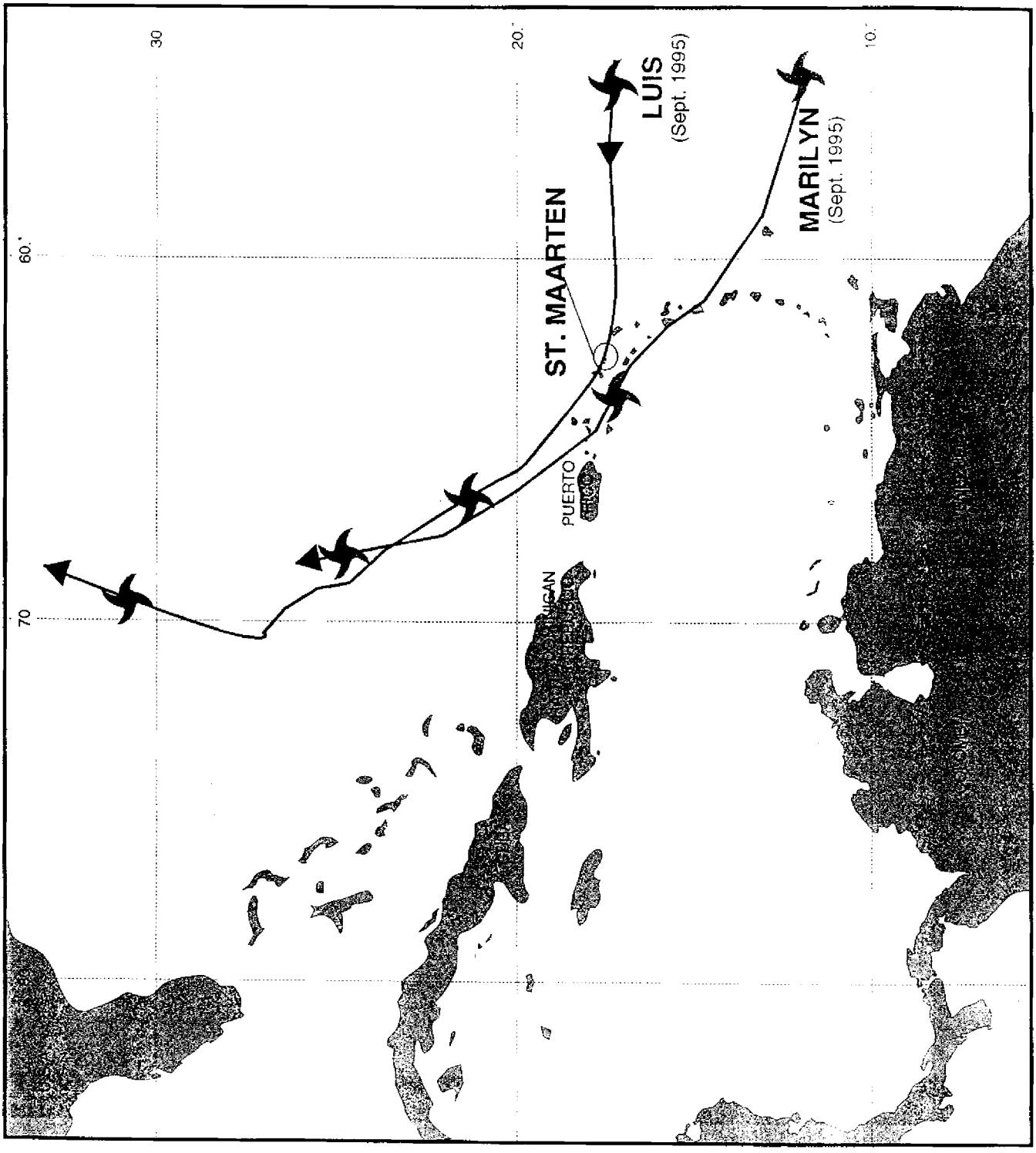
30
20
60
70
10
ST. MAARTEN
LUIS
(Sept. 1995)
MARILYN
(Sept. 1995)
PUERTO
RICO

FIGURE 1

The disaster caused by the combined action of both hurricanes therefore caused damages and destruction not only to infrastructure and services of many sectors but to the living conditions of the population and to the macro-economic position of the island territory. These will be assessed and described later on.

II. DAMAGE ASSESSMENT

1. Introduction

Estimates of the damage caused by Hurricanes Luis and Marilyn on Sint Maarten were made on the basis of partial information. Authorities of the island Government had undertaken some damage assessment work on selected sectors of the economy; some private entrepreneurs had also made preliminary damage assessments that concerned their own activities.

The information that was made available came from Sint Maarten's Government departments 7/ 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. All available reports were revised and it was concluded that there existed information gaps concerning damages to some sectors that had been assessed as well as to other sectors that had not been covered at all.

In order to carry out its assignment, 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. 8/ This entailed estimating direct damages on the basis of replacing capital stock and inventories that had been totally destroyed 9/ 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 estimate of the damage and can be considered to be sufficiently reliable for purposes of determining the effects of the disaster on the island's

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7/ See *Social and Community Priorities: Education, Housing, Public Health and Employment*, Workgroup on Social and Community Priorities, Island Government of Sint Maarten, 10 October 1995, and *Short-Term Economic Assessment and Recovery Program: Sint Maarten's Best Opportunity for Post Hurricane Luis Recovery and Revitalization*, Economic Recovery Committee, Island Government of Sint Maarten, 12 October 1995.

8/ See ECLAC, *Manual para la estimación...*, op. cit.

9/ 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.

economic position as well as for planning and programming investments to be made during the reconstruction period.

The value of damages was estimated in local currency (Netherlands Antilles Guilders) —at November 1995 prices— and converted into United States Dollars at the rate of 1.8234 NAf to the Dollar

2. Social sectors

The winds of the hurricane Luis, its high storm surge and the accompanying rainfall from Hurricane Marilyn imposed direct and indirect damages in the housing, health, and education sectors that are described in the following sections.

a) Housing

Hurricane Luis' winds had a very negative impact on the housing sector, aggravating some existing problems. These were related, on the one hand, to high land and construction prices brought about by the booming tourism industry and by the presence of wealthy expatriates' homes; on the other, to the existence of "shanty towns" inhabited by the island's poor and by illegal immigrants.

Nearly 80 per cent of all housing units were damaged in one form or another. The winds of Hurricane Luis destroyed many low-quality homes (about 37 per cent of the total houses in Sint Maarten) and caused the loss of roofing and window panes in a further 45 per cent of the housing stock. Once the roofs had been damaged or disappeared, furniture and household goods sustained damage or destruction by the rainfall that accompanied both hurricanes.

Only about a fourth of home owners had insurance on their homes and belongings. This is due to the fact that the inhabitants of Sint Maarten only seldom request bank loans to finance the construction of their homes, drawing instead from their personal savings.

No complete estimates of damages to the housing stock had been made prior to the arrival of the mission; the only estimates that were available referred to the cost of some housing reconstruction programmes to be executed using public sector funding.

An estimate of the total damages to the sector was made based on the mission's field observations, combined with basic information concerning unit construction costs and statistical data on the number of housing units available prior to the disaster.

It was assumed that the total number of housing units had risen from 13,531 as determined from the housing census of 1993, to over 14,000 just before the hurricane. It was further assumed that of that total 40 per cent were of low-quality and located in the shanty towns.

It was also assumed that the average surface area for the normal housing in the island was of at least 75 square meters while that of the low-quality housing units was of only 25 square meters. Total reconstruction unit costs were estimated to be 700 and 120 US Dollars per square meters for normal and low-quality housing respectively. A figure of 25 per cent of said unit costs was assumed for the repair to the houses that had suffered major damages including the loss of roofing and window panes; while a 5 per cent figure was adopted for the case of housing that had suffered only minor damage. The total value of these damages was estimated at US$ 142.6 million. (See Table 1.)

An estimation was made of the value of the lost or damaged furniture and household stock, adopting a figure of 25 per cent of the cost of destroyed and heavily damaged houses of normal quality, and of 50 per cent in the case of low-quality houses that were destroyed. These damages were estimated at US$ 37.2 million. (See Table 1.)

In addition to the direct damages thus estimated, it was recognized by the island government that the housing units located in the shanty town areas could no longer be utilized as before. Land was to be acquired and essential services provided for the reconstruction in adequate conditions, and temporary housing units were rented abroad to provide minimum shelter to those families. These indirect costs were calculated at US$ 12.6 million.

Therefore, the total amount of direct damages and indirect losses to the housing sector were estimated to be US$ 192.3 million. (See Table 1.)

b) Education

The education sector was adversely affected. An estimated 12 per cent of the total available school rooms were destroyed completely; an additional 12 per cent was subjected to heavy damage, losing roofing and windows; and 32 per cent more sustained minor damages. Three large physical education buildings were also damaged considerably. The heavy rains that followed destroyed or damaged school furniture and educational materials. These direct damages were estimated, using average reconstruction and repair costs, to be US$ 13.3 million (See Table 1.) These losses were only covered partially by insurance, so that the net loss will be substantial for the sector.

The school year had to be interrupted for a number of weeks, to be re-initiated by mid-October only. However, due to the destruction and damage sustained by some schools, conditions for teaching were less than adequate, since double shifts had to be adopted to

accommodate the entire school population. Many school teachers and students are under considerable stress after having lost their homes and having to cope with the situation in their schools.

In order to meet these abnormal conditions it was necessary to undertake special programmes for the provision of food and uniforms for school children, repair furniture that was damaged when schools were being used as temporary shelters, and to provide psychological counselling for students and teachers. These indirect costs of the disaster were estimated at US$ 2.3 million. (See Table 1.)

The total direct and indirect damages for the education sector were thus estimated at US$ 15.6 million.

c) Health sector

The combined action of winds and rainfall imposed damages on the infrastructure and furniture of the main hospital, a government clinic, the Hygiene Department, and two social service homes. An ambulance was also damaged considerably. Furthermore, medical material stored in different government buildings was rendered useless. These damages were calculated to amount to US$ 4.1 million.

Some pre-existent public health problems related to sewage treatment, garbage disposal, mosquito and rodent control and disposal, worsened as a result of the disaster. Special campaigns to control these matters were implemented immediately after the disaster. The leased building of the Public Health Department was damaged beyond repair. Finally, losses in revenue will be sustained by the hospital over the period of reconstruction. These indirect losses had a cost of US$ 4.2 million more.

The total amount of direct damages and indirect losses for the health sector were thus estimated to be US$ 8.3 million as indicated in Table 1. Partial insurance coverage is expected to compensate some of these costs.

Table 1

DAMAGE AND LOSSES IN THE SOCIAL SECTORS

(Thousands of US Dollars)

Sector and subsector	Estimated damages and losses		
	Total	Direct	Indirect
Total	216,287	197,190	19,097
Housing	192,324	179,764	12,560
Total destruction			
Shanty towns (4,000 units)	12,000	12,000	
Normal housing (1,250 units)	65,625	65,625	
Partial damage (4,500 units)	59,062	59,062	
Minor damage (2,250 units)	5,906	5,906	
Furniture and household stock	31,171	31,171	
Land acquisition, rental of temporary housing, etc.	12,560		12,560
Education	15,619	13,340	2,279
Classrooms destroyed (39)	4,500	4,500	
Classrooms heavily damaged (49)	3,000	3,000	
Classrooms with minor damage (103)	3,090	3,090	
Other minor repairs (114)	784	600	184
Physical education buildings	1,200	1,200	
Furniture and education material	1,295	950	345
Emergency food and uniform programme, Psychological counselling, etc.	1,750		1,750
Health	8,344	4,086	4,258
Hospital	5,125	3,481	1,644
Public Health Department	2,064	270	1,764
Other services	1,155	335	850

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

d) Employment

As will be explained in subsequent sections of this report, productive and services activities in Sint Maarten were adversely affected. This situation will have a corresponding negative effect on employment in the medium term, even though the construction sector may have a positive effect in the hiring of labour for the reconstruction.

It is estimated that in 1995 the total work force in Sint Maarten had reached a level of 19,623 persons, a 16 per cent increase from 1992 when the Census was undertaken. Average unemployment rates had reached 11.3 per cent in early 1995, slightly down from the 12.5 per cent indicated by the Census. Youth unemployment —referred to the 15 to 24 years of age group—, however, had increased from 20.5 to 27.9 per cent for the same period. Employment of older age groups and women had compensated such an increase.

A survey of private-sector employment conducted by the Netherlands Antilles Department of Labor and Social Affairs after the disaster, showed that a total of 1,378 jobs were in the process of being abolished. 10/ Of these, 947 jobs were to be canceled by a group of 8 major hotels.

The Department of Finance of the Island Government estimated that hurricane-related job losses would reach up to 2,279 jobs essentially in the services and tourism sectors in 1995 and an additional 1,908 jobs in 1996. This would mean a loss of about 20 per cent of the total number of jobs available in Sint Maarten before the hurricane struck.

Whichever figure is adopted, the resulting effect on employment will be very high. However, the boom to be experienced by the construction sector —although it is recognized that job switching from one activity to the other is not an easy task and that some specialized labour will have to come from abroad— will absorb part of the unemployed.

The serious situation thus described for a sizable number of families can best be understood when considering that the unemployed are also the ones that have lost their homes and furniture, and face a very desperate future. The Island Government will have to implement special programmes for retraining of labour, job creation and temporary unemployment support in order to assist the population in this trying situation, some of which are already starting.

3. Basic services and utilities

The basic services of electricity, water, and telecommunications, as well as the postal services and the cable television company sustained heavy damages by the action of winds and rains. They were interrupted entirely for two days, and by the end of November were still in the process of being restored.

a) Water supply and electricity

The government-owned water supply and electricity utility (GEBE) sustained important damages in its buildings, generating plants and equipment, as well as in its external plant since poles and cables were damaged or destroyed. Some materials which were stored in warehouses as well as furniture and office equipment of GEBE's office buildings were damaged by the rain.

10/ In the Netherlands Antilles an administrative permit is required by law before employees can be fired.

Most damage was sustained by the electricity subsector, but the water desalination plant had to discontinue its production for two days due to the lack of electrical power.

Due to the relatively long time period required for restoring the electricity transmission and distribution network, high losses of revenue are expected by GEBE.In addition, further losses of income will result from the reduced future demand of the tourism and commerce sectors, as will be described later on in this report.

Total direct, material damage sustained by the utility have been estimated to be US$ 5.9 million. Indirect losses resulting from the reduction in revenues during the reconstruction period for the electrical network were estimated to be US$ 8.9 million more. (See Table 2.)

b) Telecommunications

Antennas, switching facilities and other equipment, the utility's buildings, and the external cable networks for which poles are shared with the electricity utility, were damaged or destroyed. Office furniture and equipment in the utility's buildings were damaged by the rains. The most essential services were promptly restored, while repairs to the external plant are proceeding still.

Since the destroyed antennas and switching facilities are used to provide service to the neighbouring islands of Saba and St. Eustatius, these islands were also adversely affected.

The direct damages to infrastructure, equipment, networks and furniture to the subsector were estimated at US$ 20.1 million. Indirect damages imposed by expected losses of revenues for the utility during rehabilitation and reconstruction were calculated at a further US$ 17.5 million. Thus, the total amount of damages and losses for this government-owned utility are estimated to be US$ 37.7 million. (See Table 2.)

c) Cable television

The cable television company sustained physical damages in its administration building, image receiving antennas and switching equipment, as well as in its external plant. It must be noted that underground cabling suffered no damage while the aerial cabling which cover the majority of the island must be replaced entirely to avoid reduced image quality. The service is nearly non existent at this time.

The period required to restore the system to pre-disaster conditions is estimated by the cable company to be about 12 months. Losses of revenue are expected to occur as a result. However, since most hotels and resorts were not connected to the company's cable network, no further reductions in income are expected as a result of these sectors' expected contraction in the near future.

Direct damages to this enterprise are estimated to be US$ 5.6 million; losses of revenue were estimated at US$ 2.0 million more. The total amount of damages and losses to the enterprise are thus estimated at US$ 7.6 million. They are partially covered by insurance. (See Table 2.)

d) Postal services

The building that houses the postal services was heavily damaged by the wind and subsequent rains. Most of its roof was lost and office furniture and equipment were also damaged or destroyed. The estimated cost of repairs to the building and of replacement of the furniture and equipment were estimated at US$ 1.6 million. (See Table 2.)

No losses of revenue are anticipated in these services.

Table 2

DAMAGE AND LOSSES IN BASIC SERVICES AND UTILITIES

(Thousands of US Dollars)

Sector and subsector	Estimated damages and losses		
	Total	Direct	Indirect
Total	61,671	33,225	28,446
Water supply and electricity	14,771	5,861	8,910
Buildings and plants	906	906	
Equipment, furniture and materials	1,330	1,330	
Distribution networks	3,625	3,625	
Revenue losses	8,910		8,910
Telecommunications	37,680	20,144	17,536
Buildings	4,800	4,800	
Equipment	10,960	10,960	
Distribution networks	4,384	4,384	
Revenue losses	17,536		17,536
Cable television	7,600	5,600	2,000
Buildings, equipment and cable networks	5,600	5,600	
Revenue losses	2,000		2,000
Postal services	1,620	1,620	
Buildings	1,300	1,300	
Equipment and furniture	320	320	

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

4. Infrastructure

Damages to infrastructure —including ports, airports, roads, etc.— and vehicular stocks (airplanes, boats, buses, trucks and cars) were very high.

a) Airport and air transport

The main terminal building and warehouse, and the lighting and landing lights systems of the airport were damaged by the winds and rains. The meteorological facilities including radar antennas and dome were similarly affected. In addition, a limited number of private airplanes were damaged by the winds and required extensive repairs.

The revenues of the airport were negatively affected in view of its temporary closure and the subsequent reduction in the arrival of tourists to the island.

The direct physical damages were estimated at US$ 9.2 million; the indirect losses of revenues were calculated at US$ 7.9 million more. (See Table 3.)

b) Ports and maritime transport

The main port infrastructure which facilitates the traffic of tourists, cargo and fishing was badly damaged.

The administration building of the port authority lost parts of its roofing and windows due to the strong winds, and its equipment and furniture were damaged by the rains. The cruise docking pier —which was already in a state of disrepair before the hurricane— was rendered completely useless. The pier for the roll on/roll off cargo loading and unloading was severely damaged. The pier for handling small fishing vessels sustained important damages, but is still functional. Some 146 pleasure boats, ranging from 20 to 130 feet in length, were damaged by the winds and beached near the coast of the internal bays and ponds; an additional 30 larger boats were sunk in the same areas and constitute a threat to navigation and to the environment since they are leaking oil and fuel. The direct costs of the disaster were estimated to be US$ 10.9 million.

Indirect losses imposed by the removal of rubble on the dock, a survey of the bottom of the harbour and subsequent dredging operations, the cost of removing the sunken and beached boats, as well as losses of revenue for the port authority, were estimated as US$ 4.5 million more. (See Table 3.)

c) Roads and urban transport

Urban and suburban roads suffered minor erosion in its ancillary works and rain drainage structures. Traffic lights were destroyed. It was further estimated that one out of ten private cars, buses and trucks sustained damages of different severity.

The estimated repair cost of the infrastructure and vehicles was calculated to be US$ 1.9 million. (See Table 3.)

Table 3

DAMAGE AND LOSSES TO INFRASTRUCTURE

(Thousands of US Dollars)

Sector and subsector	Estimated damages and losses		
	Total	Direct	Indirect
Total	26,486	14,075	12,411
Airport and air transport	9,192	1,315	7,877
Buildings and equipment	1,070	1,070	
Losses of revenue (airport)	7,877		7,877
Private planes	245	245	
Ports and maritime transport	15,404	10,870	4,534
Buildings and docks	2,950	2,950	
Rubble removal from docks, sea bottom survey and dredging	24		24
Losses of revenue (port)	1,510		1,510
Boats damaged and sunk	7,920	7,920	
Recovery of sunken boats	3,000		3,000
Road and urban transport	1,890	1,890	
Roads infrastructure and traffic lights	1,000	1,000	
Private cars	890	890	

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

5. Productive and services sectors

The main damages and losses in these sectors refer to those sustained by the tourism and commerce areas. Other productive activities are of minor economic importance and linked to, or derived from, the tourism industry.

a) Commerce

The commerce sector in Sint Maarten is very well developed. It caters intensely to cruise day-visitors through small outlets and boutiques located along the streets near the pier and by means of several shopping areas, malls and commercial centers located near the hotel complexes.

Additionally, for the local population there are numerous small-size retailers, as well as several major wholesalers and supermarkets.

All commercial activities were virtually paralyzed in the most immediate aftermath of the hurricane. Damages to property and losses in stock (through direct damage and looting) were high. The 10-day curfew imposed immediately after the disaster and the closing of the airport and port for more than two weeks limited trade and impeded re-stocking.

Retail outlets and commerce linked to tourism —such as bus and taxi transportation, small shops and beach services— experienced an immediate cessation of activities that lasted for over six weeks. After the initiation of the high-tourism season at the end of November, these services are starting to operate at a level estimated to be about 50% of their normal turnover. Such reduction will continue till the end of the year. Normal levels are expected to be reached well into 1996. The sharp drop of day visitors has seriously affected the survival of the smaller ones or those that suffered major damage to their property. Attention to this matter to avoid default and losses was given immediately by the local banking sector, which negotiated with its customers a temporary moratorium on debt payments as well as on principal due.

It has been calculated that for the small and medium sized commerce sector damages to buildings and warehouses amounted to US$ 5.9 million, destroyed or damaged equipment had a cost of US$ 7.9 million more, and losses of stocks amounted to an additional US$ 25.7 million. Furthermore, these retailer business will sustain a loss in revenues that will go well into 1996, and which have been estimated to be US$ 116.3 million. (See Table 4.)

The larger commercial centers located near the hotel complexes sustained considerable damage to their stores and buildings. Their trade will resume slowly and very closely linked to hotel occupancy recovery, which —as will be seen in the following section of the report— is expected to remain depressed for a period of over 18 months.

Wholesale businesses related to the local market re-initiated their operations —although some in very trying and precarious circumstances due to damages to their infrastructure— and have increased their business particularly to fill the needs for the provision of construction materials and equipment for rehabilitation and reconstruction. This subsector has experienced a surge in its business, in response to the pressure experienced by the hotels and restaurants to restore at least partially their operations to face the high tourist season that begins at the end of the year.

Eight major wholesalers and supermarkets suffered extensive damages in their buildings and warehouses —some of which are total losses—, their equipment, including cool storage facilities and furnishings, and a considerable part of their stock. Damage and destruction in these buildings were estimated as US$ 7.9 million, equipment lost or damaged amounted to US$ 17.8 million, and stock losses reached US$ 13.8 million, bringing total direct losses to US$ 39.5 million.(See Table 4.) In order to be back in business, these wholesalers are operating out of refrigerated containers and are thus incurring in higher operating costs.

Indirect losses for the wholesalers and larger retailers were estimated at US$ 76.2 million They include reduced sales and higher operating costs in 1995 as well as further reduced sales in

1996 associated to the downturn in tourism activity although partially compensated by the expected growth in the construction business. (See Table 4.)

Minor damages were sustained in the area of international business and financial services. Some bank buildings required minor repairs; however, more important were the drastic reduction in business and the increased demand for credit extension or deferment of payments by clients. While long term prospects are encouraging since the government intends to promote offshore financial services, important constraints loom in the short term.

Insurance payments are already bringing fresh foreign resources to the economy but recovery by individual customers will be slow and the outstanding credit to numerous small businesses will take considerable more time than the original loan period. A temporary moratorium on payments both on interest and principal was agreed on a voluntary case-by-case basis immediately after the disaster.

The response given by insurance companies to pay claims has been somewhat delayed by the fact that physical inspections were difficult to make in the immediate aftermath of the disaster. Actual coverage and settlement varied depending on the type of insurance. A large number of properties were insured overseas by agents operating with companies not registered in the Netherlands Antilles. In addition —particularly in housing— expansion or improvements to the property had not been included in the policies, and a large fraction of small establishments and homes were underinsured with the consequence of major risk exposure and reduced reimbursements.

Total damages sustained by the commerce sector were estimated at US$ 271.5 million; this figure includes direct damages of US$ 79.0 million and indirect losses of US$ 192.5 million. (See again Table 4.)

b) Tourism

The main economic activities of Sint Maarten are those of tourism; they provide nearly 65 per cent of its gross domestic product. The total number of visitors per year reached 1,265,542 in 1994. Of said figure, 56 per cent are one-day tourists coming from the cruise ships that daily dock or anchor in the bay. These visitors sustain a very lively tourist trade that includes restaurants, boutiques and shops and local transport operators. The remaining visitors stay in available hotels and resorts. Length of stay varies and no records have actually been kept for some time, although an average of three to seven days is considered normal.

Additionally, the international Princess Juliana airport has a passenger movement in excess of 1.5 million travelers, which includes more than 300,000 in-transit visitors that contribute a service fee and are catered by the local duty free shops. Although expenditures by day-tourists in 1994 were not registered, it is considered that over 60% of the commerce and retail sector depends on this activity. The same would be true for the transport services.