II. ESTIMATES OF THE DAMAGES

The results of the preliminary assessment of the damages described in the preceding chapter are presented heretofore. The estimates are based on information furnished by officials of the Government of El Salvador and on evaluations and estimate made by CEPAL in the affected areas.

It should be emphasized at this point that the estimates should be considered provisional, inasmuch as they are based on only partial information.

Estimates were made on the basis of the value of the number of units lost or damaged and on average replacement costs. Special methodologies were used to estimated certain types of losses, particularly with respect to the erosion and sedimentation of agricultural lands.

The estimates include indirect losses, which refer to both the income not received due to the paralyzation of or delay in the activities of certain economic sectors, and to the additional expenses required to provide certain services.

1. Effects on the Population and Social Conditions

It is estimated that approximately 600 lives were lost due to the storm and its aftermath, and that 20 000 victims required lodging in temporary shelters. Numerous families were broken up and many lost their main income provider. Relocation in temporary shelters has also brought about an increase in transportation costs to work centres. A considerable reduction in family income has been added to the human and material losses suffered.

The great number of victims is no doubt attributable to the fact that many of the dwellings swept away were located in areas close to streams and rivers in urban zones, and near the coast and waterways on the coastal plain in rural areas, sites which are already in disaster prove areas during the rainy season and at high tide. Another contributing factor was the mud flow that killed some 350 people and swept away hundreds of dwellings in Colonia Montebello located in the

/north-western

north-western part of the capital city. In spite of the warnings provided by the Meteorological Service whenever there are storms approaching, the country does not have an early warning system and organization required for the timely evacuation of people.

2. Damages in the Social Sectors

Of all, the social sectors housing suffered the most damages.

a) Health

Health services in El Salvador, particularly preventive medicine, were already quite precarious even before the natural disasters occurred. The floods, the formation of extensive pools, the still undetected existence of decomposing bodies and the overcrowding in temporary shelters have all aggravated this situation.

The July earthquake caused damages to 10 health centres located in the central and south-western parts of the country. Although the storm did not affect the country's health infrastructure, with the exception of the steam and hot water system in the Ahuachapán hospital, there exists the possibility that certain diseases may proliferate. Cases of malaria and dengue fever, for example, will certainly increase notably in the months to come because of conditions favourable to proliferation of the vector transmitting these diseases. Some cases of rabies have already been detected and an epidemic might break out if animals that transmit this disease come into contact with the bodies of victims that have not been located or buried. Overcrowding and contaminated water in rural areas may bring about measles and diarrhoea epidemics, especially among children. Furthermore, sufficient supplies of anti-rabies vaccine, anti-malaria medicines and insecticides are not available, and consequently emergency supplies for oral rehydration of infants and anti-rabies vaccines from abroad are required. In some areas of the capital a campaign has been undertaken to exterminate stray dogs.

/The cost

The cost of repairing damages to health infrastructure is estimated at 465 000 U.S. Dollars, whereas the cost of necessary vaccines and medicines will be close to 2 million U.S. Dollars. Inasmuch as the treatment of those wounded by the storm and the earthquake was attended to using the normal operating budgets of the country's health institutions, these expenses have not been included in the list of damages. (See Table 1.)

b) Housing

Housing was one of the sectors most affected by the storm and the earthquake, as mentioned previously; however, it has not been possible to accurately assess the damages. Consequently, CEPAL has made estimates based on on-the-spot assessments and on figures furnished by the Salvadorean authorities. In accordance with these figures, some 100 middle-class and some 700 slum dwellings were totally destroyed in urban areas, and more than 1 000 in rural areas. In addition, over 300 middle-class dwellings and some 1 500 slum dwellings were damaged by the storm and the earthquake. Therefore, in urban areas a total of some 1 800 dwellings were completely destroyed and an equal number were partially damaged in both urban and rural areas. Direct replacement and repair costs to ensure acceptable safety standards, including replacement of household effects, have been estimated at approximately 6.7 million U.S.Dollars. (See Table 1.)

Because of the possibility of the occurrence of new floods and mud flows, especially in the urban areas near rivers and streams and the Montebello district, some 500 middle-class dwellings and approximately 3 000 slum dwellings - some of which are already in poor repair - must be evacuated and replaced by new dwellings located in safe places, thereby providing decent housing to the inhabitants of city slums. This indirect cost has been estimated at 10.4 million U.S. Dollars, after deducting the costs of damages in partially affected dwellings that should be replaced rather than repaired. (See Table 1.)

/Table 1

Table 1

EL SALVADOR: DAMAGES IN THE SOCIAL SECTORS

(Thousands of dollars)

Sector	Costs			Imported components
	Total	Direct	Indirect	
Total social sectors	21 100	8 200	12 500	5 695
Health sector	2 415	65	1 950	2 115
Health campaigns	1 950	-	1 950	1 950
Repair of damages in health centres	465	65	-	165
Housing sector	17 085	6 735	10 350	3 300
Dwellings destroyed (1 500)	4 220	4 220	-	845
Dwellings damaged (1 800)	1 875	1 875	-	375
Household effects	640	640	-	10
Dwellings that should be evacuated (3 500) a/	10 350	-	10 350	2 070
Education sector	1 600	1 400	200	280
Repairs to educational centres	1 600	1 400	200	280

Source: CEPAL estimates made on the basis of information provided by the Ministry of Public Works, the Ministry of Planning and the Pan-American Health Organization (PAHO/WHO).

a/ Includes some of the damaged dwellings; however, the amount of damages has been deducted from the total to avoid double accounting.

/The total

The total housing sector losses, caused by both the September storm and the June earthquake, amount to an estimated figure of 17 million U.S. Dollars.

The Housing Department of the Ministry of Public Works, in close collaboration with the Social Fund for Housing, has made plans for a minimum-housing programme in urban areas to be implemented in the immediate future for 10 000 low-income families, at a cost of approximately 26 million U.S. Dollars. This will make it possible not only to satisfy the demand directly and indirectly atributable to the disasters but also to contribute to eradicate marginalization in urban areas, especially in San Salvador.

c) Education

Several dozen school centres were affected by the June earthquake, whereas only a few indirect damages resulted after the storm due to the overcrowding of the refugees they sheltered. Repair of these damages is estimated at 1.6 million U.S.Dollars. (See Table 1.)

3. Damages to Infrastructure

Damages to infrastructure were mainly due to the September storm.

a) Highway Transport

Rains caused erosion and landslides on highways. River overflows eroded the surface of some highways and roads. No significant damage to bridges or culverts occurred, as opposed to the case of Guatemala.

Damages occurred mainly on the highways and secondary roads located in the western part of the country. Internal traffic was rapidly restored as a result of the determined efforts of the maintenance squads of the Ministry of Public Works. International traffic with Guatemala on the highways connecting San Salvador with La Hachadura (CA-2) and El Jobo (CA-8) was totally interrupted because of the damage or destruction of several bridges in Guatemalan territory. All international traffic with Guatemala

/was consequently

was consequently channeled onto the San Salvador-Santa Ana-San Cristóbal highway (CA-1).

The cost of repairing direct damage to highways is estimated at a total of 12.5 million U.S. Dollars. Of this, 3.5 million would be allocated for repairing asphalt surfacing, road shoulders and other items on paved highways. The remaining 9 million are earmarked for cleaning and rehabiliting the secondary roads network. It is estimated that about 2.8 million of the total would be required for importing materials which are not manufactured in the country.

It is estimated that use of a longer alternate route for international traffic to Guatemala, will, for at least six months until bridges in the neighbouring country are repaired, result in indirect transportation costs of some 125 000 U.S. Dollars.[5/] Total costs for this sector would consequently amount to 12.6 million U.S. Dollars. (See Table 2.)

b) Railway Transport

Damages to railway infraestructure were caused by the rains and refer exclusively to the burial of tracks by rubble and earth, to landslides and to the destruction or deterioration of a large number of railway sleepers on the lines that run from Acajutla to San Salvador and from the Guatemalan border to San Salvador, in the western portion of the country closest to Guatemala.

Traffic was interrupted for about one week while provisional repairs were made. This occasioned losses in revenue. In addition, definitive repairs will require the acquisition of earth moving equipment.

The Autonomous Executive Port Commission (CEPA), which also administers the railways system, has estimated that repairs of direct damages caused by the storm will amount to 345 000 U.S. Dollars. The loss of revenue while provisional repairs were made will probably amount to 80 000 U.S. Dollars. Four hundred thousand dollars more would be required to import earth moving equipment.

/Table 2

Table 2

EL SALVADOR: DAMAGES TO INFRASTRUCTURE

(Thousands of dollars)

Sector/subsector	Damages			Imported components
	Total	Direct	Indirect	
Total infrastructure	20 341	15 508	4 833	7 947
Highway transport	12 625	12 500	125	2 750
Asphalt highways	3 625	3 500	125	1 850
Secondary roads	9 000	9 000	-	900
Railway transport	825	345	480	540
Repairs to tracks	425	345	80	140
Earth-moving equipment	400	-	400	400
Ports and airports	1 240	1 120	120	860
Electricity sector	3 176	426	2 750	2 402
Damage to Ahuachapán power plant	2 685	185	2 500	2 290
Distribution systems	491	241	250	112
Water supply and sewerage systems	445	397	48	235
Telecommunications	1 280	570	710	560
Urban and interurban telephone service	700	570	130	230
Relocation of towers and antennas	580	-	580	330
Other subsectors	750	150	600	600

Source: CEPAL estimates based on information provided by the Ministry of Public Works, the Autonomous Executive Port Commission, the Lempa River Hydroelectric Executive Commission, the National Water Supply and Sewerage System Administration, the National Telecommunications Administration, and other public and private organizations.

/Total damages

Total damages in this sector, therefore, including both direct and indirect costs, are estimated at 835 000 U.S. Dollars, of which 540 000 would be allocated for equipment and materials manufactured abroad. (See Table 2.)

c) Ports and Airports

The jetty in the port of Acajutla was subjected to considerable damages that consisted of the breaking of those parts of the pier most exposed to the force of the waves, the partial loss of warehouse and other installations roofs, the flooding of the control panels and the cathode protection equipment employed to prevent corrosion of the metal portions of the dock, the sinking of mobile loading equipment and the partial sedimentation of the mooring area.

Because of the time of year in which the disaster occurred, the warehouses located on the dock were not being used. Thus, docking, loading and unloading operations were not affected and will consequently not produce any loss of income.[6/]

The cost of repairing damages to infrastructure and replacing mechanical and electrical equipment has been estimated by the Autonomous Executive Port Commission (CEPA) at 1.12 million U.S. Dollars. An additional indirect cost of 120 000 U.S. Dollars is estimated for re-equipping and modernizing the main meteorological station in Acajutla. The total cost would therefore amount to 1.2 million U.S. Dollars, of which 860 000 would be required for imported equipment and materials. (See Table 2.)

Damages to the port were covered by insurance. No damages took place in the country's airports, also administered by the CEPA.

d) Electricity Service

None of the electrical power plants nor any of the transmission lines of the River Lempa Executive Hydroelectric Commission were affected by the storm, and the Cerrón Grande and Güija plant dams fully performed

/their

their flood control functions for the first time. Had this not been the case, the Lower Lempa plains would have been subjected to considerable flooding.

The principal damages were confined to the breaking of the channel that discharges waste waters from the Ahuachapán geothermoelectric power plant to the Pacific Ocean. The plant's waste be diverted towards the Paz River on the Guatemalan border instead. The distribution system for rural electrification and for certain cities, such as Santa Ana, Sonsonate, Ahuachapán and San Salvador, were considerably damaged which fact caused the interruption of this service for a relatively brief period of time.

Repairs to the channel will require a four months' time period and an investment of approximately 185 000 U.S. Dollars. Since provisional repairs to the distribution lines in the affected rural and urban areas will cost some 241 000 U.S. Dollars, the total direct cost for the sector will amount to 426 000 U.S. Dollars.

Indirect losses or damages caused by a reduction in revenues in the affected systems will amount to approximately 250 000 U.S. Dollars until the damaged lines are fully repaired. Furthermore, in order to avoid affecting fishing in the delta of the Paz River - the use of which is regulated by an international treaty signed by Guatemala and El Salvador - due to the discharge of waters with a high content of boron, arsenic and other materials from the Ahuachapán power plant, it may be necessary to stop one of the three 30-MW capacity units for a period of three months. This would allow for an acceptable degree of dilution of the salts in the river. The energy not produced at Ahuachapán could easily be replaced with hydroelectric power supplied by the Cerrón Grande plant; however, since the capacity of the transmission line from the plant to San Salvador is insufficient, a steam power plant would have to be put into operation. This would have an additional indirect cost of about 2.5 million U.S. Dollars.

The total damages in this sector would thus amount to 3.2 million U.S. Dollars, of which 2.4 million would refer to imports, especially fuel for power generation. (See Table 2.)

/e) Water

e) Water Supply and Sewerage Systems

Runoff caused by the storm seriously affected electrical and pumping equipment in the water supply system of 20 rural communities and in civil engineering works of urban systems operated by the National Water Supply and Sewerage System Administration (ANDA).

It is estimated that 45 000 people in rural areas were deprived of normal drinking water service and are probably consuming polluted water. The repair or replacement of equipment may require at least four months' time. Service was not interrupted in urban systems and the repair of damaged civil engineering works is being carried out rapidly.

Direct damages to this sector are estimated at 379 000 U.S. Dollars. Indirect damages - referring to uncollected revenue due to the interruption of the services - at 48 000 U.S. Dollars. This means a total loss of 445 000 U.S. Dollars, of which 235 000 would be required for the purchase of equipment abroad. (See Table 2.)

f) Telecommunication Services

Aerial urban and interurban transmission lines were affected by the winds, and telephone conduits and other underground works in 14 cities were affected by flooding. Some 9 000 private telephone lines were without service for about 15 days. The access road to the land station located at El Picacho near San Salvador was also cut off in several locations.

In addition to direct damages, the disasters caused indirect effects, especially in the Picacho area, where, aside from the land station of the National Telecommunications Administration (ANTEL), there are also antennas and relay stations which belong to CEL and private television companies. Erosion of the hillsides - which was the cause of the mud flows at Montebello - has come so close to these installations that it may be necessary to shift them to safer places before new rains destroy them.

/The direct

The direct costs of repairing and replacing urban and interurban lines and the access road to the El Picacho relay station are estimated at 570 000 U.S. Dollars, whereas the revenue lost by ANTEL due to the interruption of the service amounts to some 130 000 U.S. Dollars. The indirect cost of shifting the relay antennas to a safer place would amount to 580 000 U.S. Dollars more.

Repair of both direct and indirect damages to these services would consequently amount to 1.3 million U.S. Dollars, of which 560 000 would be required to import equipment and materials. (See Table 2.)

g) Other Sectors Affected

The country's stream gaging and meteorological station networks, whose density was one of the most appropriate for the requirements of the Latin American region, was also damaged. Four stream gaging stations were completely swept away by the floods and others were obstructed with silt. Several meteorological stations were also damaged by wind, rain and runoff. Their repair or replacement will require 150 000 U.S. Dollars.

4. Damages to Agriculture

a) Losses in Agricultural Production

Agricultural production prospects for the 1982/1983 crop were already discouraging at the beginning of this year. It was estimated that overall production of the seven main agricultural products would suffer a decline of 3.4 per cent due to various causes. Some related to extra-economic factors with influence on the country's productive activities, and the more specific disorders related to the application of the Agrarian Reform Law, the increase in costs of inputs used in agricultural production, and the low prices paid for export products which discourages export activities.

These already known factors were compounded by the meteorological phenomena of 1982, especially the prolonged dry spell during the rainy

/season.

season. In addition to the expected decline, these phenomena may result in a final decline of 13.5 per cent - when compared with the previous agricultural cycle - in the production of the seven main agricultural products. This fact, besides the direct impact on production, employment and the generation of foreign exchange, will impose a food shortage in 1983. (See Tables 3 and 4.)

El Salvador normally produces a high percentage of the grains required for domestic consumption; in some years, it has even produced surpluses for export. The sole exception being wheat which cannot be produced locally. Table 4, however, indicates that in 1983 there will occur shortages of all basic foodstuffs and that it will therefore be necessary to import corn, sorghum, wheat, vegetable oil and beans.

The shortage of foodstuffs in 1983 will imply an expenditure of 76 million dollars, only 12 million of which may be attributed to the canícula and the heavy rains in September. Of all the products, corn, a basic staple of the Salvadorean diet, will be the most critical since some 100 000 tons will have to be imported at a cost of more than 21 million U.S. Dollars. (See Table 5.)

Export products, which have been declining continously since the 1978/1979 harvest, will suffer the effect of the disasters, especially coffee and cotton. The natural disasters, particularly the canícula, affected the cotton harvest especially, which had been declining as a result of the reduction of the land area devoted to this crop. At the present time the area devoted to cotton represents one third of that cultivated in the previous two years, owing to a drop in prices, the instability derived from enforcement of the agrarian reform, and other economic and political factors.

In the case of coffee, in addition to the natural phenomena described, investment in some areas had decreased due to the drop in prices. Furthermore, to comply with the International Coffee Agreement, the country was forced to retain part of its annual quota, which lead to an accumulation of stocks in excess of 700 000 bags. In addition, the rains caused erosion in the area of Ahuachapán, destroying plantations

/Table 3

Table 3

EL SALVADOR: ESTIMATED LOSSES IN STAPLE AND EXPORT PRODUCTS DUE TO THE DISASTERS OF 1982

Product	1980/1981	1981/1982	1982/1983		Losses
			Originally planned	Post-disaster	
	Millions of 1981 dollars				
Total	518.1	499.6	482.7	431.5	51.4
Corn	106.4	101.0	97.6	81.8	15.8
Beans	30.0	28.8	27.7	24.2	3.5
Rice (Milled)	30.8	25.5	23.4	16.1	7.3
Sorghum	27.8	24.8	22.7	20.0	2.7
Coffee	205.9	202.3	188.4	177.8	10.6
Cotton	79.3	76.9	71.0	60.3	10.7
Sugar cane	37.8	40.3	52.0	51.2	0.8
	Growth rates				
	-9.9	-3 6	-3.4	-13.6	
	Percentage of losses in 1982/1983				
					11.9

Source: CEPAL estimates based on information provided by the Ministry of Agriculture and Livestock.

/Table 4

Table 4

EL SALVADOR: ESTIMATED LOSSES IN BASIC GRAINS AND EXPORT PRODUCTS, 1982/1983

(Thousands of tons)

Product	1980/1981	1981/1982	1982/1983		
			Originally planned	Post-disaster	Losses
Corn	519.0	493.0	476.3	399.2	77.1
Beans	39.3	37.7	36.3	31.7	4.6
Rice (Milled)	59.9	49.4	45.4	31.2	14.2
Sorghum	150.4	133.8	122.5	107.9	14.6
Coffee	158.7	155.8	145.1	137.0	8.1
Cotton (Lint)	115.3	111.8	103.2	87.7	15.5
Sugar cane	1 798.3	1 920.5	2 476.1	2 439.8	36.3

Source: For 1981/1982 production, CEPAL, Notas para el estudio económico de América Latina, El Salvador, 1981 (E/CEPAL/MEX/1982/L.22); for 1982 production, information provided by the Ministry of Agriculture and Livestock.

/Table 5

Table 5

EL SALVADOR: FOOD AVAILABILITY AND REQUIREMENTS, 1983

(Tons)

Product	Production planned	Production expected	Stocks[a/]	Availability	Requirements	Balance	Value in thousands of 1981 dollars[b/] Production planned	Availability	Requirements	Balance
Total							176 361	168 354	245 335	-76 981
Corn	476 270	420 485	18 144	438 629	521 629	-83 000	97 635	89 919	106 934	-17 015
Beans	36 287	33 607	14 288	47 895	49 895	-2 000	27 687	36 544	38 070	-1 526
Rice (Milled)	45 359	34 246	7 257	41 503	63 503	-22 000	23 360	21 374	32 704	-11 330
Sorghum	122 469	87 828	-	87 828	167 828	-80 000	22 657	16 248	31 048	-14 800
Wheat	-	-	-	-	120 000	-120 000	-	-	25 080	-25 080
Vegetable oil[c/]	9 906	8 420	-	8 420	22 680	-14 260	5 022	4 269	11 499	-7 230

Source: CEPAL estimates based on information provided by the Ministry of Agriculture and Livestock.

a/ As of 31 September 1982.

b/ Domestic prices were used except in the case of wheat and vegetable oil which are international prices.

c/ From cottonseed and soybeans.

/in one of

in one of the country's prime coffee-growing areas. Recovery will be extremely difficult since erosion occurred on lands with slopes over 60 per cent, in which it is both difficult and expensive to construct soil conservation works. These works will necessarily have to be carried out as soon as possible in order to avoid more extensive erosion of the upland areas.

Damage to sugar cane was minimal and was confined to small areas upturned by the wind. The impact on production and the availability of sugar cane to meet the international quota assigned to the country does not seem to be of great importance. (See Table 5.)

In summary, losses in agricultural production which are directly attributable to the meteorological phenomena, as indicated in Tables 3 and 4 could reach as much as 61.4 million U.S. Dollars at 1982 prices, thereby compounding the already foreseen deficit in production. (See Table 6.)

b) Damage to Livestock

Floods brought about by the intensive rains swept away part of the livestock in the coastal areas of Sonsonate and Ahuachapán. Six hundred heads of cattle were lost, most of them in their growing stage. Although the number of heads lost is not great in comparison with the country's total livestock population, its replacement will take time, and the supply of meat for national consumption will necessarily be reduced in the near future.

c) Damage to Fisheries

Fishing was affected by the storm, not only for physical damages but for the need to shelter fishing vessels as well, which results in losses of revenue. On this occasion, fishing boats - mostly shrimp boats did not go out to sea for eight days. This resulted in a total loss of income on the order of 350 000 U.S. Dollars and the consequent reduction in foreign exchange generated by a product earmarked mainly for export.

/Two of

Two of the country's 15 shrimp boats[7/] were damaged in port; their repairs amount to 640 000 dollars. Although the boats were insured, the time they are out of commission will cause a reduction in the revenues of this sector. (See Table 6.)

d) Damage to Land, Plantations and Infrastructure

i) Irrigation Infrastructure. In the Zapotitán District, infrastructure was damaged by the heavy rainfall, the saturation of the soils and the material swept along by the water. Damages consist mainly of the silting of canals and erosion of drainage ditches. Some irrigation gates were swept away by the currents. In other cases, pumping equipment was found buried by sediment, but they may still be rehabilitated. A total of approximately 960 000 U.S. Dollars will be required to repair and rehabilitate the damage in irrigation system. (See Table 6.) Such rehabilitation is of special urgency in view of the proximity of the dry season, during which agricultural production can only be carried out under irrigation. Furthermore, these are micro-regions which generate substantial employment levels because of the high economic value of the crops they produce, such as vegetables and agro-industrial inputs.

ii) Damage in the Uplands of the San Salvador Volcano. One of the areas most affected by the storm, in view of the damage imposed, was surely the uplands located in the San Salvador volcano. The soils on the volcano's slopes - geologically young and still in formation - became oversaturated and collapsed in an avalanche of mud, rocks and tree trunks. A 100-metre wide ravine was formed as a result in an area where only a small stream had existed before.

The physical damage so far has not been excessive. It is estimated that an investment of 750 000 U.S. Dollars would suffice to undertake minimum soil conservation and reforestation works. (See Table 6.) Nevertheless, these soils - sandy loams of volcanic origin with non-cohesive lapilli - face the potential danger of new mud and stone flows, even under less severe weather conditions.[8/]

/Table 6

Table 6

EL SALVADOR: DAMAGE IN THE AGRICULTURE AND LIVESTOCK SECTOR

(Thousands of dollars)

Item	Damages		Indirect effects	Imported components a/
	Total	Direct		
Total agricultural sector	87 538	74 438	13 100	
Agricultural production	73 400	61 400	12 000	
Crop losses	61 400	61 400	-	22 100
Food imports	12 000	-	12 000	12 000
Livestock	63	63		
Cattle lost (600 heads) b/	43	43	-	-
Fences destroyed	20	20	-	10
Fisheries sector	990	640	350	
Vessels damaged	640	640	-	500
Production losses	350	-	350	350
Land, plantations and infrastructure	13 085	12 335	750	
Zapotitán Irrigation District	960	960	-	100
San Salvador volcano lands	750	-	750	-
Coffee lands and plantation (500 hectares)	8 925	8 925		6 925
Eroded or lost coastal lands (3 000 hectares)	2 200	2 200	-	-
Other damages	250	250	-	25

Source: CEPAL estimates based on information provided by the Ministry of Agricultural and Livestock and the Ministry of Planning.

a/ Losses in exchange since production is not exported.

b/ 75 cows, 225 heifers and 300 calves.

/The works

The works mentioned above would only refer to the area in which large gullies have already been formed. However, in other areas located in the outskirts of San Salvador there exist some 20 000 hectares of soils equally susceptible to the same type of damage. They should also be protected by means of erosion control, terracing and reforestation works to avoid similar events in the future. A provisional estimate of the cost of such works would be about 36 million U.S. Dollars. Although this expenditure could not be considered directly attributable to the disaster caused by the rains under reference, it is nevertheless of an urgent nature.

iii) Damage to Other Agricultural Lands. In the Provinces of Ahuachapán, Sonsonate and Santa Ana - particularly in Ahuachapán - the rains also eroded soils and created mud flows which increased river flows and destroyed high quality farmland. These mud flows took place in the medium and high altitude areas of Ahuachapán and Santa Ana, which are mainly devoted to coffee production. Although these lands have a 60 per cent slope, it is nevertheless highly productive because of the type of crops cultivated in them. Works are to be carried out in this area to protect the plantations that were not damaged. It should be noted, nevertheless, that the approximately 500 hectares of eroded and definitely lost lands represent a great loss for the affected land owners; when considering total country coffee production, however, the loss is not so great. It is estimated that the cost of lands lost have a value of 6.9 million U.S. Dollars, the equivalent amount of their probable production over a period of five years. This estimate has been made taking into consideration the average national yield of coffee during the past five years and the average export price of coffee in 1981. In addition, the loss of the coffee plantation itself is estimated at 2 million U.S. Dollars more.

The low-lying lands of the coastal area located west of Sonsonate, towards the Guatemalan border, which are used to produce corn and beans, were also affected by the floods. It is estimated that nearly 1 000 hectares of these lands lost their uppermost layer of soil, thus

/giving

giving rise to a loss in assets which is estimated at 2 million U.S. Dollars. Also eroded or sedimented by the floods were 2 000 hectares more with the resulting reduction in productivity. The cost of rehabilitating these lands is estimated at some 200 000 dollars. (See Table 6.)

iv) Other Damages. A part of infraatructure for coffee drying and processing was destroyed by the pressure of the water and the flooding of 1 500 square metres of drying surfaces. Their repair is most urgent since the coffee crop is ready for harvest and the drying process is important to ensure the quality of the coffee. It is estimated that repairs of these damages will have an additional cost of 200 000 U.S. Dollars (See Table 6.)

5. Damages to Industry and Commerce

No important direct damages were detected in the industry and commerce sectors. Nevertheless a reduction in industrial activity is expected for the remainder of the year due to the indirect effect posed by the shortage of foreign exchange required to import raw materials. Commerce will also be indirectly affected due to increased transport costs, particularly with respect to products purchased in Guatemala.

6. Summary of Damages

The natural disasters of 1982 affected, in decreasing order of magnitude, the following sectors: agricultural production; housing; transportation, and agricultural lands, plantations and infrastructure. The disasters adversely affected the productive apparatus that generates most of the country's foreign exchange as well as the basic foodstuffs for the population; substantially deteriorated the precarious housing conditions of the lower strata of the population; disrupted internal transportation in the western area of the country as well as international traffic with Guatemala, and destroyed or eroded agricultural lands, plantations and infrastructure in the country's most productive areas. Other sectors

/suffered

suffered only minor damages and temporary declines in sales, or incurred in additional expenses when performing their normal operations.

Table 7 provides a summary of the damages caused by the disasters, which are estimated to a total of 129 million U.S. dollars.[9/] Of this amount, 61 million refer to agriculture and livestock production losses; 37 million to losses in the country's assets; and the remaining 30 million to revenues that will not be earned because of paralyzation of normal activities, additional operating costs and the import of foodstuffs. It is estimated that, at the most, 10 million U.S. Dollars can be recovered through reinsurance.

The damages described will also have a negative effect on the balance of payments, as will be seen later on. It is estimated that approximately 30 million U.S. Dollars of agricultural and livestock products will not be exported as a result of the disasters; consequently, some 25 million U.S. Dollars will have to be spent on importing food, fuel, equipment and materials not available or not manufactured locally.

The relative magnitude of the direct and indirect damages may be better understood when compared with some macroeconomic indicators. They represent one fourth of the Government's budgeted expenditures and three per cent of the gross domestic product in 1981. And this has come about when the country's economy is already deeply depressed by other factors. Therefore, the extent and type of the damages will further deteriorate the country's already difficult economic position.

/Table 7

Table 7

EL SALVADOR: SUMMARY OF THE DAMAGES CAUSED BY THE DISASTERS

(Millions of dollars)

Item	Damages		Indirect effects	Import or export components
	Total	Direct		
Total	128.9	98.1	30.4	
Social sector	21.1	8.2	12.5	
Health	2.4	0.0	2.0	2.1
Housing	17.1	6.7	10.4	3.3
Education	1.6	1.4	0.2	0.3
Infrastructure	20.3	15.5	4.8	
Highway transport	12.6	12.5	0.1	2.8
Railway transport	0.8	0.3	0.5	0.5
Ports	1.2	1.1	0.1	0.9
Electricity service	3.2	0.4	2.8	2.4
Water supply and sewerage systems	0.4	0.4	0.0	0.2
Telecommunications	1.3	0.6	0.7	0.6
Other sectors	0.8	0.2	0.6	0.6
Agricultural and livestock sector	87.5	74.4	13.1	
Agriculture	73.4	61.4	12.0	34.1
Livestock	0.1	0.1	-	-
Fisheries	1.0	0.6	0.4	0.8
Lands, plantations and infrastructure	13.1	12.3	0.7	7.0

Source: CEPAL, based on official information.