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**CENTRAL AMERICA: ASSESSMENT OF THE DAMAGE CAUSED
BY HURRICANE MITCH, 1998**

*Implications for economic and social development
and for the environment*



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1

CONTENTS

	<u>Page</u>
SUMMARY	1
PREFACE	5
I. DESCRIPTION OF THE STORM AND CHARACTERISTICS OF THE DISASTER.....	7
II. ECONOMIC TRENDS PRIOR TO THE DISASTER	12
III. THE IMPACT OF HURRICANE MITCH	16
1. The human dimension.....	16
2. Environment.....	18
3. Overall economic impact.....	20
4. Sectoral damage.....	25
5. Social sectors	26
6. Infrastructure	27
7. Productive sectors	28
8. Regional effects.....	29
IV. MEDIUM-TERM IMPLICATIONS OF HURRICANE MITCH	32
1. Growth trends	32
2. Sectoral trends.....	33
3. The public sector	35
4. The foreign sector	35
V. THE EFFECTS OF THE HURRICANE ON THE ECONOMIC INTEGRATION PROCESS	37
1. Regional challenges	37
2. Medium-term effects	38



SUMMARY

On 24 October 1998, the Atlantic tropical storm Mitch reached hurricane status and progressively became one of the most powerful and destructive storms ever to have struck Central America and the Caribbean. During the following week it crossed Honduras, Nicaragua, Guatemala, El Salvador, Belize and Costa Rica, while the eye of the storm remained some 150 km from the coast. It remained stationary off the Caribbean coast of Honduras for several days, causing torrential rain, floods, landslides and very strong winds. At its peak, on 26 and 27 October, the hurricane reached category 5 (the highest on the Saffir-Simpson scale), being one of four hurricanes that have reached that level during this century in an area frequently hit by such storms. During those days it produced 300 km/h winds and unleashed its fury throughout Central America.

This disaster has modified the favourable prospects for growth that were beginning to prevail in the region. In fact, from 1994, when the last and oldest conflict in the region was put to an end in Guatemala, the countries of Central America were beginning to feel the effects of a long process of macroeconomic adjustment that they had begun at the end of the eighties. Increased discipline in financial policies and the initiation of certain economic reforms had enabled them to keep control, albeit still precariously, of the imbalances that had prevented a return to the road to firm, significant growth during the previous decade.

On the whole, economic activity in the region had been on the increase prior to hurricane Mitch and was expected to continue developing rapidly in 1998 due to strong foreign demand, capital inflows and sustained capital formation. Taking into account that the hurricane occurred at the beginning of November, its effect on production, amounting to more than one per cent of the growth rate of gross domestic product (GDP), reflects the magnitude of the disaster.

The storm caused the death of more than 9 000 people and an aftermath of pain, suffering and deteriorated living standards. It directly affected more than 11 per cent of Central America's population of nearly 32 million. According to estimates, more than 466 000 people were in shelters for several months and some 82 000 families will not be able to return to their homes for a long time, thus aggravating the region's problem of internal and foreign migration by a significant number of men of working age.

The fiscal situation was also affected, both by the increase in recurrent expenses to tackle the emergency and address the most pressing rehabilitation needs, and by the decrease in tax collection stemming from short-term production losses. In some cases this has increased the vulnerability and fragility of the public apparatus and is posing major challenges in terms of strengthening institutional and fiscal systems in order to carry out reconstruction work.

In some countries the macroeconomic effects will last for two or three years. Loss of crops will lead to a direct drop in exports, which coupled with an increase in imports to ensure food supplies and inputs for reconstruction, will add to the trade deficit. The aforementioned fiscal effect and this external imbalance showed the need to revise the adjustment and stabilisation programmes under way so as to make provision for reconstruction, and have highlighted the urgent need to speed up the renegotiation of the foreign debt within the context of the initiatives announced by various creditor countries.

The impact on each country is different. In Honduras, losses amounted to the equivalent of 80 per cent of the 1997 GDP, whereas in Nicaragua they were almost 49 per cent of GDP. The impact on the other countries was relatively smaller. In short, the damages amount to the equivalent of 13 per cent of Central America's GDP in current dollars and are seriously affecting the region's payment capacity: total losses represent 34 per cent of the region's foreign debt and 67 per cent of annual gross capital formation.

GDP growth in the region as a whole during 1998 is calculated at 4.6 per cent, or 1.3 per cent lower than the rate envisaged prior to the disaster. Honduras suffered the most dramatic drop, from an estimated 5.1 per cent to 3 per cent, while Nicaragua's was cut by 2 per cent. In the other countries the immediate impact was less significant, although the effects are expected to carry over into 1999, when the region's growth rate is estimated to reach about 3 per cent.

Lower income and damage to infrastructure will also have a negative effect on intra-regional trade. Although total imports will increase as a result of the need for inputs to replace equipment and supply products to substitute domestic goods, the region's capacity to meet these needs will be limited.

Taking the region as a whole, total losses are estimated at some US\$6 billion, of which a little over 3.100 billion were in capital assets and pending production (direct damages), with a slightly lower sum (2.918 billion) corresponding to lost income, interrupted production processes, services not performed, unpaid taxes, diminished exports and other items (indirect damages). Replacing lost or damaged infrastructure and direct losses are estimated at slightly less than US\$5 billion,¹ with direct implications on the balance of payments for over 1.600 billion.

The social impact of an disaster of this magnitude is not necessarily reflected in the assessment of losses; it is important to take into account cumulative adverse effects such as temporary family disintegration, the disappearance of the main personal points of reference, the traumatic effects of physical injury and the irreversible weakening of the family nucleus. Moreover, the population living in conditions of poverty is the worst affected; although their personal assets are limited in monetary terms, their losses are considerable in comparison to their income.

Damage to the social sectors —amounting to more than US\$795 million— is particularly critical in health infrastructure, because in addition to the facilities destroyed, an extraordinary demand was placed on health services during the emergency phase. This has become a problem of regional scope due to the risk of epidemiological transmission from one country to another, which is aggravated by the migration of displaced people.

The chronic lack of housing prevailing in the region before the disaster has been exacerbated by the direct loss of 386 000 units in this sector. A speeded-up housing reconstruction programme of that magnitude would entail a far higher amount than the countries' demonstrated building capacity. The sector will therefore need substantial investments over a period of between three and five years.

¹ Reconstruction costs could be higher depending on the goals set by each country, particularly in terms of improving the quality of infrastructure or incorporating criteria to reduce vulnerability.

Table 1

CENTRAL AMERICA: SUMMARY OF DAMAGE

(Millions of dollars)

	Total	Direct damage	Indirect damage
Total sectors	6 018.3	3 100.3	2 918.0
Social sectors	798.5	551.8	246.6
Infrastructure	1 245.5	656.9	588.6
Productive sectors	3 906.9	1 824.1	2 082.8
Environment a/	67.4	67.4	...

Source: ECLAC, based on official figures and own estimates.

a/ Only protected areas and ecological reserves are taken into account.

In the education sector, there were no important changes in the school calendar given that the school year had almost ended, but the beginning of the current year has been affected since schools and education facilities were damaged and many school buildings had to be used as shelters; this situation is likely to continue for some months.

The effects of the rains were worsened by previous human activity; deforestation —particularly on steeply sloping land—, inappropriate land use, and human settlements on mountain sides or the banks of rivers and lakes increased the impact of the hurricane. The drainage characteristics prevalent on the Pacific coast and the existing degradation of plant cover also heightened the effects of the disaster.

Damage to the environment was considerable and is not entirely reflected in the assessments carried out, partly because much of the region's ecological assets had already been damaged by unsound use of natural resources and by the fires that have taken place during the dry season in recent years, and that have been intensified by the El Niño phenomenon. During the reconstruction stage considerable resources should be invested in a regional programme for the recovery and management of catchment basins.

The destruction of regional infrastructure is extremely serious (over US\$1.2 billion in total). In the sanitation sector, the damage worsened the already precarious provision of this basic service. Direct damage to 27 754 kilometres of roads and the destruction of 156 bridges generated indirect losses of US\$541 million and caused the temporary interruption of trade flows between the countries of the region.

Flooding, rivers bursting their banks, and avalanches of mud and debris affected large areas of farmland, particularly in low-lying areas and river banks. Crops and plantations in valleys and

tablelands suffered substantial damage, affecting produce both for export and for domestic consumption, particularly basic grains, oil-seeds and African palm.

The manufacturing industry, trade and tourism also suffered considerable losses (some US\$960 million), particularly in indirect damage due to the interruption of productive activities and transportation and marketing operations.

The effects of hurricane Mitch were on a regional scale. Some damages may appear secondary if they are considered only as part of the problems affecting one particular country, but they take on greater significance when they are viewed within the context of the Central American process of economic integration. These circumstances have highlighted the truly regional nature of important projects, particularly those concerning reconstruction and enhancement of the road system and the electric power network, watershed management, environmental handling, disaster preparedness and mitigation, and epidemic control.²

The region's societies and governments now have the opportunity to undertake reconstruction with renewed criteria and values, while simultaneously carrying out institutional, legal and structural reforms to reduce economic, social and environmental vulnerability. Although the extent of the losses and damage to assets is greater than the countries' capacity to address reconstruction needs, it is hoped that the international community will continue to consider cooperation with Central America as a necessity for the consolidation of peace and democracy in the region.

The societies and governments of the region have an opportunity to undertake the reconstruction on the basis of new criteria and values, while simultaneously undertaking institutional, legal and structural reforms to reduce their economic, social and environmental vulnerability. An increase in domestic savings, investment and management to carry out reconstruction and transformation projects will be important elements of such reforms.

A purely economic approach would be limited, so these programmes should incorporate social features to help alleviate the suffering of large sectors of the population that were disadvantaged and marginalised even prior to the hurricane. Social and productive investment, aimed at increasing sustainability and governance, require special attention and priority treatment, together with the allocation of resources to rebuild and replace lost or damaged infrastructure.

The magnitude of the losses and damage are such that they exceed the region's capacity to address reconstruction needs, particularly if the aim is reduce the impact of similar events in the future. It is therefore hoped that this assessment will provide governments and the international community with data on which to establish national and regional priorities in rehabilitation and reconstruction programmes.

² See *Análisis preliminar de los daños causados por el huracán Mitch*, paper presented by ECLAC and UNDP in the Consultative Group Meeting on the Reconstruction and Transformation of Central America, Washington, D.C., December 10, 1998.

PREFACE

This document, which has a regional scope and focus, analyses the damage caused by hurricane Mitch in Central America between 21 October and 4 November 1998; it was prepared by the Economic Commission for Latin America and the Caribbean (ECLAC) in collaboration with institutions for Central American integration,³ coordinated by the General Secretariat for the Central American Integration System (SICA).

During the week following the disaster, the five Central American countries (Honduras, Guatemala, Nicaragua, El Salvador and subsequently Costa Rica) suggested the advisability of conducting assessments of the damage caused by hurricane Mitch. At the same time, the Regional Office for Latin America and the Caribbean of the United Nations Development Programme (UNDP) proposed that an ECLAC mission should be formed to carry out this task.⁴

The corresponding preparatory missions were carried out immediately in order to identify the appropriate government, private business sector and United Nations liaison officers, and the group of experts making up the missions was also defined. Full support and cooperation was extended from the outset to the completion of the work, both by the countries' governments and the agencies of the United Nations system, which were coordinated by UNDP, both at the central level and by the offices of the Resident Representatives in each country.

The evaluation missions began on 15 November with two teams of experts, one of which visited Honduras during the first week and El Salvador the second; the second team travelled to Guatemala and Nicaragua during the same two weeks and later to Costa Rica. Field work ended at the beginning of December, and the rough drafts of the five national documents were completed on 18 December. This regional report is based essentially on those national reports.⁵ Macroeconomic information was furnished by SIECA and SE-CMCA, and each country provided up-to-date information.

³ Permanent Secretariat of the General Treaty on Central American Economic Integration (SIECA), Central American Bank for Economic Integration (CABEI), Executive Secretariat of the Central American Monetary Council (SE-CMCA), Institute of Nutrition of Central America and Panama (INCAP), Secretariat of the Central American Agricultural Council (SCAC), Executive Secretariat of the Coordination Centre for the Prevention of Natural Disasters in Central America (CEPREDENAL), General Secretariat for Educational and Cultural Coordination in Central America (SG-CECC), Executive Secretariat of the Regional Water Resources Commission (SE-CRRH), Central American Institute of Business Administration (INCAE), International Regional Organization for Agricultural Health (OIRSA).

⁴ Project RLA/98/020, "*Evaluación del Impacto Socioeconómico de los Desastres Naturales (Huracán Mitch)*".

⁵ See ECLAC (1999), *Costa Rica, El Salvador, Guatemala, Honduras and Nicaragua: Evaluación de los daños ocasionados por el huracán Mitch, 1998. Sus implicaciones para el desarrollo económico y social y el medio ambiente* (LC/MEX/L.373, LC/MEX/L.371, LC/MEX/L.370, LC/MEX/L.367 and LC/MEX/L.372, respectively), January-March.

The missions were made up of specialists in the following fields:

- a) Mission coordinator
- b) Macroeconomist
- c) Agricultural economist
- d) Engineer specialising in infrastructure (roads, bridges, ports)
- e) Expert on housing and urban development
- f) Engineer specialising in energy, water mains and sewerage systems
- g) Engineer specialising in social infrastructure (schools and hospitals)
- h) Expert on the environment
- i) Expert in the formulation of projects

The methodology that ECLAC has been developing over various decades in its studies, particularly in Central America and the Caribbean, was applied in this assessment.⁶ It ensures a standard approach in the analyses carried out in each of the five countries, and provides a certain degree of accuracy and compatibility in its results. The study was based on *in situ* inspections of damaged areas and interviews and meetings with the people affected, business managers, pertinent governmental and non-governmental organizations and the spokesmen officially appointed to collaborate in the assessment.

The national reports include a detailed evaluation of the damage caused by the hurricane on the population, the economy and the environment. Its impact on the housing, education and health sectors and on the infrastructure is also assessed and, equally important, includes calculations of losses caused to productive activity, while also identifying the most affected sectors and geographical areas that must be given priority during the reconstruction phase.

National figures have been consolidated in this document so as to provide a comprehensive overview of the dramatic magnitude of the damage and facilitate the identification of projects and activities that should be of regional scope due to their nature. Although figures on damages are the same as those contained in the national reports, they may differ slightly from macroeconomic data, since this report contains the first official estimates of economic results for 1998.

The first chapter describes the characteristics of the phenomenon to provide an idea of its force and extraordinary nature. The second chapter contains an overview of the region's prospects prior to the disaster, which were promising due to the end of the conflicts and the progress made in achieving discipline in economic policy. The effects of the hurricane on the social and economic sectors and on the environment are described in the third chapter.

The fourth chapter assesses the economic implications of the disaster over the medium term (a period of between three and five years) and its impact on the course of regional development. The fifth and last chapter makes reference to the consequences of the hurricane on the process of economic integration, on the assumption that the resources that are essential to national reconstruction plans will be secured, and that the regional projects needed to reduce environmental, economic and social vulnerability and relaunch the integration process will be implemented.

⁶ The methodology is contained in the "Manual para la Estimación de los Efectos Socioeconómicos de los Desastres Naturales", Santiago de Chile, 1991.

I. DESCRIPTION OF THE STORM AND CHARACTERISTICS OF THE DISASTER

The hurricane season in the northern hemisphere over the Atlantic Ocean (which lasts from July to November every year) was characterised by the unusual force of the storms in 1998. The concentration of violent meteorological events between August and October can be considered historic: ⁷ 13 tropical cyclones were given names during this period, and affected densely-populated areas throughout the Wider Caribbean, including both the island countries ⁸ and those of the Central American isthmus (see Table 2). Their effects are associated with and add to other climatic changes that have been affecting the region, such as the droughts and floods resulting from the El Niño phenomenon in the Pacific Ocean, ⁹ all of which have caused major damage in the Latin American and Caribbean region as a whole.

Hurricanes Lisa and Mitch formed in the Atlantic Ocean in October. The former moved in a north-westerly direction between 5 and 9 October, turning into a minimum-level extratropical system with 140 km/h winds on 9 October without ever hitting land. The latter, however, was formed following a tropical front between Monday 19 and Tuesday 20 October. It developed into a low-pressure zone and by midday on 21 October had already been classified as the thirteenth tropical storm of the season. At that time it was located in the south-west Caribbean, some 580 kilometres south of Jamaica, with sustained 50 km/h winds moving west-north-west at 15 km/h.

On Thursday 22 October it was classified as a tropical storm (named Mitch); its centre was located 704 kilometres south-east of the Nicaraguan city of Bluefields, with sustained 72 km/h winds and gusts of over 90 km/h. It then followed an apparently erratic path, varying in intensity and changing course at various points between 23 October and 4 November (Table 3 and Graph 1 show the course and changes in intensity of the storm).

⁷ National Hurricane Center (NHC) (1998), *Monthly Tropical Weather Summary*, prepared by the U.S. National Weather Service, and published on the Internet in October and November.

⁸ For an evaluation of the damages caused to the Caribbean islands, see ECLAC (1998), *República Dominicana: Evaluación de los daños ocasionados por el huracán Georges, 1998. Sus implicaciones para el desarrollo del país* (LC/MEX/L.365), 4 December.

⁹ These climatic changes have affected Central American and Caribbean countries, such as Mexico, which has suffered droughts and floods at different times, as has the United States, and Andean and Central American countries where the El Niño phenomenon has had serious consequences. See ECLAC (1998a), *Ecuador: Evaluación de los efectos socioeconómicos del fenómeno El Niño en 1997-1998* (LC/R.1822/Rev.1 and LC/MEX/R.657/Rev.1), 16 July, and ECLAC (1998b), *El fenómeno El Niño en Costa Rica durante 1997-1998. Evaluación de su impacto y necesidades de rehabilitación, mitigación y prevención ante las alteraciones climáticas* (LC/MEX/L.363), 3 November.

Table 2

MAIN HURRICANES IN THE CARIBBEAN, 1998

Name	Dates	Maximum wind velocity (kilometres per hour)
Alex	29 July-2 August	200
Bonny	20-26 August	84
Charley	21-24 August	55
Danielle	24 August-3 September	170
Earl	31 August-3 September	160
Frances	8-13 September	105
Georges	15-29 September	240
Hermine	17-20 September	75
Ivan	20-27 September	145
Jeanne	21-30 September	170
Karl	23-28 September	170
Lisa	5-9 October	120
Mitch	21-31 October	290

Source: ECLAC, based on data provided by the U.S. National Weather Service (NWS-NHC), October and November 1998.

As a result of the presence of two high pressure fronts —the anticyclone in the Gulf of Mexico and the inter-tropical convergence zone (ITCZ)— the storm began moving more slowly and gradually veered south-east. On Saturday 24 October it became a hurricane as the pressure in the eye fell 52 millibars to 924, and its sustained wind velocity increased to 150 km/h, moving at 9 km/h in a north-north-easterly direction. On that day it was located 415 km south-south-east of Jamaica and 600 km east of Puerto Cabezas. This caused heavy rainfall on the Pacific coasts of Costa Rica and Nicaragua and in the north-west of Nicaragua.

On Sunday 25 Mitch's force increased all the more as the pressure dropped to the fourth lowest level recorded for an Atlantic hurricane this century. It was located 64 kilometres from Swan Islands. On the afternoon of 26 October it approached the northern Atlantic coast of Honduras where its spiral bands met with a low-pressure front which was almost stationary over Nicaragua's Pacific coast, causing heavy rainfall. On that same day it was upgraded to 5 on the Saffir-Simpson scale, reaching its maximum sustained surface wind velocity of 290 km/h.

Mitch remained at that level on 26 and 27 October, causing heavy rainfall on Nicaragua's Atlantic coast and moving towards Honduras over the Islas de la Bahía. At its greatest intensity, the hurricane passed over Guanaja island. At midday on 27 October, the pressure at the centre reached 906 millibars, as it moved along the northern coast of Honduras and slowly advanced southwards, going inland.

Table 3

PATH AND EVOLUTION OF HURRICANE MITCH

Date (day and local time)	Wind speed (maximum sustained km/h)	Category (Saffir- Simpson scale)	Location			
			Latitude north	Longitude west	Barometric pressure (MB)	
23 October	10 a.m.	95	Tropical storm	12.7	77.9	
	10 p.m.	95	Tropical storm	13.0	78.1	997
24 October	10 a.m.	160	Hurricane (2)	14.9	77.9	987
	10 p.m.	195	Hurricane (3)	15.7	78.4	965
25 October	12 a.m.	200	Hurricane (3)	15.9	78.9	953
	12 p.m.	235	Hurricane (4)	16.4	80.3	929
26 October	12 a.m.	240	Hurricane (4)	16.3	82.0	922
	12 p.m.	273	Hurricane (5)	17.0	83.2	906
27 October	12 a.m.	285	Hurricane (5)	17.4	84.5	918
	12 p.m.	250	Hurricane (5)	16.9	85.4	928
28 October	12 a.m.	220	Hurricane (4)	16.5	85.6	933
	12 p.m.	195	Hurricane (3)	16.4	85.6	948
29 October	12 a.m.	160	Hurricane (2)	16.3	86.0	970
	12 p.m.	120	Hurricane (1)	15.9	85.6	990
30 October	12 a.m.	65	Tropical storm	15.3	86.5	997
	12 p.m.	85	Tropical storm	14.0	87.0	1 000
31 October	8 a.m.	55	Tropical depression	14.5	88.7	1 001
	8 p.m.	55	Tropical depression	14.6	90.5	1 002
1 November	8 a.m.	45	Tropical depression	14.9	91.6	1 005
3 November	5 p.m.	70	Tropical storm	20.0	90.6	997
	8 p.m.	65	Tropical storm	20.2	90.2	997
4 November	12 a.m.	65	Tropical storm	20.3	89.9	997
	2 a.m.	55	Tropical depression	20.8	89.4	998
	8 a.m.	75	Tropical storm	21.8	88.3	998

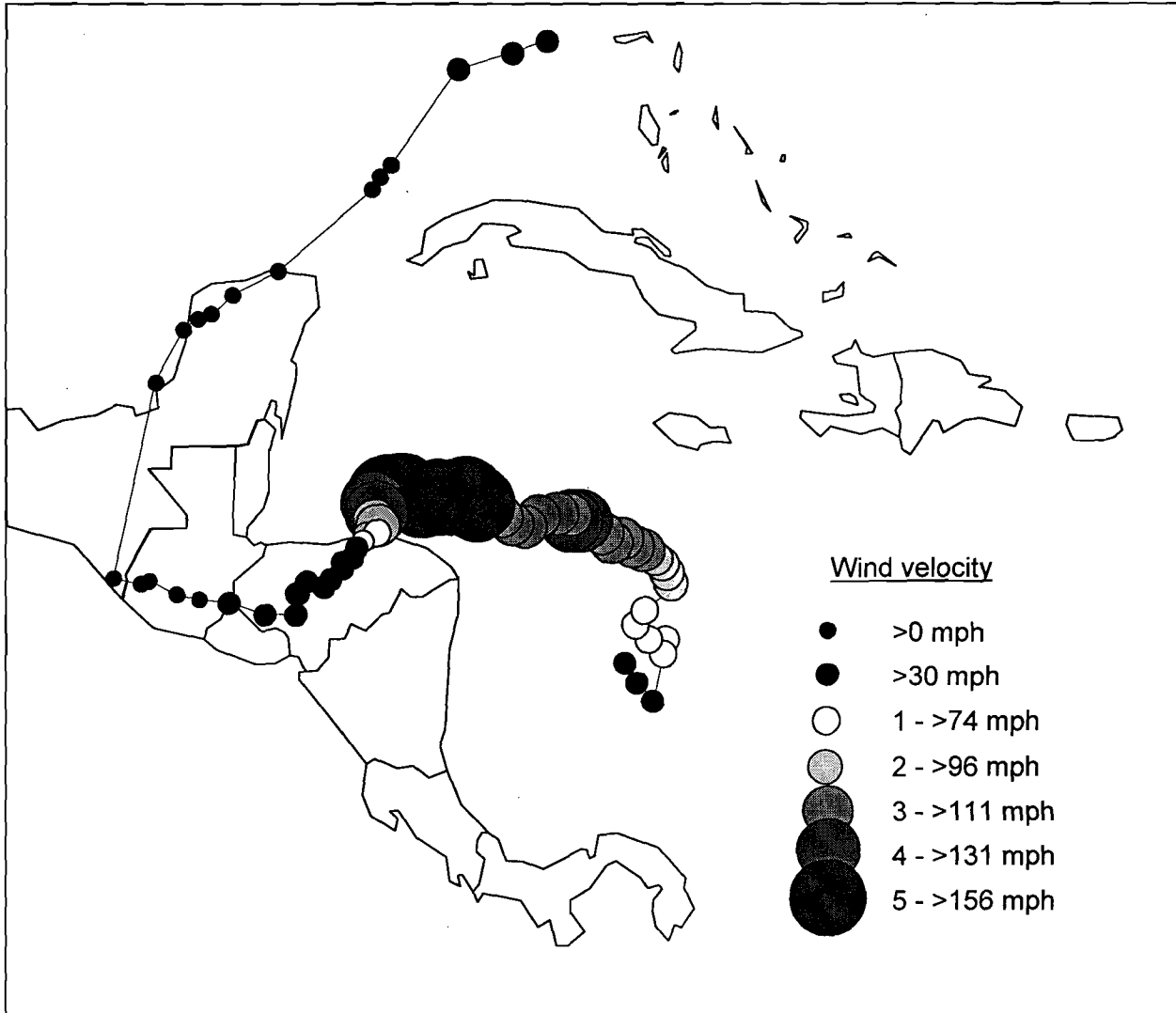
Source: ECLAC, based on data from Internet, <http://dyred.sureste.com>.

On 28 October, its intensity dropped to 4 and gradually weakened into a tropical storm on 29 October, when it caused torrential rains as it swept through parts of Honduras and was boned in between hills and the Montecillos mountain range. On Friday, 30 October, it reached the capital, Tegucigalpa, by which time it was much weaker. In its path, the extraordinary amount of rainfall caused rivers to overflow to an extent unprecedented in this century, with very serious flooding on the coastal plain, landslides and avalanches in mountain slopes, and raging river rapids.

Graph 1

THE PATH HURRICANE MITCH

(Between 22 October and 5 November 1998)



Source: Johns Hopkins University Applied Physics Laboratory. Copyright 1998 Ray Sterner and Steve Babin.

At dawn on 31 October, Mitch appeared to be moving towards the Gulf of Fonseca, but due to the ITCZ it changed course once again, and continued on its path of destruction over south-eastern Honduras, near its border with El Salvador. By 1 November Mitch had turned into a tropical storm again, moving along the Pacific coast of El Salvador until it reached Guatemala. It finally crossed the Isthmus of Tehuantepec in Mexico, entered the Gulf of Mexico, crossed Florida and finally disappeared in the North Atlantic. Its path was exceptional in the history of hurricanes, at least during this century, since it crossed from one ocean to the other twice.

To sum up, measured on the Saffir-Simpson scale, hurricane Mitch was far stronger than hurricane Andrew, which devastated the south-western coast of the United States in 1992. Furthermore, its erratic behaviour (see Graph 1 again) —a tropical storm developing into a hurricane in the Atlantic Ocean, turning back to the Pacific as a tropical depression and storm, then returning to and finally blowing itself out in the Atlantic— is unprecedented in recent years.

II. ECONOMIC TRENDS PRIOR TO THE DISASTER

At the beginning of the nineties the outlook for the countries of Central America posed major challenges, while also signalling a promising new stage. Having overcome the worst period of armed conflicts,¹⁰ which had broken out again during the eighties, leaving an aftermath of social, political and economic setbacks, the countries embarked on the task of reintegrating their societies and channelling resources and efforts to the new situation of regional peace. At the same time, these countries faced the enormous challenge of adapting to the swift changes taking place in the world economy and improving their integration into the latest international trade, production and investment trends.¹¹

After seven years of individual and collective efforts, the countries of Central America have made striking progress both in reordering their economies and in transforming their international relations; nevertheless, long-standing difficulties still exist and new obstacles and challenges have arisen. In particular, it has not been possible to reduce poverty, and growth rates have not been high enough to provide the labour market with sufficient jobs.

One of the initiatives taken by the region was to stabilise and diminish strong macroeconomic maladjustments: high fiscal deficits were reduced, foreign-trade imbalances were controlled and inflation was significantly curbed, particularly in Nicaragua, which had the highest rates in Latin America. Adjustment programmes were carried out with the support of international financial agencies, so economic policy objectives became more unified and fiscal and monetary management showed greater consistency.

As part of the change in economic strategy, the countries of Central America undertook reforms designed to modify the framework of economic incentives, strengthen the outward-oriented growth model and reduce the public sector's role in the economy. Various areas of the economy were liberalised and deregulated within the framework of the reform of the State; in the fiscal sphere, efforts were made to update tax structures and streamline spending so as to place public finances on a sound footing, and at the same time actions were taken to update government services.

¹⁰ Central America experienced civil strife and, most importantly, armed conflicts in Guatemala (1963-1996), El Salvador (1979-1992) and Nicaragua (1974-1979; 1981-1990). The armed conflict in Guatemala started in 1963 and lasted for 33 years. The peace process which began in 1986 under the auspices of president Vinicio Cerezo fully materialised with the signature of the Peace Agreement under the presidency of Álvaro Arzú. El Salvador suffered a civil war which began in 1979 and ended with the 1992 Peace Agreement. Nicaragua experienced a civil war (1974-1979) that ended with the overthrow of self imposed dictator Anastasio Somoza Debayle (1979) as well as a transition from a peace to a war economy (1981-1990), a hyperinflation period (1987-1991), and several drastic stabilisation attempts characterised by maxidevaluations that have affected and constrained the country's productive capacity.

¹¹ See ECLAC (1993), *Centroamérica: El camino de los noventas* (LC/MEX/L.223), 25 May.

Some public enterprises and financial and promotion entities were privatised, particularly basic electricity services and telecommunications.

In that context productive activity began returning to normality and between 1990 and 1997 regional GDP, exports and capital formation grew at higher rates than those of Latin America as a whole. Economic activity grew almost 4 per cent on average during those years. The international situation had a positive influence in this regard, since the economy of the United States—the region's main trading partner—showed a strong recovery following a recession at the outset of the decade, while prices of the raw materials and fuels imported by the region showed a downward trend.

The process of capital formation built up vigorously, especially as of 1992, and employment and income levels began to improve, particularly when the armed conflicts ended; this enabled much of the population to re-enter the labour force or normalise its productive activities. Even so, informal economic activities have expanded notably in the region, in view of the formal sector's insufficient capacity to create the jobs needed to meet the demand of the economically active population (EAP).

Foreign economic relations were stepped up through different channels. Exports of goods grew nearly 15 per cent a year on average between 1990 and 1997 and are being diversified, as shown by the incorporation of new, non-traditional items; moreover, intra-regional trade is also showing a recovery.¹² It is worth pointing out that after falling continuously since the end of the eighties, international prices of the region's main export commodities—particularly coffee—showed a strong rise in 1994-1995.

Moreover, the establishment of in-bond (*maquila*) processing companies expanded and diversified rapidly during the first half of the nineties, taking on a regional dimension, contributing a significant amount of net foreign exchange and promoting the creation of new jobs.

In terms of foreign debt, the region showed a considerable improvement since the balance was reduced from approximately US\$23 billion to US\$19.2 billion between 1990 and 1997. This reduction was aided by a decrease in Nicaragua's foreign liabilities, which were strongly cut back through debt remissions and restructuring. Despite this improvement in the region's financial situation, Honduras' and particularly Nicaragua's indebtedness continue to place strong restrictions on growth, as their ratios of foreign debt to goods and services exports remain very high (174 and 783 per cent respectively).¹³

Several actions were carried out in the region to improve its positioning in new world trade and capital flows and promote international cooperation, but progress has been difficult and

¹² Intra-regional trade accounts for one fifth of total trade on average and for a much higher amount in El Salvador and Guatemala (42 and 30 per cent respectively).

¹³ Nicaragua is focusing its efforts on securing HIPC (Highly Indebted Poor Country) status, which is a World Bank and International Monetary Fund (IMF) initiative. The signing of a second Enhanced Structural Adjustment Finance (ESAF) Programme with the IMF in 1997, in direct support of the balance of payments, was a requisite to qualify as an HIPC. Honduras is also working on a number of initiatives to that same end.

sometimes contradictory. Greater opening to international trade has taken place and efforts have been made to modernise complementary institutions. Central America completed the process of joining GATT/WTO ¹⁴ in recent years. The commitments entered into with this organization have established a common platform for liberalisation policies and for following international trade and investment regulations.

It should be mentioned that the entry into force of the North American Free Trade Agreement (NAFTA) between Mexico, Canada and the United States changed Central America's immediate milieu and markedly shortened the region's time frame for accomplishing its integration into the world economy and consolidating a regional bloc to improve the countries' trade negotiations and make them more efficient. NAFTA has the potential to modify continental trade and investment flows, and this has important implications for Central America.

One of the region's first responses to NAFTA was the interest it showed in the creation of a Free Trade Area in the Americas (FTAA), which is being promoted by the United States with a view to broadening cooperation and economic relations throughout the continent by the year 2005. Increased economic relations with Mexico are also significant, since Mexico has strengthened its presence in Central America in recent years and is now the region's third trading partner. This has partly taken place within the framework of bilateral relations. In 1995 Costa Rica signed a trade agreement with Mexico, and was followed by Nicaragua in 1998. The three remaining Central American countries are in the process of negotiating similar agreements.

The countries have made headway in reformulating free trade within the region. Numerous tax surcharges and other extra charges established in the eighties during the economic crisis have already been eliminated —although exceptions have been authorised in emergency cases— and a regional framework for trade has been re-established through the Central American Tariff System. As a result, the volume of intra-regional trade currently stands at almost US\$2 billion.

Along with economic stabilisation and social peacemaking, throughout the nineties democratic practices have been consolidated by civilian governments through elections and growing civic participation in national public affairs. In 1990 Nicaragua embarked on a phase characterised by the holding of plural elections, the consolidation of peace and the reincorporation into productive activities of the population that took part in the armed conflict. In 1992 the government of El Salvador and the Farabundo Martí National Liberation Front (FMLN) signed a peace agreement that signalled the end of an armed conflict that had lasted more than ten years. Similarly, following an intensive process of dialogue and discussions between the Guatemalan government and the Guatemalan National Revolutionary Unit (URNG), an agenda for peace was adopted in 1997; this includes commitments to address problems of governability and of social and economic exclusion, along with other issues that affect Guatemalan society.

In spite of the enormous progress mentioned above, returning to fully normal conditions has proved to be a complex process, since pockets of social and political tensions have persisted in some

¹⁴ General Agreement on Tariffs and Trade/World Trade Organization. With the exception of Nicaragua, which joined GATT at the beginning of the fifties, the rest of Central America became members between 1990 and 1994 as part of the Uruguay Round.

countries and have hindered and slowed down the transition to more democratic, participatory societies. This has led to uncertainties and is hampering improved linkage with the world economy.

Prior to hurricane Mitch, Central America's short and medium-term economic outlook looked promising. In 1998 the region's growth rate was expected to reach nearly 6 per cent, based on favourable prospects for an increase in foreign demand, inflows of foreign capital from abroad and a sustained capital-formation drive.

Economic policy focused on promoting production and improving competitiveness, although the approach and the emphasis placed on the way measures were implemented varied somewhat from country to country. Fiscal and monetary policies coincided in this regard, although the latter had the effect of offsetting significant capital inflows from abroad. In addition, the structural-reform process continued in 1998, including the modernisation of the State and foreign trade liberalisation.

The money supply showed strong growth, largely due to foreign capital inflows —despite measures to offset their impact— and a more flexible reserve requirement system. In general credit, mainly for the private sector, showed an increase in a setting of lower interest rates in some countries. The persistent increase in dollar-denominated bank deposits throughout the region deserves special mention in this context.

Table 4

CENTRAL AMERICA: MAIN ECONOMIC INDICATORS

(Growth rates)

	1990-1994	1995-1997
Gross domestic product a/	4.4	3.2
Per capita gross domestic product a/	1.6	0.5
Gross fixed capital formation a/	13.4	1.3
Inflation (December-December)	18.0	11.3
Fiscal deficit (central government)/GDP b/	2.9	2.3
Balance of payments current account position c/	-2 222.8	-1 833.2
Total foreign debt balance c/	23 440.8	20 615.2

Source: ECLAC, based on official figures.

a/ On the basis of figures at constant 1990 prices.

b/ Percentage of GDP.

c/ Millions of US dollars.

III. THE IMPACT OF HURRICANE MITCH

This chapter includes descriptions of the effects of Mitch on the population, the economy and the environment. It also provides an account of the damage to social infrastructure, highways, bridges and roads, water mains and sewerage systems, energy infrastructure, irrigation and drainage, and the productive sectors.

As Mitch swept through the region, the extraordinary amount of rainfall caused floodwaters to reach levels not seen this century, with severe flooding on coastal plains, as in San Pedro Sula, in Honduras, and around the lower reaches of the Lempa river in El Salvador.

When the hurricane struck the mountains of Honduras, Nicaragua and Guatemala, landslides on hillsides and swollen rivers swept away bridges, highways and all kinds of infrastructure. The scale of the damage was due to both the intensity of the rains and the wide area affected, and the man-made damage already existing in catchment basins. Most of the people affected were victims of landslides and flooding. In Nicaragua, more than 80 per cent of deaths were caused by the avalanche of mud, exacerbated by the eruption of incandescent matter from the Casita volcano in the country's north-west, which destroyed the villages on its slopes.

1. The human dimension

The rains, floods and overflowing rivers had a strong impact on the people of Central America. The regional total of dead and missing was higher than 18 000, ¹⁵ concentrated in Honduras and Nicaragua. Those directly affected (dead, injured, missing and evacuated) reached almost 3.5 million people, or 11 per cent of the total population of Central America. No other single phenomenon is on record as having simultaneously affected all five countries, and causing so many victims (see Table 5).

The impact on the population of an event on this scale cannot be fully appreciated through a purely economic assessment of the losses. As yet no parameters are available for conducting an evaluation of the effects of temporary family disintegration, the loss of the pillars of the household economy, the disappearance of personal terms of reference, the traumatic effects of physical disability or the irreversible weakening of the family unit.

¹⁵ No official figures are available on the number of missing people who were later found.

Table 5

CENTRAL AMERICA: POPULATION AFFECTED BY HURRICANE MITCH

Item	Total	Costa Rica	El Salvador	Guatemala	Honduras	Nicaragua
1. Dead	9 214	4	240	268	5 657	3 045
2. Missing	9 171	3	19	121	8 058	970
3. Injured	12 842	280	12 275	287
4. In shelters	466 271	5 411	55 864	54 725	285 000	65 271
5. Total evacuated and direct victims	1 191 908	16 500	84 316	105 000	617 831	368 261
6. Population directly affected	3 464 662	20 000	346 910	730 000	1 500 000	867 752
7. Children under five	1 801 624	10 400	180 393	379 600	780 000	451 231
8. Total population	31 648 907	3 270 700	6 075 536	11 645 900	6 203 188	4 453 583
9. Percentage affected	10.9	0.6	5.7	6.3	24.2	19.5

Source: ECLAC, based on official figures.

As in previous disasters, most of the affected population pertain to low-income groups, whose suffering was exacerbated by the loss of their homes, furniture and personal effects, which is of enormous significance. Unfortunately, the settlement of particularly vulnerable areas by these groups has increased as the population and marginalisation have grown.

Several factors heighten the risks to which the poor are exposed during extreme weather. Firstly, many settlements inhabited by low-income groups are located in areas where land has little or no commercial value because of their high degree of risk: these include hillsides and gullies, areas near riverbanks, and flatlands that are frequently prone to floods in the rainy season, among others. The rains caused by Mitch highlighted this structural problem, which has been on the increase for decades.

Secondly, the characteristics of this land and the limited availability of sanitary infrastructure encourage the spread of pests and diseases. The risks of morbidity (and possible mortality) stemming from this situation, are made worse by the malnutrition of most of the population, especially children under the age of five and pregnant and breastfeeding mothers.

Thirdly, many people do not have access to the social services that would alleviate their sanitary vulnerability. They are particularly affected by the lack of drinking water sources and adequate human-waste removal systems. The hurricane highlighted the fragile nature of infrastructure to mitigate these deficiencies. Many water mains and latrines were destroyed by floods and landslides, which in turn contaminated wells and water mains.

The rural population was the worst affected by the destruction of farmland and local roads and bridges, along with those employed in trade in agricultural commodities.¹⁶ This was worsened by the loss of income sources and the situation is likely to continue for more than a year in areas such as banana-growing regions.

As a result of the disaster's many effects, around 466 000 people will have to remain in shelters for several months, and some 82 000 families will be unable to return to their homes for a long time, which will worsen problems stemming from the internal and external migration of a large number of men of working age.

An estimated 52 per cent of the population affected are children;¹⁷ these include a large number of dead, and many injured by the materials of which their dwellings were built or carried away by mud avalanches. Field visits to schools used as shelters showed children with severe physical injuries and suffering major psychological and psychosocial traumas. Thousands of pregnant mothers were among the people affected. This situation highlights the need to adopt prevention and mitigation measures to protect the lives, dwellings and livelihoods of groups living in conditions of extreme poverty.

In addition to the problems described above, the risks to life were even higher in areas that were mined during the armed conflicts of the eighties. Water currents exposed these devices, altered the safe paths commonly used by people and moved mines into areas previously considered safe. Affected areas could include parts of El Salvador, Honduras and Nicaragua.

2. Environment

The impact of natural phenomena on the environment has only recently begun to be studied. There is still no accepted methodology to assess its effects, but there can be no doubt that some form of appraisal is extremely important. In any case, it must be acknowledged that ecological deterioration in Central America is making habitats more vulnerable to events such as hurricane Mitch. Man's activities harm the environment, which is further weakened by the impact of hurricanes and other similar phenomena. The gradual recovery of ecological assets thus goes beyond any quantitative estimate, since it must be borne in mind that much of the region's environmental infrastructure was already in poor condition. Reconstruction efforts must therefore include programmes to reduce the vulnerability of the environment, which largely surpasses the damage estimates presented in this report.

The already severe effects of the rains were aggravated by man's previous actions, such as deforestation—mainly on steep hillsides—inappropriate land use, and settlements on hillsides or on riverbanks and lake shores. The drainage characteristics that prevail on the Pacific and the diminished plant cover also helped to increase the effects of the disaster.

¹⁶ There were only a large number of victims in main urban areas in Honduras due to the floods in San Pedro Sula and Choluteca and overflowing rivers in the capital, Tegucigalpa.

¹⁷ Based on estimates made by the United National Children's Fund (UNICEF). Of all those affected, 1.8 million were children.

The relationship between poverty, demographic pressure and the environment largely accounts for deforestation and advances on the farming frontier. The poorest people often seek forms of survival in the most ecologically fragile areas. The traditional rural-urban and rural-rural migrations extend the farming frontier, causing major imbalances in the distribution of population centres and placing added pressures on natural resources.

The damage assessment was based on the average value of the environmental services that forests in protected areas and ecological reserves provide in terms of carbon fixing, water protection and production, biodiversity, ecosystems and scenic quality. These values are relative, because economic estimates require further study (see Table 6). Based on these appraisals, it was calculated that the damage to ecological reserves and protected areas in Central America amounted to more than US\$67.4 million and that their rehabilitation will need at least US\$137.7 million.

Table 6

AVERAGE VALUES FOR THE ENVIRONMENTAL SERVICES OF FORESTS

(Dollars per hectare per year)

Environmental service	Primary forest a/	Secondary forest a/
Total	58.00	41.76
Carbon fixing	38.00	29.26
Water protection	5.00	2.50
Biodiversity protection	10.00	7.50
Protection of ecosystems	5.00	2.50

a/ Based on Echeverría *et al.* (1996), Carranza *et al.* (1995); values for Costa Rica.

There was undoubtedly a cumulative effect, especially in 1998, of the climatic changes associated with the El Niño phenomenon (in terms of floods, droughts and forest fires), that further exposed land to the devastating impact of the rains caused by Mitch. The swollen waters made rivers burst their banks, damaging both the areas on their banks and neighbouring land. The pollution of these areas by deposits of refuse, sand and stones, and the erosion of plant cover make recovery extremely expensive, in some cases impossibly so. In addition, the sedimentation of riverbeds will have long-lasting effects on watercourses and will require costly works to channel future overflows or rehabilitate original courses by removing some of the silt.

Land regulation, soil conservation, environmental restoration, structural mitigation measures for works such as roads, bridges, dams and others and, in general, all the technical efforts required for sound environmental intervention or transformation will have benefits on the quality of life, the sustainability of natural resources and the environment. Information stemming from scientific research, data bases on natural phenomena and early detection are all necessary to accomplish these aims, and must be accompanied by a continuous process of public education to ensure appropriate knowledge of environmental management and an orderly reaction to natural phenomena, which can have catastrophic consequences. These actions, which are in fact long-term prevention measures,

would considerably reduce efforts and improve coordination between prevention and mitigation, alert and civil defence mechanisms.

3. Overall economic impact

The effects of hurricane Mitch changed the regional economic outlook, altering production, employment and income patterns, fiscal and monetary policy and foreign trade flows. The hurricane struck during a period in which the region was reaping the benefits of efforts to secure social peace, economic stabilisation and structural change.

The strongest economic maladjustments have taken place in Honduras and Nicaragua, the two countries that suffered the greatest losses in infrastructure, production and income flows. Nevertheless, although the economic consequences of the hurricane were less severe in the other countries, the repercussions on the regional economy are expected to be considerable, since they will alter the growth trend of recent years.

One of the most immediate economic effects will be on fiscal accounts. Public budgets are already feeling the impact of immediate efforts to aid victims, and this is likely to increase over the medium term due to the costs of rebuilding damaged infrastructure. Tax collection will be affected by the fall in output, employment and income, so fiscal deficits may register significant consequences, especially in the countries that sustained the greatest damages. There will be multiple impacts on the economic structure, lasting several years and affecting the growth trends referred to above.

In terms of lost production, in 1998 regional GDP dropped by more than one percentage point (4.6 per cent growth, as compared to the 5.9 per cent that would have been achieved if the previous trend had continued), even though when the disaster struck 10 months of the year had already passed. Honduras and Nicaragua saw their growth rates cut substantially (6 and 3 percentage points, respectively). Regional figures reflect the strong acceleration of growth in Costa Rica, which suffered the least damage. A more accurate estimate of the macroeconomic effects of the hurricane comes to light if only the four worst affected countries are included (Honduras, Nicaragua, Guatemala and El Salvador). The overall growth rate for these four countries (CA-4) was 4 per cent, 1.7 points lower than would have been registered under normal conditions.

With regard to total losses (production and capital goods), the damage done by Mitch varied considerably from country to country: the two most fragile economies in fiscal and foreign-sector terms (Honduras and Nicaragua) suffered the greatest impact, both in absolute and GDP terms. In Honduras, damage amounted to the equivalent of 81.6 per cent of 1997 GDP and to 48.8 per cent in Nicaragua; in the other three countries the figure was much lower (see Table 7). For the four worst affected countries as a whole, the damage is equal to more than 16 per cent of GDP, 66 per cent of exports, 96 per cent of gross fixed capital formation or 37 per cent of the foreign debt.

Table 7

CENTRAL AMERICA: DAMAGE CAUSED BY HURRICANE MITCH

	Total	El Salvador	Guatemala	Honduras	Nicaragua
Total damage (millions of US\$)	5,927.2	398.1	747.8	3,793.6	987.7
Damage as a proportion of: (per cent) a/					
Gross domestic product	16.6	3.6	4.2	81.6	48.8
Exports of good and services	66.4	14.7	23.6	174.3	114.0
Gross fixed capital formation	96.5	22.6	28.4	343.9	154.8
Foreign debt	37.2	14.8	23.3	94.1	16.5

Source: ECLAC, based on official figures and own estimates.

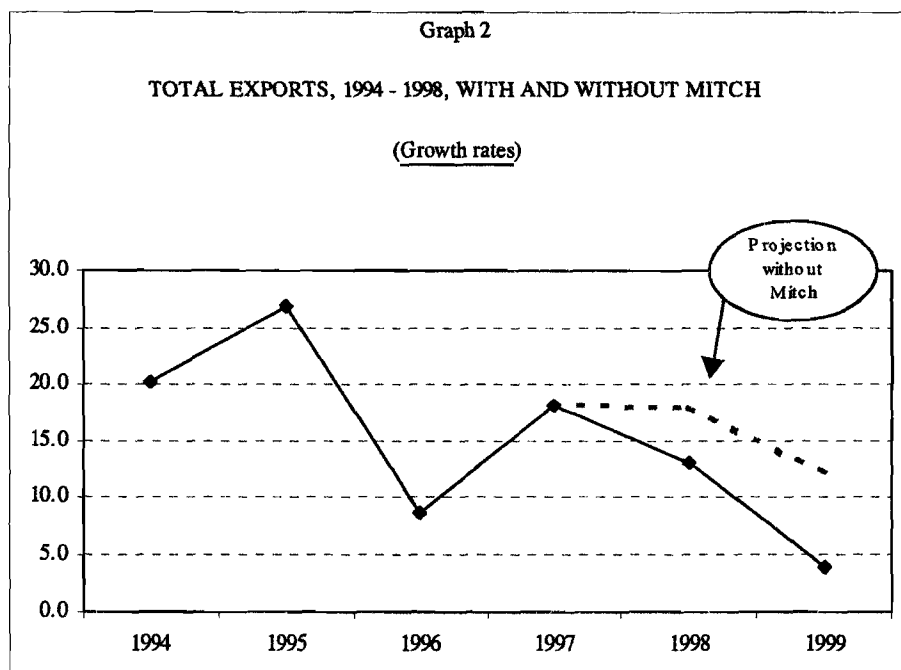
a/ Values for 1997.

The region's exports were also affected. As a whole, exports for 1998 fell by more than US\$600 million compared to the levels forecast before Mitch (almost 13 per cent of annual sales), and losses will be even greater in 1999 (US\$1 775 billion). (See Table 8 and Graph 2.) This roll-over effect is due to the longer-term losses in exports of crops and plantations with multiannual cycles, especially bananas. The consequent drop in the availability of foreign currency aggravates the regional situation because the affected countries have limited savings and domestic investment capacity. This heightens the importance of the role played by international cooperation —financial and technical— in addition to existing programmes aimed mainly at peacemaking processes. However, the drop in the current account was less drastic in view of the higher income stemming from private remittances following the disaster, especially from Central Americans living in the United States (see Table 9 and Graph 3).

Table 8
CENTRAL AMERICA: TOTAL TRADE (1997-1998), AND PROJECTIONS (1999)
(Millions of dollars)

	1997	1998		1999	
		Before Mitch	After Mitch	Before Mitch	After Mitch
Exports total fob	11,907.2	14,046.6	13,445.1	15,745.9	13,971.0
Costa Rica	4,349.5	5,561.3	5,546.8	6,189.2	5,831.9
El Salvador	2,415.9	2,470.0	2,452.2	3,259.6	2,587.0
Guatemala	2,598.0	3,143.2	2,830.7	3,393.0	3,167.4
Honduras	1,840.2	2,209.4	2,002.7	2,223.9	1,787.9
Nicaragua	703.6	662.7	612.7	680.2	596.8
Imports total fob	15,060.1	17,377.7	17,525.6	19,571.6	20,441.9
Costa Rica	4,583.9	5,421.4	5,834.8	5,903.9	5,903.9
El Salvador	3,523.4	4,349.4	3,719.6	5,101.6	5,166.8
Guatemala	3,542.7	3,752.6	4,243.1	4,111.3	4,129.3
Honduras	2,038.7	2,301.7	2,337.6	2,609.7	3,207.7
Nicaragua	1,371.4	1,552.6	1,390.5	1,845.1	2,034.2

Source: ECLAC, based on official figures.



The progress made in reducing tariffs, together with the new needs for foreign purchases due to the emergency, made imports of goods rise by 16.4 per cent, in comparison to 18.2 per cent in 1997, despite the fall in oil purchases. As a result the current account deficit for the region as a whole reached US\$2.251 billion, an increase of 35.4 per cent over 1997.

Table 9

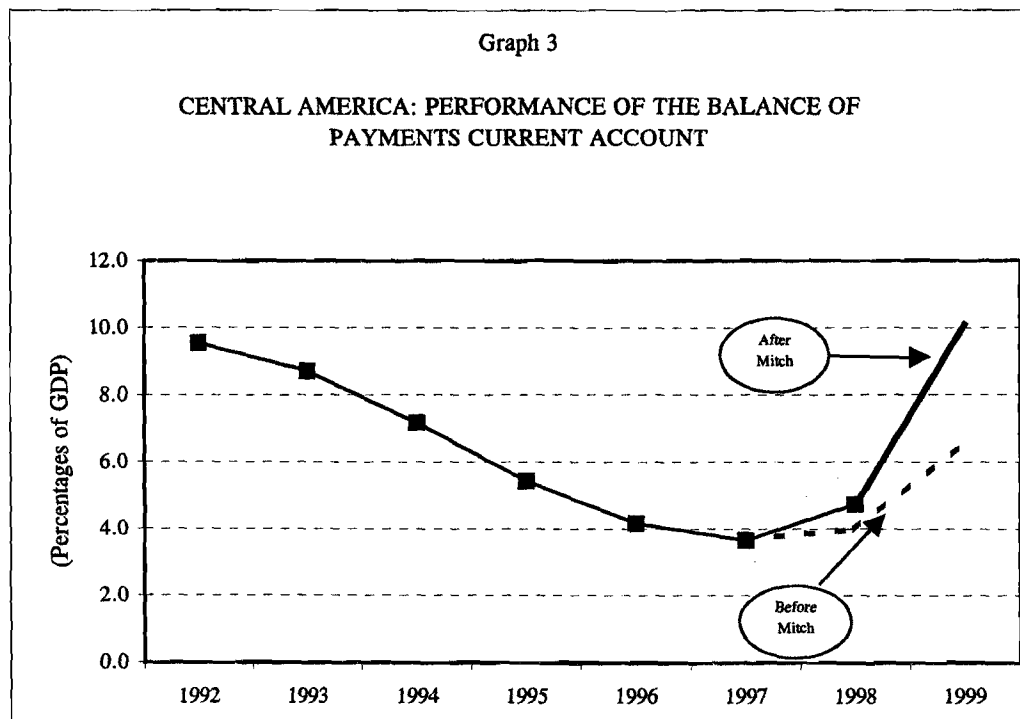
CENTRAL AMERICA: PERFORMANCE OF ECONOMIC AGGREGATES, 1997-1999

	1997	1998		1999	
		Before Mitch	After Mitch	Before Mitch	After Mitch
Gross domestic product (per cent)	4.3	5.9	4.5	4.5	3.1
December-December inflation (per cent)	7.3	9.0	9.3	7.3	9.0
Exports a/	11,907.2	14,046.6	13,445.1	15,745.9	13,971.0
Balance of trade b/	-3.7	-4.0	-4.6	-6.6	-10.1

Source: ECLAC, based on official figures and own estimates.

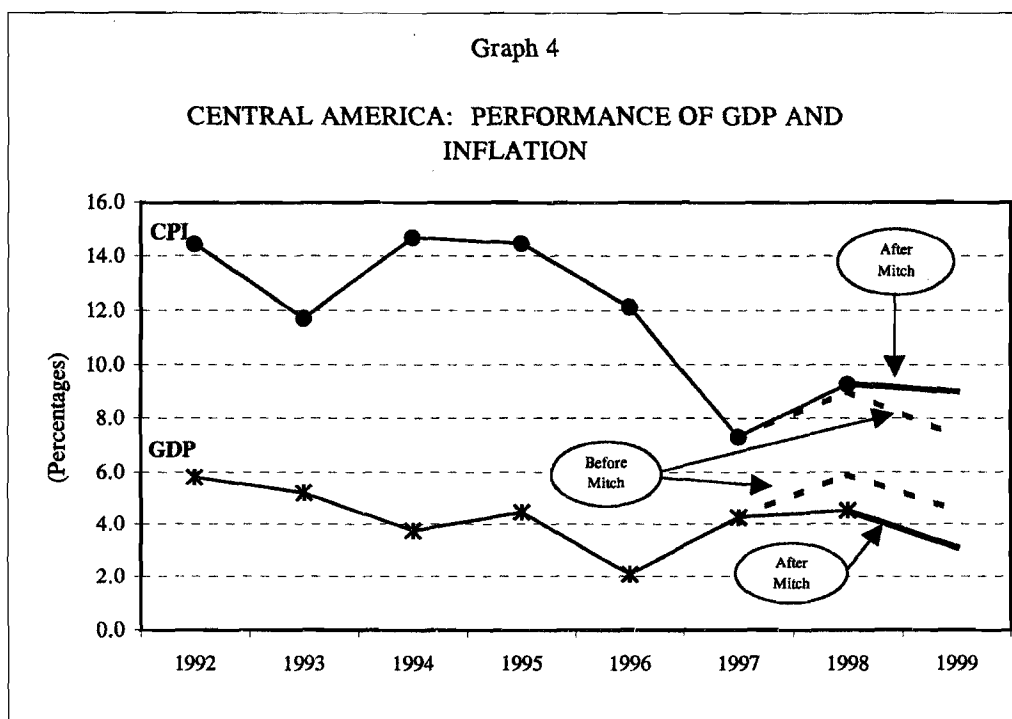
a/ Millions of US\$.

b/ Percentages of GDP.



On average, and notwithstanding the effects of the emergency on government spending and revenue, the region made modest progress in putting public finances on a sound footing, and would have achieved more without the hurricane. The overriding goals throughout the year were to reduce the fiscal deficit through increased tax collection and budget controls. In this regard, major deficit cuts were achieved by the governments of Costa Rica (from 3.9 per cent to 3.2 per cent), and Nicaragua (from 5.6 per cent to 3.5 per cent). However, owing precisely to emergency outlays, there was a slight rise in El Salvador's and Guatemala's deficits (to 1.2 per cent and 2.4 per cent, respectively), and a stronger one in Honduras (3.4 per cent).

Although the general rule was one of fiscal austerity and a certain monetary discipline, the regional inflation rate rose significantly towards the end of the year (see Graph 4), particularly in Nicaragua, Honduras and El Salvador, mainly due to the adverse weather conditions that afflicted the region throughout the year. The rate of inflation more than doubled in Nicaragua (18.5 per cent) and climbed from 12.8 per cent to 15.6 per cent in Honduras, due to supply problems, lost inventories and a certain amount of speculation in the last two months of the year following the disaster. These factors also affected El Salvador, where inflation reached 4.2 per cent as of December. Prices rose 12.4 per cent in Costa Rica, and only Guatemala managed to keep to the previous year's rate (7.5 per cent).



The economic impact will be felt in some countries for several years. The region's trade deficit will grow owing to the drop in exports, mainly due to losses in the farming sector, and to added imports of inputs for reconstruction and food to guarantee supply. Greater pressure is also expected to be exerted on public finances, which together with external imbalance would merit a revision of national stabilisation and adjustment programmes to make provision for reconstruction tasks. It would also be advisable to expedite foreign debt renegotiation processes.

The effects on the economy will be felt more strongly in 1999, when the decrease in productive capacity will reach its full force (again, see Graph 4); moreover, reconstruction programmes will not start showing positive effects until mid-1999, provided the countries can continue to mobilise the resources of the international community, which has reacted favourably so far, particularly by condoning debt, re-assigning funds, rescheduling payments and extending donations.

4. Sectoral damage

This section provides an assessment of the damage caused by hurricane Mitch in the social (housing, education, health), infrastructure (energy, transport and communications, water and sewerage, and irrigation) and productive sectors (farming, fisheries, industry and services).

It should be stressed that the current value of the assets destroyed is not equal to the cost of replacing lost infrastructure, housing and equipment, because the cost of reconstruction in countries with vulnerable, weak and depreciated infrastructure could be much higher.

For the region as a whole, the damage totalled more than US\$6 billion, divided almost equally between direct and indirect losses. The cost of replacing lost or damaged infrastructure has been estimated at more than US\$4.400 billion, and will require additional imports that will place further pressure on the foreign sector (see Table 10).

The farming sector suffered the greatest losses, both in terms of land and crops and lower than forecast output. Major losses were also sustained in road infrastructure.

A qualitative and quantitative improvement in the assets and resources to be replaced has been included in calculating replacement costs, along with measures to mitigate and prevent disasters. The cost of replacement is therefore higher than the direct damage. If the aim were solely to return to the situation prior to the hurricane, the replacement cost would be equal to the direct damage assessed in accordance with ECLAC methodology.

Table 10

CENTRAL AMERICA: SUMMARY OF DAMAGE CAUSED BY HURRICANE MITCH

(Millions of dollars)

	Total	Direct damage	Indirect damage	Replacement cost
Total sectors	6 018.3	3 100.3	2 918.0	4 477.3
Social sectors	798.5	551.8	246.6	975.1
Housing	590.9	436.3	154.6	746.3
Health	132.7	53.8	78.9	117.0
Education	74.9	61.8	13.1	111.8
Infrastructure	1 245.5	656.9	588.6	1 756.5
Roads, bridges and railways	1 069.5	528.1	541.5	1 427.9
Energy	58.7	28.6	30.1	60.6
Water and sewerage systems	91.4	74.6	16.8	224.4
Irrigation and drainage	25.8	25.6	0.2	43.6
Productive sectors	3 906.9	1 824.1	2 082.8	1 635.2
Farming, fishing and forestry	2 946.5	1 701.9	1 244.6	1 302.0
Manufacturing industry	608.0	32.8	575.2	69.9
Trade, restaurants and hotels	352.4	89.4	263.0	263.3
Environment	67.4	67.4	0.0	110.5

Source: ECLAC, based on official figures and own estimates.

5. Social sectors

Damage in the social sectors amounts to almost US\$800 million. Losses were recorded in hospitals, health centres and medical equipment, and extra demands were placed on services during the emergency phase. Thousands of dwellings were flooded and numerous families lost their precarious homes and their possessions. Many schools and other education facilities were affected by flooding, and others that were not damaged suffered additional wear and tear through their use as shelters.

In housing damage was sustained by an estimated total of 176 500 units, including those destroyed (53 per cent) and those partially damaged and flooded (47 per cent). The region's housing shortage increased by approximately 6 per cent. Losses amounted to more than US\$590 million, including household equipment, furniture and fittings. The poor quality of construction and the vulnerability of many of their locations were the main reason the torrential rain and floods had such a devastating impact. One of the greatest challenges in reducing vulnerability will be to relocate settlements in places less vulnerable to natural disasters and to use more resistant materials. A housing reconstruction programme will require substantial investments over a period of several years and will probably call for new institutional and financial management methods.

The health sector (with total losses of US\$133 million) went to extraordinary lengths to care for the injured and evacuated, carried out sanitary control campaigns and provided drinking water or means of purifying water, all of which generated indirect losses amounting to almost US\$80 million. The risk of diseases spreading among the countries became an issue of regional scope, and was aggravated by the migration of displaced people seeking safer locations. National institutions

received valuable help in the form of international aid and assistance from specialised international agencies, but their response capacity was diminished by the emergency.

Losses in the **education** sector totalled US\$75 million, including infrastructure, materials, text books and sundry furniture. Fortunately the school year was not greatly affected, since it was almost over when the hurricane struck. By the beginning of the new school year most schools had been rehabilitated and teaching materials had been replaced; however, many schools were used as shelters, some for several months. Taking the characteristics of school infrastructure into account, the replacement cost has been calculated to amount to nearly US\$112 million.

Unquantified but no less important impacts on **employment** —and consequently on income—, especially in rural areas, also deserve mention. Hundreds of thousands of workers are estimated to have lost their sources of income, not only during the emergency phase, but for a period that could last more than a year. For example, women workers have been the most affected in banana-growing areas, since they were employed in selecting, cleaning and packing fruit and are unlikely to find similar work in rural areas. Unemployment has already caused migration from affected areas to cities, neighbouring countries and countries outside the region. In some Central American countries these flows have complicated the migration and relocation of people displaced and demobilised by internal conflicts.

6. Infrastructure

Losses in communication, transportation, energy, water, sewerage and irrigation system infrastructure totalled more than US\$1.245 billion. This is reflected in the deteriorated provision of the corresponding services and has highlighted the fragility and pre-existing problems in road and distribution systems. Overland communications infrastructure accounted for 86 per cent of total damage in this sector.

Direct damage to **highways** (27 700 kilometres) and **bridges** (at least 156) reached US\$528.1 million and caused a similar amount of indirect losses (US\$541.5 million), since normal vehicle traffic and trade flows between countries were interrupted, thereby hindering intraregional trade. Damage to secondary road systems and rural roads caused setbacks and delays that hampered the transport of produce from farms to markets. Air and sea transport were also affected in early November.

Problems of varying magnitude arose in the generation, transmission and distribution of **electricity**, but in general service was not interrupted for long. Damage was reported in various power stations. Some transmission pylons were damaged but quickly repaired. Distribution was affected on a greater scale in flooded areas and near reservoirs. According to ECLAC calculations, regional losses in the sector are estimated at US\$59 million.

In the **water and sewerage system** sector, the damage (US\$ 91 million) aggravated the precarious provision of this basic service, particularly in rural areas or places far away from the largest cities and towns. Damage to **irrigation and drainage** systems (US\$26 million) had severe consequences on water management and is expected to have a considerable impact on irrigated crops.

7. Productive sectors

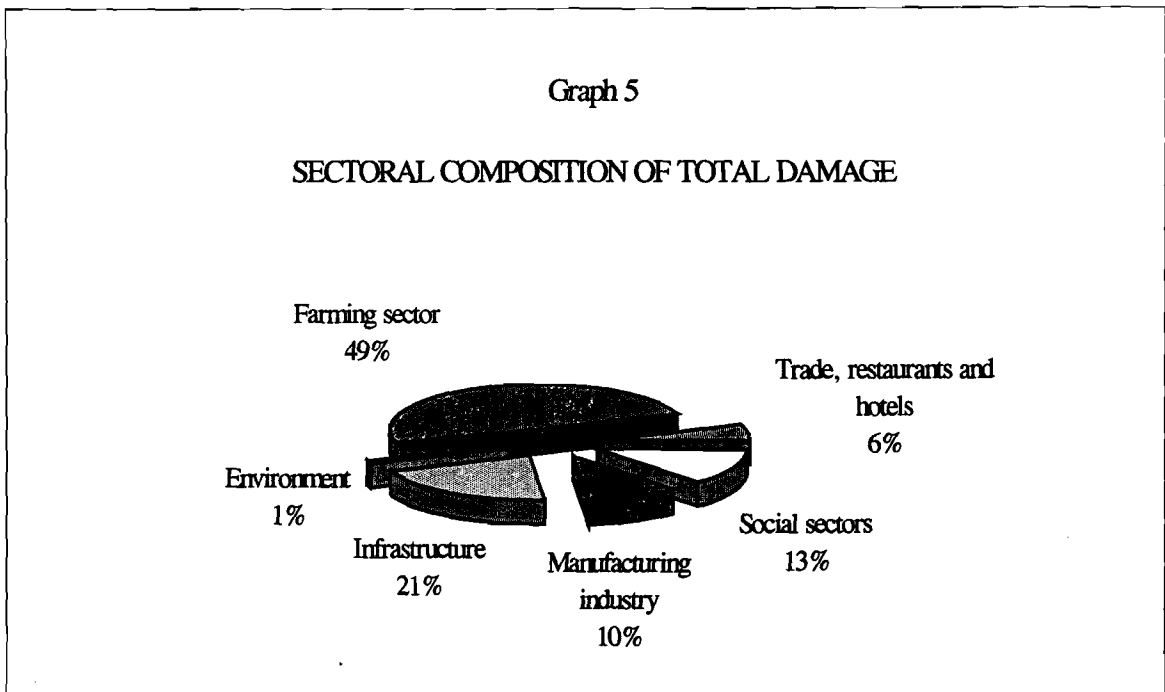
Damage in the productive sectors is estimated at more than US\$3.9 billion, or almost two thirds of the total. A little over US\$1.8 billion were in direct losses (capital assets and production) and the remainder stems from indirect effects, mainly from future decreases in output and the added cost of recovering normal production. The most affected sector was farming, which accounted for more than three quarters of the damage in productive sectors and almost half the total damage. Moreover, this impact will gradually but unavoidably be passed on to the productive sectors linked to farming (transport, trade and agro-based industry).

Farming sector. The huge amount of rainfall caused by the storm and the force with which it was unleashed on the Atlantic coast led to floods, overflowing rivers and mudslides that affected huge areas of farmland, especially in low-lying areas. Export crops (among them banana, pineapple, melon and other fruit, and coffee) and crops for domestic consumption (basic grains, oil seeds and African palm) cultivated in valleys and tablelands were damaged. Losses in plantations, crops either about to be harvested or already stored and infrastructure are estimated at US\$1.7 billion, whereas disrupted production flows and related costs are likely to add another US\$1.245 billion. Total damage to the Central American farming sector amounted to almost US\$3 billion (see Graph 5).

In the **secondary sectors** small and microenterprises are estimated to have suffered the highest direct impact. Damage to assets (valued at US\$33 million), which are presumably fairly depreciated, is much lower than the indirect damage stemming from disrupted trade flows and companies' commercial operations (around US\$575 million), which even caused losses in businesses whose assets and productive plant were not directly affected. Nearly US\$70 million will be needed to replace losses and the disruption of production, distribution and consumption cycles is expected have a significant impact on the external sector, leading to a increase amounting to US\$125 million in imports of the machinery and equipment, intermediate goods, inputs and final goods needed to re-establish normal output rates.

In the **trade and services** sector, direct damage in the form of lost assets and inventory amounted to US\$89 million. The anticipated indirect damage, mainly due to reduced sales and a drop in tourism flows, is much higher than direct damage, and the effect on the balance of trade will be almost US\$87 million, due both to increased imports and to lost foreign currency earnings. It is estimated that small-scale enterprises suffered major losses that directly affect the main source of income of many families.

Reconstruction in industry could be completed quite quickly, but in the farming sector large areas of plantations will take several years to return to former production levels and productivity levels. This means production and exports will be cut back for several growing seasons.



8. Regional effects

The documents containing national analyses include an assessment of the total losses in each country; however, for the purposes of illustration, this section includes a review of the damage from the regional viewpoint. This review is only partial because as is explained below, it was not possible to calculate the estimates for some items. Nevertheless, even in those cases, comments include quantitative assessments. In general, lost income and damage to infrastructure had a negative impact on intraregional trade that will probably continue over the medium term. The countries' total imports will have to increase in order to meet the need for inputs and equipment required for reconstruction, and for products to replace domestic goods; the intrazonal capacity to supply such needs could be limited. These shortages will probably set back intraregional relations, unless production recovers and trade flows are normalised quickly.

a) Lost energy sales

The impact of the hurricane had an effect on power services that goes beyond national borders. Varying degrees of damage were sustained by the regional grid —which enables the countries to sell surpluses and make up for shortages in neighbouring countries at a lower cost than the cost of generating electricity through alternative means.

Wind, floods and mudslides decreased generation capacity, since plants in several countries had to shut down temporarily or were damaged. Electricity transmission and distribution

infrastructure was damaged in different places, so power could not be supplied to areas where stations were not operating. The cost of these losses has been estimated at around US\$9 million.

b) Consequences on transport

The disruption and higher cost of transport in Central America resulting from damage to the road network have meant additional costs for trade, although it has not been possible to conduct an in-depth assessment. Most trade among Central American countries is carried out on highways, due to the lack of integrated railway lines, the high cost of air transport and the unsuitability of sea transport over such short distances.

Calculations only cover losses stemming from the temporary halt of international trade on highways, and the immobilisation of capital and labour directly related to the roads that were impassable until river crossings were re-established. For example, delays in input deliveries would have led to the stoppage of certain industrial processes, thus immobilising capital and labour.

Even after the general paralysis was cleared on 9 November, the trunk route along the Pacific coast remained blocked to freight vehicles at the Nacaome river until 16 November. Some smaller all-terrain vehicles were able to use the emergency detour prior to that date, and although this meant much higher transport costs, it still was less expensive than the alternative route through northern Honduras.¹⁸ The river Nacaome bridge has yet to be replaced owing to the rough local topographic features, which have not even made it possible to erect a temporary structure. Vehicles are using a ford and traffic may be interrupted again during the rainy season.

c) Effects on trade

Regional trade was interrupted from 25 October until 2 November in practically all the countries in the region. Communications were also temporarily interrupted, and therefore affected normal business relations, such as placement of orders, production and dispatch of exports, and transport, delivery and payment of imports. As a result, intrazonal trade fell US\$111 million short of expectations; the loss amounts to 25 per cent of regional trade over a two-month period (see Table 11 and Graph 6).

Regional trade is expected to recover in 1999, although it will still be far short of its normal rate, as the volume of trade will fall more than US\$100 million short of the level registered prior to Mitch. This forecast takes into account the payment problems countries are likely to face, and transport difficulties stemming from longer delivery periods or new temporary obstacles to traffic. Although the road system has been repaired provisionally, several permanent reconstruction works have yet to be undertaken just to return the system to its precarious conditions prior to the disaster, although one of the pillars of integration, i.e., trade and intraregional transport, depends on the region's highway system.

¹⁸ An extra 390 kilometres for carriers on the route between Costa Rica, Honduras and El Salvador, and more than 240 extra kilometres per trip between Costa Rica, Honduras and Guatemala.

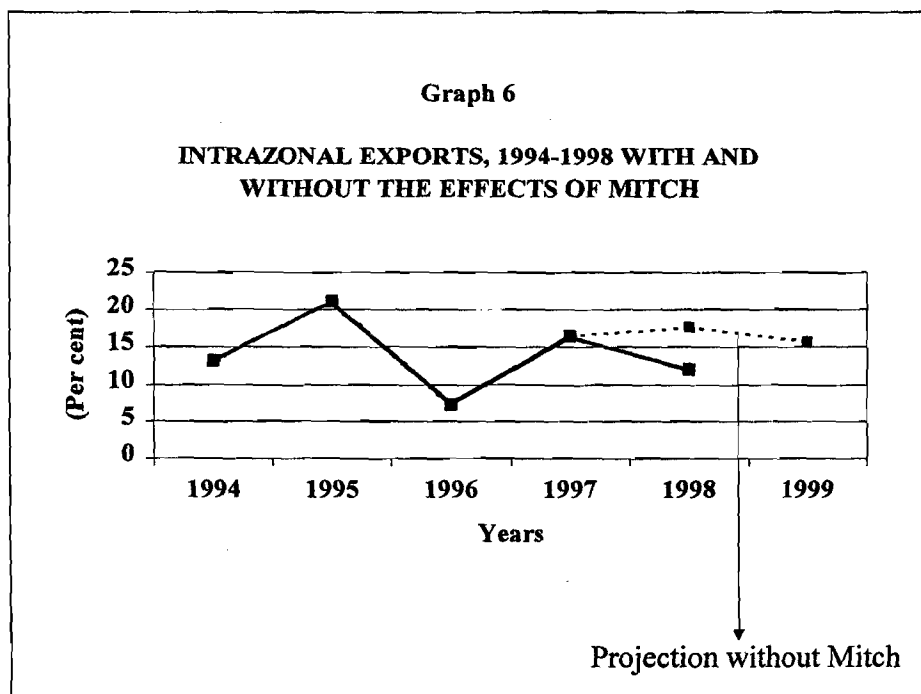
Table 11

CENTRAL AMERICA: EFFECTIVE INTRAZONAL TRADE (1997) AND PROJECTIONS (1998 AND 1999)

	1997	1998		1999	
		Before Mitch	After Mitch	Before Mitch	After Mitch
Exports					
Total	2,008.7	2,361.3	2,250.3	2,730.8	2,628.6
Costa Rica	422.1	483.6	520.4	545.3	572.4
El Salvador	576.0	663.6	616.0	794.3	755.8
Guatemala	683.3	799.5	765.0	895.0	860.4
Honduras	213.0	277.7	226.9	335.9	291.6
Nicaragua	114.3	136.9	122.0	160.3	148.4
Imports a/					
Total	1,924.6	2,251.8	2,273.5	2,576.1	2,694.4
Costa Rica	294.1	336.8	326.4	329.1	344.5
El Salvador	578.5	674.9	599.0	865.4	760.0
Guatemala	411.4	478.7	576.8	419.3	551.9
Honduras	334.5	396.2	354.6	524.2	484.8
Nicaragua	306.1	365.2	416.7	438.1	553.2

Source: ECLAC, based on official figures.

a/ The difference between the total value of imports and exports is due to statistical discrepancies among countries, and recording and appraisal errors.



IV. MEDIUM-TERM IMPLICATIONS OF HURRICANE MITCH

This chapter contains projections on the behaviour of the main variables of the regional economy during the next few years, taking into account the impact of hurricane Mitch. It describes the reconstruction activities to be undertaken by the countries of Central America, bearing in mind the response capacity shown by national productive systems and taking three reasonable assumptions as a basis: a) that the international community will respond to the support needs of national reconstruction programmes and high-priority regional projects; b) that recovery programmes will be carried out over a reasonable period (between three and five years) to keep financial imbalances under control, and c) that institutional project execution capacities will be strengthened.

The quantitative exercise is based on the assumption that international cooperation and aid will contribute to reconstruction costs so that the region can continue its processes of stabilisation and structural reform to place public finances on a sound footing, keep foreign-sector deficits at moderate levels and curb inflation. Otherwise, the enormity of public outlays may have two effects: a) fiscal and foreign deficits may rise sharply, as may inflation, or b) the countries' budgetary limitations may make reconstruction efforts continue over a longer period. The latter particularly applies to Nicaragua and Honduras, although Guatemala and El Salvador would also face certain constraints.

1. Growth trends

From 1992 to 1998 Central America showed a growth rate of 4.3 per cent, as a result of progressive improvements in internal economic and social conditions and a number of favourable developments in international circumstances. As mentioned in previous sections, this performance formed part of Central America's progressive recovery during the nineties. If that growth rate had been maintained, the effects of the lost decade would have been fully offset by the year 2004, with per capita income at the same level as 1978, when it reached US\$1 166 per annum. The change in economic variables caused by the hurricane has meant that level will not be reached until 2007, so three years of development have been lost.

The impact of hurricane Mitch is bound to have strong macroeconomic repercussions on the region as a whole; the economic consequences of the destruction of capital stock and production in process, in addition to subsequent reconstruction tasks, are expected to last for five years, although they will be more evident during the three-year period from 1999 to 2001.

Assuming that reconstruction will take five years in the countries that suffered the greatest damages, gross fixed capital formation in the region could grow 10 per cent on average between 1999 and 2001, as compared to 5 per cent from 1995 to 1998. Capital formation is likely to be stronger in Honduras and Nicaragua, in view of the magnitude of the damage and the consequent need for reconstruction. It could reach an annual growth rate of 12 per cent in Honduras, in contrast to the stagnation that took place from 1994 to 1997, while in Nicaragua it may speed up to 17 per cent per annum, as compared to the rapid growth registered from 1995 to 1998.

The loss of capital stocks will weaken some sectors' productive capacity, and in the case of the housing sector will lead to a strong drop in the living standards of groups that lost their homes. Assuming that a reconstruction programme will be launched in 1999, meaning that a high proportion of damaged productive capacity will have been restored by 2001, particularly of infrastructure and perennial crops (mainly bananas and coffee), regional GDP could grow at an estimated 3.1 per cent on average during the period, which is still below the trend prior to Mitch. In 1999 GDP is expected to grow 3.3 per cent, as opposed to 4.9 per cent prior to the disaster. Regional economic growth is likely to speed up in 2001, when many reconstruction tasks should be completed, and subsequently recover long-term growth trends (see Table 12).

From another standpoint, lower productive growth could lead to an average increase in per capita GDP of just 0.6 per cent, as compared to 1.8 per cent on average from 1992 to 1997.

Forecasts of regional economic performance do not reflect the reality in each country. Honduras faces the strongest adverse consequences, since GDP growth is expected to reach 0.8 per cent on average between 1999 and 2001 and to be negative in per capita terms.

Nicaragua's case is somewhat paradoxical. Although the damage amounts to the equivalent of all capital formation in 1997 and 1998, the country's economic growth should not suffer significant setbacks, according to official projections. Several factors account for this: firstly, although the economy was growing at a fast pace, the use of its productive capacity remained low; secondly, damages in the farming sector mainly affected short-term crops, most of which are expected to recover during 1999, and thirdly, a low percentage of the areas affected was under cultivation. Moreover, repairs of highway infrastructure and in other key sectors are expected to advance substantially, and approximately US\$200 million in reconstruction funds are expected to enter the country in 1999. However, this projection is considered optimistic, since limitations on execution capacity could arise, or the economy could overheat and aggravate undesirable macroeconomic imbalances.

In Costa Rica, El Salvador and Guatemala, Mitch's economic impact is not expected to alter growth trends significantly from 1999 to 2001.

2. Sectoral trends

From the point of view of economic and sectoral activity, the **farming sector** is the most likely to lose momentum. The region's farming GDP only increased 1.7 per cent in 1998 due to adverse weather conditions, and is only expected to increase 0.1 per cent in 1999, in sharp contrast to the average growth rates of 3.2 per cent registered from 1994 to 1997. This behaviour can largely be accounted for by the expected drop in agricultural and livestock output in Honduras, where damage to perennial crops —particularly bananas and coffee— and livestock losses will set back production during 1999 and the year 2000. The export sector will be the most affected, since crops for domestic production should recover in the short term.

Table 12
CENTRAL AMERICA: SELECTED INDICATORS, 1999-2003

(Millions of 1990 dollars)

	1998	1999	2000	2001	2002	2003
Historical GDP trend prior to Mitch	33 072	34 693	36 184	37 740	39 363	41 056
Growth rate	5.9	4.9	4.3	4.3	4.3	4.3
Per capita GDP	1 062	1 087	1 105	1 124	1 142	1 162
Growth rate	3.2	2.3	1.7	1.7	1.7	1.7
GDP after Mitch	32 665	33 753	34 523	35 860	37 094	38 537
Growth rate	4.6	3.3	2.3	3.9	3.4	3.9
Per capita GDP	1 049	1 057	1 054	1 068	1 077	1 090
Growth rate	2.0	0.7	-0.3	1.3	0.9	1.3

Source: ECLAC, own estimates.

Agricultural output in Nicaragua is also expected to recover rapidly, as most of the damage was to short-cycle crops such as basic grains. In Guatemala's case agricultural output is estimated to grow 2.2 per cent in 1999, or one per cent less than expected prior to the disaster. Damage to El Salvador and Costa Rica's agricultural sectors was much lower. In short, most of the region's farming output, and perennial crops in particular, should recover by the year 2001, so the sector's GDP could grow 3.4 per cent as of 2002, a rate nearly on a par with those registered from 1995 to 1997.

Assuming that investment will grow at a rapid pace, the activities of the region's **construction sector** could reach growth rates of 14 per cent on average during the 1999-2001 period and drop to a more moderate level as of 2002. The highest contributions to the sector's regional growth will be made by Honduras and Nicaragua, which could reach annual growth rates of 17 and 22 per cent respectively during that period. Reconstruction activities in Guatemala and El Salvador should raise the sector's GDP growth rate slightly, in comparison to the past few years. Conversely, Costa Rica's average trend from 1994 to 1998 is not expected to change significantly.

In regard to **other productive activities**, regional manufacturing output is unlikely to experience important changes in growth rates, since damages in this sector were minimal. Trade, banking and financial services and other activities will be indirectly affected by lower growth rates in the economy as a whole (see Table 13).

Table 13

CENTRAL AMERICA: SECTORAL OUTPUT PROJECTIONS, 1999-2000

Sector	1998	1999	2000	2001	2002	2003
PIB	4.6	3.3	2.3	3.9	3.4	3.9
Farming	1.7	0.1	3.9	4.4	3.4	3.4
Construction	9.5	14.0	14.0	14.0	-4.2	5.6
Manufacturing	5.5	4.7	4.4	4.4	4.4	4.4
Other sectors	5.5	2.9	5.3	5.3	5.3	5.3

Source: ECLAC, based on own estimates.

3. The public sector

Reconstruction will have a direct impact on public spending, although significant reductions in tax revenues are also to be expected due to lower output in specific activities, especially farming.

In Honduras and Nicaragua, it will be practically impossible to absorb reconstruction costs through the central-government budget over a five-year period. In the absence of international cooperation, the cost of reconstruction would mean raising the central government's annual total spending by 38 per cent in Honduras and 37 per cent in Nicaragua in comparison to 1998 figures. On the other hand, spending on reconstruction could be more in keeping with the public sector's financial capacity if international funds are secured.

Assuming that central governments provide an average counterpart to external funds of 25 per cent, including loans and donations, reconstruction activities will place less of a burden on public finances. Even so, this would place pressure on public spending and revenue, albeit for a limited period.

In that context, central government outlays would increase by over 9 per cent in Honduras and Nicaragua; the deficit in Honduras would rise to a little over 4 per cent (it stood at 3.4 per cent between 1996 and 1998) and to 7 per cent in Nicaragua (in comparison to 6 per cent between 1995 and 1998). This would make a sustained effort to control the fiscal deficit feasible, while simultaneously preventing macroeconomic repercussions from having a destabilising effect.

4. The foreign sector

The economic consequences of hurricane Mitch will also alter the outlook for the region's foreign sector, although for a limited period only (1999-2001). Taking into account the expected losses in export products —mainly of traditional agricultural commodities— and the additional imports required for reconstruction activities, the region's overall deficit is expected to increase substantially

in 1999. The current account deficit is expected to rise to US\$4.088 billion, or 7.7 per cent of GDP, as opposed to 4.7 per cent in 1998.¹⁹

Once again, the regional situation is likely to be strongly influenced by the performance of Honduras and Nicaragua's foreign sectors. Preliminary estimates indicate that Honduran exports will drop from 1999 to 2001 and begin recovering in 2002. Moreover, reconstruction activities and inventory replacement will call for a sharp increase in imports in 1999 and the year 2000. The current account deficit could therefore easily reach 20 per cent of GDP during those two years, then drop to 9 per cent in 2001.

The growth rate of Nicaraguan exports is likely to decrease significantly; this, coupled with an increase in imports, could make the current account deficit—amounting to the equivalent of 35 and 40 per cent of GDP in the past two years—rise to between 45 and 47 per cent.

The situation in the other three countries is more favourable. In El Salvador the current account deficit could rise to nearly 3 per cent of GDP, as compared to 1 per cent in 1997-1998. Costa Rica should be able to continue cutting its deficit (3.7 per cent during the same period) without difficulty, whereas Guatemala's is likely to rise considerably, but in 1999 alone, owing to a drop in its export capacity, especially in traditional products such as bananas and coffee.

¹⁹ Estimates of the foreign sector's evolution are made on the assumption that trends in other items of the balance of payments current account will be maintained, i.e., that family remittances and net payment to foreign factors will continue to increase.

V. THE EFFECTS OF THE HURRICANE ON THE ECONOMIC INTEGRATION PROCESS

The national documents drawn up by ECLAC on each of the five Central American countries list the main projects that could be included in national reconstruction programmes. Each country will ultimately be responsible for defining its sectoral and project priorities, as well as the characteristics of the works involved in this reconstruction process.

Hurricane Mitch had transcendental consequences of regional dimension; although these may be partly reflected in national reports, the full extent of their significance only becomes apparent when they are analysed within the context of integration. Some damages may seem to be of secondary importance when viewed on their own as part of a particular country's problems, but may acquire greater importance within the dynamic combination of common interests that make up the Central American integration process. These circumstances have emphasised the regional nature of truly integrated projects, over and above the traditional sum of national projects, usually justified as being "economies of scale".

1. Regional challenges

This disaster and its aftermath of tragedy and suffering made it evident that, apart from the recognised risks stemming from Central America's geographical position, the region is facing an alarming increase in vulnerability stemming from human activity.²⁰ In fact, the deterioration of socio-economic conditions has accelerated the process of deforestation, agricultural activity on hillsides using non-technical methods has increased and the urban population has expanded without any form of control or regulation. These tendencies, added to the ecological deterioration caused by fires and droughts produced by the well-known El Niño phenomenon during much of 1998, aggravated the impact of the hurricane, resulting in great loss of life and damages out of all proportion to the Central American countries' capacity to deal with them.

The national assessments point out the weaknesses and vulnerabilities which should be significant to more than one Central American country. These factors are mainly natural, but also include economic and social issues that cannot be addressed without a joint, synchronised effort.

First in importance is the control of epidemic diseases. An isolated national initiative, limited to its own territory will be of little use if equivalent measures are not taken in neighbouring countries to prevent new cases of infection. Similarly, the net result of a country's efforts to rehabilitate and improve its health services may be thwarted by unregulated migratory movements, which automatically cause saturation and higher operating costs in receiving countries.

²⁰ See Caballeros, Rómulo and Ricardo Zapata, *The Impacts of Natural Disasters on Developing Economies: Implications for the International Development and Disaster Community*, in "Disaster Prevention for Sustainable Development: Economic and Policy Issues", Yokohama, Japan, 1995.

In regard to vulnerability to future disasters, one of the most important issues is to improve the management and administration of catchment basins and early-warning systems, which are obviously regional in scope. Central America has several important catchment basins that are shared by more than one country. Actions to protect and reconstitute the ecology of these areas, in order to improve their water-regulation capacity can only be successful if each of the countries involved takes appropriate measures. By the same token, the establishment of a network of measurement and early warning systems will only be fully effective if it is carried out by the five countries. This involves designing and putting into operation a system of meteorological stations of different kinds and levels of complexity in keeping with each area, but with similar technological levels in each country, to make it possible to keep a communication channel permanently open to exchange information using common codes and variables.

Furthermore, it is essential to create a regional emergency mechanism made up of national organizations and civil defence institutions acting in close conjunction at all times, in order to standardise procedures and action plans, establish a stock of emergency supplies and exchange information concerning materials and equipment to deal with emergencies. This necessarily entails strengthening the institutional framework of each country's national emergency organizations, as well as CEPREDENAC.

Another priority is the construction of an alternative regional road system, which should also provide the value added from incorporating new production zones into the integration process.²¹

The international community's examination of these circumstances with a view to supporting regional programmes with additional resources to those allocated to national programmes, will undoubtedly make an important contribution to the dynamics of Central American integration and act as a motivation to develop activities of collective interest.

2. Medium-term effects

National plans to repair the damages caused by hurricane Mitch are providing a new opportunity to strengthen the Central American economic integration process, above all in the measure that this System's institutions can carry out activities designed to formulate or follow up on feasible regional projects. The result will depend on the securing of a positive response from the international community and multilateral financial agencies, on the countries' prudence in executing national reconstruction programmes and their capacity to keep financial imbalances under control.

The national programmes are expected to generate increased demand for Central American construction materials and household goods, thereby increasing inter-regional trade, with consequent effects on transport and other distribution activities. This will depend on the business sector's ability to strengthen the dynamics of the stockpiling process and provide impetus for the generation of new productive projects.

²¹ A study of this subject by the Central American Business Administration Institute (INCAE) is nearing completion.

The integrating effect of projects for the recovery and improved management of catchment basins, a pending item on the integration agenda for many years, could prove particularly important. The complexity of the activities involved in carrying out an initiative of this kind would have a multiplier effect on national productive systems.

Although a wide-ranging, generalised programme to replace housing has not been envisaged, with the exception of a few, limited government projects, it is hoped that the private sector will increase its involvement in the construction of low-cost rural and urban housing, since this will necessarily generate greater demand for materials, with the consequent effects on production and trade.

Moreover, if the highway system is rebuilt with the improvements needed to reduce its vulnerability, such improvements are bound to increase the efficiency of both passenger and freight transport, particularly if the programme to improve border customs services is completed; feasibility studies are already at a very advanced stage.

Finally, the region's leaders have shown great interest in promoting the strengthening of the institutional framework for integration; this will effectively help to overcome the obstacles to the above programme while also making it possible to organize and channel a large number of initiatives proposed by a wide variety of sectors. This is therefore a good opportunity to strengthen the institutional framework for integration, to the extent that the entities of the Central American Integration System can act as the executing agencies for cooperation projects in their respective fields.







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