

Japan International Cooperation Agency (JICA)

Comisión Nacional de Desarrollo
The Republic of El Salvador

**The Study on Economic Development,
Focusing on the Eastern Region,
of the Republic of El Salvador**

**Final Report
Volume 4
Sector Review Report**

March 2004



RECS International Inc.
Nippon Koei Co., Ltd.
UNICO International Corp.

SSF

J R

04-24

Japan International Cooperation Agency (JICA)

Comisión Nacional de Desarrollo

The Republic of El Salvador

**The Study on Economic Development,
Focusing on the Eastern Region,
of the Republic of El Salvador**

**Final Report
Volume 4
Sector Review Report**

March 2004

RECS International Inc.
Nippon Koei Co., Ltd.
UNICO International Corp.

List of Reports

Volume I Executive Summary

Volume II Master Plan Report

Volume III Project Report

Part 1 Project Profiles

Part 2 In-Depth Studies

Part 3 Additional Action Proposals

Part 4 Industrial Location Planning for the Eastern Region and Macrozonning for La Union-Conchagua Area

Part 5 Pre-Feasibility Study on Rio Grande de San Miguel Water Resources Development and Management Project

Part 6 Initial Environmental Examination (IEE)

Part 7 Coffee Pilot Project

Part 8 Indigo Pilot Project

Volume IV Sector Review Report

Part 1 Economic Sectors

Part 2 Infrastructure and Resources

Part 3 Human Capital

Volume V Survey Report

Survey 1 Industrial Location Survey

Survey 2 Investment Potential Survey in El Salvador and Neighboring Countries

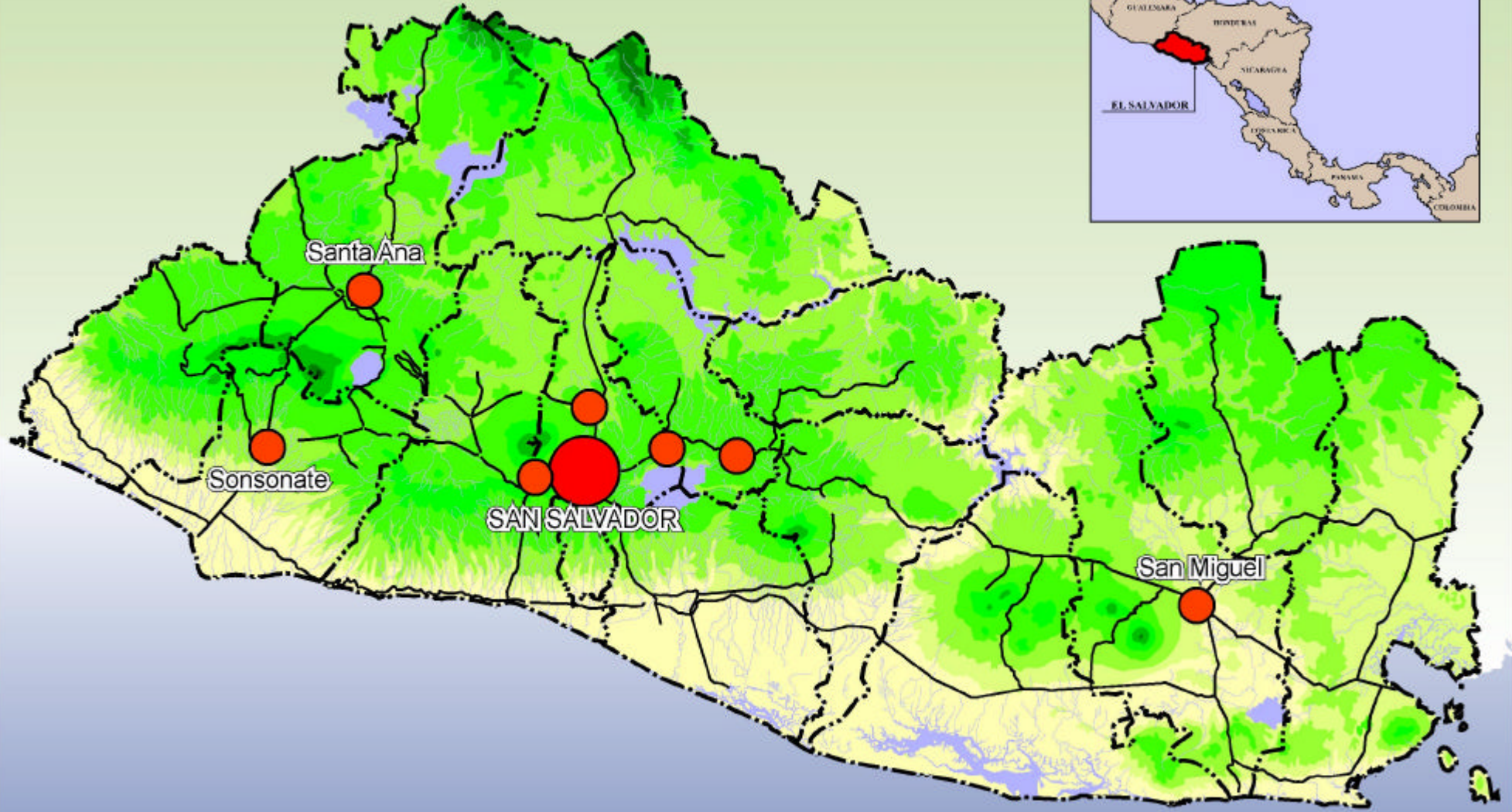
Survey 3 Investment Potential Survey in Japan

Survey 4 Survey on Salvadorans in the United States

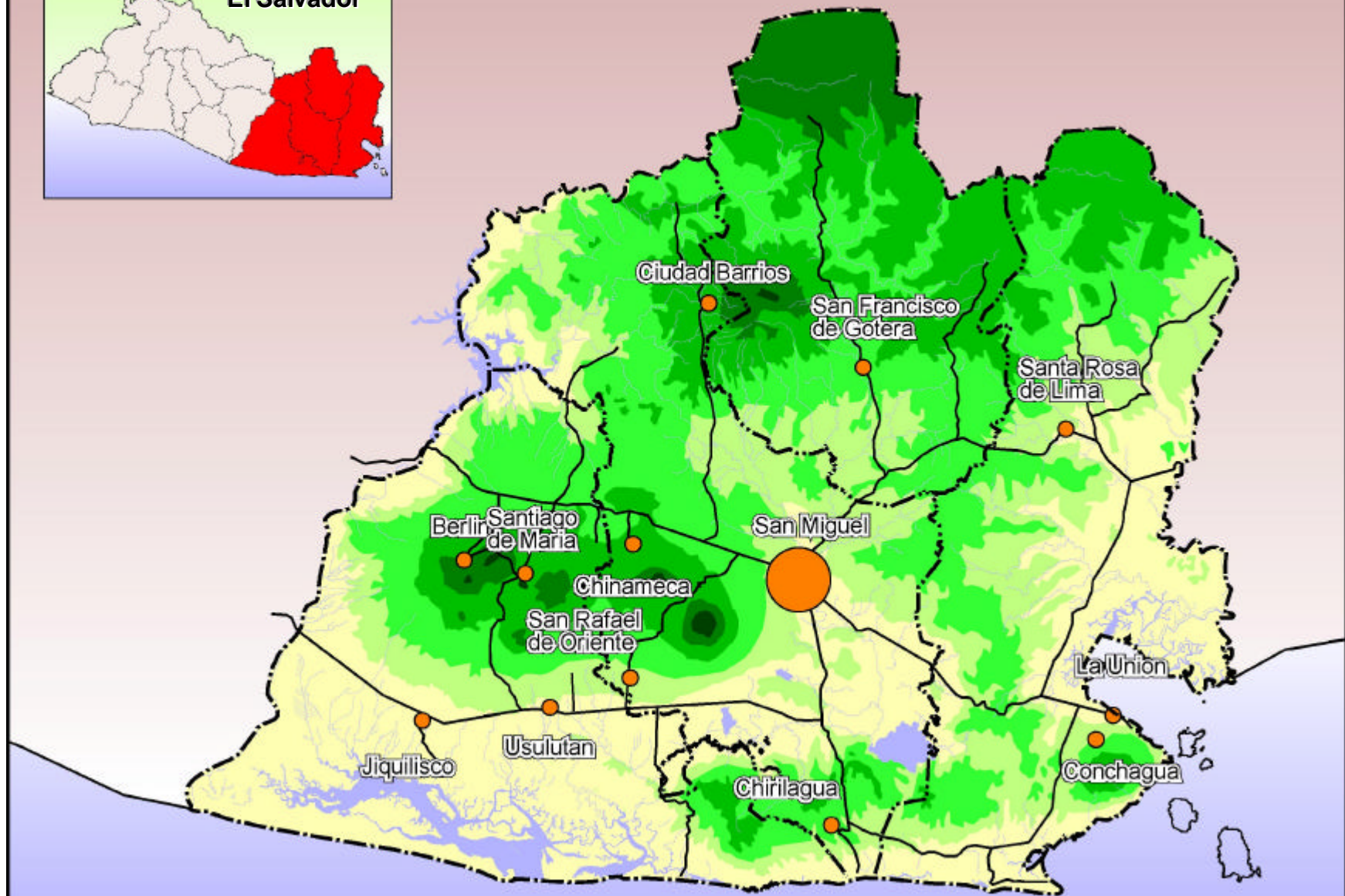
Survey 5 Port Utilization Survey

Survey 6 Public Safety Survey

Survey 7 Survey on Existing Enterprises in El Salvador



The Republic of El Salvador



The Eastern Region of El Salvador

**The Study on Economic Development,
Focusing on the Eastern Region,
of the Republic of El Salvador**

**Final Report
Volume 4: Sector Review Report**

Contents

	Page
PART 1: ECONOMIC SECTORS	
1 Agriculture	1-1
1.1 Agricultural Land Use.....	1-1
1.2 Production Performance.....	1-2
1.3 Production Systems.....	1-8
1.4 Livestock and Poultry Production.....	1-10
1.5 Agriculture Support System.....	1-11
1.6 Fishery.....	1-15
1.7 Directions for Agricultural Development in El Salvador and the Eastern Region.....	1-17
2 Industry	1-19
2.1 Industrial Sector Overview.....	1-19
2.2 Industrial Structure in El Salvador.....	1-22
2.3 Industry in the Eastern Region.....	1-25
3 Tourism	1-28
3.1 Existing Conditions of Tourism in El Salvador.....	1-28
3.2 Tourism Products and Infrastructure in El Salvador.....	1-32
3.3 Conditions of Tourism in the Eastern Region.....	1-35
3.4 Issues and Directions for Tourism Development in the Eastern Region.....	1-36
4 Commerce and Services	1-39
4.1 Overall Performance of Commerce and Services in El Salvador.....	1-39
4.2 Existing Conditions by Subsector.....	1-41
4.3 Commerce and Services in the Eastern Region.....	1-43
4.4 Issues and Directions for Commerce and Services Development.....	1-44
PART 2: INFRASTRUCTURE AND RESOURCES	
1 Transport Infrastructure	2-1
1.1 Road Network.....	2-1
1.2 Port System.....	2-3
1.3 Airports and Air Transport.....	2-7
1.4 Railroads.....	2-9
1.5 Issues and Directions for Transport Development in El Salvador.....	2-9
2 Power Supply	2-14
2.1 Power Sector Overview.....	2-14
2.2 Existing Power Supply System.....	2-15
2.3 Some Existing and Planned Projects.....	2-17

2.4	Issues and Prospects for Power Development in El Salvador and the Eastern Region.....	2-19
3	Telecommunications and ICT.....	2-21
3.1	Telecommunications Sector Overview.....	2-21
3.2	PPP Initiative.....	2-23
3.3	ICT-related Activities.....	2-24
3.4	Position of El Salvador and Prospects.....	2-26
4	Urban Infrastructure.....	2-29
4.1	Urban Hierarchy in the Eastern Region.....	2-29
4.2	Existing Conditions of La Union and Its Hinterland.....	2-29
4.3	Prospect for Future Development.....	2-36
5	Land Resources.....	2-39
5.1	Existing Conditions.....	2-39
5.2	Land Capability and Vulnerability.....	2-41
6	Water Resources.....	2-44
6.1	Water-related Institutions.....	2-44
6.2	Water Resources Endowments in El Salvador.....	2-45
6.3	Existing Water Use and Facilities in El Salvador.....	2-47
6.4	Water Resources and Water Use in the Eastern Region.....	2-49
6.5	Issues for Water Resources Development and Management.....	2-52
	Annex to Chapter 6: Detailed Data on Potable Water Supply.....	2-56
 PART 3: HUMAN CAPITAL		
1	Demography and Employment.....	3-1
1.1	Demography.....	3-1
1.2	Employment.....	3-2
2	Education and Training Opportunities.....	3-4
2.1	Education.....	3-4
2.2	Vocational training.....	3-12
2.3	Directions for improving education and training in El Salvador.....	3-13
3	Overseas Salvadorans.....	3-14
4	Poverty Situations.....	3-16
4.1	Poverty Trend in Recent Years.....	3-16
4.2	Poverty and Human Development by Department.....	3-18
4.3	Position of El Salvador.....	3-25
4.4	Issues for Poverty Alleviation.....	3-27

List of Tables

Part 1 ECONOMIC SECTORS

Table 1.1	Changes in Planted Area of Main Crops in El Salvador.....	1-1
Table 1.2	Changes in Planted Area and Production of Major Crops in El Salvador, 1989-2000.....	1-2
Table 1.3	Planted Area and Production of Main Crops by Department, 2001-2002.....	1-3
Table 1.4	Changes in Agro-Products Production, 1997-2001.....	1-4
Table 1.5	Coffee's Contribution to GDP, 1985-2000.....	1-6
Table 1.6	Coffee Harvested Area, Yield and Production, 1985-2001.....	1-6
Table 1.7	Coffee-Planted Area by Department and Land Elevation, 1996.....	1-7
Table 1.8	Number of Farmers, Production and Yield by Size of Coffee Farms.....	1-9
Table 1.9	International Coffee Price and Amount Paid to Coffee Farmers.....	1-10
Table 1.10	Scale of Coffee Cultivation under Intensive Production System.....	1-11
Table 1.11	Allocation of Bank Loans by Economic Sector.....	1-12
Table 1.12	Import of Agro-Products in El Salvador, 1987-2000.....	1-14
Table 1.13	Agricultural and Fishery GDP, 1998-2000.....	1-15
Table 1.14	Production of Fish by Various Fishery Categories, 2000.....	1-15
Table 1.15	Location of Fish Landing Sites in El Salvador.....	1-16
Table 2.1	Foreign Direct Investments by Sector, 1997-2002.....	1-21
Table 2.2	Cumulative Foreign Direct Investments by Country, 1998-2002.....	1-21
Table 2.3	Definitions of SME in El Salvador.....	1-22
Table 2.4	Compositions of Companies and Employees by Region and Company Scale.....	1-23
Table 2.5	Number of Companies and Employees by Region and Company Scale.....	1-23
Table 2.6	Composition of Number of Company and Employment by Industrial Category.....	1-24
Table 2.7	Number of Establishments and Employment in Manufacturing, 1997.....	1-25
Table 2.8	Number of Manufacturing Companies by Scale and Location.....	1-25
Table 2.9	Composition of Manufacturing Companies by Sub-industry.....	1-25
Table 2.10	Size Structure of Enterprises in the Eastern Region, 1997.....	1-26
Table 2.11	Composition of Manufacturing Companies in the Eastern Region.....	1-27
Table 3.1	Tourism Earnings Compared with Export Value of Major Export Products, 1997-2002.....	1-28
Table 3.2	Visitor Arrivals in El Salvador, 1980-2000.....	1-29
Table 3.3	Visitor Arrivals in El Salvador by Month, 2000-2002.....	1-29
Table 3.4	Visitors by Resident Country.....	1-29
Table 3.5	Number of Visitors by Mode of Transport and Entrance Point.....	1-30
Table 3.6	Number of Visitors by Purpose, 2000.....	1-31
Table 3.7	Visitors' Preference of Activities.....	1-31
Table 3.8	Foreign Visitors' Impression of El Salvador.....	1-31
Table 3.9	Visitors' Use of <i>Turicentros</i>	1-32
Table 3.10	Evaluation of Tourist Offerings in Central American Countries.....	1-33
Table 3.11	Evaluation of Tourism Resources by Destination.....	1-34
Table 3.12	Lodging Accommodations by Department, 2001.....	1-35
Table 4.1	Service Industry in GDP, 1970-2000.....	1-39
Table 4.2	Recent Performance of Commerce and Services, 1996-99.....	1-40

Table 4.3	Commerce and Service Sector by Subsector, 1998.....	1-40
Table 4.4	Annual Foreign Investment Inflow in the Commerce and Services Sector.....	1-41
Table 4.5	Commerce and Services in the Eastern Region.....	1-43
Table 4.6	Sales Volume in the Eastern Region, 1996 and 1998.....	1-44
Table 4.1	Characteristics of Main Central American Airports.....	4-8
Part 2 INFRASTRUCTURE AND RESOURCES		
Table 1.1	Piers and Berths of Acajutla Port.....	2-4
Table 1.2	Existing Piers at Cortes Port.....	2-5
Table 1.3	Characteristics and Performance of Limon-Moin Ports.....	2-6
Table 1.4	Characteristics of Main Central American Airports.....	2-8
Table 1.5	Railroads in Central America.....	2-9
Table 1.6	Existing Rail Lines in El Salvador.....	2-9
Table 1.7	Typical Maritime Freight Costs per Container from Central America to the U.S.....	2-11
Table 1.8	Import and Export Volume at Atlantic and Pacific Ports of Central America, 1999.....	2-12
Table 1.9	Volume of International Trade in Central America, 1998-2010.....	2-12
Table 1.10	Container Traffic Mobilized in Central America and Panama Ports, 1993-96.....	2-13
Table 2.1	Major Power Stations in El Salvador.....	2-16
Table 2.2	Shares of Installed Power Generating Capacity and Energy Generation.....	2-16
Table 2.3	Comparison of Power Tariff.....	2-17
Table 2.4	Electricity Coverage in El Salvador and the Eastern Region, 2000.....	2-20
Table 3.1	Changes in Fixed Telephone Lines by Service Provider.....	2-21
Table 3.2	Increases in Mobile Telephones by Service Provider.....	2-21
Table 3.3	Changes in Total Teledensity Rank of Selected Countries, 1990-2000.....	2-22
Table 3.4	ICT-related Human Resources Development.....	2-25
Table 3.5	Infocentros in the Eastern Region.....	2-26
Table 3.6	Comparison of El Salvador with Selected Countries by ICT-related Indices.....	2-27
Table 4.1	Water Supply Service in La Union Municipality.....	2-32
Table 4.2	Composition of Solid Waste.....	2-34
Table 4.3	Sources of Solid Waste Generation in La Union.....	2-34
Table 4.4	Garbage Collection Vehicles Operated by La Union Municipality.....	2-34
Table 4.5	Social Infrastructures Available in La Union and Conchagua.....	2-36
Table 4.6	Dimensions of Berths of La Union Port and Ship Sizes.....	2-36
Table 4.7	Existing Free Trade Zones in El Salvador.....	2-38
Table 5.1	Existing Land Use in El Salvador, 1990.....	2-41
Table 5.2	Changes in Land Use in El Salvador, 1980-1990.....	2-41
Table 5.3	Distribution of Land Capability Classes by Department.....	2-42
Table 6.1	Annual Rainfall and Runoff by Hydrological Region in El Salvador.....	2-47
Table 6.2	Groundwater Potential by Hydrological Region.....	2-48
Table 6.3	Actual Service Coverage for Water Supply and Sanitation by Department, 2001.....	2-48
Table 6.4	Consumption of Potable Water by Region (December 2001).....	2-49
Table 6.5	Existing Dams in El Salvador.....	2-49
Table 6.6	Annual Rainfall at San Miguel (El Papalon).....	2-50
Table 6.7	Groundwater Aquifers in the Eastern Region.....	2-53

Part 3 HUMAN CAPITAL

Table 1.1	Number of People Employed in Industry, Commerce, and Service Sectors, 1997.....	3-2
Table 1.2	Unemployment Rate by Department, 2000.....	3-3
Table 2.1	Literacy rate and average length of study in El Salvador, 1999.....	3-6
Table 2.2	Proportion of Budget and Population Distribution by Department, 1997.....	3-7
Table 2.3	Relationships between Education Budget, National Budget and GDP in Selected Countries, 1997.....	3-8
Table 2.4	Number of Secondary Schools and Enrollment by Department, 1998.....	3-8
Table 2.5	Secondary Education Participation Rate for Selected Countries in Latin America, 1999.....	3-9
Table 2.6	Average Per Capita Monthly Household Income by Area and Department, 2000.....	3-9
Table 2.7	Number of Students by Specialty and Degree in Higher Education, 2000.....	3-10
Table 2.8	Regional Distribution of Universities and Number of Students, 2000.....	3-13
Table 2.9	Technological Institutions in El Salvador, 2000.....	3-14
Table 2.10	Government Targets for the Education Sector, 2000-2004.....	3-15
Table 2.11	Courses Offered by INSAFORP and Their Distribution, 2001.....	3-17
Table 3.1	Number of Overseas Salvadorans by Country and City (as of January 2002).....	3-18
Table 3.2	Family Remittance and GDP in El Salvador.....	3-20
Table 4.1	Official Poverty Threshold and Size of Typical Household, 1993-2001.....	3-20
Table 4.2	Poverty Rates in El Salvador by Area as Percentage of Households, 1991-2000.....	3-21
Table 4.3	Percentage of Households Living in Poverty, 2000.....	3-23
Table 4.4	Income Gap Ratios by Department, 2000.....	3-23
Table 4.5	Estimated Annual Income Gaps, 2000.....	3-24
Table 4.6	Adult Illiteracy Rates by Department, Area and Poverty Categories, 2000.....	3-24
Table 4.7	Percentage of Households with Access to Water through Pipelines, 2000.....	3-25
Table 4.8	Human Development Index by Department, 1996 and 1999.....	3-26
Table 4.9	Components of Human Development Index by Urban and Rural Area, 1999.....	3-26
Table 4.10	Income Disparities between Urban and Rural Areas, 1999.....	3-27
Table 4.11	Components of Gender-related Indices by Department.....	3-27
Table 4.12	Components of Human Poverty Index (HPI-1) by Department, 1999.....	3-28
Table 4.13	Impact of Earthquakes in 2001 on Human Development Index.....	3-29
Table 4.14	Human Development Indices in Central America, 2000.....	3-30
Table 4.15	World Rankings of Human Development Index, 2000.....	3-31
Table 4.16	Annual Household Income and Absolute Poverty Income Gap by Department, 2000.....	3-32

List of Figures

Part 2 INFRASTRUCTURE AND RESOURCES

Figure 2.1	Power Transmission System in El Salvador.....	2-16
Figure 3.1	Increase in Mobile Phones and Fixed Lines in the World and El Salvador.....	2-22
Figure 3.2	Cost of Computers and Internet Charges.....	2-27
Figure 4.1	Expected Changes in Hierarchy of Urban Centers in El Salvador.....	2-30
Figure 5.1	Potential Irrigation Areas in El Salvador.....	2-43
Figure 6.1	Annual Rainfall at San Miguel (El Papalon).....	2-46

Part 3 HUMAN CAPITAL

Figure 1.1	Remittance and Labor Force Participation by Age Group, 1999.....	3-4
Figure 1.2	Changes in Minimum Wage in Selected Countries in Central America and Mexico.....	3-4
Figure 2.1	Educational System in El Salvador.....	3-5
Figure 2.2	Relationships between Educational Budget, National Budget, and GDP, 1992-1998.....	3-7
Figure 2.3	Geographical Distribution of Universities and Technological Institutions, 2002.....	3-12
Figure 2.4	Functions of Training System with INSAFORP.....	3-16
Figure 4.1	Human Development Index Trends in Central America, 1975-2000.....	3-30

Abbreviations

ADEL	Local Economic Development Agency
AMI	Mesoamerican Freeway of the Information
ANDA	National Water Supply and Wastewater Administration
ANTEL	National Telecommunications Administration
APREMA	Technical Medium Education Reform Process Assistance
BCIE	Central American Bank for Economic Integration
BFA	Bank for Agricultural Promotion
CAB	Cost of the amplified basket
CAESS	San Salvador Electric Light Company (Compañía de Alumbrado Eléctrico de San Salvador)
CBI	Caribbean Basin Initiative
CBNB	Cost of the basic nutritional basket
CDM	Center for Women's Rights (Centro Derechos de Mujeres)
CEL	Executive Commission of Lempa River Hydropower
CENTA	Center for Agriculture and Forestry Technology
CENTREX	Center for Export Producers
CND	National Development Commission
CNR	National Center of Registrations
COCATRAM	Central American Commission for Maritime Transportation
COEN	National Emergency Committee
COMTELCA	Regional Technical Commission of Telecommunications
COMURES	Municipal Corporation of the Republic of El Salvador
CONACYT	National Council for Science and Technology
CORSATUR	Salvadoran Corporation of Tourism
CRS	Catholic Relief Services
CTE	Company of Telecommunications
DEE	Electric Power Division
DIGESTYC	General Directorate of Statistics and Census
ECAT	Central American Transport Study
EDE	Electric Distribution Company, Panama (Empresa Distribudora Eléctrica)
EEGSA	Electric Company of Guatemala (Empresa Eléctrica de Guatemala, SA)
EEO	Eastern Electricity Company
ENA	National Agricultural School
ENEE	National Electric Energy Company, Honduras (Empresa Nacional de Energía Eléctrica)
ETESAL	Private Power Transmission Company
FAK	Freight all kinds
FANTEL	ANTEL Fund (Fondo de ANTEL)
FAO	Food and Agriculture Organization
FDI	Foreign Direct Investment
FEDISAL	Foundation for Integrated Education in El Salvador (Fundación para la Educación Integral de El Salvador)
FEPADE	Foundation of Enterprises for Education Development
FINET	Fund of National Investment in Electricity and Telecommunications
FISDL	Social Investment for Local Development Fund
FODES	Social and Economic Development Fund

FOEX	Export Promotion Fund
FOVIAL	Road Maintenance Fund
FPEZ	Free port and economic zone
FTA	Free trade agreement
FTZ	Free trade zone
FUNDAUNGO	Doctor Guillermo Manuel Ungo Foundation
FUNDE	Foundation for Development
FUSADES	Economic and Social Development Foundation
GCF	Gross capital formation
GDI	Gender related development index
GDP	Gross domestic product
GNP	Gross national product
GTZ	German Technical Cooperation Agency
HDI	Human development index
HPI-1	Human poverty index
ICE	Costa Rican Institute of Electricity (Instituto Costarricense de Electricidad)
ICT	Information and communication technology
IDB	Interamerican Development Bank
INBI	Unfulfilled basic needs index
INSAFORP	Salvadoran Institute of Professional Formation
ISDEM	Salvadoran Institute of Municipal Development
ITCA	Central American Institute for Technology
ITU	International Telecommunications Union
JBIC	Japan Bank for International Cooperation
JICA	Japan International Cooperation Agency
LASPAU	Academic and Professional Programs for the Americas
LUCPA	La Union-Conchagua planning area
MAG	Ministry of Agriculture and Livestock
MARN	Ministry of Environment and Natural Resources
MINED	Ministry of Education
MIPLAN	Ministry of Planning and Coordination for Economic and Social Development
MOE	Ministry of Economy
MOP	Ministry of Public Works
NGO	Non-governmental organization
OD	Origin-destination
OML	Observatory of Neighbor Market
ONI	National Investment Office
PAHO	Pan-American Health Organization
PCI	Project Concern International
PLAMDARH	Master Plan Study for the Development and Use of Water Resources in El Salvador
PNCES	National Competitiveness Program of El Salvador
PNODT	National Plant for Regional Arrangement
PPP	Puebla-Panama Panama
PRISMA	Salvadoran Program for Research on Environment and Development (Programa Salvadoreño de Investigación sobre Desarrollo y Medio Ambiente)

PROCAFE	Coffee Producers Association
PROCANA	Sugar Cane Producers Association
PROESA	Investment Promotion for El Salvador
R&D	Research and development
SALT	Sloping agricultural land technology
SICA	Central American Integration System
SICEX	Export Electronic System
SIECA	Secretariat for Central American Economic Integration
SIEPAC	Central American Power Integration System
SIGET	General Superintendence of Electricity and Communications
SME	Small and micro enterprise
SNET	National Service for Territorial Studies
SSMR	San Salvador Metropolitan Region
T&V	Training and visit
TDS	Total dissolved solids
TSC	Trade specialization coefficient
UNCTAD	United Nations
UNDP	United Nations Development Program
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
UTE	Unit of transactions
VAT	Value added tax
WTO	World Trade Organization

**Final Report
Volume 4
Sector Review Report**

**Part 1
Economic Sectors**

PART 1: ECONOMIC SECTORS

1 Agriculture

1.1 Agricultural Land Use

The main crops cultivated in El Salvador, in the order of the total planted area at present, are maize, coffee, sorghum, bean, sugarcane and rice. Changes in the area planted to each of these crops and cotton are shown in Table 1.1 (details in recent years in Table 1.2). These data are consistent with the land use data, which give the total area under annual, biannual and perennial crops as 732,100ha in 1980 and 696, 500ha in 1990. As seen from the table, the total planted area has rather decreased in the past 20 years. The crop structure has changed slightly. Cotton disappeared, apparently replaced only partially by sugarcane by 1995. The bean planted area has increased by 50%, and other crops have generally decreased their planted areas. The rice planted area has been reduced to a half over the 20-year period. As the area under double cropping is very limited and the small area is cropped only bi-annually, the cropping intensity is close to unity.

Table 1.1. Changes in Planted Area of Main Crops in El Salvador

(Unit: ha)

Crop	1980	1995	2000
Maize	291,900	294,600	259,300
Coffee	186,100	163,900	162,200
Sorghum	119,500	134,300	93,900
Bean	52,500	60,600	79,000
Sugarcane	26,600	66,000	98,000
Rice	16,800	9,600	8,200
Cotton	58,200	0	0
Total	751,600	729,000	700,600

Sources: World Bank 1998 for 1980, MOA and PROCAFE.

The pasture area occupied 365,100ha in 1980, including both natural and improved pastures. Both the areas of natural and improved pastures decreased by slightly over 10% to make the total pasture area 321,900ha by 1990.

All the main crops are cultivated throughout the Country, as they are staple or supplemental food crops or feed crops except coffee. Large coffee planted areas are found in the Western region centering around Apaneca, in the Balsamo mountain range in the south-Central region, and in the Eastern Region centering around Tecapa in Usulután. The areas planted to these crops by department are presented in Table 1.3.

Table 1.2. Changes in Planted Area and Production of Major Crops in El Salvador, 1989-2000

Year	Maize		Bean		Rice	
	Area (mz)	Production (ton)	Area (mz)	Production (ton)	Area (mz)	Production (ton)
1989-90	394,700	581,559	91,600	44,041	22,200	62,964
1990-91	402,600	595,464	89,500	52,064	20,400	60,959
1991-92	438,000	498,309	110,600	66,436	23,300	62,964
1992-93	458,400	697,218	113,100	61,214	23,600	60,959
1993-94	439,500	622,659	106,200	61,405	22,600	60,709
1994-95	450,400	474,955	106,100	60,650	21,300	71,109
1995-96	420,850	639,605	86,600	50,532	13,700	73,591
1996-97	398,700	622,491	96,700	58,405	15,300	63,873
1997-98	437,350	501,630	118,550	66,707	21,244	50,500
1998-99	422,000	556,418	111,500	46,050	14,750	54,636
1999-2000	376,300	651,936	106,300	65,695	15,600	65,271
2000-01	370,370	576,055	112,900	67,389	11,650	50,768
2001-02	420,150	533,804	121,684	74,083	8,939	37,292

Year	Sorghum		Coffee		Sugarcane	
	Area (mz)	Production (ton)	Area (mz)	Production (qq)	Area (mz)	Production (ton)
1989-90	170,900	147,714	234,600	3,637,000	45,600	2,939,576
1990-91	184,700	158,718	234,600	3,215,000	54,700	3,582,610
1991-92	175,900	160,950	234,600	2,867,000	60,300	4,202,900
1992-93	212,700	211,614	234,600	3,916,000	64,300	3,903,010
1993-94	191,600	202,164	234,600	3,106,000	67,000	3,562,624
1994-95	173,800	179,859	234,600	2,992,000	66,400	3,503,146
1995-96	191,800	198,609	231,700	3,368,000	66,000	3,477,817
1996-97	170,600	179,877	231,700	3,313,000	77,173	5,272,940
1997-98	177,725	197,310	231,700	3,020,000	97,187	5,561,046
1998-99	156,200	166,614	231,750	2,808,000	104,000	5,309,299
1999-2000	151,950	137,800	231,750	3,600,000	99,125	5,239,821
2000-01	134,200	147,250	231,750	2,322,000	98,000	5,093,181
2001-02	139,229	148,814	231,750	2,294,500	98,976	5,631,678

Sources: MAG for maize, bean, rice, sorghum, sugarcane; PROCAFE for coffee.

1.2 Production Performance

Changes in production of main agricultural products in recent years are shown in Table 1.4. No appreciable increase in production of crops is observed, and the production of coffee, rice and sorghum decreased significantly during 1997-2001. Livestock population has not increased much either, although milk production shows an increasing trend. Poultry is the only sub-sector showing steady increase for both meat and eggs production. Production performance of main crops is described below for the Country and the Eastern Region.

Table 1.3. Planted Area and Production of Main Crops by Department for Cropping, 2001-2002

	Corn		Bean		Rice		Surghum		*Coffee	
	Area	Production	Area	Production	Area	Production	Area	Production	Area	Production
	(ha)	(ton)	(ha)	(ton)	(ha)	(ton)	(ha)	(ton)	(ha)	(ton)
Ahuachapan	22,995	58,314	3,990	3,627	420	2,018	17,080	37,618	24,578	16,382
Santa Ana	18,270	38,309	14,455	12,505	140	636	7,630	12,918	36,705	37,657
Sonsonate	12,250	3,464	5,110	4,398	210	1,136	6,580	11,127	22,691	10,924
Chalatenango	19,040	44,150	2,730	2,539	2,275	15,625	10,920	16,345	984	363
La Libertad	20,020	50,109	11,690	11,084	1,400	9,864	10,080	15,363	30,888	18,722
San Salvador	13,300	33,586	7,350	6,848	70	291	6,580	10,596	5,561	1,427
Cuscatlan	11,270	30,045	5,635	4,699	70	327	1,260	2,111	1,963	
La Paz	12,285	29,127	3,010	3,045	700	2,805	1,925	2,104	5,317	401
Cabañas	15,540	31,005	6,230	4,593	70	291	11,200	14,868	342	
San Vicente	17,290	44,241	9,380	9,416	140	595	4,970	6,105	2,198	4,307
Usulután	37,730	85,895	7,875	7,100	630	3,273	6,230	6,955	17,882	4,945
San Miguel	48,489	51,164	4,378	2,156	43	108	3,720	3,360	8,973	9,638
Morazan	15,120	19,764	2,800	1,850	70	273	4,970	5,473	3,385	783
La Unión	30,506	14,632	546	222	20	50	4,315	3,870	763	-
Eastern Region	131,845	171,454	15,599	11,329	762	3,703	19,235	19,658	31,002	15,365
Total	294,105	533,804	85,179	74,083	6,257	37,292	97,460	148,814	162,226	105,547
Eastern Region % of Total	44.8	32.1	18.3	15.3	12.2	9.9	19.7	13.2	19.1	14.6

Sources: Ministry of Agriculture, *Statistics Yearbook 2001-2002*, for data on maize, bean, rice, and sorghum.

* PROCAFE for coffee - Area data by department are of 1996.

Table 1.4. Changes in Agro-Products Production, 1997-2001

Year	Crops (10 ³ t)						
	Coffee	Cotton	Corn	Bean	Rice	Sorghum	Sugarcane
1997	129.4		508.3	66.6	42.4	197.3	5,121.0
1998	120.3		552.4	45.0	31.4	166.6	5,897.0
1999	142.9	0.93	658.8	66.8	36.8	137.8	5,699.9
2000	118.2	1.43	576.1	68.5	30.3	147.3	5,607.3
2001	100.0	0.53	565.0	74.1	24.2	148.8	5,506.7

Year	Livestock (10 ³ heads)			Poultry	
	Cattle	Swine	Milk (10 ³ lit)	Meat (10 ³ lib)	Eggs (10 ³)
1997	209.6	149.3	356,400	125,100.0	1,000,600.0
1998	205.6	154.5	331,470	138,300.0	1,016,000.0
1999	204.0	156.3	349,390	152,800.0	1,047,000.0
2000	207.6	160.4	386,760	165,574.4	1,103,062.7
2001	212.0	163.0	390,000	161,114.0	1,103,000.0

(1) Maize

Maize is the staple food in El Salvador, and in particular white maize is produced dominantly by small farmers largely for subsistence. In 2001/02, maize was cultivated in 294,105ha to produce 533,804 ton for the average yield of 1.82 ton/ha. The yield decreased significantly from 2.22 ton/ha in 2000/01, partly due to the aftereffects of the 2001 earthquakes. The total maize production consists of 74% hybrid maize and 26% domestic maize. The latter is used mainly as feed for cattle. Some maize produced under irrigation is marketed as young maize.

In the Eastern Region, maize was cultivated in 131,845ha in 2001/02 to produce 171,454 ton for the average yield of 1.30 ton/ha, again significantly reduced from 1.73 ton/ha in 2000/01. The yield is low mainly because domestic maize is dominantly produced, accounting for 60% of the total production, mostly in marginal lands, under rainfed conditions, and without adequate fertilization.

(2) Sorghum

Sorghum is a common feed grain in El Salvador, together with domestic maize. Sorghum was planted in 97,460ha in 2001/02 to produce 148,814 ton for the average yield of 1.53 ton/ha. The share of sorghum planted area in the Eastern Region is much smaller than its share of the land area. With the production of 19,658,166 ton in 19,235ha (20% of the total planted area in the Country in 2001/02), the average yield is 1.02 ton/ha, lower than the national average. Yields of sorghum vary widely between the four departments in the Eastern Region and coincide largely with maize yields. Yields are the highest in Usulután for both maize (2.28 ton/ha) and sorghum (1.12 ton/ha), and low in San Miguel and La Unión.

(3) Bean

Bean is an important supplemental food for a balanced diet in El Salvador. Its production in 2000/01 was 67,389 ton from 79,000ha with the average yield of 0.85 ton/ha. The yield is equally low in the Eastern Region with the production of 15,950 ton from 16,900ha for the average yield of 0.94 ton/ha. Low yields are reflection of extensive cultivation supplemental to maize cultivation.

(4) Rice

Rice planted areas are small but found in all the departments. The total planted area of 6,257ha for 37,292 ton produced in 2001/02 makes the average yield 5.96 ton/ha for the Country. In the Eastern Region, the average yield is lower at 4.86 ton/ha with the production of 3,703 ton from 762ha. The rice production in the Eastern Region accounts for only 9.9% of the total production in El Salvador. The rice yield is highest in Chalatenango, 6.87 ton/ha in 2001/02.

(5) Sugarcane

The area under sugarcane cultivation increased from 33,400ha in 1979/80 to a maximum of over 70,000 by 1998, and declined slightly thereafter. The sugarcane industry contributes to 37,650 direct employees, consisting of 26,200 in cane production management, 4,600 in the operation of processing industries, and 6,650 in the transport of cane and sugar. It circulates some US\$359 million annually (PROCANA). Considering its importance, the national congress passed in August 2001 a decree to create the “Law for Production, Industrialization and Commercialization of Sugarcane Agro-industry of El Salvador.”

Sugarcane production in the Eastern Region began in 1985. The area planted to this crop is estimated at 12,600ha in the Region. Of the total cane production, about 60% is processed at the Chaparrastique sugar mill in San Miguel. The average yield of sugarcane in the Eastern Region is estimated at 68 ton/ha, and the average sugar yield is estimated at 204lbs of sugar per ton of cane processed. Both yields are considered low, potentials being 114 ton/ha of sugarcane and 220lbs of sugar per ton of cane processed.

(6) Coffee

Coffee has been the most important traditional product of El Salvador. During the period from 1985 to 1991, coffee contributed to 5.9-7.7% of GDP in El Salvador. Its contribution has been decreasing rapidly since then (Table 1.5). Still in 1999/2000, the coffee industry provided direct permanent employment opportunities for 158,400 people and circulated US\$114 million in rural areas (PROCAFE).

The total coffee planted area decreased slightly from 164,200ha in 1994/95 to 162,226ha in 2001/02, and so did its total production from 136,000 ton in 1994/95 (0.83 ton/ha) to 105,547 ton in 2001/02 (0.65/ha). A large percentage (more than 40%) of coffee plantations are very

old and their management no longer responsive to changes in the market environment, and thus they require total replanting. Old coffee plantations coupled with the lack of good management have undoubtedly contributed to the declining yields of coffee (Table 1.6).

Table 1.5. Coffee's Contribution to GDP, 1985-2000

(Unit: $\text{¢}10^6$ at constant 1990 price)

Year	Country	GDP		Coffee's Contribution (%) to	
		Agricultural Sector	Coffee	National GDP	Agricultural GDP
1985	14,330.80	2,610.60	1,106.30	7.70	42.4
1986	19,762.90	3,968.90	1,407.10	7.10	35.5
1987	23,140.60	3,198.40	1,717.00	7.40	53.7
1988	27,365.80	3,800.80	1,625.50	5.90	42.8
1989	32,230.00	3,767.00	1,920.90	6.00	51.0
1990	41,057.00	4,598.80	2,857.60	7.00	62.1
1991	47,792.00	4,881.00	3,135.20	6.60	64.2
1992	40,642.70	6,722.80	1,848.30	4.50	27.5
1993	43,638.00	6,549.60	1,670.10	3.80	25.5
1994	46,278.20	6,394.00	1,562.80	3.40	24.4
1995	49,237.70	6,683.10	1,544.40	3.10	23.1
1996	50,077.80	6,765.50	1,565.30	3.10	23.1
1997	52,204.20	6,791.00	1,465.90	2.80	21.6
1998	54,027.50	6,741.10	1,336.70	2.50	19.8
1999	55,883.40	7,205.10	1,465.00	2.60	20.3
2000	56,984.60	7,145.90	1,401.40	2.50	19.6

Source: PROCAFE.

Table 1.6. Coffee Harvested Area, Yield and Production, 1985-2001

Year	Harvested Area (10^3 Manzana)	Average Estimated Yield (Quintal dry beans/Manzana)	Coffee Production (10^3 quintal dry beans)
1985-86	234.6	9.9	2,324.00
1986-87	234.6	13.0	3,055.00
1987-88	234.6	13.9	3,262.00
1988-89	234.6	8.4	1,972.00
1989-90	234.6	15.5	3,637.00
1990-91	234.6	13.7	3,215.00
1991-92	234.6	12.2	2,867.00
1992-93	234.6	16.7	3,916.00
1993-94	234.6	13.2	3,106.00
1994-95	234.6	12.8	2,992.00
1995-96	231.7	14.5	3,368.00
1996-97	231.7	14.3	3,313.00
1997-98	231.7	13.0	3,020.00
1998-99	231.75	12.1	2,808.00
1999-2000	231.75	15.5	3,600.00
2000-01	231.75	10.0	2,322.00
2001-02	229.92	10.7	2,468.00

Source: PROCAFE.

The areas planted to coffee in different departments in El Salvador are present in Table 1.7, subdivided by altitude of land where coffee is grown. Distribution of coffee areas by altitude is compared below between the Western region, the number one coffee producer and the Eastern Region.

Region	Low elevation <800m	Medium elevation 800-1,200m	High elevation	Total area
Eastern	19,983 (64.5)	8,616 (27.8)	2,402 (7.7)	31,002
Western	45,794 (54.5)	22,313 (26.6)	15,868 (18.9)	83,975
El Salvador	85,059 (52.4)	52,051 (32.1)	25,117 (15.5)	162,226

Source: Table 1.7.

As seen in the table, the Eastern Region has a relatively small share of high elevation coffee land. This may reflect that coffee plantations in the Eastern Region are not as established as those in the Western region and may be a factor for their yields lower than the national average (Table 1.3).

Table 1.7. Coffee-Planted Area by Department and Land Elevation, 1996

(Unit: Area in manzana)

Department	Elevation		
	Low (<800m)	Medium (800-1,200m)	High (>1,200m)
Ahuachapán	17,231	8,374	9,507
Santa Ana	30,262	15,452,029	6,723
Sonsonate	17,927	8,049	6,439
Chalatenango	515	635	255
La Libertad	16,551	20,675	6,899
San Salvador	3,263	2,801	1,880
Cuscatlán	2,804	0	0
La Paz	2,972	4,103	520
Cabañas	488	0	0
San Vicente	954	1,960	226
Usulután	18,648	5,573	1,324
San Miguel	8,328	3,680	810
Morazán	932	2,605	1,298
La Unión	639	451	0
Total	121,513	15,510,935	35,880
Eastern Region	28,548	12,309	3,431
Western region	65,419	15,468,452	22,668

Source: PROCAFE.

(7) Cotton

The production of cotton revived recently although the planted area is still small at 1,500ha. There are some 1,800 active cotton producers in the Country. Most cotton areas are concentrated in Usulután.

(8) Indigo

Production of indigo dye has increased rapidly from 100kg of blue extract in 2000 to 1,800kg in 2002. In the Eastern Region, there are about 250 small farmers having indigo-planted areas. They are organized in the Association of Indigo Producers in the Eastern Region (ADAZOES).

(9) Fruits

Various fruits are produced in El Salvador and MAG has been promoting fruit production in the Country under the project FRUTALES. However, reliable data on cultivated area and production of fruits are limited. The cultivated area, production and yield of selected fruits are reported by MAG as follows (MAG, *Statistical Yearbook 2001-02*).

Fruit	Cultivated area (ha)	Production	Yield (per ha)
Watermelon	3,045	130,500	42.9
Lemon	1,715	3,675,000	2,143
Orange	5,250	2,625,000	500
Pineapple	280	49,600	177
Banana	1,540	1,927,200	1,251
Plantain	2,380	74,182 (ton)	31.2 (ton)
Coconut	8,400	192,000 (ton)	22.9 (ton)
Cashew nut	3,990	2,850 (ton)	0.7 (ton)

(10) Vegetables

Vegetable production in El Salvador has been supported by JICA under the Agricultural Technology Development and Transfer Strengthening of the Center of Agriculture and Forestry Technology (CENTA), and also by other donor agencies. Cultivated areas are small and the productivity is generally low as shown by the data reported by MAG (op. cit.).

Vegetable	Cultivated area (ha)	Production	Yield (per ha)
Potato	735	16,705 (ton)	22.7 (ton)
Cabbage	770	176,000	229
Tomato	840	20,018 (ton)	23.8 (ton)
Cassava	1,575	19,432 (ton)	12.3 (ton)
Chile	490	1,400,000	2,857

1.3 Production Systems

(1) Maize

Maize production in El Salvador is subdivided into the household sector and the cooperative sector. Production by individual farmers in the household sector is dominant with the cultivated area 215,500ha or 83% of the total maize cultivated area in 2000-01. The yields are generally higher for the household sector, although the differences are small. These conditions are common in all the departments. Small farmers are main producers of white maize, the main

staple food.

Maize is produced usually only once a year, and the second crop is produced in small area (17.4% of the total maize area in 2000/01) having favorable soil and water conditions. Production of third crop is rare (1.6%), and possible only under proper irrigation and land management. In limited areas, maize is produced under irrigation and marketed as young corn for better prices.

(2) Sugarcane

There are about 7,000 sugarcane producers in El Salvador, of which 60% belong to agrarian reform cooperatives. In the Eastern Region, some 250 farm units are dedicated to sugarcane production. Individual farmers, large and small, produce 75% of sugarcane, and cooperatives of agrarian reform produce 25% of the total production. Two of the Country's largest agrarian reform cooperatives dedicated to sugarcane production are located in the Eastern Region with sugarcane planted area over 1,100ha.

(3) Coffee

A large percentage of coffee growers in El Salvador have small land under coffee cultivation, but a small percentage of large coffee growers produce a large percentage of coffee (Table 1.8). Coffee farmers with farms smaller than 10mz constitute 77% of all the coffee farmers but produce 5,700 ton of coffee or only 11.5% of the total production. A total of 62,700 ton of coffee or 46% of the total production is produced by 777 large coffee growers with farms larger than 100mz.

Table 1.8. Number of Farmers, Production and Yield by Size of Coffee Farms

Farm size range (mz)	Production volume (qq)	% of total prod. volume	# of farmers	% of total # of farmers	Accumulated farm area (mz)	Average yield (qq/mz)
<3	101,654	3.4	11,708	49.8	13,647	7.45
3-10	240,351	8.1	6,435	27.4	27,680	8.68
10-25	294,917	9.9	2,403	10.2	30,751	9.59
25-50	398,124	13.4	1,266	5.4	36,554	10.89
50-100	562,860	18.9	900	3.8	51,018	11.03
100-150	450,760	15.1	369	1.6	35,898	12.56
>150	928,937	31.2	407	1.7	87,427	10.63
Total	2,977,602	100.0	23,488	100.0	282,976	10.52

Note: Average of cropping seasons 1998-99 and 1999-2000.

The coffee industry is facing a very difficult situation due to the fall in international market prices of coffee. As the international prices have fallen, the prices paid to farmers declined (Table 1.9). At present, coffee farmers are paid only about US\$40 per quintal for dried coffee beans while the estimated cost of producing, harvesting and primary processing is about US\$46 per quintal on average (PROCAFE). Most coffee farmers, therefore, do not make even the minimal crop management required to maintain coffee plantations. Consequently, damages by

insects and diseases are increasing.

Table 1.9. International Coffee Price and Amount Paid to Coffee Farmers

Year	Amount paid to farmers (US\$/qq of dry coffee beans)	International coffee price (US\$/qq)
1985	83.05	145.6
1986	54.90	192.7
1987	64.69	112.3
1988	73.11	135.1
1989	53.27	107.0
1990	46.12	89.1
1991	31.71	85.0
1992	31.02	63.7
1993	75.61	69.9
1994	121.77	148.5
1995	102.17	149.4
1996	74.51	120.2
1997	108.20	185.0
1998	61.86	132.4
1999	55.15	101.3
2000	45.22	85.6

Source: PROCAFE.

Compared to other Latin American coffee producer countries, El Salvador has a smaller percentage of coffee area under intensive production system (Table 1.10). This indicates that most coffee areas in El Salvador are under the shade tree system, which is considered to be more environment-friendly. This may represent the strength of coffee production in El Salvador.

(4) Cotton

To reduce insect problems, reduce production costs, and increase yields, cotton farmers have adopted the strategy of introducing new varieties, changing planting seasons to coincide with rainy season, and implementing an integrated pest management (IPM). The average yield of cotton is 3.0 ton/ha, and the net profit is ϕ 5,700/ha.

1.4 Livestock and Poultry Production

(1) Cattle and milk

There is an estimate of about 65,000 families engaged in cattle raising with a total number of cattle at 1.25 million heads. Of the total cattle production, 67% are raised at the subsistence level, 30% for double purposes with lower milk yield, and only 3% specialized in milk production. Additional 150,000 employment opportunities are generated by this subsector for husbandry, trade, processing and transport of milk and meat products and feed.

Cattle production in El Salvador has been stagnant, and cattle population has stayed at the similar level since 1991. El Salvador is a net importer of live animals and livestock-derived

products.

Table 1.10. Scale of Coffee Cultivation under Intensive Production System

Country	Coffee-planted area (10 ³ ha)	Coffee area under intensive production system (% of total coffee area)
El Salvador	165.6	8
Mexico	669	17
Costa Rica	108	40
Guatemala	245	20
Honduras	200	35
Nicaragua	94.1	29
Dominican Rep.	103	25
Haiti	34	10
Colombia	1,149.20	69
Total	2767.9	41.1*

*Intensive production system is done without cover shade trees and not considered to be ecologically friendly.

Source: World Bank Paper 2002, *Agricultural Technology Note 30*, "Toward More Sustainable Coffee".

(2) Swine

Most swine producers engage in very small operation in the backyard, but El Salvador has the largest ranch of swine production in Central America. The swine producers receive technical assistance mainly from sellers of feed and medicines.

(3) Poultry

There are 1,262 units of poultry production in El Salvador with some 13 million chickens, of which 1,065 units or 84% are small growing fewer than 5,000 chickens. Of all the chickens, 48% are layers, 38% broilers, and the rest for reproduction purpose.

1.5 Agriculture Support System

(1) Irrigation

In the mid 1980's, only 34,000ha were irrigated in El Salvador with 34m³/sec irrigation water use. Irrigation potentials were found in additional 258,903ha (USAID, El Salvador Perfil Ambiental Estudio Campo, 1985). Another report cited the Water Resources Development Master Plan to estimate the irrigable land in 273,972ha (PNND et al., *Desarrollo de los Recursos Hidraulicos en El Salvador*, 1989). The total area covered by irrigation facilities has not increased since then, representing only 12% of the potential land. This makes the ratio of irrigated area to the total cultivated area less than 5%, much smaller than more advanced countries in the region (21% in Costa Rica and 24% in Mexico for 1997-99). Most irrigated areas are located in the Central and the Western regions. The largest irrigation area in the Eastern Region is the Lempa-Acahuapan system in Mercedes Umaña with an estimated area of about 1,400ha, which has largely been neglected.

Irrigation is particularly relevant to agricultural development in the Eastern Region suffering often from droughts. The major drought of 2001 struck 61 out of 87 municipalities in the Eastern Region, affecting nearly 37,000 families or 184,728 people (MAG). Estimated loss of crops due to the drought is summarized below.

(Unit: %)

Department	Maize	Beans	Sorghum	Watermelon
Usulután	98	100	98	82
Morazan	77	87	23	88
La Unión	71	75	85	0
San Miguel	64	88	0	0

Sources: Magaíxa, René, FUNDE 2001.

(2) Rural credit

In rural areas, access to credit is very limited. The share of agriculture in formal flows of private bank credits declined from the post-war peak of 21.4% to 9.8% by 1995 and further to 6.7% (US\$338 million) by 2001. In the first five months of 2002, its share was only 3.3% (Table 1.11). The Bank for Agricultural Promotion (BFA) provided additional loans of US\$23.8 million in 2001 focusing on smaller agricultural enterprises.

Table 1.11. Allocation of Bank Loans by Economic Sector

Economic Activity	1999		2000		2001		2002 (Jan.-May)	
	Amount US\$10 ⁶	% of loans total	Amount US\$10 ⁶	% of loans total	Amount US\$10 ⁶	% of loans total	Amount US\$10 ⁶	% of loans total
I. Agricultural Sector	373.5	8.35	323.7	6.76	337.6	6.72	179.2	3.27
Coffee	186.0	4.16	187.5	3.91	175.2	3.49	61.3	1.12
Cotton	0.9	0.02	0.6	0.01	-	-	-	-
Sugarcane	29.2	0.65	43.5	0.91	29.6	0.59	32.3	0.59
Corn	1.8	0.04	1.1	0.02	0.8	0.02	3.9	0.07
Bean	0.2	0.00	0.3	0.01	0.3	0.01	-	-
Rice	0.7	0.02	0.7	0.01	0.5	0.01	0.5	0.01
Other crops	9.0	0.20	3.6	0.08	2.6	0.05	9.7	0.18
Livestock	5.7	0.13	6.8	0.14	6.0	0.12	8.0	0.15
Poultry	73.0	1.63	36.5	0.76	23.4	0.47	12.1	0.22
Fishery, apiculture	4.0	0.09	7.4	0.15	10.4	0.21	35.2	0.64
Agro-processing	63.0	1.41	35.7	0.75	88.8	1.77	16.2	0.30
II. Mining	0.7	0.02	0.9	0.02	0.1	0.00	-	-
III. Manufacturing industry	853.5	19.08	1,088.5	22.72	1,194.3	23.79	1,249.4	22.80
IV. Construction and housing	569.9	12.74	724.8	15.13	701.4	13.97	588.2	10.73
V. Electricity, gas, water, sanitary services	27.5	0.61	45.8	0.96	134.2	2.67	221.1	4.03
VI. Commerce	1,462.5	32.69	1,470.7	30.70	1,354.1	26.97	1,822.7	33.26
VII. Transport, communications	85.0	1.90	133.8	2.79	164.9	3.28	149.8	2.73
VIII. Services	262.9	5.88	421.2	8.79	445.7	8.88	475.3	8.67
IX. Other activities	243.1	5.43	233.5	4.87	374.0	7.45	451.9	8.25
X. Personal loans	594.7	13.29	347.8	7.26	314.6	6.27	342.9	6.26
Total	4,473.3	100.0	4,790.7	100.0	5,020.9	100.0	5,480.5	100.0

Note: Data not including loans from Bank for Agricultural Promotion (BFA), Credisa, Fincomer, Finsepro, Bancasa.

The 1998 World Bank study (op. cit.) estimated that less than 12% of rural households received a loan in 1995, 5.3% from formal, 1.1% from semiformal, and 5.4% from informal lenders. Also, banks mobilized 32.9% of all savings in 1995 outside San Salvador, both in urban and rural areas. Credit markets in El Salvador are very shallow particularly in rural areas.

(3) Research and extension

Several public agencies are involved in the development of agricultural technology in El Salvador, including the Ministry of Agriculture and Livestock (MAG), the National Center for Agriculture and Forestry Technology (CENTA), the National Council for Science and Technology (CONALYT), the National Agricultural School (ENA) and BFA. CENTA is the leading agency in charge of both research and extension services to strengthen links between them. These agencies focus on small and medium farmers, leaving research and extension for large producers to the private sector through associations such as PROCAFE and CENTIA.

CENTA conducts research on a fairly wide range of agricultural products and activities, including basic grains, livestock and forage, fruits and vegetables, and fiber and oil crops. Due to limited staff qualifications and budgets, however, their research has concentrated on improvement of existing crops. CENTA introduced a training and visit (T&V) system for effective extension, but their activities are constrained by limited number of extension workers and logistics, especially in remote rural areas. CENTA is implementing a program to promote the rational and profitable use of natural resources in slope areas by small farmers for diversification of income opportunities, supported by FAO and Netherlands. Its implementation over four years will cover Usulután and Morazán in the Eastern Region as well as Cabañas.

(4) Marketing

Following the trade liberalization, particularly within Central America, practically all the agricultural products in El Salvador are subject to competition with imports especially from the neighboring countries. This has resulted in significant increase in import of various agricultural commodities, particularly dairy products, vegetables and fruits (Table 1.12). On the other hand, government efforts to diversify exports have not been successful in expanding agricultural non-traditional exports significantly.

MAG has established market information centers named AgroNegocios, which provide information through a web site. Only six centers are available in the Country, of which two are located in Usulután and San Francisco Gotera in Morazán.

According to a study commissioned by FUSADES (Rio Seco, Diversificación de cultivos y Desarrollo de Exportaciones No Tradicionales, (1996), major constraints to the development of non-traditional agricultural exports are: (i) low education level of farmers and very limited supply of experts with knowledge and experiences in the production and marketing of non-

Table 1.12. Import of Agro-Products in El Salvador, 1987-2000

(Unit: ton)

Product	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Dairy products														
Butter	18	57	-	29	40	61	64	75	365	229	260	245	311	173
Cheese	370	414	97	191	166	222	192	581	2,167	3,268	2,525	2,395	3,722	3,321
Cream	1	-	-	1	9	11	15	137	313	591	291	368	703	1,019
Powder milk	12,693	7,641	6,409	7,544	10,749	18,510	13,624	11,767	18,252	19,230	17,229	20,575	27,597	23,740
Livestock														
Cattle	1,006	46	84	35	9,401	13,349	1,342	4,000	5,302	8,055	8,768	17,331	38,043	33,856
Vegetables														
Cabbage	18,676	22,913	23,409	20,337	21,699	24,412	23,183	18,115	14,313	9,904	13,962	3,416	3,838	17,253
Cauliflower	2,256	3,222	3,440	3,342	4,539	4,060	5,233	4,259	4,094	3,196	3,706	1,206	742	2,562
Onion	5,125	5,726	6,437	7,527	6,670	7,807	6,329	7,105	6,687	7,305	9,367	5,096	5,152	9,131
Potato	14,621	13,507	15,802	13,394	16,637	19,068	15,067	11,766	13,061	9,338	13,906	3,712	4,397	11,480
Tomato	14,176	16,124	17,446	16,620	16,139	14,636	16,616	13,820	15,202	17,848	16,857	22,901	14,226	24,463
Fruits														
Apple	3,840	4,894	4,214	5,020	6,059	6,645	3,964	5,904	5,594	5,455	6,287	7,152	8,892	7,868
Avocado	2,963	6,271	5,388	4,498	4,818	6,242	5,359	4,515	5,063	6,134	2,528	4,304	5,375	7,557
Banana	29,224	43,907	50,935	44,423	38,668	34,581	32,543	24,687	17,938	20,787	37,419	44,396	19,847	12,155
Granadilla	997	1,425	1,279	1,273	1,218	1,315	712	799	507	423	396	216	247	517
Melon	797	445	268	450	1,941	1,773	1,522	1,634	1,800	1,338	2,305	4,455	1,761	1,882
Orange	12,387	12,968	15,763	16,229	13,844	19,811	21,301	14,322	20,291	14,264	16,778	8,833	58	3,061
Peach	387	1,863	218	271	431	294	115	288	126	318	253	286	500	496
Perote	403	465	406	289	811	379	320	215	191	184	147	117	46	656
Platano	31,383	37,034	31,784	30,804	24,202	28,839	30,121	19,567	21,367	16,165	17,711	5,784	2,607	15,004
Watermelon	214	1,737	1,604	3,687	4,640	6,264	5,360	7,388	7,514	4,712	8,029	4,474	632	1,684

Source: MAG, *Anuario de Estadísticas Agropecuarias 2000-2001*.

traditional products, (ii) inadequate infrastructure particularly for marketing of perishables, including rural roads, telecommunications, and cold storage facilities, (iii) real exchange rate appreciation, (iv) high lending rates, (v) fragmentation of farm units, and (vi) land tenure insecurity and a perception of overall insecurity in rural areas.

1.6 Fishery

The contribution of the fishery sector to the GDP of El Salvador is estimated at US\$38.4 million or 2.5% of the agricultural GDP in 2001. The share of the fishery sector in the agricultural GDP has been more or less the same in recent years as shown in Table 1.13.

Table 1.13. Agricultural and Fishery GDP, 1998-2000

	(Unit: US\$10 ⁶ in constant 1990 price)		
	1998	1999	2000
Agricultural GDP	770	829	817
Fishery GDP	24.1	19.9	20.0
Share (%)	3.1	2.4	2.4

Source: Central Reserve Bank of El Salvador.

Fishery activities in El Salvador consist of commercial marine fishery, small-scale marine fishery, inland fishery, and freshwater and marine aquaculture. Production in 2000 by category is given in Table 1.14. Small-scale marine fishery is the largest in terms of both quantity and value. Inland fishery follows in production quantity, but commercial marine fishery is the second largest in production value as it concentrates on shrimps.

Table 1.14. Production of Fish by Various Fishery Categories, 2000

Category	Production (ton)	Production value (US\$10 ³)
Commercial marine fishery		
Shrimps	431.8	5,520
Small shrimps	1,471.5	8,491
Byproduct shrimps	311.4	1,694
Small scale marine fishery	4,565.9	9,314
Inland fishery	2,829.9	2,457
Aquaculture		
Freshwater	64.4	280
Marine	195.6	1,061
Total	9,755.2	28,550

Source: CENDEPESCA, 2003.

Small-scale marine fishery is undertaken by 9,167 fishermen with 3,832 boats according to the 2000 fishery statistics. Inland fishery engages 6,249 fishermen employing 3,560 boats. Commercial shrimp fleet uses trolling boats with the average length of 21m and 350hp stationary engines. For small-scale fishery, 80% of boats are glass fiber boats of 6.7m driven

by 35hp outboard engines. Trammel nets, long-lines and hand-lines are commonly used.

For fresh water aquaculture, experimental aquaculture centers exist at Santa Cruz Porrillo, Izalco, El Zope and Atiocoyo. They produced 889,400 tilapia fries and 495,000 shrimp post-larvae in 2000. For marine aquaculture, there are two private and one governmental laboratory to produce 60 million post-larvae in 2000. A total of 614ha is available for the production of shrimps and fish.

The spatial distribution of authorized fishing fleet is 21.1% at Acajutla, 56.7% at El Triunfo port, and 22.2% at La Union. There are 34 fish landing sites along the Pacific coast, of which 16 are located in the Eastern Region, four in Usulután, one in San Miguel, and 11 in La Union (Table 1.15).

Table 1.15. Location of Fish Landing Sites in El Salvador

Department	Community	Population	No. of families	Ave. family size
Ahuachapán	Bola de Monte	1,834	262	7
	Garita Palmera	3,409	487	7
	Barra de Santiago	4,328	750	6
	Costa Azul	995	200	5
Sonsonate	Metalio	936	162	6
	Puerto de Acajutla	26,631	11,500	2
	Los Cobanos	790	183	4
	Barra Salada	400	60	7
	Metayo	1,466	200	7
La Libertad	El Sunzal	1,141	125	9
	El Majahual	3,482	488	7
	Los Filtros	1,026	171	6
	La Libertad	14,600	8,000	2
La Paz	El Pimental	1,200	200	6
	San Marcelino	1,168	244	5
	San Antonio Los Blancos	1,050	150	7
	La Herradura	70,000	20,000	4
	Isla Tasajera	938	218	4
Usulután	Isla de Méndez	3,017	431	7
	Puerto El Triunfo	20,000	4,000	5
	Isla Pirrayita	1,125	240	5
	Puerto Parada	670	134	5
San Miguel	El Cuco	2,067	344	6
La Union	Playa Corola	850	170	5
	El Maculís	739	105	7
	El Jagüey	3,800	500	8
	El Tamarindo	4,000	800	5
	Playitas	420	60	7
	Isla de Zacatillo	3,750	750	5
	La Unión	1,983	744	3
	El Huisquil	9,450	1,350	7
	El Chapernal	500	75	7
	Isla Conchagueta	960	160	6
	Isla Meanguera del Golfo	4,114	800	5

Source: MAG/CENDEPESCA/JICA, El estudio sobre el desarrollo de la pesca artesanal en El Salvador, Mayo 2001.

Of the total fish production by small-scale marine fishery, 3,372.0ton or 49.1% were produced in the Eastern Region in 2000. For inland fishery, contribution of the Eastern Region is small at 138.4ton in 2000 or 4.9% of the total in this category. There are 10 fish processing plants in the Region: three at Acajutla, two at El Triunfo port (of which one is inactive), one at San Salvador, and four at La Union.

MAG implemented in 1998 the project of “rainwater reservoirs as productive units” in the Eastern Region, where droughts cause losses of farm production. Small reservoirs/ponds were constructed at 32 sites for multiple purposes including cultivation of aquatic organisms.

A total of 6,137.8ton fish was traded in 2000 in the domestic market. This corresponds to per capita consumption of 0.98kg. El Salvador exported 2,518.0ton fish in 2000 to earn US\$18.4 million. Shrimps contributed 61.3% of export quantity and 71.2% of export value. Export destinations are the US with a 78.8% share, Central America with 6.0%, Taiwan, Bahamas and Great Britain with 13.3% and the rest including Mexico and Hong Kong. The total fish import was 3,837.1ton in 2000 for value of US\$5.9 million. Main import products are canned fish with a 69.5% share in the import volume, followed by shark and shark byproducts with 12.5%, shrimp food and non-edible products with 6.5%.

The new Fishing Law was enforced in January 2001, and related regulations have been introduced. This new legal system is complemented by a “Fishing and Aquaculture Code of Ethics” to promote alliance with all the participating entities in the fishery sector for rational use of fishery resources.

The three-mile restriction for troll fishing has been eliminated, but aquatic reserve areas have been introduced to prohibit the use of non-selective fishing gears such as nets in main river mouths in the country. In the Eastern Region, Jiquilisco and the Fonseca gulf are declared aquatic reserve areas. The closed season has also been established. CENDEPESCA, in charge enforcing the fishery laws, makes plans to assess, monitor and determine the level of exploitation of hydro-biological resources to ensure their conservation and sustainable development.

1.7 Directions for Agricultural Development in El Salvador and the Eastern Region

(1) General

The agricultural sector in the past two decades suffered from both the lack of clear and strong government policies and government interventions. As seen in subsection 3.1.1, the agricultural sector did not receive favorable allocation of government budgets even during the post-war restoration period. While traditional credit targeting was abandoned under the financial liberalization, no alternative credit system has developed to ensure adequate financial flow to rural areas. On the contrary, some government interventions worked negatively in developing the sound rural financial sector, including informal financing.

Clear and strong agricultural and rural development policies should be established with two basic objectives: (i) enhancement of competitiveness in agriculture, and (ii) alleviation of rural poverty. These objectives are complementary each other, and can be attained only through significant increase in private investments and enhanced people's participation in all aspects of the development. The Government's role is to facilitate these through the provision of sound macroeconomic environment, adequate and transparent institutional and legal frameworks, improved infrastructure, and measures to ensure higher levels of human capital.

Under such policies, key public agencies should be identified for different aspects of agricultural and rural development, and their functions streamlined to avoid duplication of efforts and to focus on most promising areas and activities. In particular, functions to be performed in regions need to be clarified in line with the decentralization policy. Ongoing efforts to establish an intermediate level of development administration between the Central Government and municipalities would allow the transfer of some functions to this level to serve local people through several municipalities together more effectively. This may be combined with a new participatory mechanism at the municipality level to attain maximum effects with limited resources.

(2) Farmer organizing and participation

Fragmentation of farm units and the lack of experience in non-traditional products are among the major constraints to enhancing agricultural productivity and competitiveness. Farmer organizing is essential to produce any agro-products in marketable quantity. Organized farmers would undertake joint procurement of farm input and joint marketing of their products for cost-effectiveness. Agricultural extension may be provided more effectively through organized farmers.

The new T&V system for agricultural extension suffers from shortages of qualified extension workers and logistic supports. It does not reach effectively in regions remote from San Salvador. As a limited number of extension workers are deployed to those regions, they should work closely with farmers' associations, cooperatives and other community groups. For the existing crops and agricultural activities, lead farmers may be identified and accredited as farmer-extension liaisons.

(3) Research and technology development

Another key factor for enhancing agricultural productivity and competitiveness is development and adaptation of production technology. While it is desirable to develop such technology within El Salvador, introduction of technology through joint venture arrangements with foreign partners is a realistic approach. Government agencies can facilitate such arrangements and also make the technology adapt to local conditions. The presence of organized farmers would help to conclude joint venture arrangements in better terms for local people.

(4) Irrigation

El Salvador has not benefited much from irrigation, which is most effective in enhancing agricultural productivity with poor rainfall distribution. Supplemental irrigation is to be pursued to bridge dry spells during the rainy season and to extend the cropping season by a few months at most rather than undertaking full-scale irrigation in the middle of the dry season. Introduction of a tank system, i.e., small ponds interconnected by contour canals, may be effective for the purpose. Organized farmers may construct, operate and maintain the tank system as well as allocate water and ensure proper on-farm water management.

(5) Marketing

A few alternative schemes may be proposed for the establishment of marketable agro-products: (i) creation of specialty products for niche market, (ii) production of raw materials for processing, and (iii) supply to growing urban markets. Some products, such as indigo, kenaf and cashew, potentially fit to more than one scheme. Sugarcane fits to the second model, but various processing opportunities should be fully utilized. Fruits and vegetables fit particularly to the third scheme.

(6) Coffee production

Coffee production in El Salvador should be geared to high value products with brand development such as organic coffee. High elevation coffee areas under shade trees should be protected and enhanced. As they constitute the main portion of the remaining forests, replanting of old coffee plantations should be undertaken as part of reforestation programs.

(7) Finance

Financial flow to rural areas needs to be expanded significantly, and this may be accomplished only by attracting private investments. Incentives may be provided for private banks to offer financial services in rural areas, but discipline should be enforced to avoid credibility problems. Public financial institutions should enhance their capacity to evaluate loans and guide private financial intermediaries. This may effectively strengthen links between rural finance and technology transfer for agricultural development in the financial management aspect. The Government should also improve legal and institutional frameworks of finance for new schemes involved in rural and agricultural development such as usufruct for non-wood forest resources, use right or lease of public land, and joint guarantee as a collateral.

2 Industry

2.1 Industrial Sector Overview

(1) Recent industrial GDP and employment

During the civil war, the industrial sector grew only at low rates, but due to the significant

decline of the agricultural sector the comparative importance of the industrial sector increased. Although the industrial GDP increased at rates lower than 2.0% per annum during 1980-90, its share increased from 21.9% in 1980 to 26.2% in 1990, when the GDP recovered to the prewar level. During this period, manufacturing increased at slightly higher rates than the industrial sector as a whole.

The rapid recovery of the Salvadoran economy after the civil war was supported largely by the industry and the services sectors. The average growth rate of the industrial GDP was higher than the average GDP growth as a whole during 1990-95. The annual growth of the industrial GDP has been consistently higher than the GDP growth after 1995. The real growth rate of the industrial sector was 3.3% per annum during 1995-2001, higher than the GDP growth at 2.7% or even the services sector at 2.8% during the same period.

The share of the industrial sector in the GDP increased to 29.1% in 1999, and reached 30% in 2000. In 2001, its share decreased slightly to 28.5%. The share of the manufacturing sector was 23.4% of the GDP or 77.5% of the industrial GDP. Shares of other subsectors in the GDP were 0.4% for mining, 0.6% for electricity, gas and water, and 3.6% for construction in 2001.

The formal industrial sector's contribution to employment generation is larger than its GDP share. Of the total employment in the formal sector, 54.9% were employed in the industrial sector. The manufacturing subsector has by far the largest share with 42.5%, followed by construction employing 11.5%, electricity, gas and water with 0.8%, and mining, petroleum and natural gas contributing 0.1% respectively of the total employment. Including employment in the informal sector, the industrial sector employed 658,000 in 2000, accounting for 24.6% of the total employment, 2,680,000.

(2) Investment

The industrial sector attracted by far the largest foreign direct investments (FDIs) since 1997 up to June 2002. The manufacturing subsector alone attracted a cumulative total of US\$415.4 million by 72 companies, accounting for 17.6% of the total FDI in all the sectors during this period (Table 2.1). Including the investments in maquila, the total contribution of manufacturing was US\$608.1 million with 149 companies or 25.8% of the total FDI. The utility subsector attracted the largest FDI with US\$821.5 million, mainly due to the privatization of public utilities. Contributions of the construction and the mining and quarrying subsectors are small.

Table 2.2 shows the total FDI in all the sectors by country for the same period. U.S.A. is the largest contributor with US\$829.7 million, followed by Venezuela, France and Spain. The large contributions of the latter countries are due mainly to the privatization of communications and electricity.

Table 2.1. Foreign Direct Investments by Sector, 1997-2002(Unit: US\$10⁶)

Recipient Economic Sector	# of companies	1997	1998	1999	2000	2001	2002*
1 Manufacturing	72	196.4	286.9	304.6	336.5	389.9	419.0
2 Commerce	77	106.0	124.6	142.0	169.1	190.2	225.9
3 Services	37	54.1	60.3	66.0	70.0	90.0	109.4
4 Construction	9	11.1	11.1	11.8	12.2	12.3	12.3
5 Communications	14	3.5	254.5	288.6	291.0	352.6	401.2
5.1. Telephones		1.2	251.1	285.1	287.4	338.4	(376.9)
5.2. Others		2.4	3.5	3.5	3.6	14.2	(20.8)
6 Electricity	7	0.0	598.4	723.5	806.9	821.5	848.2
6.1 Power generation companies		0.0	3.4	128.5	199.0	213.6	(213.6)
6.2 Utilities (distributing firms)		0.0	595.0	595.0	607.9	607.9	(607.9)
7 Farming and Fishing	4		21.0	21.0	10.0	40.0	48.5
7.1 Farming					0.0	0.0	0.0
7.2 Fishing			21.0	21.0	10.0	40.0	48.5
8 Mines and Queries	0	14.0	15.6	0.0	0.0	0.0	0.0
9 Financial		37.8	77.2	104.6	120.4	161.8	173.9
9.1 Pension fund administrators	2		13.5	14.5	14.5	20.3	(20.3)
9.2 Banks	10	37.8	60.3	82.0	97.8	132.2	(132.2)
9.3 Insurance companies	3		3.4	7.9	7.9	7.9	(7.9)
9.4 Credits cards	2			0.3	0.3	0.3	(0.3)
10 Maquila		57.2	134.4	137.6	156.9	182.6	192.7
10.1 Apparel	76	31.6	104.1	107.3	126.0	151.7	161.8
10.2 Electronic chips	1	25.6	30.2	30.2	30.8	30.8	30.8
10.3 Others		0.0	0.0	0.0	0.0	0.0	0.0
Total		480.13	1,583.86	1,799.67	1,973.07	2,240.90	2,361.41

*numbers in parentheses for January-June

Source: Central Reserve Bank.

Table 2.2. Cumulative Foreign Direct Investments by Country, 1998-2002(Unit: US\$10⁶)

Country	1998	1999	2000	2001	2002	2002/1998
USA	463.4	606.3	715.8	807.5	829.7	1.79
Venezuela	296.9	296.9	309.5	309.5	309.5	1.04
France	208.9	212.9	212.9	214.5	214.5	1.03
Chile	91.2	91.2	91.3	91.5	91.5	1.00
Mexico	610.5	66.7	66.7	72.2	76.0	1.26
Panama	66.0	72.6	79.6	86.4	88.3	1.34
Spain	29.3	68.4	68.4	120.5	150.0	5.12
Bahamas	63.0	64.5	64.8	65.2	65.4	1.04
Germany	41.9	41.9	44.0	75.7	75.7	1.81
Costa Rica	25.4	42.5	47.6	63.3	63.9	2.52
Singapore	32.1	32.1	32.1	32.1	32.1	1.00
Netherlands	26.1	26.1	32.2	32.2	32.2	1.23
Peru	17.1	22.2	22.2	22.3	22.3	1.30
Nicaragua	15.4	17.6	20.7	25.0	25.0	1.62
Ecuador	21.0	21.0	9.0	9.0	9.0	
Canada	14.2	17.3	17.7	44.6	44.6	3.14
Guatemala	10.7	15.2	25.5	32.0	33.9	3.17
Aruba	14.6	15.0	15.0	15.0	15.0	
Korea	12.2	12.9	14.5	14.9	14.9	
Switzerland	11.7	11.7	11.7	11.7	11.7	
Japan	11.2	11.2	11.3	14.0	14.0	1.25

Country	1998	1999	2000	2001	2002	2002/1998
Bermudas	10.6	10.6	10.6	10.6	10.6	
Taiwan	3.6	5.3	27.2	40.2	41.6	
England	4.8	4.8	6.4	6.4	6.4	
Honduras	4.7	4.7	6.5	9.3	9.3	
British Isles	4.2	4.2	4.2	4.2	6.8	
Other	3.3	4.0	5.9	11.0	13.7	
Total/Overall	1,583.9	1,799.7	1,973.1	2,240.9	2,307.9	1.46

Source: Central Reserve Bank.

2.2 Industrial Structure in El Salvador

(1) Status and size structure of enterprises

According to the registration at the headquarters of the Statistics and Census (DIGESTYC), 8,079 companies are registered in the formal sector and 144,020 companies in the informal sector. Over 99% of companies in the informal sector or about 143,000 are micro and small enterprises. The majority of them are household industries. Size structure of industries is examined based on the data for enterprises in the formal sector. Although there are several classifications of firms by employment size in El Salvador as shown in Table 2.3, the following classification is adopted here.

	Classification of firms			
	Large	Medium	Small	Micro
No. of employees	Over 101	51-100	11-50	10 or fewer

Source: JICA Study Team.

Table 2.3. Definitions of SME in El Salvador

Establishment	Definition of SME		
	Micro	Small	Medium
CONAMYPE	Employees: max. 10 Sales: up to \$5,174.28	Employees: max. 50 Sales: up to \$57,142.85	
FUSADES (PROPEMI)	Employees: max. 10 Sales: up to \$5,174.28	Employees: max. 50 Sales: up to \$57,142.29	Employees: max. 100 Sales: up to \$114,285.00
FUSADES (DEES)	Employees: max. 10 Assets: under \$11,423.00	Employees: max. 19 Assets: under \$85,714.00	Employees: max. 99 Assets: under \$114,285.00
INSAFORP	Employees: 1-10	Employees: 11-49	Employees: 50-99
SWISS CONTACT	Employees: 1-10	Employees: 11-50	Employees: 51-100
BMI	Employees: max. 10 Sales: up to \$5,174.28	Employees: 11-49 Sales: \$5,714.28-57,142.85	Employees: max. 50-199 Sales: \$57,142-380,000
BID (IDB)	Employees: 1-10	Employees: 11-99 Sales: US\$3-5 mil.	
GTZ	Credit: \$7.14-5,142.85	Employees: 11-49 Credit: \$5,142.85-57,145.85	Employees: 50-99
JICA Study	Employee: 1-10	Employees: 11-50	Employees: 51-100

Table 2.4 shows distribution of enterprises and employees by region in the formal sector. Of all the firms in the formal sector, 82.9% are located in the Central region, with the rest distributed between the Western region (10.4%) and the Eastern Region (6.7%). Concentration in the Central region is even larger for larger firms, with 90.7% for large and 93.2% for medium firms. Consequently, distribution of employees is even more biased for the Central region, which has 91.1% of the total employment in the formal industrial sector and 92.6% of the employment in large firms.

Table 2.4. Compositions of Companies and Employees by Region and Company Scale

	Large	Medium	Small	Micro	Total
No. of Companies					
Western Region	7.4%	5.3%	7.3%	12.1%	10.4%
Central Region	90.7%	93.2%	87.8%	79.8%	82.9%
Eastern Region	1.9%	1.5%	4.9%	8.1%	6.7%
El Salvador	100%	100%	100%	100%	100%
No. of Employees					
Western Region	5.6%	5.3%	6.7%	11.4%	6.2%
Central Region	92.6%	90.3%	88.9%	81.0%	91.1%
Eastern Region	1.9%	1.4%	4.4%	7.6%	2.7%
El Salvador	100%	100%	100%	100%	100%

Source: DIGESTYC.

Table 2.5 shows size structure of enterprises by region and in El Salvador. In the Country as a whole, 90.6% of enterprises are categorized as small and micro enterprises (SMEs), consisting of 23.4% small and 67.2% micro enterprises. These enterprises employ collectively 25.0% of the total employment. Large enterprises account for 5.2% of the total number of enterprises, employing 65.8% of the total work force in the formal sector.

Table 2.5. Number of Companies and Employees by Region and Company Scale

Scale	El Salvador (Total)		Western Region		Central Region		Eastern Region	
	Company	Employee	Company	Employee	Company	Employee	Company	Employee
Large	5.2%	65.8%	3.7%	58.7%	5.6%	67.0%	1.5%	45.0%
Medium	4.2%	9.2%	2.1%	7.9%	4.7%	9.4%	0.9%	4.5%
Small	23.4%	16.3%	16.4%	17.5%	24.8%	15.9%	16.9%	26.3%
Micro	67.2%	8.7%	77.8%	15.9%	64.9%	7.7%	80.7%	24.2%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Note: Companies without employees are excluded.

Source: DIGESTYC.

The size structure is biased for small and micro enterprises in the Western region and the Eastern Region. SMEs constitute 94.2% of enterprises in the Western region and 97.6% of enterprises in the Eastern Region.

In the Eastern Region, only 6.7% of the enterprises in the formal sector exist employing 2.7% of the country's work force in this category. Large and medium enterprises, constituting 2.4%

of all the enterprises in the country, employ almost a half of the work force in the formal sector in the Region.

(2) Employment structure by size class

Table 2.6 shows the employment structure by size class of enterprises in the formal sector in El Salvador. The industrial sector has the largest share of employees with 60.9%, dominated by those employed by large enterprises. The sector's employment is less dominant for medium enterprises claiming 42.0% followed by 25.3% in trade and commerce, and 17.1% in finance, insurance and lease. For smaller size classes, the trade and commerce sector has the dominant shares with 41.0% of small and 48.8% of micro enterprises.

Table 2.6. Composition of Number of Company and Employment by Industrial Category

Type	% of Companies by Size				Total	Employee	Major industry
	Large	Medium	Small	Micro			
1	1.0	0.9	1.4	3.6	2.8	1.2	Agriculture, livestock and fishery
2	0.0	0.6	0.4	0.0	0.1	0.1	Mining, petroleum and natural gas
3	48.0	29.3	15.8	5.0	10.8	42.5	Manufacturing
4	1.4	0.0	0.3	0.1	0.2	0.8	Electricity, gas and water supply
5	11.5	12.1	8.4	2.6	4.8	11.5	Construction
6	13.9	25.3	41.0	48.8	44.1	19.1	Trade and commerce
7	1.9	6.8	5.9	4.1	4.6	4.1	Transport and communication
8	17.7	17.1	17.5	28.5	24.9	15.2	Finance, insurance and lease
9	4.6	7.9	9.3	7.3	7.7	5.5	Other public service
Total	100	100	100	100	100	100	

Source: DIGESTYC.

(3) Regional and size distribution of manufacturing establishments

Of the total of 16,302 manufacturing establishment registered with DIGESTYC in 1997, 10,549 or 64.7% are located in the Central region (Table 2.7). Concentration in the Central region is even larger for manufacturing employment with 188,438 employees or 87.8% of the total employment.

Table 2.7. Number of Establishments and Employment in Manufacturing, 1997

	Western region	Central region	Eastern Region	El Salvador
Establishment	3,187	10,549	2,566	16,302
Employment	15,700	188,438	10,363	214,501

Source: DIGESTYC.

The number of manufacturing enterprises registered with DIGESTYC increased to 18,906 by 2000. Of this total, 558 or 3% are large enterprises and 340 or 1.8% are medium. SMEs consist of 6.7% of small enterprises and 88.5% of micro enterprises.

Table 2.8 shows regional and size distribution of manufacturing enterprises. More than 90% of large and medium enterprises are located in the Central region. Majority of SMEs are also

located in the Central region, consisting of 82.4% of small and 76.8% of micro enterprises.

Table 2.8. Number of Manufacturing Companies by Scale and Location

Scale	Western Region		Central Region		Eastern Region		El Salvador	
Large	35	6.3%	520	93.2%	3	0.5%	558	100.0%
Medium	28	8.2%	307	90.3%	5	1.5%	340	100.0%
Small	119	8.9%	1,052	82.4%	110	8.6%	1,276	100.0%
Micro	2,961	17.7%	11,840	70.8%	1,931	11.5%	16,732	100.0%
Total	3,138	16.6%	13,719	72.6%	2,049	10.8%	18,906	100.0%

Source: DIGESTYC.

(4) Subsector structure

Table 2.9 shows the subsector structure of manufacturing in El Salvador with respect to the number of establishments and employment. The largest subsector industry is food processing and beverages, accounting for 34.0% of the establishments and 21.7% of employment. Textile is the second largest with 28.0% of the establishments, but contributes to the largest employment with a 45.8% share. These two subsectors combined account for 62.0% of the enterprises and 67.5% of the employment.

Table 2.9. Composition of Manufacturing Companies by Sub-industry

CIU code	Number of companies					Employment	Major industry
	Large	Medium	Small	Micro	Total		
31	115 (20.3%)	82 (24.1%)	279 (22.0%)	5,955 (35.5%)	6,429 (34.0%)	65,622 (21.7%)	Food processing, beverages, Oil and others
32	235 (42.0%)	93 (27.3%)	263 (20.6%)	4,697 (28.1%)	5,288 (28.0%)	139,058 (45.8%)	Textiles, leather and other related productions
33	5 (0.9%)	8 (2.4%)	78 (6.1%)	2,005 (12.0%)	2,096 (11.1%)	8,082 (2.7%)	Wood, palm and others
34	29 (5.2%)	20 (5.9%)	123 (9.6%)	569 (3.4%)	741 (3.9%)	12,374 (4.1%)	Paper, pulp and others
35	98 (17.6%)	74 (21.8%)	178 (13.9%)	164 (1.0%)	514 (2.7%)	37,360 (12.3%)	Chemical, pharmaceutical and petroleum industries
36	19 (3.4%)	17 (5.0%)	111 (8.7%)	838 (5.0%)	985 (5.2%)	10,165 (3.4%)	Glass, ceramic clay and asbestos
37	15 (2.7%)	4 (1.2%)	5 (0.4%)	11 (0.1%)	35 (0.2%)	3,781 (1.2%)	Iron, steel, aluminum and others
38	36 (6.5%)	28 (8.2%)	206 (16.1%)	2,253 (13.5%)	2,523 (13.3%)	22,768 (7.5%)	Construction machinery, electric equip. & accessories
39	8 (1.4%)	14 (4.1%)	33 (2.6%)	240 (1.4%)	295 (1.6%)	3,872 (1.3%)	Other manufacturing industries
Total	556 (100%)	340 (100%)	1,276 (100%)	16,732 (100%)	18,906 (100%)	303,082 (100%)	

Source: DIGESTYC.

2.3 Industry in the Eastern Region

(1) Size structure of enterprises

Of the total establishments of 144,353 in El Salvador, 24,802 or 17.2% are located in the

Eastern Region. The size structure of these establishments is shown in Table 2.10. Of all the establishments in the Eastern Region, 98.1% are micro employing less than 10 employees. Commercial enterprises have the largest share accounting for 63.8% of all the enterprises, followed by services with 25.9% and manufacturing with 10.3%.

Table 2.10. Size Structure of Enterprises in the Eastern Region, 1997

	(% share in parentheses)			
Size	Manufacturing	Commerce	Services	Total
Large	2 (0.0)	1 (0.0)	3 (0.0)	6 (0.0)
Medium	2 (0.0)	10 (0.1)	6 (0.1)	18 (0.1)
Small	72 (2.8)	192 (1.2)	195 (3.0)	459 (1.9)
Micro	2,490 (97.0)	15,613 (98.7)	6,216 (96.8)	24,319 (98.1)
Total	2,566 (100.0)	15,816 (100.0)	6,420 (100.0)	24,802 (100.0)

Source: DIGESTYC.

(2) Spatial distribution and subsector industries

In the departments of the Eastern Region, most establishments concentrate in one or two municipalities. In Usulután with 23 municipalities, 66% are located in the capital city and 6% in Santiago de María. In San Miguel with 20 municipalities, 80% of the establishments are concentrated in the capital city and 4% located in Ciudad de Barrios. In Morazan, 99% of the establishments concentrate in San Francisco Gotera and almost none exist in the remaining 24 municipalities. The establishments in La Unión with 18 municipalities concentrate in the capital city with 57% and Santa Rosa de Lima with 38%.

There are only seven enterprises in the Eastern Region registered in “Directorio Industrial 2002”. They are:

- 1) Comput Ingenieros, S.A. de C.V. (Computer sales and civil engineering),
- 2) Empresa Eléctrica de Oriente, S.A. de C.V. (Electricity distribution),
- 3) Fabricación de Ventanas y Espejos “Ventanas El Rey” (Commerce for glass and aluminum products),
- 4) Handal y Sobrinos (Salt and iodine sales),
- 5) Inversiones Simal, S.A. de C.V. (Construction works),
- 6) Piki Pan Alimentos, S.A. de C.V. (Bakery), and
- 7) Productores Avetar Portillo, S.A. de C.V. (Glass and aluminum products)

Subsector industries existing in the Eastern Region are listed in the box on the next page top.

(3) Subsector structure of manufacturing

The subsector structure of manufacturing in the Eastern Region is given in Table 2.11. Food industry is the only subsector having larger enterprises. It accounts for 26.9% of all the enterprises, employing in total 36.1% of the total manufacturing employment. Other more important subsector industries are textile, automobile workshops, and construction materials

Subsector Industries Exiting in the Eastern Region

Foodstuffs (including cacao and cashew)	Palm nuts
Dairy products (including cheese)	Straw mats
Canned seafood	Brooms
Sweet pancakes	Cotton spinning
Fireworks	Leather articles (including hides)
Fishing gear	Rubber products
Chemical products	Yarn
Matches manufacturing	Paints
Fertilizer	Tooth powder
Insecticides	Shoe making
Pharmaceutical products	Coffee products
Medicine	Roofing tiles
Detergents	Unglazed bricks
Cosmetics	Ceramics
Candles	Salt manufacturing
Soaps	Gold/silver works
Vegetable oils (including coco oil)	Construction materials

Table 2.11. Composition of Manufacturing Companies in the Eastern Region

Type	Number of companies					Employment	Major industry
	Large	Medium	Small	Micro	Total		
1	3 (100%)	3 (60.0%)	37 (33.7%)	508 (26.3%)	551 (26.9%)	2,279 (36.1%)	Food processing, beverages, oil, and others
2	0	0	6 (5.5%)	559 (28.8%)	565 (27.6%)	1,119 (13.5%)	Textiles, leather and other related productions
3	0	0	3 (2.7%)	235 (12.2%)	238 (11.6%)	710 (8.6%)	Wood, palm and others
4	0	0	5 (4.5%)	38 (2.0%)	43 (2.1%)	326 (3.9%)	Paper, palm and others
5	0	0	7 (6.4%)	3 (0.2%)	10 (0.5%)	174 (2.1%)	Chemical, pharmaceutical and petroleum industries
6	0	2 (40.0%)	36 (32.7%)	201 (10.4%)	239 (11.7%)	1,623 (19.6%)	Glass, ceramic clay and asbestos
7	0	0	0	1 (0.1%)	1 (0.0%)	4 (0.0%)	Iron, steel, aluminum and others
8	0	0	16 (14.6%)	347 (18.05)	363 (17.7%)	1,274 (15.4%)	Construction machinery, electric equipment & accessories
9	0	0	0	39 (2.0%)	39 (2.0%)	66 (1.9%)	Other manufacturing industry
Total	3 (100%)	5 (100%)	140 (100%)	1,931 (100%)	2,049 (100%)	8,275 (100%)	

Source: DIGESTYC.

industry producing blocks, bricks and roofing materials. They are all SMEs employing 3.4 employees on an average.

(4) Constraints

Based on the analysis on existing conditions, constraints to industrial development of the Eastern Region are identified as follows:

- 1) Absence of leading industry,
- 2) Lack of business linkages among SMEs,
- 3) Small domestic market and lack of business opportunities,
- 4) Conservative attitude of local businessman, and
- 5) Dominance of imported/smuggled goods.

3 Tourism

3.1 Existing Conditions of Tourism in El Salvador

(1) Overview

Tourism earnings increased rapidly along with growing visitor arrivals as the peace has been restored especially after 1995 to reach US\$342 million in 2002, ranking the sector at the 6th place for export performance. This is much larger than the export value of coffee and other traditional export products as shown in Table 3.1. The total tourism earnings, however, correspond only to 2.4% of the GDP. There is much room for expansion in this sector.

(2) Characteristics of foreign visitors

Visitor arrivals

The number of visitors from foreign countries increased from 235,007 in 1995 to 950,597 in 2002 at the average annual rate of 22.1% (Table 3.2). In 2000, the peak months of visitor arrivals were April, November and December, and the off months February, reflecting the dominance of overseas Salvadorans returning for festivity such as the Week of Santa. All the Santos and Christmas. Visitor arrivals increased particularly in March and December in 2002 to make the distribution more balanced (Table 3.3).

Table 3.1. Tourism Earnings Compared with Export Value of Major Export Products, 1997-2002

							(US\$10 ⁶)
Year	GDP	Tourism	Tourism/GDP (%)	Maquila	Coffee	Sugar	Shrimp
1997	11,135.0	74.6	0.7	247.2	517.8	56.1	29.7
1998	11,974.0	125.0	1.0	282.8	322.0	66.5	32.6
1999	12,470.3	210.6	1.7	294.8	230.0	41.8	24.9
2000	13,212.6	254.3	1.9	456.3	225.1	38.2	5.6
2001*	13,739.0	235.1	1.7	444.1	115.1	61.0	9.3
2002*	14,273.0	342.2	2.4	443.3	106.9	--	--

* Preliminary

Sources: Central Reserve Bank of El Salvador, *Statistical Bulletin of Tourism 2001*; Salvadoran Corporation of Tourism (CORSATUR).

Table 3.2. Visitor Arrivals in El Salvador, 1980-2000

Year	1980	1985	1990	1995	2000	2002
Number of visitors	118,005	133,208	194,265	235,007	794,678	950,597
Average annual growth (%)	--	2.45	7.84	3.88	27.59	9.37

Source: CORSATUR.

Table 3.3. Visitor Arrivals in El Salvador by Month, 2000-2002

Month	2000	(%)	2001	(%)	2002	(%)
January	63,980	8.07	65,721	8.95	59,654	6.28
February	58,338	7.36	54,048	7.36	64,982	6.84
March	65,624	8.28	61,407	8.36	87,944	9.25
April	70,333	8.87	62,938	8.57	84,449	8.88
May	62,403	7.87	63,041	8.58	61,560	6.48
June	59,459	7.50	65,264	8.88	81,330	8.56
July	66,453	8.38	70,184	9.55	84,487	8.89
August	68,813	8.68	63,722	8.67	89,043	9.37
September	64,572	8.15	46,137	6.28	73,258	7.71
October	62,787	7.92	52,971	7.21	78,885	8.30
November	71,999	9.08	58,951	8.02	79,369	8.35
December	79,917	10.08	70,243	9.56	105,636	11.11
Total	792,678	100.00	734,627	100.00	950,597	100.00

Source: CORSATUR, *Statistical Bulletin of Tourism*.

Visitors by origin

Visitors from four countries increased their shares steadily since 1998 to attain 84.3% in 2002, consisting of 39.7% from Guatemala, 17.7% from the USA, 14.4% from Honduras, and 12.6% from Nicaragua (Table 3.4). Visitors from Central America account for 70.6% of the total.

Table 3.4. Visitors by Resident Country

Year	1998	(%)	2000	(%)	2002	(%)
Central America	353,018	65.15	538,750	67.79	670,728	70.56
Guatemala	163,485	30.17	273,543	34.42	377,329	39.69
Honduras	84,299	15.56	151,919	19.12	137,156	14.43
Nicaragua	60,735	11.21	72,746	9.15	119,323	12.55
Costa Rica	28,804	5.32	29,046	3.66	27,134	2.85
Other	15,695	2.90	11,496	1.45	9,786	1.03
North America	127,032	23.44	176,932	22.26	201,269	21.17
USA	97,838	18.06	142,962	17.99	167,765	17.65
Canada	9,282	1.71	11,543	1.45	12,042	1.27
Mexico	19,912	3.67	22,427	2.82	21,462	2.26
South America	16,471	3.04	3,450	0.43	577	0.06
Europe	26,391	4.87	27,012	3.40	26,523	2.79
Other	18,951	3.50	48,534	6.11	51,500	5.42
Total	541,863	100.00	794,678	100.00	950,597	100.00

Source: CORSATUR.

Mode of transport and main entrance points

Most visitors enter the Country by land, accounting for over 70% of all the arrivals in 2002, followed by air (less than 30%) and sea (about 0.5%). There are 10 main entrance points: two airports of San Salvador international and Ilopango, two marine ports of Acajutla and La Unión, and six land crossing including La Hachadura and Las Chinamas on the borders of Guatemala, and Angiatu, El Poy and El Amatillo of Honduras. Visitors arriving through Las Chinamas increased significantly between 2000 and 2001, surpassing those through El Amatillo (Table 3.5).

Table 3.5. Number of Visitors by Mode of Transport and Entrance Point

Mode/Entrance point	Visitors (2000)	%	Visitors (2002)	%
Air	233,627	29.40	252,689	26.58
El Salvador Int'l Airport	231,269	29.10	248,081	26.10
Ilopango	2,358	0.30	4,608	0.48
Sea	4,944	0.62	4,861	0.51
Acajutla	3,089	0.39	3,409	0.36
La Union	1,855	0.23	770	0.08
Puerto Barrillas	--	--	431	0.05
Punta Gorda	--	--	159	0.02
Land (road)	556,107	69.98	693,047	72.91
Las Chinamas	75,181	9.46	185,919	19.56
El Poy	55,540	6.99	71,519	7.52
El Amatillo	171,477	21.58	179,085	18.84
La Hachadura	96,520	12.15	115,625	12.16
San Cristobal	116,217	14.62	95,216	10.02
Angiatu	41,172	5.18	45,683	4.81
Total	794,678	100.00	950,597	100.00

Source: *ibid.*

Of the visitors arriving by air, the largest number was from North America with 60.8% share in 2000, followed by those from Central America with 18.8%. Visitors by sea totaled 4,944 in 2000, consisting of 3,089 entered at Acajutla and 1,855 at La Union.

Purposes of visit

CORSATUR made a survey on visitors by air for their purposes of visit in 2001. According to the survey, visit to friends and family is the most common purpose, accounting for 41.3%. Foreign visitors for business and conventions purposes combined account for 42.1%. Foreign visitors for recreational purposes constitute only 13.3% of all the visitors by air (Table 3.6). Main activities of those visitors are mostly urban-based, 70.3% of all the activities, and only 29.7% is for beach resort, eco-tours and rural tours (Table 3.7). The average visitor for business purposes stays in El Salvador for four days and spend US\$90 per day.

The CORSATUR survey has also clarified visitors' perceptions on El Salvador. They evaluate social aspects generally more highly rather than tourism resources (Table 3.8). They raise concerns on security represented by delinquency, violence and armed people, and social

problems such as contamination and poverty.

Table 3.6. Number of Visitors by Purpose, 2000

Travel Purpose	Share (%)
Business / professionals	33.33
Convention / conference	8.81
Leisure / recreation / vacations	13.33
Visit to friends and family	41.33
Other	3.10

Source: CORSATUR, "El Salvador in Numbers", *Statistical Bulletin 2000*.

Table 3.7. Visitors' Preference of Activities

Activity	Share (%)
Dinning in restaurants	22.72
Shopping	20.41
Visiting of attraction parks	9.31
Night club/ dancing	8.39
Art gallery/museum	4.76
Casinos/ games	2.51
Concerts/theaters/shows	2.18
Total urban activities	70.28
Marine sports/sun bathing/ beach	8.65
Sport events	5.75
Visiting of cultural activities	4.56
It visits to rural areas	4.36
Trips ecological	3.90
Visiting of ethnic patrimony activities	2.51
Total provincial activities	29.73

Sources: *ibid.*; JICA Study Team.

Table 3.8. Foreign Visitors' Impression of El Salvador

	USA	Central America	Rest of Americas	Europe	Rest of the world
Favorable	Beach, food, landscapes	Food, beach, people	Vegetation, people, food	People, food, landscapes	People, climate, food
Unfavorable	Garbage, delinquency, contamination	Delinquency, contamination, traffic	Contamination, delinquency, poverty	Contamination, violence, poverty	Traffic, armed people, poverty

Source: *ibid.*

(3) Characteristics of domestic tourism

Domestic tourism market is generally active in El Salvador with different segments for different income groups. People in the high-income group own second houses in beach and summer resorts to enjoy weekends and vacations. They ensure security there by themselves. It is common to invite friends or to let them use the facilities.

People in the middle-income group use hotels and cottages at resorts or rely on second houses of friends. Use of these facilities is practically only way to ensure the access to beaches and conveniences as well as security. They participate also in nature tourism and eco-tours, and spend several days in national parks and private camping areas, where security is ensured by guards and gate control.

People in the low-income group also have high demand for recreation activities. They use mainly State-operated facilities called “turicentro”. These facilities used to be utilized by more people even during the civil war, e.g., 3.45 million users in 1990. Users have been recovering only slowly in recent years to reach 2.11 million in 2000 (Table 3.9).

Table 3.9. Visitors’ Use of *Turicentros*

	Location	1990	1995	2000
Agua Fría	Chalatenango	44,861	72,966	114,855
Altos de la Cueva	San Miguel	111,139	69,648	174,819
Amapulapa	San Vicente	245,156	118,209	297,935
Apastepeque	San Vicente	0	28,535	27,221
Apulo	Cuscatlán	214,691	145,416	226,966
Atecozol	Sonsonate	375,524	135,772	207,060
Cerro Verde*	La Libertad	115,704	97,527	259,671
Comp. T. La Libertad	La Libertad	447,099	58,735	31,067
Costa del Sol	La Paz	165,064	108,661	147,011
Ichanmichen	La Paz	198,675	105,779	218,517
Parque Balboa	San Salvador	315,118	130,320	-
Parque Cerro Verde*	Santa Ana	661,382	669,882	64,623
Parque W. T. Deininger†	La Libertad	2,562	1,388	851
Sihuatehuacan	Santa Ana	290,214	122,121	181,051
T.T. San Sebastian		3,069	14,436	-
Toma de Quezaltepeque	La Libertad	261,564	173,761	154,533
Total		3,451,822	2,053,156	2,106,180

* Turicentros of The Jets and Green Hill are closed because of the damages caused in the same ones by the earthquakes of January and February of 2001.

† National Park WT Deininger is not a Turicentro exactly but rather a protected natural space managed by Salvadoran Institute of Tourism (ISTU).

Sources: Unit Turicentros and National Parks; Statistical section, ISTU, 2002.

3.2 Tourism Products and Infrastructure in El Salvador

(1) Tourism resources

El Salvador abounds in various tourism resources, including beaches on the Pacific coast, volcanoes, lakes, wetlands and other natural features with diverse flora and fauna, Maya ruins and other historical remains, colonial architecture, rural areas and handicrafts. These, however, are common in other Central America countries, and none of them is outstanding. According to a study in 1994 (Table 3.10), El Salvador ranks low among neighboring countries for various attractions (Arthur Consulting Group, Inc.).

Table 3.10. Evaluation of Tourist Offerings in Central American Countries

Destination	Beaches	Natural/Cultural Attractions	Handicrafts
Pacific Coast			
El Salvador	2	3	3
Costa Rica	3	2	3
Guatemala	3	1	1
Panama	2	2	2
Spanish Caribbean			
Cancun	1	3	3
Dominican Republic	1	3	3
Puerto Rico	1	2	3

Note: Highest/best=1 and Lowest/worst=3.

Source: *Tourism Strategy for El Salvador*, July 22, 1994, Arthur Consulting Group, Inc.

CORSATUR evaluated major tourist destinations in El Salvador by various indices. The results are summarized in Table 3.11. Apaneca with mountain range covered by healthy pine forest rich in nature and migratory birds, coffee plantations and the town itself ranked at the top, followed by the Jiquilisco bay area, Nahuizalco renowned for rattan products, and Juayua.

(2) Accommodations

As of 2001, El Salvador has 201 establishments for accommodations with 4,996 rooms. San Salvador has 74 establishments with 2,452 rooms or 49.1% of the total. The number of hotel rooms increased rapidly from 2,419 rooms in 1992, and in recent years more rooms have established outside San Salvador. Largest concentrations of hotel rooms outside San Salvador are found in San Miguel with 694 rooms, La Paz with 480 rooms, Santa Ana with 297 rooms, and La Libertad with 185 rooms. The largest number of rooms are found in the coastal area with 1,994 rooms, of which 480 are in La Paz, where the most famous La Costa del Sol beach is located (Table 3.12)

(3) Support infrastructure and transport services

Road transport is the most important means for tourist entry, accounting for over 70% of all the visitor arrivals. Road conditions have been improved in recent years to facilitate tourist access, particularly for the coastal road (CA-2), the San Salvador-La Palma section, and sections from borders: El Amatillo-San Miguel, Santa Ana-Guatemalan borders, and Metapán-San Cristóbal. Long distance bus services are available from San Salvador to the borders every 10 minutes or so during the day at a few US dollars.

The location and facilities of the international airport constitute advantage for El Salvador. In addition, several small airports and airstrips are available for possible use for tourism. The military airport at Ilopango may be used for chartered flights. The airport at Tamarindo in La Union is in good conditions. The airstrip at San Andrés, used by coffee growers, may be used for small aircrafts. The airstrip at Santa Rosa de Lima may have a potential for tourism use.

Table 3.11. Evaluation of Tourism Resources by Destination

Sites	Landscapes	Biodiversity	Resources Arqueolog	Tradition And Culture	Agricultural Industry, Cattle Raising	Colonial Aspects	Natural Resources	Elaboration of Crafts	Gastronomy	Sanitary Services	Total
Apaneca	3	3	3	2	3	2	3	2	3	0	2.67
Jiquilisco	3	3	2	2	3	N/A	3	1	2	0	2.38
Nahuizalco	2	2	1	3	2	3	2	3	3	0	2.34
Juayua	3	3	2	2	3	2	3	0	3	0	2.34
El Imposible	3	3	3	1	2	N/A	3	1	1	0	2.13
Suchitoto	3	2	3	3	2	3	2	0	1	0	2.11
San Ignacio	3	3	0	2	2	1	3	3	2	0	2.11
La Palma	3	3	0	2	2	1	3	3	2	0	2.11
La Libertad	2	3	0	2	3	0	3	2	3	0	2.00
El Tamarindo	3	3	0	1	3	N/A	3	0	3	0	2.00
El Cuco	3	3	0	1	3	N/A	3	0	3	0	2.00
Chalchuapa	1	1	3	2	2	3	1	2	3	0	2.00
Citala	3	3	0	2	2	2	3	1	2	0	2.00
Santa Ana	2	1	1	2	2	3	1	2	3	0	1.89
San Miguel	2	1	1	2	2	3	1	2	3	0	1.89
Perquin	3	3	0	2	2	0	3	2	2	0	1.89
Toluca	3	3	2	1	1	N/A	3	0	2	0	1.86
Alegria	3	3	0	2	3	0	3	0	2	0	1.78
Montecristo	3	3	1	1	2	N/A	3	0	1	0	1.75
Los Andes	3	3	0	1	3	N/A	3	0	1	0	1.75
Panchimalco	3	1	0	3	1	3	1	2	1	0	1.67
Volcan San Salvador	3	3	0	0	3	N/A	3	0	1	0	1.63
Cerro Verde	3	3	0	0	3	N/A	3	0	1	0	1.63
San Andres	2	1	3	3	0	3	0	2	0	0	1.58
Costa Del Sol	3	3	0	0	2	0	3	0	3	0	1.56
Ilobasco	1	1	0	3	1	2	1	3	1	0	1.44
El Zunzal	2	3	0	1	1	0	3	0	3	0	1.44
Jardin Botanico	2	3	0	0	3	N/A	3	0	0	0	1.38
Joya De Ceren	1	1	3	2	0	N/A	0	2	0	0	1.13
Los Chorros	2	2	0	0	0	N/A	3	0	1	0	1.00

Source: CORSATUR, 2002.

Visitors arriving by sea come by small yachts as no cruisers make a stop in El Salvador. The Acajutla port is used only for commercial trade and not suitable for tourism. The small port of La Libertad may attract some tourists. Private marinas exist at Costa del Sol and Tamarindo for use by yachts. The Barrillas port in the Jiquilisco bay is used for sport shipping. Punta Gorda in the Fonseca gulf can be used at present. The La Unión port project includes a terminal for cruise ships, and 25,000-30,000 visitors are expected per month by the existing cruisers.

(4) Tour conductors

The number of tour conductors increased from about five during the civil war to over 100 at present. An association of four operators exists but only major ones are registered.

Table 3.12. Lodging Accommodations by Department, 2001

Department	# of Rooms	Share (%)	Growth from 2000 (%)	# of Hotels	Share (%)	Growth from 2000 (%)
Ahuachapán	130	2.60	1.20	14	6.97	1.40
Santa Ana	297	5.90	1.06	16	7.96	1.07
Sonsonate	200	4.00	1.18	13	6.47	1.30
La Libertad	185	2.40	1.54	9	4.48	1.29
San Salvador	2,452	49.07	0.95	74	36.82	1.04
La Paz	480	9.60	1.00	10	4.98	1.00
Cabañas	20	0.40	1.00	2	1.00	1.00
Chalatenango	148	2.96	1.25	13	6.47	1.44
Usulután	102	2.04	1.07	3	1.49	1.00
San Vicente	36	0.72	1.00	2	1.00	1.00
San Miguel	694	13.89	1.06	29	14.43	1.00
Morazán	75	1.50	1.03	4	1.99	1.00
Cuscatlán	10	0.20	1.00	2	1.00	2.00
La Unión	167	3.34	1.17	10	4.98	1.43
Total	4,996	100.00	1.02	201	100.00	1.12

Sources: CORSATUR, *Statistical Bulletin of Tourism, El Salvador 2001*; JICA Study Team.

3.3 Conditions of Tourism in the Eastern Region

(1) Major tourism resources

Beaches

Along the Eastern half of the Pacific coast, a series of beaches exist from El Cuco to the Fonseca gulf. Access is generally good by the coastal road CA-2. El Cuco used to be very popular, but was severely damaged by the hurricane Mitch and the 2001 earthquakes. Settlement of fishermen who lost their houses by the earthquakes along the coast was allowed by the city authority, which has effectively blocked the access to the beach and reduced the number of visitors. The precipitous coast at the tip of Tamarindo is suited to diving and other marine sports. With the Conchagua volcano in the national park in the background, the area is suitable for bird watching as well.

Natural coasts

The Jiquilisco bay area is the most important wetland in El Salvador. In addition to bird watching, diving and sport fishing can be enjoyed. A private marina exists at Puerto Barrillas for pleasure boats. Tourism activities in this area are well organized, involving fisherman, restaurants, tour conductors and handicraft workers. In the inland area of the bay, there is a museum for ecotourists at Chaguantique and the Nancuchiname forest in the protected natural area with many apes, and some endemic species.

The Fonseca gulf has natural coasts suitable for ecotourism. Wetland and mangrove forests develop along the northern and eastern coasts of the La Union bay.

Volcanoes and lakes

The area between the two highways CA-1 and CA-2 is the volcanic area with three conspicuous peaks: Tecapa, Usulután and San Miguel. An archeological site exists at Quelepa, west of San Miguel, that constitutes part of the Maya tourism route of Central America. At the top of the Tecapa volcano is a volcanic lake called Laguna de Alegria with unique fauna and hydrologic phenomena.

The Conchagua volcano is located in the south of La Unión, and the capital city of Conchagua on its side commands a panoramic view of the Fonseca gulf. From the top of the volcano, the beach resort of Tamarindo can be viewed.

Laguna de Olomega with the San Miguel volcano in the background has a good tourism potential. It is well managed by organized local community, and the access road has been improved. Laguna el Jocotal, Laguna de San Juan and other smaller lakes are also available.

Rural areas and historical sites

Nature is well preserved in the mountain areas of Morazan and La Unión. Cool climate and landscape are the advantages for camping and ecotourism. The agricultural land in the highland of Monteca allows camping in fruit plantations and grazing areas near the border.

The Sapo river in the northeastern part of Morazan originates from the Sabanetas mountain in Honduras to collect waters from many tributaries flowing through forest of pine and oak. A conservation area has been established and its expansion is planned including areas in Honduras. Tour guides and other workers are trained for ecotourism with camping, picnicking, rural housing and bird watching. The northeastern part of Morazan is rich in cultural and historical assets as well, including museums in Perquín and Cacaopera, indigenous people and those derived from battlefields.

(2) Characteristics of spatial composition

Access points to the Eastern Region are limited: from San Salvador only through CA-1 and CA-2, from Honduras only through El Amatillo, no air access, and sea access only by yacht. Tourism resources are distributed throughout the Region, but more important ones are found in the north and in the south, not served directly by the east-west arteries of CA-1 and CA-2. This spatial composition makes it difficult to establish tour routes linking tourism resources along different north-south roads.

3.4 Issues and Directions for Tourism Development in the Eastern Region

(1) Constraints to tourism development

Common constraints to tourism development in El Salvador are: (i) image problem affected by the recent conflicts, (ii) security problem, and (iii) relatively high airfares, which apply to

Central America as a whole. Constraints to tourism development in the Eastern Region are:

- 1) poor access due to remote location, network deficiency of road system, and unpaved sections of roads,
- 2) lack of accumulation causing poor utilities, low service levels of nearby towns, and narrow range of choice for accommodations and other conveniences, and
- 3) insufficient capital and know-how to prevent the local initiative for the initial capital investment and management.

(2) Potential market segments and issues for development

Domestic tourists

Tourism demand of the middle income group will increase as income levels are enhanced along with economic development. This will give opportunities for the Eastern Region to attract wealth accumulated in the capital region. Overseas Salvadorans and their families largely belong to this segment. As the La Union port is established, increasing number of expatriates will live in San Salvador, and most of them will take the similar behavior for domestic tourism. Vacations in April, November and December will make high times for tourism by these people as well as weekend tourism. The extent of expansion of weekend tourism into the Eastern Region is subject to the improvement of some roads. Provision of a range of choice for accommodations and security are also pre-requisites for successful development of this market segment.

International visitors for business

The number of business travelers from overseas will continue to increase, although the length of their stays may not much increase. As the peace and security are ensured, more business travelers will attempt short trips to the vicinity of the capital, in most cases day trips. The Eastern Region may not attract good portion of these travelers unless alternative attractions are offered on the way to justify longer journeys.

Cruise passengers

As cruise ships make a stop at the La Union port, relatively small but potentially lucrative tourism demand will be generated in the Eastern Region. Major tourism resources in the north may not be incorporated in a tour for the short stop of half a day at most, and beach resorts would not be targets of the tourists in this market segment.

Surfers

Surfers from the U.S. or elsewhere constitute a niche market for tourism. At present Costa del Sol is popular, but the Eastern Region has potentials. Good facilities need to be provided to attract them against traveling time and costs.

Visitors from neighboring countries

At present, beach resorts in the west attract visitors from Guatemala, for they are closer from Guatemala City than Guatemalan beaches. Beach resorts in the Eastern Region may be able to attract visitors from inland areas of Honduras.

Visitors from other parts of the world

Europe and Asia are practically undeveloped markets for tourism in El Salvador. Tourism for long stays may have potentials for European tourists. Tourism resources in the Eastern Region may appeal to nature-loving tourists. Some Asian tourists may be attracted to cultural heritage that may be reinforced by restoration efforts and creation of specialty products. Increasing number of visitors from these areas is expected to reduce the airfares significantly.

(3) Development strategy

Short-term strategy

The middle-income group should be targeted for domestic tourism, particularly for longer stays. Additional accommodations and facilities should be concentrated in selected tourism areas to ensure diversity in services, especially for hotels and restaurants. Access improvement is another pre-requisite.

Expansion and concentration of facilities would have to rely largely on foreign investors, as the capital and know-how are lacking in the Eastern Region. To attract foreign investors, incentives need to be offered. In addition to selective improvement of basic infrastructure and utilities, participation of local communities in various aspects of tourism development, supported by municipalities, should provide good incentives. Community participation with municipal supports would ensure recruitment of better staff and workers for foreign investors, reduced labor disputes, and better security.

Medium to long-term strategy

Establishment of tour circuits should be promoted in line with the commissioning of the La Union port. These circuits should satisfy demands of various business travelers and cruise passengers, not only for tourism for long stay and sports and adventure tourism, but also for tourism to look into history, archeology and geography and for tourism to enjoy local culture and handicrafts. Potentials for the latter are particularly high in the northern area.

To prepare diversified tourism circuits, some of them may start from entrance points to the Eastern Region such as the points on CA-1 and CA-2 over the Lempa river and the La Union port. Alternative modes of transportation may also be incorporated to reduce the travel time and add to the variety, such as helicopters and small aircrafts based on airstrips and small boats along the coast. To ensure effective services along the circuits, functions of tour operation and tourism information need to be enhanced.

Charter flights from San Salvador may be operated to destinations in the Eastern Region, and Tamarind may be an initial choice. Operation of boats along the coast may start as regular services for fishery villages as well to ensure the continuity of services. This may justify public supports like the subsidy for diesel fuel enjoyed by private bus operators.

Tourism promotion in the Eastern Region has been conducted by well-organized cooperatives and associations under the coordination of CND. While this is commendable as a base for effective local operation, strategic alliance with San Salvador based tour conductors is indispensable to accommodate clients right at the beginning.

4 Commerce and Services

4.1 Overall Performance of Commerce and Services in El Salvador

(1) Position of national economy

The commerce and services sector in El Salvador grew at rates higher than the GDP growth through the civil war period until recently (Table 4.1). This reflects continuous population increase and dominance of sector activities satisfying daily needs of people that did not suffer from the civil war as much as other industries did. The sector growth has been slightly below the GDP growth in recent years as other sectors have expanded, led by maquila industries. The commerce and services sector contributed $\text{¢}31,234$ million (in 1990 prices) or 54.7 % to the GDP in 2000.

Table 4.1. Service Industry in GDP, 1970-2000

(Unit: $\text{¢}10^6$ in 1990 price)

	1970	1975	1980	1985	1990	1995	2000 [†]
Gross product of tertiary sector*	13,599.3	17,302.0	18,166.4	17,827.9	20,854.6	26,992.2	31,234.0
Average annual growth (%)		4.93	0.98	-0.38	3.19	5.29	2.96
Share in GDP (%)	44.9	45.6	47.9	54.1	57.2	54.8	54.7
GDP	30,309.1	37,975.9	37,929.6	32,946.3	36,486.9	49,237.9	57,099.2
Average annual growth (%)		4.61	-0.02	-2.78	2.06	6.18	3.01

* Includes: 1) electricity, gas and water, 2) commerce, restaurants and hotels, 3) transport, warehouse and communications, 4) financial and insurance, 5) professional services for companies, 6) rents of housing, 7) personal, home, communal and social services, and 8) government.

[†] Preliminary figures.

Sources: Department of Macroeconomy; Central Reserve Bank of El Salvador.

(2) Recent macroeconomic performance

Recent performance of the commerce and services sector is shown in Table 4.2. For 1996-1999 the number of employment per establishment in commerce is increasing steadily, and the value-added per employee has increased slightly, presumably due to expansionism of trade and retail operations including supermarkets. In services, the number of employment per establishment is decreasing consistently, reflecting new entrants in this subsector. The value-added per

employee is generally lower in services dominated by traditional community services with small shares with high value-added services such as financial and real-estate transactions.

Production and employment data of the commerce and services sector in 1998 are given by subsector in Table 4.3. The retail sales subsector has the largest shares in gross production value, number of establishments and employment. The share in the production is smaller than the other shares, indicating dominant small operations of traditional type. The same is true for the hotel and restaurants subsector also dominated by small and traditional operations. A large share of employment in social services, including NGO activities, is characteristic.

Table 4.2. Recent Performance of Commerce and Services, 1996-99

Commerce		1996	1997	1998	1999
Number of establishment	(A)	31,413	31,484	38,624	38,588
Number of employment	(B)	179,872	180,867	226,204	229,506
# of employment/establishment	(B/A)	5.73	5.74	5.86	5.95
Remuneration (¢)	(C)	3,215,552	3,821,782	4,856,518	4,768,402
Value added (¢)	(D)	12,956,230	15,948,468	18,950,648	19,552,601
Value added per employee (¢)	(D/B)	72.03	88.18	83.78	85.19
Service					
Number of establishment	(A)	31,413	31,484	38,624	38,588
Number of employment	(B)	156,297	153,201	180,458	180,137
# of employment/establishment	(B/A)	4.98	4.87	4.67	4.67
Remuneration (¢)	(C)	3,556,480	4,101,899	5,223,094	5,178,402
Value added (¢)	(D)	10,027,404	7,135,566	14,079,384	6,768,147
Value added per employee (¢)	(D/B)	64.16	46.58	78.02	37.57

Source: Ministry of Economy, *Annual Economic Survey 1999*.

Table 4.3. Commerce and Service Sector by Subsector, 1998

CIU	Category	Gross Product	Share (%)	Number of Establishment	Share (%)	Employment	Share (%)
	Commerce	68,315,072	83.13	89,066	69.77	229,506	56.03
61	Wholesales	22,520,537	27.40	1,896	1.49	26,036	6.36
62	Retails	45,734,535	55.65	87,170	68.29	203,470	49.67
	Service	13,862,072	16.87	38,588	30.23	180,137	43.97
63	Hotels & restaurants	4,554,370	5.54	14,540	11.39	46,692	11.40
81	Finance	5,172,173	6.29	1,766	1.38	24,692	6.03
82	Insurance	2,052,708	2.50	32	0.03	1,933	0.47
83	Real-estate	2,148,783	2.61	3,181	2.49	24,463	5.97
92	Reparation	28,188	0.03	196	0.15	1,088	0.27
93	Social services	2,903,073	3.53	5,023	3.93	35,197	8.59
94	Amusement	372,636	0.45	1,086	0.85	7,929	1.94
95	Personal/ self employed	2,029,965	2.47	12,764	10.00	37,864	9.24
	Total	82,177,144	100.00	127,654	100.00	409,643	100.00

Source: *ibid.*

(3) Privatization and foreign investment

Privatization proceeded actively in El Salvador to make public services the subject for trade. Banks, power distribution, telecommunications, and pension funds have been largely privatized. For TV and radio broadcasting, only up to 49% private ownership is allowed.

Foreign direct investments (FDI) have flowed in increasingly along with the privatization and other open economic policy measures. As seen from Table 4.4, the commerce and services sector claimed the largest shares in the FDI with 97.1% in 1999, 76.8% in 2000 and 59.3% in 2001.

Table 4.4. Annual Foreign Investment Inflow in the Commerce and Services Sector

Sector	1999	2000	2001
Commerce	17.4	27.1	21.1
Services	5.7	4.0	20.0
Communications	34.0	2.4	61.6
- Telecommunications	34.0	2.3	51.0
- Other	0.0	0.1	10.6
Electricity	125.1	83.4	14.6
- Generation	125.1	70.5	14.6
- Distribution	0.0	12.9	0.0
Finance	27.4	15.8	41.4
- Pension funds	0.9	0.0	5.9
- Banking	21.7	15.8	34.4
- Insurance	4.5	0.0	0.0
- Credit cards	0.3	0.0	0.0
FDI in commerce and service	209.6	132.7	158.7
Total FDI	215.8	173.4	267.8

Source: Central Reserve Bank of El Salvador, National Accounts.

(4) Informal sector

A large informal sector exists in El Salvador, engaging mostly in commerce and services activities. The U.S. embassy in El Salvador has estimated that of the 468,700 establishments, 761,700 employment and US\$3 billion value-added (25% of the GDP) recorded in 1998 by the Ministry of Economy for this sector, two-thirds belong to the informal sector. Applying this estimate to the present conditions, the informal sector may have 400,000 establishments, 520,000 employment (1.3 per establishment) and value-added of US\$2.4 billion or 20% of the GDP.

4.2 Existing Conditions by Subsector

(1) Distribution and commerce

Large distributors deal with imported goods with established networks with buyers. It is

common for major department stores to purchase directly from producers or importers. For most agro-products, designated agents exist specific to products respectively, and thus wholesale market for food products does not exist in urban areas.

Retail sales are mostly in traditional forms. Recently, large discount shops are developing with retail outlets in major cities. The ownership of these chain stores has been changing through competition between domestic, and foreign capitals.

(2) Financial services

Despite the dollarization, the financial subsector is not developing as expected, presumably due to bad debts caused by depression of coffee prices and other factors. In banking, two banks, Cuscatlan and Agricola, claim dominant shares in El Salvador and also are most active in Central America with branches in each country. Securities and other forms of direct finance have not developed much. The Securities and Exchanges Law was revised in 2002, and electronic trading started. Several Salvadoran capitals and U.S. capitals coexist in the insurance market. Following the deregulation of the financial sector, banks can enter this market, but mainly for enterprises so far and the household sector has been left behind.

(3) Utilities

Power distribution has been privatized to U.S., Chilean and Venezuelan capitals having control shares. The State power company, CEL, sold three geothermal power plants to U.S. capital, and its subsidiary, GESAL, is to sell its shares. Six private firms are operated for power transmission throughout the Country, two covering the Eastern Region. Power tariffs have been raised after the privatization.

Telecommunications have been completely privatized, starting with the sale of the State firm ANTEL in 1998. Service charges increased once after the privatization but significantly decreased thereafter. Mobile phone systems have come into wide use throughout regions and age groups.

The private firm, TROPIGAS, supplies gas. Other firms have joined the market recently, but their operations are still small. U.S. majors dominate in supply of petroleum and gasoline. A domestic firm joined to compete at lower price ranges, but its service coverage is quite small.

The National water company, ANDA, provides water supply. It is expected that its sanitary division will be privatized and various control functions will be transferred to local governments and community organizations.

(4) Transport

Bus services are all privately operated. They use many overage vehicles, despite the requirement by the law enforced in 2002 to use only those vehicles manufactured in 1990's or later. The Government provides a subsidy to purchase diesel fuels to suppress bus fares. In

addition to 16,000 buses and minibuses registered with the Vice-Ministry of Transport, some 30,000 vehicles are involved in passenger transport services operated by independent outfits.

The major freight carrier, SEABOARD MARINE, is undertaking international truck services linking El Salvador with Guatemala, Mexico, Costa Rica and others. Domestic truckers are mostly small, operating with one to several trucks, but they dominate domestic services, covering border areas as well.

(5) Business services

Business services account for only 5.9% of the commerce and services GDP. This underdevelopment may be attributed to the fact that the education system did not function during the civil war to generate graduates from higher education. Moreover, the present education system is not oriented to supplying specialized experts. Growing demand for these experts and business services is currently met by returnees from the U.S. and foreign experts.

4.3 Commerce and Services in the Eastern Region

Both commerce and services in the Eastern Region have shares in the national total comparable to its population share in terms of the number of establishments, respectively (Table 4.5). The shares are much lower in sales amount for both commerce (11.2% of the national total) and services (7.4%), indicating low productivity in this sector. Comparison of subsector shares in 1990 and 1998 reveals that services are growing faster supported by growth in the hotels and restaurants, amusement, and personal/self employed subsectors (Table 4.6).

Table 4.5. Commerce and Services in the Eastern Region

(Unit: $\text{¢}10^6$)

	Number of establishment			Sales amount		
	El Salvador	Eastern Region	Share (%)	El Salvador	Eastern Region	Share (%)
Commerce	89,066	17,042	19.13	68,315,072	7,647,874	11.20
61 Wholesales	1,896	264	13.92	22,520,537	1,061,056	4.71
62 Retails	87,170	16,778	19.25	45,794,535	6,586,818	14.38
Service	38,588	7,771	20.14	19,862,502	1,470,927	7.41
63 Hotels & restaurants	14,540	2,592	17.83	4,554,970	529,157	11.62
81 Finance	1,766	354	20.05	5,172,179	131,963	2.55
82 Insurance	32	--	--	2,052,708	--	--
83 Real estate	3,181	608	19.11	2,148,783	76,132	3.54
92 Reparation	196	133	67.86	28,188	2,556	9.07
93 Social services	5,023	1,013	20.17	2,903,073	287,866	9.92
94 Amusement	1,086	342	31.49	972,636	115,299	11.85
95 Personal/self-employed	12,764	2,729	21.38	2,029,965	327,954	16.16
Total	255,308	49,626		176,355,148	18,237,602	

Source: Ministry of Economy, *Annual Economic Survey 1999*.

Table 4.6. Sales Volume in the Eastern Region, 1996 and 1998(Unit: ₡10⁶)

	1996	(%)	1998	(%)
Commerce	5,254,245	87.09	7,647,874	83.87
Wholesales	558,859	9.26	1,061,056	11.64
Retails	4,695,386	77.83	6,586,818	72.23
Service	778,750	12.91	1,470,927	16.13
Hotels & restaurants	211,698	3.51	529,157	5.80
Finance	106,796	1.77	131,963	1.45
Insurance	7,064	0.12	--	--
Real estate	37,544	0.62	76,132	0.83
Reparation	2,556	0.04	--	0.00
Social services	209,228	3.47	287,866	3.16
Amusement	37,513	0.62	115,299	1.26
Personal/self-employed	168,907	2.80	327,954	3.60
Total	6,032,995	100.00	9,118,801	100.00

Sources: Ministry of Economy, *Annual Economic Survey 1997, 1999*.

4.4 Issues and Directions for Commerce and Services Development

(1) Development issues for commerce and services

Development issues for commerce and services particularly in the Eastern Region may be examined from three points of view: (i) response to community demand and daily needs, (ii) contribution to other industries, and (iii) factor for promoting FDIs in combination with the La Union port establishment. Each issue is outlined.

Response to community demand

The development of commerce and services is basically demand-driven; if there is no demand, no development is necessary. Demand for this sector is naturally low in the Eastern Region having low income and thus low purchasing power. While the service quality for utilities provided by the private sector has generally improved following the privatization, remote areas in the Eastern Region have not benefited much from improved services due to poor access. Particularly, basic services delivery such as health, education and water supply has not responded to the demand. Community services are developing more rapidly, and large retail shops are evolving from the capital region to create new demand as well as to respond to existing demand.

Contribution to other industries

Underdevelopment of the commerce and services sector in the Eastern Region is attributed to high cost distribution system. Especially for food products, the lack of auction mechanism at wholesale market tends to sustain high prices, resulting in low price competitiveness against goods imported/smuggled from Honduras and Nicaragua.

The sector has not contributed much to technological innovation in other industries. Support services depend mainly on NGO's and non-profit organizations. The underdeveloped commerce and services sector would not allow capital accumulation, and therefore the capacity for R&D is lacking throughout all the industries. This tends to encourage outflow of those having higher educational background.

Factors for promoting FDIs

Main resources for commerce and services are human resources, for which El Salvador is considered to have comparative advantage owing to diligence and language capability. Higher labor costs maintained by overseas remittance, however, undermine the competitiveness of unskilled labor. More skilled labor and high quality knowledge-intensive services will be increasingly demanded by industries expected to develop in the Eastern Region in association with the La Union port establishment. At present, meager supply of labor in this category is attracted to the capital region and the U.S.

(2) Directions for development

El Salvador

Utilizing its human resources, El Salvador is to pursue broad-based services development, covering some high-end services such as ICT and technological innovation to support other industries. The political leadership witnessed during the independence of Central America and innovative actions taken under the open economy policy would support such development.

Eastern Region

The small national territory would allow most firms to operate from San Salvador for any establishments in the Eastern Region. Therefore, firms to establish in the Region would take advantage of proximity to production base for agriculture, and for manufacturing as well in the future, and the presence of the La Union port. Along this line, strategically important services are related to: (i) enhancement of productivity such as R&D for soil and breed improvement, (ii) process and quality improvement, and information services for demand-responsive marketing, and (iii) upgrading of distribution services such as logistic centers, telemarketing and call centers.

(3) Strategy for commerce and services development

Short-term strategy

The sector strategy for short term should aim at viable response to the Central America economic integration and the establishment of locational advantage with the La Union port. The first component calls for the restoration of price competitiveness of agricultural products to be pursued through:

- 1) modernization of wholesale functions,

- 2) support to NGO's and other institutes undertaking R&D for part of their direct costs,
- 3) introduction of application oriented R&D programs at universities, e.g. strengthening of technical faculties of agricultural and engineering, government funds for research, etc.,
- 4) incentives for recruitment of national technical experts by industries such as tax reduction, and
- 5) expansion of financial resources for micro-finance and venture capital by innovative methods including credit provision/guarantee by the Government.

To establish locational advantage for the FDI's, training of human resources and establishment of marketing channels for Central America are the two most important components. Marketing channels for Central America may be developed along with the modernization of wholesale functions mentioned above. Distribution of goods from the Eastern Region by land would be the initial step to establish the marketing channels, which would expand raw material supply from the neighboring countries for export through the La Union port, with or without processing in the Eastern Region.

Medium-term strategy

Accumulation of business service functions should be pursued to support FDI's and other manufacturing industries, and the brand development of the La Union port should take place as a gateway in Central America to retain and attract human resources. As the Eastern Region will not be able to supply sufficient human resources with technical skills and professional knowledge, provision of common services would constitute the base for services development.

Those services that can contribute to the improvement of manufacturing productivity should be targeted, in view also of strategic extension of services provision to neighboring countries. They include logistic/distribution center functions based on modernized trade and wholesale systems, and telemarketing/call center functions based on sincerity and hospitality of the people in El Salvador, in general and the Eastern Region in particular.

High-grade intelligence services need to be promoted at the same time. This may be mainly supported by introducing human resources from outside, but incentives should be provided for the recruitment of local people, such as tax reduction and subsidies for employment insurance.

Long-term strategy

The commerce and services sector strategy in the long run should contribute to the establishment of the status for El Salvador as a broad-based, human oriented service center. Involvement of the sector in the Eastern Region in innovation processes should be reviewed and commercialization of innovative technologies promoted. High-grade, human oriented services, such as higher education and training would be made export industries serving other countries in Central America and beyond.

**Final Report
Volume 4
Sector Review Report**

Part 2

Infrastructure and Resources

PART 2: INFRASTRUCTURE AND RESOURCES

1. Transport Infrastructure

Transport infrastructure plays a vital role for national economic and regional development, socio-economic integration of regions, and inter-regional integration with neighboring countries. In this section, the transport infrastructure of El Salvador is reviewed within the context of inter-regional integration in Central America. The road network, maritime ports and airports are the main modes of transportation to integrate Central America while the railroad system plays a marginal role and thus it is considered as a potential option for long-term development.

1.1 Road Network

(1) Central American context

The road network for El Salvador is part of what the Secretariat for Central American Economic Integration (SIECA) has defined as logistic corridor of Central America. The corridor consists of i) Natural corridor or Pacific corridor, ii) Pan-American corridor or Alternative corridor A, iii) Atlantic corridor or Alternative corridor B, and iv) connections.

Natural corridor or Pacific corridor

The Natural corridor or the Pacific corridor, about 1,650km long, connects the frontier between Mexico and Guatemala at Tecun Uman with the frontier between Costa Rica and Panama at Paso Canoas along the Pacific ocean side. The corridor extends from Mexico City in Mexico to Panama City in Panama and connects the ports of Balboa and Colon. Except for Managua, this corridor does not connect the capital cities of the other countries of Central America.

Ports connected to this corridor are Acajutla and La Union in El Salvador and San Lorenzo in Honduras. Other ports are linked by short connections (less than 20km), such as Corinto, Sandino and San Juan del Sur in Nicaragua and Puntarenas, Caldera and Golfito in Costa Rica. The international airport of El Salvador is also located near this corridor.

Pan-American corridor

The Pan-American corridor, about 1,960km long, links the frontier between Mexico and Guatemala at La Mesilla with the frontier between Costa Rica and Panama at Paso Canoas. It merges with Pacific corridor for 120km in El Salvador through Honduras, 340km in Nicaragua through Costa Rica, and 95km in Costa Rica through Paso Canoas in Panama. This corridor connects the capital cities of Guatemala, El Salvador, Nicaragua, and Costa Rica. Tegucigalpa, capital city of Honduras, is connected through the 92km-long route CA-5.

Atlantic corridor

The Atlantic corridor extends for 2,220km from La Mesilla in Mexico to Paso Canoas in

Panama. Part of the corridor merges with the other corridors at some locations. Ports connected to this corridor are Barrios and Santo Tomas de Castilla in Guatemala, Cortez in Honduras, Cabezas in Nicaragua, and Limon in Costa Rica.

Connections

The three corridors are linked by connection roads through ports, capital cities and other economic centers.

(2) Roads in El Salvador

The road network of El Salvador has 10,100km road length with road density of 0.49km/km². Of the total road length, 53% forms the artery system, completely paved, under the jurisdiction of the Ministry of Public Works (MOP) for construction and maintenance. Repair and maintenance are funded by the road maintenance fund (FOVIAL) introduced in 2001 based on the fuel tax. The rest of the network depends on municipalities for construction and maintenance. Most of these roads are not paved, although some are paved by mobilizing voluntary works of people. Two main highways pass through El Salvador: the Pan-American highway and the Pacific coastal highway.

Pan-American highway

The Pan-American highway, 353km long, constitutes part of the Pan-American corridor from San Cristobal on the borders of Guatemala to El Amatillo on the borders of Honduras. It connects major cities of El Salvador: Santa Ana, metropolitan area of San Salvador, San Miguel, and La Union. It branches out in two directions at San Miguel: one to La Union and the other to El Amatillo. At the time of this writing, part of the road, from San Martin in San Salvador to San Rafael Cedros in Cuscatlán, is under construction to improve its capacity and alignment. The geometrical and physical conditions of this road vary along its route, which tend to divert users in favor of alternative roads.

Pacific coastal highway

The Pacific coastal highway extends from La Hachadura on the borders of Guatemala to El Amatillo on the borders of Honduras. It is 292km long excluding the section shared with the Pan-American highway from La Union city to El Amatillo. This highway is a more efficient one and in better conditions for heavy traffics because it does not cross the main urban and economic centers. It is preferred for traffic between the metropolitan area of San Salvador and the Eastern Region because the Pan-American highway is generally saturated along the stretch. It passes through Acajutla, the international airport and the Eastern Region, and connects to the Pan-American highway at several locations.

Main north-south lateral roads

The route CA-12 connects Acajutla in the south with Anguiatu on the borders of Guatemala in the north. The route CA-4 connects La Libertad on the Pacific coast and El Poy on the borders of Honduras in the north. These two border points are linked to ports along the Atlantic coast of Guatemala and Honduras, which are used for cargo traffic to and from El Salvador.

1.2 Port System

There are 23 maritime ports in Central America, consisting of 13 ports along the 1,400km-long Pacific coast and 10 ports along the 1,485km-long Atlantic coast. Ten more important ones are analyzed here.

(1) Ports of Guatemala

Santo Tomas de Castilla

Santo Tomas de Castilla is a multipurpose port operated by a public enterprise. It is located at a harbor in the Amatique bay, Caribbean sea, with natural protection and steady waters with a maximum depth of 18 meters. The route CA-9 connects the port to Guatemala City, 295km away.

The port facilities consist of a marginal berth of 915m long with a maximum depth of 9m. The covered storage area has 35,072m² and the uncovered storage of 93,511m² is prepared for containers and similar cargo equipment.

In 1999, the port handled 4,513,000 tons of import and export cargo, each almost an equal amount, which accounted for 44% of the whole Guatemalan port system. Between 1995 and 1999, the cargo operations increased at an annual rate of 12.1%. The port occupation rate in 1998 was 49.2%.

Barrios

The Barrios port has been operated by COBIGUA (independent banana company of Guatemala) since 1990. It is located in the Amatique bay, 300km from Guatemala City. It has a pier 478m long with three berths with depths from 7 to 9.5m.

The maritime access to the port is through a navigation channel, also serving the Santo Tomas port. This channel is 10km long, 90m wide and 11m deep. The total area of port facilities is 113,884m², of which 75% is an uncovered storage area.

In 1999, the port handled 1,705,000 tons of imports and export cargo. The occupation rate was 41.6%, representing 16% of total Guatemalan sea cargo.

Quetzal

The Quetzal port, located 111km from Guatemala City, is the most important port on the Pacific

side in Guatemala. The port is built in an open sea with the east pier 307m long and 14m deep and the west pier 307m long and 18m deep. The access channel and the turning basin, once 12m deep, are 10.5m deep now because of sedimentation. Dredging is planned to restore the depth to 12m.

There are three piers at the port: commercial, south and fishery. The commercial pier with four berths, 205m long, 40m wide and 10m deep, accommodates multipurpose activities. The south pier, 171m long, 31m wide and 5m deep, is for medium size vessels of general cargo. The fishery pier is 100m long and 10m wide with a maximum depth of 6m. The total area of the port facilities is 230,411m², consisting of 34,000m² for covered storage, 48,613m² for uncovered storage, 38,700m² for vessel operation, and 109,018m² for circulation.

In 1999, the port handled 4,082,979 tons of export and import cargo, including cargo to and from El Salvador. The gross rate of occupancy was 81%.

(2) Port of El Salvador

Acajutla

The Acajutla port, built in 1952 in an open sea with artificial protection, is the main port of El Salvador with capacity to handle solid and liquid bulk cargo with mechanized equipment. The port, located 85km from San Salvador City, is linked to the road network and railway. It has three piers and eight berths, as summarized in the Table 1.1 below.

Table 1.1. Piers and Berths of Acajutla Port

Pier/Berth	Length (m)	Width (m)	Depth (m)	Usage
A 1	152	37	9	General cargo, solid and liquid bulk
A 2	152	37	10	General cargo, solid and liquid bulk
B 3	137	28	9	General cargo and solid bulk
B 4	148	28	10	General cargo and solid bulk
B 5	137	28	9	General cargo and solid bulk
B 6	152	28	9	General cargo and solid bulk
C 7	152	19	12	General cargo, solid and liquid bulk
C 8	152	19	12	Container

Source: Compiled by the JICA Study Team based on hearings.

The port's performance on import and export cargo in 2001 is as follows.

Operation	Type of ship				Total
	General	Bulk	Tank	Mixed	
Total	510,913	1,495,631	435,702	36,258	2,478,504
Export	50,599	331,502	140,175	--	522,276
Import	460,314	1,164,129	295,527	36,258	1,956,228

(Unit: ton)

The general occupancy rate at the port was 29.3% in 1999. However, the capacity to handle solid bulks at 72.8% was beyond the maximum capacity at 70% recommended by UNCTAD.

(3) Ports of Honduras

Cortes

Cortes is the main port in Honduras. In 1999, the port handled 89% of the total maritime cargo of the country. It is a multipurpose port to serve Central American countries. It is located in the Cortés bay on the Atlantic coast, connected to road and railway networks, 301km from Tegucigalpa and 60km from San Pedro Sula, the main industrial area of the country.

The port is built in a natural bay with a turning basin 900m in diameter and a berthing area of 400,000m². It has five piers as listed below, three of which are equipped with cranes designed for containers and ro/ro operations (Table 1.2).

Table 1.2. Existing Piers at Cortes Port

Pier	Length (m)	Width (m)	Depth (m)	Usage
1	46	11	9	Oil products
2	113	9	9	Chemicals and molasses
3	198	35	9	General cargo and bananas
4	325	53	9	General cargo
5	476	53	9	Container and ro/ro

Source: Compiled by the JICA Study Team based on hearings.

In 1999, the total units mobilized in containers and ro/ro was 329,300 TEUs, equivalent to 1,533,000 tons of cargo in containers and 329,300 tons under the ro/ro system. The total volume of cargo handled by the port was 4,978,082 tons, of which 1,064,500 tons were for import and 820,800 tons for export, and the overall occupancy rate was 59.7%.

Castilla

The Castilla port started operations in 1984. It is located in the Trujillo bay on the Atlantic coast, 560km from Tegucigalpa and 439km from the Cortez port, connected by road only. In 1999, the port handled 1.3% of the total cargo in the country. Main export products are bananas and other fruits whereas main import products are fertilizers and machinery.

The port has a turning basin 1,000m across and a 500,000m² berth 150m long, 38m wide and 9m deep. It is a multipurpose terminal with 3,000m² covered storage facilities.

During 1999, the port handled 72,958 tons of cargo, of which 16,633 tons was for import and 56,325 tons for export. However, for 1992-1998, the total cargo volume had been about 550,000 tons per year on average. The drastic reduction in 1999 was a consequence of the hurricane Mitch that devastated banana and other fruit plantations. Thus, 1999 is not a

representative year, and the data utilized for efficiency indicators are taken from 1998. In 1998, the cargo volume was 342,503 tons for export and 177,412 tons for import, and the overall occupancy rate was 34.6%.

San Lorenzo

The San Lorenzo port, located 122km from Tegucigalpa, was built in 1980 in the Fonseca gulf on the Pacific coast. The port is connected to the road network. It has natural protection, a turning basin 250m across and a berthing area of 337,500m².

It is a multipurpose port with a “T”-shaped berth 300m long, 40m wide at maximum and 9.2m deep. It has three piers, three storage buildings totaling 8,700m² with a 39,000m² uncovered yard for storage of general cargo. In 1999, the port managed 563,850 tons of import and export cargo, representing 10% of the total maritime cargo of the country, which consisted of 520,963 tons for import and 42,887 tons for export. The overall occupancy rate of the port was 17.4%.

(4) Port of Nicaragua

Corinto

Corinto, the main port of Nicaragua, is located at the Aserradores island in the province of Chinadega on the Pacific coast, 160km from Managua. The access to the continental land is through the Paso Caballos bridge.

The berth facilities consist of a marginal pier 610m long and 13.5m deep for general cargo and containers, and two berths, one for export of banana and the other for liquid bulks. The storage facilities include three storage buildings totaling 14,154m² and an 80,000m² storage yard for general cargo and containers.

In 1999, the port operations represented 43% of the total maritime cargo of the country. The total cargo volume was 914,039 tons with 722,223 tons for import and 191,816 tons for export. The overall occupancy rate was 32.0%, for which the maximum capacity recommended by UNCTAD for this type of ports is 60%.

(5) Ports of Costa Rica

Limon-Moin

The ports of Limon and Moin are separated by 6km but operate as a compound unit. The Limon port was built by a railroad company in 1904 for banana export, but it was acquired by the Costa Rican government in 1968, improved and enlarged. The Moin port was built in the 1980s to handle oil import. They are located at Limon City on the Atlantic coast 120km from San Jose, the capital city of Costa Rica.

The physical characteristics and performance of the port are summarized in Table 1.3. The

types of ship using these facilities are, in order of importance, container cargo, frigorific, conventional, and tankers. Solid bulk operations have moved to the Caldera port.

Table 1.3. Characteristics and Performance of Limon-Moin Ports

	Limon	Moin	Total
Marginal pier length (m)	420	550	970
Berths (m)	550	210	760
Berths (number)	5	4	9
Depth (m)	8-10	12-13	
Operations	multipurpose	multipurpose bananas liquid bulk	
Covered storage (m ²)	7,500	2,500	10,000
Container yard	37,800	89,000	126,800
General cargo yard	17,000		17,000
Total cargo 1999 (tons)			7,204,301
Import			3,737,339
Export			3,466,962
% of total maritime cargo			77.5
Rate of occupation (%)	48.2	68.4	
Recommended occupancy rate (%)	60	60	

Source: Compiled by the JICA Study Team based on hearings.

Caldera

Caldera is the main port for international trade on the Pacific coast, which started operations in 1981. The port is located in the province of Puntarenas 100km from San Jose and connected to road and railroad systems.

It has a marginal berth 490m long and 7.5-11m deep, which is divided in three piers utilized for containers, general cargo and dry bulk. The storage facilities are a 14,400m² covered storage and 66,000m² of storage yards

During 1999, the port handled 1,813,529 tons of cargo, consisting of 1,756,722 tons for import and 56,807 tons for export. The occupancy rate of the port was 47.1% whereas the recommended occupancy rate for this type of port with three piers is 55%.

1.3 Airports and Air Transport

Air transport has expanded significantly in the past decade throughout the world. The world annual air passengers grew at the average rate of 7.5% during 1990-99. The corresponding average in Central America is lower at 6.6%, but El Salvador attained the highest growth of air passengers at 10.7% per annum during 1990-99. For cargo traffic, the world average growth was 8.4%, while Central America achieved 12.1% in 1990-99. Growth rates of air traffic, passengers and cargoes in Central America are compared below.

Air Passengers Growth Rates in Central America

(Unit: % per annum)

Country	Period	Passenger	Cargo	Airships
Costa Rica	1994-1998	7.2	2.8	3.1
El Salvador	1990-1999	10.7	10.7	9.1
Guatemala	1990-1999	3.7	15.2	n/a
Honduras	1990-1999	3.8	6.8	n/a
Nicaragua	1990-1999	7.4	24.8	4.5

There are 12 international airports in Central America as listed below. Characteristics of six more important airports are summarized in Table 1.4.

Country	Airport
Guatemala	La Aurora International Airport
	Tikal International Airport
El Salvador	El Salvador International Airport
Honduras	Toncontin International Airport
	International Airport of San Pedro Sula
	La Ceiba International Airport
Nicaragua	Roatan International Airport
	A.C. Sandino International Airport
	International Airport of Montelimar
Costa Rica	Juan Santamaria International Airport
	Liberia International Airport
	Limon International Airport

Table 1.4. Characteristics of Main Central American Airports

	La Aurora (Guatemala)	El Salvador (El Salvador)	Toncontin (Honduras)	San Pedro Sula (Honduras)	Sandino (Nicaragua)	Juan Santamarta (Costa Rica)
Platform characteristics						
Passenger platform						
- Area (m ²)	69,000	152,000	na	na	40,950	na
- No. of positions	12	17	na	11	7	6
Cargo platform						
- Area (m ²)	9,200	17,472	na	28,500	8,250	na
- No. of positions	2	3	na	5	2	na
Track - Length (m)	2,987	3,200	1,931	2,805	3,200	3,012
Track - Width (m)	60	45	45	45	45	45
Track - Shoulder width (m)	0	7.5 each side	7.5 each side	7.5 each side	7.5 each side	7.5 each side
Street - Width (m)	23	23	23	23	23	23
Street - Shoulder width (m)	0	10.5 each side	0	10.5 each side	10.5 each side	0
Largest airplane						
- Model	Boeing 757	Boeing 747 (Designed for)	Boeing 757	Boeing 747	MO87	Boeing 767
- Dimension (m)	38x8.7	59.6x12.4	38x8.7	59.6x12.4	51.7x12.5	47.6x10.8
Airport condition	Critical	o.k.	critical	critical	critical	critical
Airship movement (no.)	101,276	33,889	18,170	27,844	12,020	67,193

Source: SIECA-ECAT, *Estudio Centroamericano de Transporte*, February 2001.

1.4 Railroads

(1) Central America context

Operation levels of railroads are low at present in all the Central American countries, and infrastructure is generally in poor conditions. In Guatemala, one cargo train serves the ports on the Atlantic coast, transporting some 15,000 tons per month. Also, a tourist train operates once a week in surroundings of Guatemala City. In Honduras, during the six months of the year 2000, 7,000t cargoes were transported by rail in the northern region of the country. Nicaragua closed all its train operations. Costa Rica has regular services but operations are low. Physical characteristics of railroads in Central America are summarized in Table 1.5.

Table 1.5. Railroads in Central America

Country	Width of tracks (mm).	Length of lines (km)
Costa Rica	1,067	424
El Salvador	914	283
Guatemala	914	640
Honduras	1,067 and 914	480 and 520
Nicaragua	--	0

Source: Compiled by the JICA Study Team based on hearings.

(2) Railroad network in El Salvador

The railroad network of El Salvador is only partially operational. The existing rail lines and conditions are summarized in Table 1.6.

Table 1.6. Existing Rail Lines in El Salvador

District	Points of origin-destination	Length (km)	Current status
1	San Salvador-Puerto La Union	252	Out of service
2	a) Soyapango-San Jeronimo	146	Partial service
	b) Taxis Junction-Ahuachapan	60	Out of service
3	a) San Salvador-Acajutla	104	In service
	b) Sitio del Niño-Santa Ana	40	Out of service
Total		602	290 km in service

Source: FENADESAL.

1.5 Issues and Directions for Transport Development in El Salvador

(1) Multi-modal transport system

The economy of El Salvador will be integrated with those of other Central American countries to establish and strengthen their comparative advantages collectively within the globalizing economy. Development of transport infrastructure with effective utilization of the La Union

port would affect the integration process significantly. Moreover, the development of transport system in El Salvador should be complementary to the development of inter-territorial corridors for the Country to take advantage of its strategic location and contribute to the integration of Central America.

The establishment of an effective multi-modal transport system has been pursued worldwide along with containerization of cargoes, and the transport development for El Salvador should constitute an integral part of it. At present, El Salvador has all the potential components of the multi-modal transport system, including roads and highways, railroads, ports, airports and other terminal facilities. The main issue of the transport development in El Salvador is how to integrate these components of different modes, selectively upgrading some facilities, and how to improve the operation and management of the integrated system, as well as individual components in technical, administrative, legal and institutional aspects.

Despite the presence of different modes of transport facilities, links between them are very limited at present. This is primarily due to insufficient terminal facilities, in terms of both functions and capacities, and network deficiencies in the road system serving as a dominant mode of transportation as well as management problems of some existing facilities. The first condition is expected to improve significantly with the establishment of the La Union port and associated facilities. Also, the development of a multi-modal transport system depends on the needs to transport cargoes across the borders. Thus, it should be pursued along with trade, particularly export promotion. As the development of a multi-modal transport system and the export promotion are pursued side by side, other issues will also emerge. These issues are discussed.

(2) Resolution of network deficiencies

At present, artery road system is not well established in El Salvador. Especially, access to the Northern region is inadequate. The planned northern longitudinal road is expected to solve this deficiency by establishing another east-west artery in addition to the existing Pan-American highway and Pacific coastal highway. As the territory of El Salvador is narrow along the Pacific coast, the need for a strong north-south artery has not been emphasized. Still, lateral links between the three east-west arteries need to be strengthened selectively. An important consideration is to provide alternative routes to serve La Union as the port is upgraded, and to strengthen the links between them for complementary use to cope with varying traffic conditions.

In a wider context of Central America, more significant network deficiencies exist. The ECAT Study in 2001 compared the existing traffic and capacity of different sections of the Central America road network, and identified critical sections along the three corridors as presented below.

Of the connections within the Central America road network, those constituting sections of the proposed dry canals are particularly important in view of the multi-modal transport system linking ports on the Atlantic and the Pacific sides.

Corridor	Critical sections
Pacific corridor	León-Sandino Port in Nicaragua, Liberia-Coyalar, and Palmar Norte-Río Claro in Costa Rica
Pan-American corridor	Huehuetenango-Cuatro Caminos-Chimaltenango, and Guatemala City-Jutiapa, in Guatemala; La Cuchilla-San Salvador-San Vicente-San Miguel in El Salvador, Estelí-San Benito in Nicaragua, Barranca-Intersección Manolos, and San José-Palma Norte in Costa Rica
Atlantic corridor	Guatemala City-El Rancho in Guatemala, Santa Rosa-San Pedro Sula-Tegucigalpa-Danli in Honduras, and Muelle San Carlos-El Naranjo in Costa Rica

(3) Export promotion and transport costs

Export promotion is a main theme for the development of the Salvadoran economy. One critical condition is to reduce transportation costs. It is also true that increased export will reduce the unit cost of transportation. Maritime freight costs are generally decreasing in recent years as the trade volume increases. In Table 1.7, typical freight costs of a container filled with selected commodities are compared for transportation from Central America to the south of Florida, U.S.A.

**Table 1.7. Typical Maritime Freight Costs per Container
from Central America to the U.S.**

(Unit: US\$/TEU)

Year	Coffee	Dry merchandize	Refrigerated Cargo	Clothing	General merchandize (FAK)	Home appliances
1991	4,070	3,990	3,370	1,980	2,550	2,350
1992	3,840	3,760	3,180	1,870	2,400	2,220
1993	3,620	3,550	3,000	1,760	2,270	2,090
1997	2,540	3,155	2,350	1,175	1,361	1,511

Source: *ibid.*

At present, there exist significant imbalances between import and export in Central America and trade through Pacific and Atlantic ports. Import and export volume is more balanced at Atlantic ports while at Pacific ports import volume is much larger than export volume (Table 1.8). This affects price setting for cargo transportation. Even for Atlantic ports, the prices of cargoes going south are set lower to attract clients. The imbalance between import and export volume is forecasted by the ECAT study to continue and the gaps increase (Table 1.9).

Containerized cargo transport is almost exclusively treated at Atlantic ports. In 1996, the total of containers mobilized for member countries of the Central American Commission for

Maritime Transportation (COCATRAM) was 1.7 million TEU's, of which 92% was mobilized by ports of the Atlantic coast (Table 1.10). Limon port in Costa Rica handled the largest quantity of 397,000 TEU's while Acajutla in El Salvador and Quetzal in Guatemala on the Pacific coast handled only 28,000 TEU's and 52,000 TEU's, respectively. These conditions will change drastically once the La Union port is upgraded. To what extent transport costs may be reduced, however, would depend also on the management of new facilities and concomitant provision and strengthening of related facilities for an effective multi-modal transport system.

Table 1.8. Import and Export Volume at Atlantic and Pacific Ports of Central America, 1999

Country/Port	Coast	Cargo volume (tons)		Occupancy (%)
		Import	Export	
Guatemala				
Santo Tomás de Castilla	Atlantic	4,513,000*		49
Barrios	Atlantic	1,705,000		42
Quetzal	Pacific	4,082,979		81
El Salvador				
Acajutla	Pacific	1,956,28†	522,276†	29
Honduras				
Cortés	Atlantic	4,978,082		60
		1,064,500‡	820,800‡	
Castilla	Atlantic	177,412	342,503	35
San Lorenzo	Pacific	520,963	42,887	17
Nicaragua				
Corinto	Pacific	722,223	191,816	32
Costa Rica				
Limón-Main	Atlantic	3,737,339	3,466,962	Limón 48/Main 68
Caldera	Pacific	1,756,722	56,807	47

*Import and export almost equal / †2001 / ‡Containers and ro/ro of the total
Source: COCATRAM

Table 1.9. Volume of International Trade in Central America, 1998-2010
(Unit: 1,000t)

Country	1998		2010	
	Export	Import	Export	Import
Costa Rica	6,043	10,308	4,791	6,055
El Salvador	5,325	10,527	1,538	3,929
Guatemala	6,122	12,308	5,592	4,911
Honduras	3,654	8,273	2,326	4,235
Nicaragua	2,074	4,875	567	1,665

Source: ECAT

(4) Social and economic costs

The establishment of a multi-modal transport system will involve huge amount of investment.

Even the improvement of the Central America road network under the current initiative of the Plan Puebla Panamá (PPP) is estimated to cost over US\$3,500 million (Annex). Including other components, a stage-wise development plan needs to be prepared on the basis of realistic fund raising. Equally important is to consider social effects of such a mega infrastructure

Table 1.10. Container Traffic Mobilized in Central America and Panama Ports, 1993-96

Country	Port		Year				
			1993	1994	1995	1996	1998
Costa Rica	Limón/Moín	A	345,620	360,873	363,087	397,007	452,076
	Caldera	P	30,526	36,564	37,478	38,392	0
	Country total		376,146	397,437	400,565	435,399	452,076
El Salvador	Acajutla	P	n.a.	31,167	32,261	28,209	14,117
Guatemala	Santo Tomás	A	n.a.	184,000	191,883	199,155	260,504
	Barrios	A	n.a.	75,212	112,848	105,848	160,778
	Quetzal	P	n.a.	42,078	55,943	51,546	87,317
	Country total		--	301,290	360,674	356,549	508,599
Honduras	Cortés	A	186,302	218,823	252,127	268,935	362,064
	Castilla	A	55,098	59,568	68,782	56,840	54,690
	San Lorenzo	P	2,885	2,059	2,516	2,237	3,081
	Country total		244,285	280,450	313,425	328,012	419,835
Nicaragua	Corinto	P	3,719	4,757	3,774	2,814	7,017
	Arlen Siu	A	372	1,174	1,560	1,143	n.a.
	Country total		4,091	5,931	5,334	3,957	--
Panama	Manzanillo	A	--	--	161,679	352,363	765,096
	Cristóbal	A	192,165	190,858	169,121	136,201	101,200*
	Coco Solo Norte	A	54,279	60,784	72,172	41,674	
	Bahia Las Minas	A	42,153	49,326	33,814	38,014	
	Balboa	P	20,830	44,789	44,264	17,250	
	Country total		309,427	345,757	481,050	585,502	866,296
Regional total			--	1,362,032	1,593,309	1,737,628†	--

* Cristóbal, Coco Solo Norte, Bahia Las Minas, and Balboa combined / † of which "A" ports accounts for 1,597,180 (92%).

Source: COCATRAM, Estudio de Fletes.

development. The PPP aims to reduce poverty and vulnerability to natural disasters, and respect for cultural diversity is among the criteria for selecting eligible projects.

As the inter-territorial traffic increases with heavy vehicles, road conditions will deteriorate faster, and more traffic accidents are prone to occur. This would result in higher social and economic costs. On the economic side, how to allocate limited fund for road construction and maintenance is an increasingly important issue. Up to now, the FOVIAL has been successfully operated to improve and maintain trunk roads under the jurisdiction of MOP. Mobilization of voluntary works for the maintenance of municipal roads is also commendable. To cope with increasing demand, however, a major change in public resources allocation may be necessary, including division of works between MOP and municipalities.

On the social side, traffic control and law enforcement should be part of maintaining the improved road system. Improvement of bridges on main roads to remove the existing bottlenecks may be taken as an opportunity to install weighbridges. Also portable weighing equipment may be introduced to check an axle load at any place and any time for flexibility and cost-effectiveness.

As inter- and intra-regional arteries are established/upgraded, their links with urban transport systems should be improved. At present, through traffic passes through built-up areas along the Pan-American highway. As the traffic volume increases, so will both social and economic costs in the form of traffic congestion and accidents. The strengthening of lateral links between the east-west arteries should incorporate the improvement of this situation. At the same time, the development of major urban centers should be planned with such a structure that would link effectively with the artery system.

(5) Environmental consideration

For El Salvador is a calamity-prone country, consideration on environmental aspects is particularly important for the transport development. Road improvements should be planned to reduce affected areas' vulnerability to natural disasters with proper selection of alignment and construction methods as reflected in the PPP mentioned above. Traffic safety and traffic-related pollution are another area of concern.

Another major area for environmental consideration is related to the upgrading of the La Union port. Ensuring navigational safety with significant increase in maritime traffic would pose a major challenge. Also risk of pollution in the Fonseca gulf will increase from oil spills and dumping of waste materials as well as increased discharge of wastewater. Monitoring and control of navigational safety and pollution should be taken as integral part of port operation. To perform this function effectively, tripartite cooperation of three gulf countries and participation of local communities seem to be essential.

2 Power Supply

2.1 Power Sector Overview

The main domestic energy resources in El Salvador are hydropower and geothermal energy. Two government-owned companies: the Comisión Ejecutiva Hidroeléctrica del Río Lempa (CEL) and LA GEO shared with Enel Green Power of Italy, control and manage existing main power plants based on these resources. Private generators play a dominant role in thermal generation, which accounts for over 50% of the total installed capacity with power stations of 10MW or larger.

After the passage of the General Law of Electricity in 1996, the power sector was transformed

from a vertically integrated system under a single monopoly, CEL, into a competitive market with independent power generators and distributors competing respectively at the generation and the distribution levels. Along these transformations, utilities and large-volume users have formed a wholesale market, called the Unit of Transactions (UT).

The power sector is regulated by the General Superintendence of Electricity and Communications (SIGET). The Electric Power Division (DEE) was recently created at the Ministry of Economy to take main charge of the long-term planning for power development and rural electrification. The Fund of National Investment in Electricity and Telecommunications (FINET) is administrated by the Fund of Social Investment for the Local Development of El Salvador (FISDL) for rural electrification programs, in close collaboration with the Ministry of Economy.

ETESAL, a private company with stocks held by CEL, operates the transmission system including substations. Its assets of the transmission system belong to CEL. Power distribution throughout the Country is operated by two companies, AES and PPL, through CAESS, DELSUR, CLEA, EEO, and DEUSEM. EEO and DEUSEM cover the four departments in the Eastern Region.

The Secretary for the Central American Integration (SIECA) is the agency in charge of coordinating efforts to install the system of Central American power transmission under the PPP initiative. The efforts follow largely the plan for the Central American Power Integration System (SIEPAC) prepared earlier. For any international power exchange practice, however, UT takes the main responsibility.

2.2 Existing Power Supply System

There are 11 major power stations having installed capacity over 10MW, six small generating plants of 2-10MW, and seven micro power generators of smaller than 2MW. The total installed capacity in El Salvador is 1,044MW (Table 2.1). One major hydropower plant, September 15, is on the Lempa river, constituting the western boundary of the Eastern Region. One thermal power plant, San Miguel, and the geothermal plant, GESAL at Berlín, are located in the Eastern Region.

In El Salvador, geothermal power and portion of major hydropower are used as base power. In particular, energy contribution of geothermal power is larger than its share in the total installed capacity as shown Table 2.2.

The power transmission system within El Salvador consists of 36 lines of 115kV with a total length of 1,129km, 21 substations, and 27 transformers (Figure 2.1). This system is interconnected with Guatemala through a 112.6km-long line of 230kV, and also with Honduras through a 147km-long line of 230kV, of which 93km is in El Salvador.

Table 2.1. Major Power Stations in El Salvador

Type	Name/Location	Installed Capacity (MW)	No. of Units
Hydropower	Guajoyo	19.8	1
	Cerron Grande	135.0	2
	November 5th	99.4	5
	September 15th	156.6	2
Thermal	Duke Energy	295.1	12
	Nejapa Power	144.5	27
	CESSA	32.6	5
Geothermal	Ahuachapan	95.0	3
	Berlin	66.2	2
Total		1044.2	

Source: SIGET.

Table 2.2. Shares of Installed Power Generating Capacity and Energy Generation
(Unit: %)

Source	Installed Capacity	Energy Generation
Thermal	45.2	48.0
Hydro	39.3	28.5
Geothermal	15.4	23.5

Sources: SIGET and UT.

Figure 2.1. Power Transmission System in El Salvador



Owing to the successful privatization program, rates of power tariff for the commercial and the

industrial sectors in El Salvador are generally lower than those in the neighboring countries of Central America (Table 2.3). This and low telephone charges are among favorable conditions of El Salvador for attracting foreign investors.

Table 2.3. Comparison of Power Tariff

Customer	Consumption level	EEGSA Guatemala	CAESS El Salvador	ENEE Honduras	EDNyS Nicaragua	ICE Costa Rica	EDE Panama
Residential							
	100kWh	7.59	8.16	5.87	7.92	5.75	12.11
	250kWh	7.49	11.14	8.04	7.86	6.54	11.81
	1,000kWh	11.35	10.35	11.03	11.28	10.01	11.66
Commercial							
	1,000kWh	12.59	10.24	11.38	11.63	11.03	8.08
	15,000kWh, 41kW	13.18	7.93	11.38	10.38	9.54	10.09
	50,000kWh, 137kW	13.16	7.92	11.38	11.05	8.66	10.08
Industrial							
	15,000kWh, 41kW	13.18	7.93	11.38	10.33	9.54	10.09
	50,000kWh, 137kW	13.16	7.92	11.38	10.39	8.66	10.08
	100,000kWh, 274kW	12.21	7.92	9.20	10.40	8.66	9.55

Source: *El Diario de Hoy*, November 15, 2002.

2.3 Some Existing and Planned Projects

September 15 hydropower plant

The first 78.3MW unit of this plant was commissioned in 1983, followed by the second unit of the same capacity in 1984. The effective generating capacity is 156.6MW due to water storages during the dry season. The planned full capacity will be realized in 2005 through improved plant operation. The total annual energy production is 505GWh on average. This makes the overall plant factor 44%, but it varies between 40% in the dry season and 80% in the rainy season. This plant is linked to Honduras by a 230kV transmission line. This plant and the Cerrón Grande hydropower plant provide both base power and load increments. The power supply for distribution is subject to the annual contract with UT to be determined through auctions with distributors.

The water in the reservoir of 380-million m³ storage capacity is used almost exclusively for power generation through two Kaplan turbines of 330m³/sec capacity, and only a small amount of water (15,000m³/day) is released for irrigation. No water supply for domestic and other purposes are involved.

Berlín geothermal plant

This plant was completed in 1999 and is currently operational with two 28MW units. Steams (30% steam-70% water mix) are extracted from nine wells, some 2,500m deep, guided by two

pipes through separators and drive turbines at the maximum pressure of 9.5bar. Of the total capacity, 18MW is dispatched to the September 15 hydropower plant and substation, and 32MW to the demand center of San Miguel. The power is transmitted by ETESAL transmission lines to EEO for distribution as regulated by UT. The plant factor is 85% and the energy production accounts for 22% of the total national generation.

It is planned that another unit of 28-32MW is to be installed in 2003. This will require 10-12 additional shafts to be sunk for steam extraction. There is also a plan to develop a geothermal-environment tourism park around the plant. A tourism compound is planned to combine handicraft manufacturing, network of footpaths, sauna, a museum, viewing areas and facilities for environmental awareness education.

Other geothermal potentials

Another major thermal plant is operational at Chipilapa, the Ahuachapán geothermal with 95MW. Other potentials have been identified in San Vicente and Chinameca. No systematic exploration has been undertaken for geothermal resources throughout the Country.

Power system restoration

This project has been undertaken from 1997 through 2003 supported by the Japanese government. All the transmission lines have been rehabilitated. According to the plan, a new substation will be installed to expand the supply capacity for the Eastern Region, and especially La Unión. It is estimated that additional 4MW is necessary for the port area alone.

Rural electrification

The Government is carrying out rural electrification through FINET, supported by aid organizations. Currently, FINET is seeking the possible use of an extension of the JBIC loan amounting US\$8 million to expand the coverage of rural electrification throughout the Country. In the Eastern Region, rural electrification is proceeding by FISDL for San Miguel and Usulután.

International system interconnection

There is a plan for interconnection with Honduras to be strengthened with possible support of IDB. A substation on the Honduras side has been expanded for the purpose, but a new substation needs to be constructed on the Salvadoran side. Strengthening of the link with Guatemala is also contemplated, but the viability has not been established as compared with an alternative line from Panamá to Guatemala. The international system integration plan is based on the SIEPAC, for which a Danish company studied the regional power demand.

Other power projects

A feasibility study has been carried out through 2003 for the El Chaparral dam and hydropower

plant of 59MW on the Torola river, a major tributary of the Lempa river with the technical cooperation of the Japanese government. A feasibility study for the El Cimarrón hydropower development near the border with Guatemala and Honduras is expected to start with a conceived capacity of 243MW.

2.4 Issues and Prospects for Power Development in El Salvador and the Eastern Region

(1) Power development planning and policies

Although DEE is supposed to be responsible for long-term power development planning, currently there exist no such plan. According to a simple load projection conducted as part of the PNODT study, El Salvador may face power shortages in a few years, if no additional plant is built. While export promotion is a main theme for the national economic development, its implications have not been reflected in any power development policies. On the one hand, successful export promotion and associated economic development will increase the power demand at much higher rates than experienced in the recent past. On the other hand, investment in infrastructure to support the export promotion will significantly change the debt position of the Country and may crowd out some power investments or fuel import. A clear policy needs to be established to prioritize the development of domestic energy resources, particularly geothermal power. For hydropower development, provision should be made for water supply for domestic and irrigation purposes as concerns have been raised over possible water shortages in the long run.

Power development planning for El Salvador should naturally be conducted within the framework of the SIEPAC in line also with the PPP initiative. The regional demand studied for the SIEPAC may be reviewed in the light of anticipated national economic development with export promotion pursued in El Salvador.

(2) Rural electrification

While more people live in urban areas in El Salvador, poverty incidence is much higher in rural areas. Consequently, the majority of the poor live in rural areas. Since private power suppliers have no incentives to cover remote rural areas, rural electrification should be a prime concern of the Government. In the Country as a whole, only 55% of rural households are connected to the power supply network, while the overall electricity coverage is 74%. These ratios are respectively smaller in the Eastern Region (Table 2.4). FINET is implementing a program to expand the electricity coverage to 96% of households in the Country in three years. Comparatively larger resources need to be allocated to the Eastern Region to attain the same level of coverage as the Region has lower rural electrification ratio and is located further from larger power plants.

Table 2.4. Electricity Coverage in El Salvador and the Eastern Region, 2000

Department/Region/Country	No. of households covered	% of total no. of households
Morazan	20,277	58.9
Usulután	9,908	73.1
San Miguel	35,589	76.7
La Unión	45,817	82.5
Eastern Region	111,591	72.2
El Salvador	577,208	74.4 (55 Rural)

Source: FINET.

(3) La Unión port development

The transmission and distribution capacity to serve the La Unión area should be expanded by 2006 when the port is in full operation. ETESAL, by its current mandate, is not allowed to operate beyond its existing system. Private distribution companies have proposed to accommodate the new demand. Amendment to the law, however, may be necessary to allow ETESAL to participate fully in the competition.

(4) Renewable energy

El Salvador is endowed with two main renewable energy resources, hydropower and geothermal energy. These resources currently provide a substantial portion of power supply throughout the Country. Steady efforts have been made for further hydropower development, and the implementation of planned hydropower projects may practically exhaust major potentials of the renewable energy. On the other hand, no systematic exploration has been made for geothermal energy, which may have larger potentials. The existing Berlín geothermal plant should provide a model of environmentally acceptable development that benefits the local community as well, and the model should be replicated at other sites.

The Eastern Region has other potentially promising sources of renewable energy. The sugar mill in San Miguel may be used to generate power in small scale. Mini-hydro may be exploited in mountainous areas for rural electrification and pumped irrigation. Solar and wind power in the Fonseca gulf may be further explored. Photovoltaic technology can be applied to rural electrification in general, and for pumping irrigation water and telecommunication purposes among others in particular. As the Eastern Region has high potentials for agricultural and livestock development, increasing amount of plant and animal wastes may be utilized as alternative sources of energy in rural areas.

3 Telecommunications and ICT

3.1 Telecommunications Sector Overview

The State company monopolizing the telecommunications operation was privatized in 1998, opening the market for competition with other services providers. The fixed line branch of the company was sold to French Telecom, which is now called Company of Telecommunications (CTE), and its mobile branch sold to Telefonica of Spain.

There exist nine operators at present in the fixed line business and four in the mobile phone business. There are 18 Internet operators active in the Country. Since 1998, the telecommunications sector has witnessed an average annual growth at 16.4% in fixed lines and 60.4% in mobile phone users. As of early December 2002, there are close to 1 million mobile phone users and some 750,000 fixed line phone customers (SIGNET). Changes in patronage and the breakdowns by operator are summarized in Table 3.1 for fixed line phones and in Table 3.2 for mobile phones.

Table 3.1. Changes in Fixed Telephone Lines by Service Provider

Provider	1998	1999	2000	2001	2002 (May)
CTE	384,782	485,533	575,788	597,837	638,655
Telefonica		4,656	15,601	22,822	24,012
SALNET		500	10,000	19,500	20,313
TeleMovil			16,000	16,000	16,000
GCA	1,419	3,623	4,639	5,341	5,741
SAL TEL		564	299	3,056	3,242
CABLEVISA			43	43	43
AESTEL					765
EMETEL	458	464	415	549	623
Total	386,659	495,340	622,785	665,148	709,394

Source: SIGET.

Table 3.2. Increases in Mobile Telephones by Service Provider

Provider	1998	1999	2000	2001	2002 (May)
TeleMovil	86,114	205,052	320,012	409,493	409,493
Telefonica	51,000	221,000	264,321	254,442	267,048
CTE Personal		85,313	159,295	186,571	205,228
DIGICEL			7,276	19,182	26,458
Total	137,114	511,365	750,904	869,688	908,227

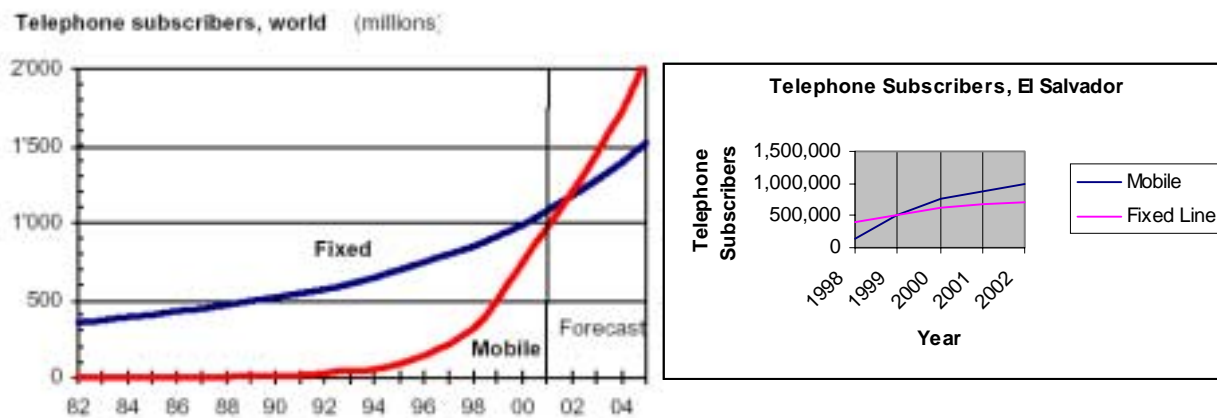
Source: *ibid.*

Generally, as mobile phone operations are introduced, their users increase more rapidly where fixed lines installation is less adequate. Users of fixed lines increase only slowly as the installation of facilities for fixed lines requires comparatively more investment. In this

connection, it is interesting to note that in El Salvador the number of mobile phones surpassed the fixed line users by the end of 1999, one year earlier than in the world as a whole (Figure 3.1). Now, the telephone services network covers most of the Country. Due to sound competition, tariff rates for telephone services in El Salvador are relatively low. The teledensity, defined as the sum of fixed lines and mobile users per 100 population increased fast in El Salvador from 2.4 in 1990 to 21.8 in 2000. This puts El Salvador in the 4th rank out of 194 economies in the world for teledensity growth rates (Table 3.3). The International Telecommunications Union (ITU) has set targets for telecommunications services to be achieved by 2006, including both mobile and fixed lines. Mobile population coverage refers to the ability to receive terrestrial mobile cellular signals. The following are set for different income economies.

Income class	Targets
High and upper middle economies	Household telephone penetration over 90% Household PC penetration over 50% Household Internet penetration over 50%
Lower middle and low income economies	Mobile population coverage over 90%

Figure 3.1. Increase in Mobile Phones and Fixed Lines in the World and El Salvador



Sources: ITU and SIGET.

Table 3.3. Changes in Total Teledensity Rank of Selected Countries, 1990-2000

(a) Economies with rising rank

Country	2000	1990	Rank 2000	Rank 1990	Change
China	17.8	0.6	95	159	+64
Vietnam	4.2	0.1	141	189	+48
Botswana	21.6	2.1	91	129	+38
El Salvador	21.8	2.4	90	125	+35
Jamaica	34.1	4.5	71	106	+35
Hungary	67.4	9.6	43	78	+35

(a) Economies with rising rank

Country	2000	1990	Rank 2000	Rank 1990	Change
Mauritius	38.6	5.4	67	100	+33
Chile	44.4	6.7	61	93	+32
Philippines	12.4	1.0	112	143	+31
Morocco	13.3	1.6	107	136	+29

(b) Economies with falling rank

Country	2000	1990	Rank 2000	Rank 1990	Change
Armenia	15.6	15.7	102	60	-42
Iraq	2.9	3.9	149	109	-40
Tajikistan	3.6	4.5	143	105	-38
Uzbekistan	6.9	6.9	128	92	-36
Kyrgyzstan	7.9	7.2	125	90	-35
Angola	0.7	0.8	177	146	-31
Liberia	0.2	0.4	190	162	-28
DPR Korea	4.6	3.8	138	111	-27
Canada	96.1	58.6	33	6	-27
Turkmenistan	8.4	6.0	123	97	-26

Note: The above are partial lists. 194 economies were ranked.

Source: ITU World Telecommunication Indicators Database.

3.2 PPP Initiative

The interconnection of the telecommunication services is one of eight initiatives pursued under the PPP. El Salvador is the coordinating country for this initiative. Through early efforts, the PPP has allowed to facilitate dialogues between authorities involved in the sector in the region, provide member governments basic information on existing conditions and needs for infrastructure and regulatory frameworks, and obtain agreements among the authorities to attain objectives of the initiative. Consequently, it has been agreed to establish a technical support group, integrating functions of the Regional Technical Commission of Telecommunications (COMTELCA), ITU and IDB to coordinate studies and works required for them to make their decisions.

Through this mechanism, two major projects have been defined for initial implementation: the Mesoamerican Freeway of the Information (AMI) and the Regional Regulatory Framework. The first project is to install the regional fiber optic network of about 1,500km length, and to improve the access to the information technology. IDB offers US\$1.5 million for an initial study. The Regional Regulatory Framework project aims to adopt such regulation for information and communication technology that would improve conditions for private investments in the sector. Areas of technical assistance identified already are: (i) strengthening of processes and institutional structure for formulation of IT development policies, (ii) establishment of harmony between national and regional regulation of telecommunication, and

(iii) formulation of regulation in new areas such as consumer protection, intellectual property rights and security. These projects aim at establishing a common market of telecommunications in the region.

3.3 ICT-related Activities

The National Commission on Science and Technology (CONACYT) is responsible for coordinating ICT-related activities in El Salvador. The board of directors of CONACYT is composed of representations from the Ministry of Economy, the Ministry of Education, the Ministry of Foreign Affairs, universities, professional organizations, medium and small enterprises, and the agricultural sector. CONACYT, however, does not have any authority to regulate the activities, but provides advice to the Government through the Ministry of Economy, and facilitates cooperation between international organizations and local institutions, and between business enterprises and universities.

CONACYT has drafted recently the national policy on informatics for approval by the Ministry of Economy. The draft policy concerns the six areas: (i) information management and administration; (ii) education and development of human resources, (iii) informatics applications; (iv) infrastructure, interconnectivity and network; (v) national informatics industry; and (vi) technology and information in economic and social development.

Several other initiatives have been taken recently related to ICT activities:

- 1) Connecting Ourselves to the Future, financed by the Japan Fund of the World Bank;
- 2) The Status of Technologies in 1998 for the World Bank;
- 3) Information Technology Clusters, a study financed by IDB through the Northern European fund;
- 4) National Competitiveness Program of the Ministry of Economy; and
- 5) Drafting of Electronics Commerce Law.

The study on information technology cluster concluded that the eight areas of IT would be difficult to enter by Salvadorans, and suggested that efforts should be directed to the system integration. There exist Salvadoran companies currently engaging in e-business.

With a view to creating a software export industry in El Salvador, a software project was undertaken in 1998 to develop a core of highly qualified software engineers. A group of 120 students were selected and sent to four different institutes in India to be trained in state-of-the-art software skills for a period of 9-12 months. The program has been assessed successful. Most students who came back have been placed in meaningful jobs that would help El Salvador in improving its own IT industry and possibly creating a base for software export. At the end of the project, a consultant for the project recommended to attract one of institutes in India involved in the project to establish business in El Salvador. Conditions for the attraction were

- (i) willingness of a local investor group to pursue the project and make necessary investments,
- (ii) financial supports to those trained students, and
- (iii) moral support from the Government to facilitate the business establishment.

The Central America Institute of Technology (ITCA), a leader institution of technical education in El Salvador, has been shifting its emphasis to IT-related disciplines. It has four campuses in Nueva San Salvador, Zacatecoluca, San Miguel and Santa Ana, and its administration has been given in steps to the Foundation of Enterprises for Educational Development (FEPADE), a private educational institute, following advice by IDB. ITCA Nueva San Salvador offers the widest courses in practically all engineering disciplines, including electronic and computer engineering. ITCA San Miguel provides training in system engineering and informatic nets technician, civil engineering and construction technician, and electrical engineering technician. Students in broad IT-related disciplines account for 40% of all the ITCA students. ITCA San Miguel is very interested in developing new courses for IT training. ITCA also has a project to invite Japanese professionals to teach its students.

As of 2002, there exist 26 universities, nine technological institutes, six specialized institutions and 12 bilingual schools. Development of ICT-related human resources is summarized in Table 3.4.

Table 3.4. ICT-related Human Resources Development

	1998	2000
Universities		26
Technological Institutes		9
Specialized Institutions		6
Number of Graduates		
Technical Careers	4,637	4,647
University Careers	6,578	11,415
Number of Enrolled Students		
Universities	111,405	107,718
Technologies Institutes	5,668	5,703
Specialized Institutes		1,254

Source: PROESA.

Infocentros

Infocentro is a nonprofit organization established by the Government to function as a virtual academy and a national network of job centers, which allow companies to hire efficient and qualified workers. Initially it was planned to establish a total of 100 Infocentros throughout the Country, but the establishment stopped at 40 for financial reasons. One Infocentro was funded by Salvadorans in the U.S. and the rest funded with a US\$ 10 million loan. The Government intention for establishing Infocentros is to cultivate an e-culture in El Salvador, especially

among the disadvantaged.

Infocentros help to establish e-government procedure, support small businesses offering virtual offices, and train farmers and students in using Internet to keep them well informed. They also allow the Government to focus on training programs in accordance with needs generated by new investments and free trade agreements. Some of the centers are franchised to the private sector.

While Infocentros are regarded by the United Nations as a successful model, most of them face serious financial problems, not able to cover their operational costs. The National Association of Infocentros is now trying to build alliance with the Ministry of Education to make sure that the 40 existing centers will thrive. Infocentros existing in the Eastern Region are summarized in Table 3.5.

Table 3.5. Infocentros in the Eastern Region

Infocentros	Departments
San Miguel No. 1*	San Miguel
San Miguel No. 2*	San Miguel
Gotera	Morazan
La Union	La Union
Santa Rosa de Lima	La Union
Intipuca	La Union
Santiago de Maria*	Usulután
Usulután	Usulután

*Franchised to private operators.

Source: Infocentros.

Call centers

PROESA initiated to attract international call center operators to establish in El Salvador, particularly in free zones. They use trade shows, conferences and other media and opportunities to publicize such advantages in El Salvador as educated labors at reasonable costs, neutral Spanish speaking ability, low international telephone costs, low electricity tariff and relatively low Internet monthly charge. After 14 months of efforts, three international companies have expressed their interest in relocating their call centers to the Country. Telefonica of Spain has inaugurated a state-of-the-art call center initially with some 500 agents. It has a plan to expand to 2,000 agents in 2003. They initially handle calls from El Salvador and other Central American countries and subsequently calls in Spanish from the U.S. Atlas invested US\$1.5 million to improve their call center, and a local call center has been operational with small number of agents.

3.4 Position of El Salvador and Prospects

(1) Position of El Salvador

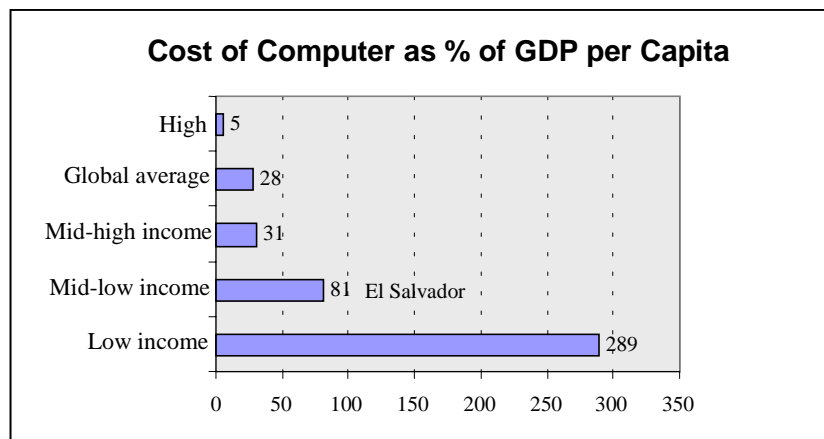
El Salvador is compared in Table 3.6 with selected countries by ICT-related indices. As seen from the table, El Salvador ranks high in mobile phone density, and remains competitive in fixed line penetration and private investment in telecommunications. A large remittance income may also work favorably for ICT-related activities. Higher education in El Salvador is comparatively more focused on engineering and technology, although per capita expenditure on tertiary education as percentage of per capita GDP is low even by the Central American standard. In computer penetration, El Salvador did better than its Central American neighbors, except Costa Rica. The only major disadvantage is its high wage components in the total manufacturing cost of computer sets (Figure 3.2). Dollarization may be partly responsible for this.

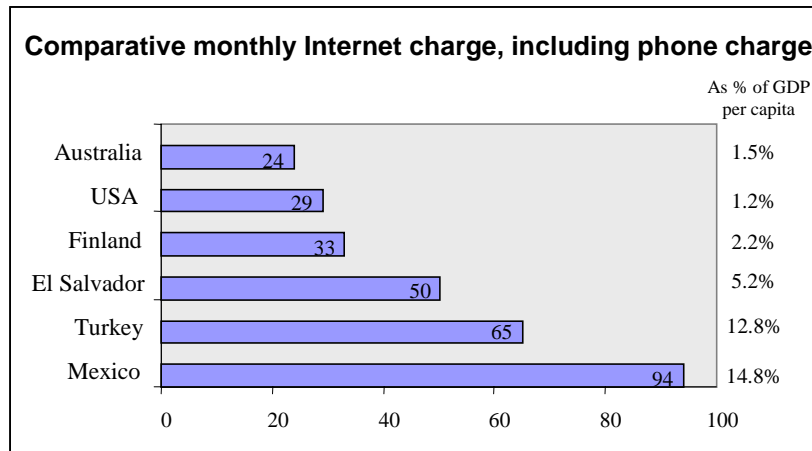
Table 3.6. Comparison of El Salvador with Selected Countries by ICT-related Indices

Country Name	Mobil per 1000 2000	Mainline per 1000 2000	Internet Users % of Pop 1999	Private Investment In Telecom (Mil. \$) 2000	Wage as % of total cost 2000	Remittance Mil. US\$ 2000	Eng. Students as % of College Students in 97	School enrollment tertiary (% gross) 1997	Illiteracy % 2000	Computer per 1000 2000
Costa Rica	52	249	3.9	..	37	106	..	31	2	149
El Salvador	118	100	0.7	652	45	1,751	59	18	12	19
Chile	222	221	..	994	20	..	42	31	1	82
Honduras	24	46	0.6	38	..	410	..	12	17	11
Guatemala	61	57	0.3	1,463	..	563	..	8	21	11
Nicaragua	18	31	0.4	25	16	320	..	12	28	9
Mexico	142	125	2.6	13,387	..	6,573	32	17	3	51
Japan	526	586	..	..	..	505	..	45	..	315
United States	398	700	..	..	8	..	..	80	..	585

Source: The World Bank: World Development Indicators, 2002.

Figure 3.2. Cost of Computers and Internet Charges





Source: CONACYT.

Overall, El Salvador seems to be fairly competitive compared with other Central American countries. To become a regional ICT powerhouse, however, the Country will have to catch up with Costa Rica and Chile in human resources development.

(2) Prospects

At present, the Government is trying to utilize overseas Salvadorans as leverage to bring in foreign investments, business opportunities, and technology. This may not be a viable strategy for ICT-related activities since there are not many overseas Salvadorans working in the high-tech sector. It may make sense for PROESA to change its strategy and address more broadly to Latin Americans working in the Silicon Valley and other high-tech zones. Latino engineers in the U.S., who feel that they can go even further, may be attracted to start business in a Spanish speaking country with strong government supports. With several new components to start with, El Salvador may enjoy agglomeration effects increasingly just as Taiwan did with its high-tech parks years ago.

A main policy judgment may be necessary for different emphasis on two distinct ways to develop ICT-related activities: (i) using ICT as a tool in delivering various services, and (ii) developing ICT industry as an engine for export. This variance in emphasis is somewhat parallel with the emphasis on regional development by using ICT as a tool as compared to ICT as an export strategy for national economic development. Both should be pursued in a complementary manner. Prospects to be looked into in the subsequent stage of the Study may include the following:

- 1) Technology center and virtual library, capitalizing on existing Infocentros,
- 2) Health referral and guidance network,
- 3) E-government for voting, registration, licensing, information, services, etc.,
- 4) Market information system for farmers and handicraft workers,
- 5) Entrepreneurship training center, and
- 6) ICT linkages between overseas Salvadorans, local businessmen and third countries.

4 Urban Infrastructure

4.1 Urban Hierarchy in the Eastern Region

The 13 major urban centers in the Eastern Region can be classified into different tiers of national urban hierarchy based on the present population size, population density, population growth rate, urbanization rate, INBI reflecting quality and levels of urban services, and field observation results as shown below (Section 2.2). The numbers in parentheses indicate populations in thousand.

2nd tier: San Miguel (130)

3rd tier: Santiago de Maria (20), Usulután (53), Chinameca (15), San Francisco Gotera (18), Santa Rosa de Lima (15), La Unión (42), San Rafael Oriente (10), Jiquilisco (23), Chililagua (15)

4th tier: Berlin (15), Conchagua (15), Ciudad Barrios (12)

In the future, La Unión will be upgraded to a second or even first tier city as a result of substantial development planned in La Unión. La Unión could serve as a new gateway for international trade and a major industrial production base in El Salvador once an appropriate environment for investment is created through implementing various projects already planned and taking a set of additional measures needed to support this scenario. A new urban hierarchy in the future would be San Miguel and La Unión leading the whole Eastern Region and other smaller urban centers playing unique roles fully taking advantage of local characteristics, as the Figure 4.1 indicates. Considering the vital spearheading role of La Unión City, the present analysis focuses on its present condition and future need for development.

4.2 Existing Conditions of La Unión and Its Hinterland

The development of La Unión and its hinterland is to be analyzed and planned for an area of about 40km² encompassing the urban areas of La Unión and Conchagua, the planned port area and their vicinities. This planning area (hereafter, “La Unión-Conchagua Planning Area or LUCPA”) constitutes part of the La Unión municipality (144.4km²) and the Conchagua municipality (200.6km²) as shown in Figure 4.2.

(1) Socio-economic background

The La Unión municipality is divided into two areas, the eastern part comprising the major urban area and the Cutuco port and the western enclave surrounded by three municipalities including Conchagua. The total population of the La Unión municipality was 40,770, of which 22,691 or 56% was urban. The population density is 282 per km². The major economic activities are commerce, fishing and farming of maize, sorghum and watermelon. The types of industries found in the municipality include brick making, carpentry, metallic structure, and the

Figure 4.1. Expected Changes in Hierarchy of Urban Centers in El Salvador

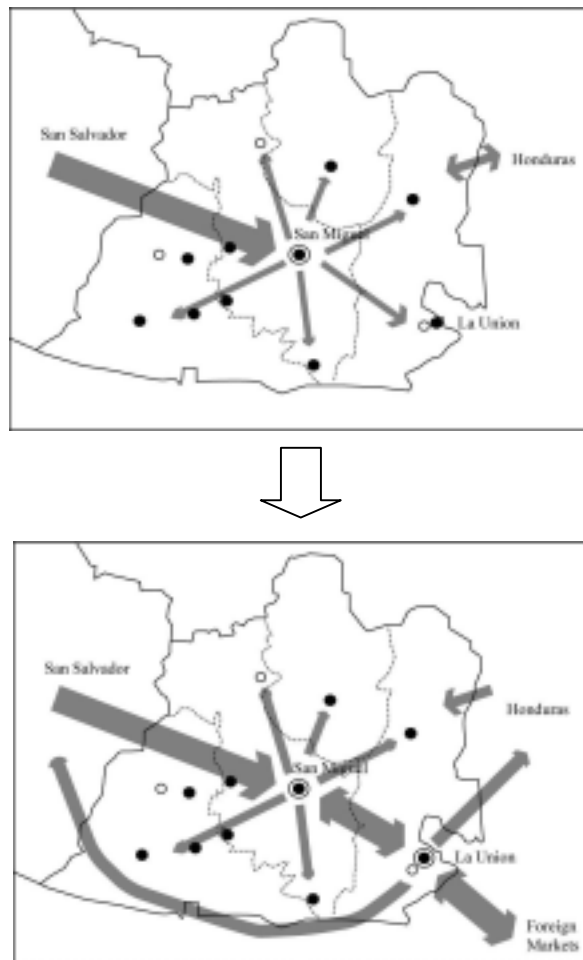
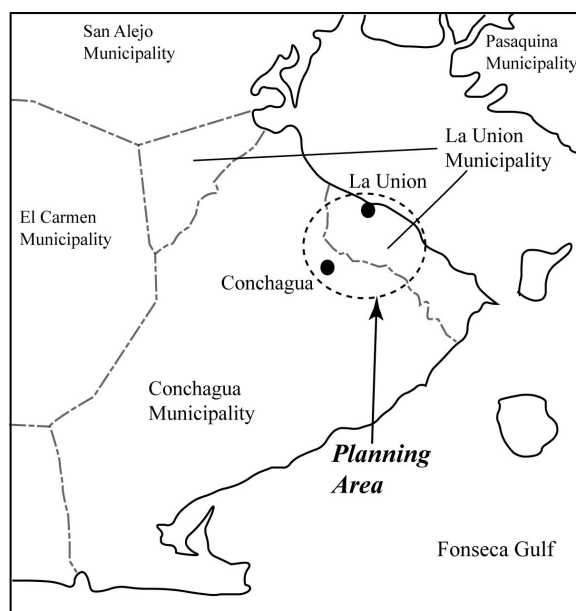


Figure 4.2. La Union-Conchagua Planning Area



Cutuco industrial park. Economically, unemployment and low income of the population are the most pressing problems. Socially, delinquency, drug addiction, violence and prostitution are growing problems. The lack of solid waste management system and wastewater treatment facilities is causing environmental problems, especially contamination of bay water.

The Conchagua municipality stretches over an area of 201km² to the southwest of the La Union municipality with most of its land sloping down from the Conchagua volcano (1,243m high). Its total population is 43,860, of which 10,965 reside in urban areas. Urbanization of Conchagua at 25% is lower than that of La Union (56%). Conchagua's major industries are fishing, salt making and farming of maize, beans and fruits. Coffee is not produced anymore. Industrial activities are observed in the form of brick making, carpentry and metallic structure. Unemployment and alcoholism are major socio-economic problems. The proportion of the population receiving remittance from relatives living in the U.S. reaches 60%. The municipality is growing toward southeast and northwest. Development to the northwest is likely to accelerate due to closeness to La Union city and availability of relatively flat land. Major environmental problems include deforestation by tree felling and possible contamination by untreated solid waste disposed at a dumping site in La Canada community, located about 2.5km west of Conchagua town.

(2) Land use

Most of La Union's urban population resides in the northern settlements right behind the Cutuco port, facing the La Union bay. This La Union urban area has developed in a grid pattern. A trunk road classified as secondary road in the national road hierarchy runs through the La Union urban area from southeast to northwest, connected with the highway CA1 at about 7.5km to the west of the La Union urban area. The CA2 that runs from south meets CA1 at about 2.7km west of the La Union urban area.

The Conchagua urban area is situated at about 3.8km southwest of the La Union urban area. The two urban areas are connected by a paved road classified as tertiary road in the national hierarchy. The Conchagua urban area sits at the highest point of the gentle slope toward the Conchagua volcano, above which the slope turns steep. The Conchagua urban area is surrounded by plantations. Its environmental protection area expands over some areas in the southern slope of the Conchagua volcano.

Most of the LUCPA is slopeland, imposing a constraint on massive land development. An elaborate land use planning would be vital for LUCPA to develop as a new trade, industrial and urban center.

(3) Infrastructures

Water supply

ANDA (Administración Nacional de Acueductos y Alcantarillados or National Water Supply and Wastewater Administration) is responsible for water supply in urban areas in El Salvador. Potable water in La Unión is supplied by groundwater produced in five wells at three locations shown in Figure 4.3. This ANDA water supply system has a total pump capacity of 98 liter/sec and a water storage capacity at 1,050m³. The water pipe diameter ranges from 2.5-8 inches (6.4-20.3cm). Water is distributed after disinfection only without any treatment due to good water quality. Table 4.1 summarizes the major indicators of ANDA's water supply service in La Unión.

Table 4.1. Water Supply Service in La Unión Municipality

Item (unit)	December 2001	December 2002
Number of connection	4,002	4,158
Service coverage ratio (%)	86.1	-
New connections in the month	273	-
Measured amount of consumption (10 ³ m ³)	202.3	205.9
Billed amount (US\$10 ³)	42.8	45.0
Urban population	23,246	-

Source: ANDA's annual report 2001 and interview results.

Per capita water consumption rate was 337 liter/day in December 2001. That in December 2002 was estimated to be 330 liter/day, assuming the population served to have increased at the same rate as the number of connections. These rates are quite high for an area like La Unión, compared to often-observed range of 100-200 liter/day. Possibly, the amount of water consumed could actually be water produced including large proportion of unaccounted-for-water, mostly leakage. This aspect should be confirmed by the further work. The consumption amount above is equivalent to 80% of the production capacity at 98 liter/sec.

ANDA had a plan for developing a new well site shown in Figure 4.3, but suspended the plan due to shortage of fund. The planned water storage capacity was 2,000m³. Recently a number of other new water sources have been sought, including the one to the north of La Unión urban area in the coastal area with a production capacity of about 63 liter/sec. Seawater intrusion was found to be the problem in this case. Other source studied is the lagoon area about 12km southwest of La Unión, where there are Laguna de Los Negritos, Laguna el Pilon, Laguna de Managuara, and Laguna de Maquigoe. The water production capacity is estimated to be in a range from 5.0 to 9.4 liter per second. Water produced here was found to have quality problem containing chromium, manganese and lead.

The water supply system in Conchagua is not under the ANDA's responsibility. Presently the

Conchagua urban area is served with the water produced in the southern slope of the Conchagua volcano, which is transported over 10km clockwise around the volcano.

Wastewater treatment

The La Union urban area has a wastewater collection system. Most of wastewater generated in the central part of the urban area is collected by sewers and discharged into the La Union bay through six channels with no treatment. The number of sewer connections was 1,922 in December 2001, equivalent to 41.3% in service coverage. According to some information, there is a wastewater treatment plant with a capacity to deal with 800 households, which at present, however, actually handles wastewater from only 200 households, equivalent to 5% of the total demand. This information needs to be confirmed. The Conchagua municipality has no wastewater collection and treatment facility at all.

ANDA is currently seeking funding from BCIE (Central American Bank for Economic Integration) for constructing a new wastewater collection and treatment facility that covers the La Union and Conchagua urban areas with a total cost of US\$4.5 million. The outline of the project is presented below.

- a. Target population and service coverage
 - La Union: 36,400 in 2022, 80% service coverage
 - Conchagua: 4,800 in 2022, 80% service coverage
- b. Components
 - First phase: Installation of interceptor pipes, a pumping station and treatment plant
 - Second phase: Expansion of the system above, construction of rainwater storage facility and rehabilitation of the existing wastewater treatment facility
- c. Major characteristics of the planned system
 - Length of interceptor: 3,600m
 - Collection system: Separate type (storm water is to be drained separately.)
 - Number of pumping station: 1
 - Wastewater treatment facility: Lagoon of 4.9-8.2ha and 3-4m deep, storage capacity of 151,400m³, and 8 Aqua Jet type equipment with 40 horsepower each
- d. Costs
 - Investment cost: US\$4,500,000
 - Operation and maintenance cost: US\$175,570 per year (3.9% of investment cost)

Solid waste collection and disposal

A study titled “Diseno del Sistema de Recoleccion y Disposicion Final de los Solidos del Municipio de La Union” (Design of Solid Waste Collection and Disposal System in La Union) was carried out in 1998. A summary of the major findings follows.

The volume of solid waste generated by the population currently served by municipal service is estimated at 11.68 tons per day or 4,263 tons annually. This volume is estimated to grow to 16.0 tons per day or 5,822 tons annually as a result of population increase and a rise in per capita generation rate (0.41kg/person/day now to 0.51kg/person/day in 2018).

The estimated composition of solid waste is presented in Table 4.2. The sources of solid waste are estimated in Table 4.3. The La Union municipality owns and operates three garbage collection vehicles. Their characteristics are summarized in Table 4.4.

Table 4.2. Composition of Solid Waste

Type of Waste	(%)
Organic matter	66.0
Paper and cardboard	9.0
Plastic	6.0
Textile	2.0
Ferrous metals	3.0
Non ferrous metals	5.0
Wood	0.0
Glass	7.0
Other	2.0

Source: Arcadis/Euroconsult, 1998.

Table 4.3. Sources of Solid Waste Generation in La Union

Source	(%)
Street sweeping	9.7
Households	49.6
Hospitals	1.4
Industrial	6.9
Institutional	2.2
Market and commerce	20.2
Parks	0.7
Slaughterhouse	9.3

Source: *ibid.*

Table 4.4. Garbage Collection Vehicles Operated by La Union Municipality

Equipment	Year	Load capa.	Condition	Unloading	Residual value, 1998 (¢)
Mercedez-Benz/1418	1980	7m ³	Regular	Dumping	91,860
Mercedes-Benz/1116	1977	9m ³	Regular	Dumping	42,516
Mercedes-Benz/1116	1980	10m ³	Regular	Manual	19,598

Source: City Hall of La Union, 1998.

A team of four operators operates each vehicle. Garbage collection is carried out from Monday to Saturday in two shifts in the morning and one shift in the afternoon on each day. Out of the

total employment of 104 of the La Union municipality, those working for solid waste works number 24, including one manager, three drivers, nine collectors, and 11 sweepers.

The final disposal site is located 4km east of La Union urban area at the skirt of the Pueblo Viejo hill and the El Coyol mountain with a total land area of 228,000km². This dumping site came into use in 1992. Waste collected by municipal vehicles is deposited at the bottom of the site without any treatment, accumulated in small piles and burned, generating smoke with high contents of sediment particles and unpleasant odor. Waste removal is made twice a year using a rented frontal loader. There is an estimate that the total waste volume in the next 20 years would reach 156,000m³.

The problems in the La Union's solid waste management system are the following.

- No sanitary landfill is carried out at the disposal site, causing seepage of contaminated water into soil, groundwater and surface water.
- Wastes from the hospitals and the slaughterhouse are collected and dumped, mixed with ordinary wastes.
- Vehicles are outdated and inefficient.
- Collected wastes are transported to the final dumping site by open trucks dispersing part of wastes.

Road

A Guatemalan contractor is supposed to start the construction work of the La Union bypass road shown in Figure 4.6 in early 2003 and to complete the work within 16 months. The bypass is 12.5km long with four lanes, designed mainly for heavy vehicles applying 8-inch hydraulic concrete. Part of the investment cost was procured from BCIE.

Power supply

The electrification rate is 100% for urban areas of La Union and Conchagua and the rural area of La Union. The rural area of Conchagua is 95% electrified.

Supplying power to La Union and Conchagua is the responsibility of EEO (Empresa Electrica de Priente, Eastern Electric Company), which covers four eastern departments. Electricity to La Union is transmitted from the San Miguel substation for the peak demand of 29MW along the highway CA1. There is a reserve capacity of 19.5MW, which is not in use at present. EEO is allowed to transmit electricity at 38.8MW in an ordinary condition and 46.1MW in an emergency situation, 80% and 95% respectively of the capacity.

EEO carried out a feasibility study for enhancing the capacity to supply electricity to La Union. Two alternatives analyzed are the construction of a new transmission line from a source with 40MW capacity other than the San Miguel substation and the establishment of a power generation plant in the vicinity of La Union.

Social infrastructure

Social infrastructures available in La Union and Conchagua are summarized in Table 4.5. As shown in the table, the total number of hospital beds is 103, including 64 national hospitals, 25 private owned by Hospital San Jorge, and the remaining owned by National Social Security Institute (ISSS) and an external clinic of the municipal health unit of La Union. The inhabitants of Conchagua are dependent on La Union for educational and higher level medical services.

Table 4.5. Social Infrastructures Available in La Union and Conchagua

Social Infrastructure	La Union	Conchagua
Hospital	4	0
Health center	1	1
Elementary school	34	0
High school	7	0
Technical school	1	0
Parks	2	1
Sports field	25	1
Home of culture	1	1
Community clubs	10	0

4.3 Prospect for Future Development

(1) La Union Port development

The construction of the La Union port is scheduled to start from fall to winter of the year 2003. Port operation is expected to begin in late 2006. The dimensions of the berths of the port and the planned ship sizes are summarized in Table 4.6.

Table 4.6. Dimensions of Berths of La Union Port and Ship Sizes

Berth	Ship size	Berth length	Berth water depth	Crown height
Container berth	55,000DWT	340m	-14.0m	+5.0m
Multipurpose berth	50,000DWT	220m	-14.0m	+5.0m
Passenger berth	25,000DWT	240m	-9.5m	+5.0m

The port's prospective cargo handling capacity is 841,000 tons for general and bulk cargo and 275,000 TEUs for container cargo in 2015.

The transportation environment will affect the operation of the La Union port at three levels: (1) the possibility of a dry canal between the La Union port and the Cortes port in Honduras, (2) the possibility of the La Union port growing to be a hub port serving the entire Central American region and (3) the La Union port substituting the functions of the existing Acajtle port.

A number of dry canal concepts have been proposed in Central America, including seven road

routes and four railroad routes. The road routes range from the shortest 9-hour drive on over 285km between Caldera and Limon (both in Costa Rica) to the longest 19-hour drive on 589km from Colinto (in Nicaragua) to Limon. The distance between La Union and Puerto Cortes is 464km, requiring 16 hours of driving under the present road condition. There is an estimate that the potential cargo volume through the dry canal would be about 9.6 billion mile-tons. Assuming the diversion of cargo at 1% of the present cargo volume transported though the Panama canal, which was 190 million tons in 1997, a dry canal would accommodate 1.9 million tons of cargo per year, indicating the high magnitude of influence on the La Union port operation, once the dry canal project is realized. A preliminary interview with shipping companies, on the contrary, provides rather a negative view, based on their experiences in daily operations, on the possibility of the La Union port serving as one end of the dry canal. It would be vital to assess realistically the possibility of the La Union port to become one of the two gateways of the dry canal in the long run clarifying conditions to make this scenario real. With this understanding, a survey on port utilization will be carried out in the next stage of the Study in the form of questionnaire and interview. The objective is to collect information and viewpoints from various transport operators, both land and maritime, concerning the expected role of the La Union port in connection with their businesses and in consideration of various growth possibilities from macroscopic dry canal possibility down to more immediate substitution of the Acajtle port functions. The survey will also clarify the conditions that they would like to see in La Union and its hinterland. The collected information will be integrated into the planning of LUCPA. An example of input from a shipping company may be that the port hinterland will need to have a truck terminal with a sufficient capacity to accommodate 50 trucks at a time for La Union to function as a new national distribution center. Other conditions that have been pointed out include provision of warehouses with a sufficient capacity, efficient customs procedures, installation of modern cranes, competitive port rates, and good infrastructure in the hinterland.

(2) Industrial development

CALVO, a Spanish fishing company, spearheaded industrial development in La Union. The firm mainly catches yellow fin tuna in the Pacific ocean and exports them to Europe. They decided to establish a tuna processing plant in La Union in three phases. The first phase was to start fishing tuna in the international water of the Pacific ocean. Their project is currently in the second phase of opening a plant for producing semi-processed tuna at 300 tons per day. The construction of the plant is taking place on a 7ha land within the Corsain Fishing Industrial Park. It is scheduled to start operation in May 2003. It is expected that the second phase will generate up to 700 employment opportunities and the third phase will be completed by early 2005 ready to produce canned tuna. After comparatively analysis of La Union and a place in Coast Rica as candidate sites for the project, the firm selected La Union because of the availability of unused

fishing facilities, favorable natural condition of the Fonseca bay, availability of factory land right behind the fishing port, good access to laborious labor force, active support by the El Salvador government, and provision of free trade zone incentives among others. LUCPA development would benefit CALVO by providing better access channel for their bigger boat “Montelucia”, which at present cannot approach the port, and making various goods necessary for their operation more easily available. The CALVO project could serve as an important initial step to develop industrial linkages in LUCPA.

Industrial development on a scale of 100 ha or larger would be planned for the LUCPA development. This level of concentrated industrial development would be the largest in El Salvador as compared with other free trade zone projects shown in Table 4.7. LUCPA is expected to grow to become a major industrial base in El Salvador fully taking advantage of its strengths such as proximity to the new port as a new international gateway, especially multiplying effects of combining distribution and production functions, good infrastructures, both hard and soft, availability of high quality labor force, and active support by the Government. Surveys on industrial location and investment potential to be conducted at the next stage of the Study will look into and clarify the interests of potential investors to La Union and the conditions that potential investors consider important before making an investment decision. The collected information will be fed back to LUCPA development planning.

Table 4.7. Existing Free Trade Zones in El Salvador

Free Trade Zones	Department	Opening Year	Total Area (ha)	Maximum Industrial Area (ha)
1. El Pedregal Free Zone	La Paz	1993	49	18
2. La Concordia Industrial Park	Usulután	2001	32	11
3. Miramar Free Zone	La Paz	2001	39	4
4. El Salvador International Free Zone	La Paz	1999	84	21
5. Zona Franca San Bartolo	San Salvador	1974	74	31
6. Zona Franca Santa Lucia	San Salvador	2001	1	1
7. San Marcos Free Zone	San Salvador	1993	10	5
8. Progreso Industrial Park	San Salvador	1992	2	2
9. Santa Tecla Free Zone	La Libertad	2001	3	2
10. Export Salva Free Zone	La Libertad	1994	28	11
11. LIDO Free Zone	La Libertad	1998	3	2
12. American Park Free Zone	La Libertad	1996	39	17
13. Zona Franca Santa Ana	Santa Ana	2001	9	4
14. Free Zone 10	Santa Ana	2001	15	4
15. Zona Franca Santo Tomas	San Salvador	2002	2	1
16. Zona Franca Pipil	La Libertad	n.a.	196	51
17. Zona Franca Calvo Conservas	La Union	n.a.	8	1
Total			594	186

Sources: PROESA and Ministry of Economy.

(3) Infrastructure

A development on a scale of 100 ha would bring about significant impact on the region. In terms of population growth, direct employment at the free trade zone will reach 5,000 at minimum. Population increase by 10,000 or more would be likely considering the dependent population. LUCPA could grow to an urban area with a population of 100,000 or more as it achieves its new position in the new urban hierarchy. Residential development will be needed to accommodate these new workers and their families.

Water demand for industrial and domestic uses will dramatically increase as a result of the LUCPA development. One scenario is that industrial water demand would reach 104,000m³ per day or 38 million m³ per year in the event that all kinds of industries, including water-consuming industries, operate with no water recycling technology applied. This level of water consumption at 1,204 liters/sec is 12 times the existing ANDA's water supply capacity at 98 liters/day. The following policies need to be borne in mind for water use:

- Investment promotion for less water consuming industries,
- Introduction of modern water recycling technology as well as cleaner production technology to minimize industrial wastewater generation, and
- Identification of new water sources, both local and inter-basin water transfer.

These aspects are to be analyzed further together with other sectors.

(4) Macro zoning

A major constraint to LUCPA is the shortage of flat land. Areas that are relatively flat are found right behind the planned port site, the southeastern part of the La Union urban area and the southwestern area outside the La Union urban area that is on the eastern side of the La Union-Conchagua road. A certain level of residential sprawling into this southwestern area is accelerating, according to information obtained from the La Union municipality.

A macro-zoning plan in LUCPA is prepared with the name "La Union" as the basic concept (Project Report). "La Union" in Spanish means "joining", "together", and "unity", combining different things into one in harmony. The "La Union" concept can be applied to "unity of environment and human activities", "unity of people from outside and inside" and "unity of rich and poor people". Under this concept, a macro-zoning plan will be prepared in such a way that different land uses coexist in harmony: industry, distribution, commercial and business, residential, social, recreational/cultural, and environment.

5 Land Resources

5.1 Existing Conditions

(1) Overview

The national land of El Salvador, totalling 20,718km², may be broadly classified into four

morphological types: (i) coastal plains, (ii) volcanic ranges, (iii) northern mountain ranges, and (iv) inter-mountain basins. Coastal plains extend along the southern coastline of 352km. The western plains are relatively narrow, and plains almost disappear along the Bálamo coast, replaced in parts by rocky coast. Coastal plains widen along the central coast, especially in the downstream of the Lempa river and around the Jiquilisco bay. Further to the east, coastal plains develop between the coastline and the coastal mountain range, and extend to the coast of the Fonseca gulf. Volcanic ranges develop just inside the coastal plains, centering on several conspicuous peaks, the highest being Santa Ana volcano of 2,365m. The northern mountain ranges develop along the border with Honduras. The elevation is generally over 1,000m, except the central part constituting the middle reaches of the Lempa river at an elevation of about 500m. Inter-mountain basins extend widely between these volcanic and mountain ranges generally at elevations of 200-600m.

There are several large water bodies in the interior land. They consist of volcanic lakes, the largest being Ilopango to the east of San Salvador, reservoirs created by the Cerrón Grande and the September 15 dams, and lagoons. Of the total land area, 49.5% (10,255km²) is drained by the Lempa river and its tributaries. The Río Grande de San Miguel is the largest river within the national territory, and the river drains the area of 2,247km². The land along the eastern border is drained by the Goascoran river, which constitutes the border with Honduras, and its tributaries. Other land areas are drained by many small rivers.

(2) Existing land use

The latest data obtained on land use in El Salvador are for the year 1990. As seen in Table 5.1, 55% of the land is classified as agricultural land, of which 21% is used for annual crops and 9.4% for the perennial crops. Natural and improved pastures occupy 22% of the national land. Forests cover 184,200ha or only 8.8% of the land. In El Salvador, coffee is cultivated dominantly under forest trees. Of the total coffee cultivated area that covers 165,600ha, only 8% is under “intensive production system” without cover shade trees, leaving 152,300ha under forest trees. Thus, most areas under the remaining forest cover in El Salvador are coffee plantations.

In the Eastern Region, the coffee cultivated area occupies 44,300ha or 5.7% of the total land area, and additional forest areas are larger than the coffee area. This implies, against the general belief, that the effective forest coverage is comparatively larger in the Eastern Region. The degree of the forest area’s degradation, however, is another question.

Changes in land use in El Salvador from 1980 to 1990 are summarized in Table 5.2. The forest area decreased by more than 30% during 1980-90 at the average rate of over 8,000ha per annum. The agricultural area, not only cropped area but also pastures, also decreased by 8%. Only the area of non-agricultural use increased during this period by 32%, presumably

including abandoned land.

Table 5.1. Existing Land Use in El Salvador, 1990

Land use	Area (10 ³ ha)	Share (%)
Agricultural land		
Annual crops	445.8	21.2
Bi-annual crops	51.9	2.5
Perennial crops	198.7	9.4
Natural pastures	343.0	16.3
Improved pastures	116.8	5.6
Forest land	184.2	8.8
Other non-agricultural land	608.5	31.8
Water bodies etc.	95.4	4.5
Total	2,104.1	100.0

Source: FUSADES.

Table 5.2. Changes in Land Use in El Salvador, 1980-1990

	1980		1990		1980-90
	Area (10 ³ ha)	(%)	Area (10 ³ ha)	(%)	Change (%)
Total	2,104.1	100.0	2,104.1	100.0	
Annual Crops	484.9	23.0	445.8	21.2	-8.1
Bi-annual Crops	40.9	1.9	51.9	2.5	+26.9
Perennial Crops	206.3	9.8	198.7	9.4	-3.7
Natural Pastures	389.9	18.5	343	16.3	-12.0
Improved Pastures	131.6	6.3	116.8	5.6	-11.2
Forests	267.6	12.7	184.2	8.8	-31.1
None Agricultural Use	505.4	24.0	668.5	31.8	+32.3
Water Bodies, etc.	77.5	3.7	95.4	4.5	+23.1

Source: FUSADES, *Strategy for Agricultural Development*.

(3) Land tenancy

The process to legalize the award of land titles within the scope of the agrarian reform and the Peace Accords has not been completed. As a result, a large number of farmers cannot receive benefits granted as part of reconstruction after the earthquakes in 2001.

5.2 Land Capability and Vulnerability

(1) Land capability

The classification of land-by-land capability for agriculture is summarized in Table 5.3 by department. Land of Classes I, II and III is suitable for intensive cultivation, Class IV for semi-intensive farming, Class V for pastures, Class VI for permanent crops, Class VII for forestry and Class VIII to be protected.

Table 5.3. Distribution of Land Capability Classes by Department

Department	Total land area (ha)	% of Country	Distribution by Land Capability Classes (ha)									
			I	II	III	IV	I-IV	V	VI	VII	VIII	Others
Usulután	213,044	10.13	9,069	25,586	38,273	39,115	112,042	4,482	29,710	49,088	14,160	3,562
San Miguel	207,710	9.87	652	7,175	25,712	41,240	74,779	4,271	28,826	65,290	28,905	5,639
La Unión	207,434	9.86	-	547	9,111	23,923	33,581	15,444	15,781	109,370	30,860	2,399
Morazan	144,743	6.88	-	779	4,629	19,189	24,597	842	4,650	97,713	16,727	214
Eastern Region*	772,931	36.73	9,721	34,086	77,725	123,467	244,999	25,039	78,966	321,461	90,652	11,814
Ahuachapán	123,960	5.89	252	6,586	22,472	24,092		568	9,195	53,149	7,247	400
Santa Ana	202,317	9.62	736	5,934	22,345	23,671		5,365	13,487	88,960	35,232	6,586
Sonsonate	122,577	5.83	147	8,248	23,839	28,342		1,599	15,191	32,108	12,050	1,052
Chalatenango	201,658	9.58	-	1,515	14,076	12,267		1,599	14,750	112,905	36,380	8,167
La Libertad	165,288	7.86	-	9,069	15,991	26,932		1,831	29,352	63,164	17,434	1,515
San Salvador	88,615	4.21	105	5,660	7,890	10,689		526	6,691	43,912	307	12,835
Cuscatlán	75,619	3.59	-	1,431	8,332	20,325		274	6,817	32,824	652	4,964
La Paz	122,361	5.82	2,146	24,870	23,229	22,240		3,156	15,423	23,271	1,683	6,342
Cabañas	110,351	5.24	-	421	2,904	20,725		800	2,819	49,509	32,571	602
San Vicente	118,402	5.63	673	8,143	18,684	20,115		4,839	8,311	37,389	19,258	989
El Salvador	2,104,079	100.00	13,782	105,961	237,487	332,865	690,196	45,595	201,003	858,654	253,467	55,265

* % of Land Class I, II and III in the Eastern Region: Class I=70.5%; Class II=32.2%; Class III=37.1%; and Class IV=37.1%.

Sources: Total land area by department taken from DIGESTYC 2000, Ministry of Economy.

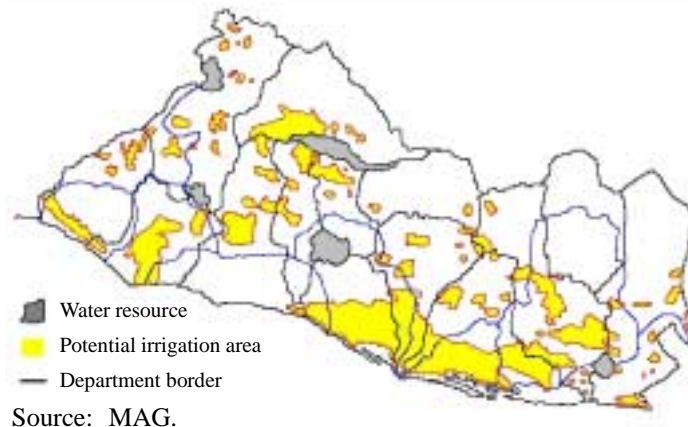
Area by land Classes was calculated by JICA Study Team using data from *Plan Nacional de Ordenamiento y Desarrollo Territorial 2002*.

In the Country as a whole, a total of 690,196ha is classified into Classes I through IV generally suitable for agricultural purposes. This corresponds to 32.8% of the national territory, largely coinciding with the area devoted to crop production, which occupies some 30% of the national land. The land of Classes V through VI, accounting for 52.5% of the national land, may be used for less intensive agriculture including pastures.

The Eastern Region has a total area of 244,999ha or 31.7% of the total land classified into Classes I through VI, accounting for 35.5% of the national land in these classes. In particular, the Eastern Region has 9,721ha of Class I, most suitable for intensive agriculture, mostly in Usulután in the downstream of the Río Grande de San Miguel. This corresponds to 70.5% of the national land in this class. The land of Classes V through VI has a total area of 425,466ha or 55.0% of the total land in the Eastern Region.

The distribution of land suitable for irrigated agriculture in El Salvador is shown in Figure 5.1. The largest potential area extends along the south-central coast, including the downstream of the Lempa river and the area around the Jiquilisco bay. Also large potential area exist in the mid to downstream of the Río Grande de San Miguel in the Eastern Region.

Figure 5.1. Potential Irrigation Areas in El Salvador



(2) Land vulnerability

El Salvador is vulnerable to natural calamities of various kinds, including earthquakes, volcanic eruptions, hurricanes, and El Niño phenomena, which affect land use and potentials. A study by the Ministry of Agriculture and Livestock clarified two aspects. One, the western part of the Country suffers from moderate droughts. Two, most areas in the Eastern Region are vulnerable to droughts. In particular, the departments of San Miguel and La Unión and the southern part of Morazán are subject to severe droughts.

There are also areas in El Salvador that are habitually flooded. These areas are distributed mostly along the coast. A large flood-prone area exists along the middle and lower reaches of Río Grande de San Miguel. A small area in the midstream of the Lempa river is also flood-

prone.

6 Water Resources

6.1 Water-related Institutions

In accordance with the Water Legislation promulgated in 1981 (Decree no. 886), the Ministry of Planning and Coordination for Economic and Social Development (MIPLAN) had been responsible for comprehensive water resources management, in cooperation with related ministries and agencies, but it ceased to exist in 1996. Since then, there is no single State agency having comprehensive responsibilities for development and management of the Country's water resources, although the General Law of Water has been prepared. Responsibilities for water resources planning, implementation, operation and management, and monitoring are assumed by several ministries and agencies in charge of different aspects and functions involved.

The Master Plan Study for the Development and Use of Water Resources in El Salvador (PLAMDARH) was conducted during 1980-82, supported by UNDP. This has provided the basis of development and management of individual river basins and projects and also for the international initiative with several follow-up studies in 1980's and 1990's.

The Ministry of Environment and Natural Resources (MARN) is responsible for the protection of environment and sustainable management of natural resources. It enacted the Environment Law in 1998. The Ministry of Agriculture and Livestock (MAG) is responsible for water management to support agricultural and rural development. MAG prepared management plans for river basins of Paz (1999-2000), Rio Grande de San Miguel (1998), and Jiboa (1997). It also prepared plans of environmental classification for the Sucio river basin and of territorial classification of San Andres Valley of Zapotitan.

The National Service of Territorial Studies (SNET) was established in 2001 under MARN to contribute to the prevention and reduction of disaster risk. For this purpose, SNET conducts basic investigations, studies and other services related to meteorology, hydrology, geology including volcanology and geotectonics, and disaster risk management including forecast and warning of floods, landslides and volcanic activities. SNET is expected also to collect and compile existing data and information on meteorology, hydrology, hydrogeology and water quality to create a comprehensive database for disaster risk management.

The National Administration of Aqueducts and Sewerage (ANDA), established in 1991 assumes the responsibility to plan, finance, execute, operate, maintain and manage any works required to provide services on drinking water and sewerage to people. As part of efforts to explore water resources, ANDA started in 1966 the Study Project of Groundwater in the northern part of San Salvador (the Sucio and the Acelhuate river basins), financed by UNDP.

The Executive Hydroelectric Commission of the Lempa River (CEL) was established in 1945 for the development and management of water resources in the national territory of the Lempa river basin particularly for hydropower, collecting and compiling most comprehensive hydro-meteorological data. CEL now performs the function to develop, conserve, manage and utilize country's energy resources, and also be involved in flood prevention activities for the Lempa river basin under the National Emergency Committee (COEN).

The Fund of Social Development for Local Development (FISDL) has financed several hydrogeological studies for the purpose of determining potentials of groundwater resource. FISDL has financed also the exploitation of aquifers with deep wells for supply to educational centers and rural communities. The Salvadoran Institute for Municipal Development (ISDEM) and municipalities work together for the implementation of drinking water projects in rural areas. The National Center of Registrations (CNR) is responsible for compiling all the topographic and geologic information of the country.

Many donors have been involved in water resources development and management in El Salvador, including UNICEF, USAID, UNDP, GTZ, IDB, PAHO (Pan-American Health Organization), and JICA. Several NGOs are involved in studies to support drinking water projects in rural areas. They include PRISMA, CARE, PCI (Project Concern International), Save the Children, CDM, CRS, Enterprise Works, World Vision, Peace Corps, and local NGOs.

6.2 Water Resources Endowments in El Salvador

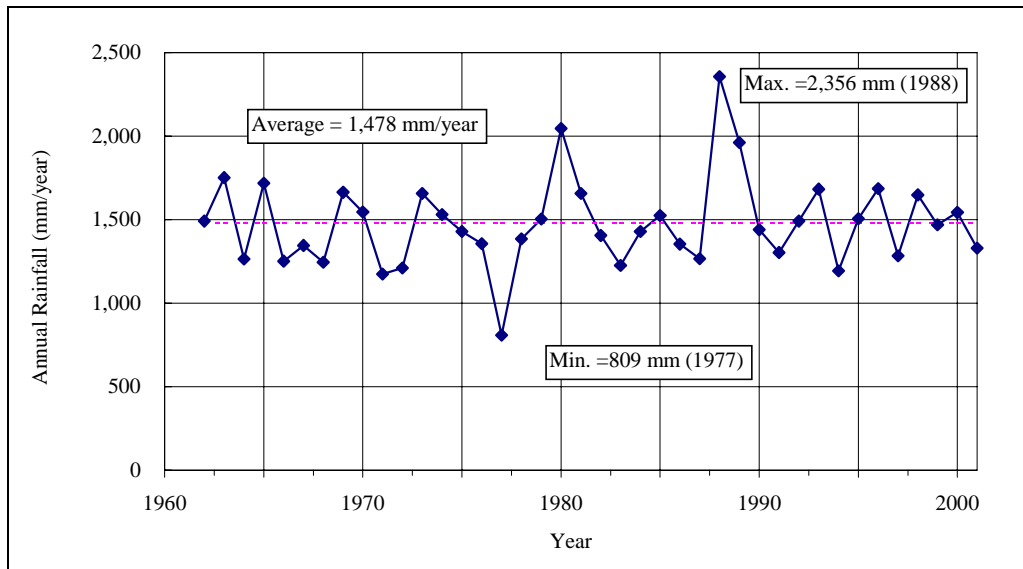
(1) Rainfall patterns

The mean annual precipitation in El Salvador is estimated at 1,800mm. Mean monthly precipitation varies widely, from 3.7mm in January and February to 368mm in September. More than 90% of annual rainfall concentrates in the rainy season between May and October. Two peaks are observed typically during the rainy season: June (with overage rainfall of 340mm) and September (368mm).

MAG, SNET and others have prepared isohyet maps of mean annual rainfall in El Salvador with slightly different configurations. It is commonly observed that the northern part of the Country receives the largest rainfall of 2,000-2,500mm. In other areas, the annual rainfall is generally over 1,800mm, except small areas along the Eastern and the Western borders with smaller rainfall below 1,400mm. There is also a rain shadow in San Miguel along the middle reach of the Rio Grande de San Miguel.

Long-term annual rainfall record at the El Papalon Station in San Miguel is shown in Figure 6.1. The annual rainfall ranges from 809mm in 1977 to 2,356mm in 1998 with the average 1,478mm. As seen from the figure, the long-term annual rainfall does not show any declining trend as conjectured by some experts.

Figure 6.1. Annual Rainfall at San Miguel (El Papalon)



Source: SNET

Rainfall patterns in El Salvador are affected by El Niño and La Niña phenomena in the Pacific ocean as well as by hurricanes. El Niño occurs with recurrence periods of 2-7 years with abnormally warm seawater and atmosphere for 12-18 months. La Niña brings a cold phase with increase in precipitation in the rainy season and increases the probability and impact of hurricanes originating in the Atlantic ocean. It occurs in every 3-5 years for the duration of 9-12 months but may persist up to two years.

With El Niño, the rainy season starts late, the amount of rainfall and the duration of the rainy season are reduced, and the phenomena of “canicula” or short dry period in the rainy season is prolonged. This was observed recently in 1982-83, 1986-87, 1990-94, and 1997-98.

(2) River system

Following the definition of hydrological regions by MARN (2000), the territory of El Salvador is divided into 10 river basins. The rainfall and runoff of each of these river basin are summarized in Table 6.1. The Lempa river basin is by far the largest with the catchment area of 10,255km² within the national territory, accounting for 50% of the total area of El Salvador. The second largest river basin is the Rio Grande de San Miguel in the Eastern Region with 2,280km² or 11% of the national territory.

The runoff coefficient is 45% for the Lempa river and generally lower for most other rivers. The runoff coefficient is particularly low for rivers in the Eastern Region, except the Sirama river draining Conchagua and La Union to discharge in the Fonseca gulf. The runoff coefficient of the Rio Grande de San Miguel is only 14%. Its overall runoff ratio is 37%, indicating that out of 57 billion m³/year of rainfall, 21 billion m³/year is potentially usable.

Table 6.1. Annual Rainfall and Runoff by Hydrological Region in El Salvador

Hydrological Region*	Area (km ²)	Rainfall (mm)	Runoff (Mm ³)		Annual Runoff (Mm ³)	Runoff Ratio (%)
			Rainy Season†	Dry Season†		
A: Río Lempa	10,255	3,249	12,891	2,002	14,893	45
B: Río Paz	929	3,284	771	212	983	32
C: Ríos Cara Sucia-San Pedro	659	1,942	310	45	355	28
D: Río Grande de Sonsonate	875	1,983	529	112	641	37
E: Ríos Mandinga-Comalapa	1,146	1,889	643	93	736	34
F: Río Jiboa	1,717	1,758	130	39	169	6
G: Bahía de Jiquilisco	704	1,882	260	41	301	23
H: Río Grande de San Miguel	2,250	1,663	420	95	515	14
I: Río Sirama	804	1,721	1,021	229	1,250	90
J: Río Goascorán	1,315	4,306	824	58	882	16
Total	20,654	23,677	17,799	2,926	20,725	37

* Hydrological regions according to MARN (2000). † Rainy season: May-Oct. / Dry season: Nov.-Apr. Sources: PRISMA (2002), Elaboration based on PLAMDARH (1982, UNDP), Michaels et al. (1998).

(3) Groundwater

Groundwater endowments are strongly associated with geological formation. Old volcanic rocks found in the interior of the Country are least favorable for groundwater exploitation. Small yields are expected in lower parts of valleys and along groups of fissures and fractures. Areas of younger volcanic rocks, located toward the coastal side of old volcanoes, are more promising for groundwater. The San Salvador formation is considered most promising for large amount of good quality water, especially from its upper layers. Alluvial plains along the coast are generally rich in shallow groundwater. These areas are found along the Western coast of Ahuachapan and Sonsonate, the central coast in the downstream of the Lempa River and around the Jiquilisco bay, and around the La Union bay.

Data on important aquifers are given in Table 6.2. The Lempa river basin has the largest groundwater reserve estimated at some 500 million m³/year, followed by the Rio Grande de San Miguel with 235 million m³/year. The total groundwater potential is estimated at 1.35 billion m³/year.

6.3 Existing Water Use and Facilities in El Salvador

(1) Water supply and sanitation

In urban areas of El Salvador, 86% of population have access to services of potable water supply and 84% to sanitation services. In rural area, about 15% of population have access to potable water supply and 51% to sanitation services. The overall coverage in El Salvador is estimated at 56% for water supply and 73% for sanitation services as of 2000. These estimates are based on facilities, but some facilities are not functioning to ensure continuous supply.

Table 6.2. Groundwater Potential by Hydrological Region

Region	Area of recharge (km ²)	Recharge rate (Mm ³ /year)
Lempa river	948	489-519
Paz river	280	123
Carasucia-San Pedro rivers	100	124
Sonsonate River	330	204
Mandinga-Comalapa rivers		30+
Jiboa river	400	20+
Jiquilisco bay		100
Rio Grande de San Miguel	392	235
Sirama river		ND
Goascoran river	30	ND
Total	2,480+	1325-1,355+

Source: *Aguas Salvadoreñas: Capital de Trabajo para la Nación*, USAID, 1998.

A detailed sample survey has clarified that the actual service coverage is much lower. The actual coverage by water supply and sanitation facilities is summarized in Table 6.3 by department. The overall coverage in El Salvador is only 27% while water supply facilities cover 50% of households, consisting of 39% by piped system and 11% by water tanks. Other supply sources are communal wells for 14%, household wells for 35%, and water carried from somewhere else for 1%.

Table 6.3. Actual Service Coverage for Water Supply and Sanitation by Department, 2001

Department	(Unit: %)		
	Water supply	Latrines	Cesspools
Ahuachapán	39	31	11
Cabañas	16	50	5
Chalatenango	30	30	6
Cuscatlán	32	35	18
La Libertad	27	31	16
La Paz	19	39	11
La Unión	18	38	7
Morazán	22	47	27
San Miguel	37	7	8
San Salvador	24	28	8
San Vicente	23	69	5
Santa Ana	17	32	4
Sonsonate	23	31	13
Usulután	55	51	5

Source: *Diagnóstico sobre la situación de agua y saneamiento en El Salvador*, September 2001.

More detailed and updated data on water supply by department are presented in Annex to this section. Consumption of potable water supplied by ANDA is summarized in Table 4.28 by region.

Table 6.4. Consumption of Potable Water by Region (December 2001)

Region	Consumption (10 ⁶ m ³ /year)	Consumption (lts./cap./day)	% of Consumption Total in Country	% of Population Total in Country
Grand San Salvador	147.4	253	59.2	31.8
Central Region	33.7	174	13.5	26.9
Western Region	40.2	244	16.2	21.1
Eastern Region	27.6	238	11.1	20.2
Total	248.9	235		

Source: ANDA, *Boletín Estadístico*, No.23 (2001).

(2) Irrigation

Irrigation facilities are provided only to some 34,000ha of agricultural land in El Salvador. Most irrigation areas are located in the Central and the Western regions (Section 3.1).

(3) Hydropower

El Salvador has four dams/reservoirs for hydropower generation. Basic data are summarized in Table 6.5. Two hydropower development projects are at advanced stage of planning: the Chaparral dam and hydropower (59MW) on the Torola river, and the Simaran hydropower (243MW) near the border with Guatemala.

Table 6.5. Existing Dams in El Salvador

Name of Dam:	Guajoyo	Cerron Grande	November 5	September 15
Operation Beginning Year	1964	1976	1954	1983
River	Lempa	Lempa	Lempa	Lempa
Type of Dam	Concrete Gravity	Fill	Concrete Gravity	Rock Fill
Reservoir Surface Area of	55km ²	135km ²	16km ²	35.5km ²
Total Volume of Reservoir	645MCM	2,180MCM	320MCM	380MCM
Effective Volume of Reservoir	490MCM	1,430Hm ³	87MCM	37MCM
Regulated Volume	490MCM	1,430MCM	87MCM	37MCM
Mean Inflow	26.3m ³ /s	154m ³ /s	197m ³ /s	366m ³ /s
Dam Height	33m	90m	65m	57.2m
Maximum Turbine Discharge	42m ³ /s	130m ³ /s	121m ³ /s	330m ³ /s
Generator/Turbine Capacity	15MW	135MW	81.4MW	Max 180MW (Normal: 156.6)
Mean Annual Energy Production	457GWh	457GWh	457GWh	605GWh

Source: CEL.

6.4 Water Resources and Water Use in the Eastern Region

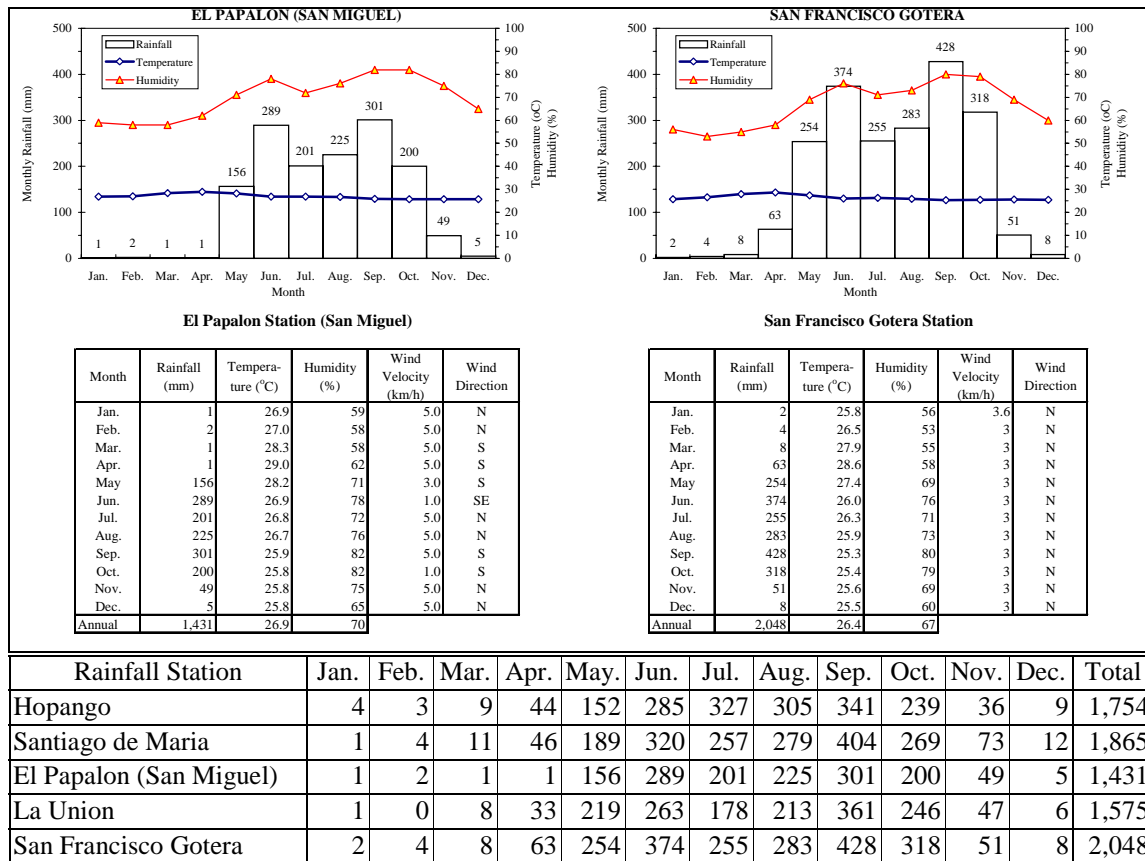
(1) Water resources

Rainfall and runoff

Monthly distribution of rainfall and other climatic data at selected stations in the Eastern Region are summarized in Table 6.6. The average annual precipitation in the Eastern Region is

more or less the same as the national average, but difference in rainfalls between the rainy and the dry season is more conspicuous in the Region. Also, “canicula” is more severe in some parts of the Eastern Region, especially from the area around the La Unión bay to the Jiquilisco bay area along the Pacific coast. During this period, the lack of rain is combined with high solar radiations, high temperatures, increased wind velocity and reduced humidity, and increased evaporation from soil and vegetation. This period coincides with the growing period and/or flowering season of almost all annual crops cultivated.

Table 6.6. Annual Rainfall at San Miguel (El Papalon)



Sources: SNET; JICA, The Study on Comprehensive Flood Control for the Rio Grande de San Miguel, 1997.

Of the 10 hydrological regions, four regions fall completely in the Eastern Region: the Jiquilisco bay, the Río Grande de San Miguel, the Sirama river, and the Goascorán river. Also some 20% of the Lempa river basin within El Salvador falls in the region, including the Torola river basin in the north. The total annual runoff from all the rivers amounts to about 6 million m³.

Surface water availability by department

Usulután has good access to ample surface water from the Lempa river, lower reaches of the

Río Grande de San Miguel, and some rivers of medium size such as Los Limones and El Molino. Water availability is high also along the Pacific Coast and around the Jiquilisco bay, but the water in some areas are slightly brackish. The surface water near the Usulután volcano has high TDS contents.

In San Miguel, the Río Grande de San Miguel, the Lempa and the Torola rivers are major sources of surface water available throughout the year. Many small rivers and lakes are also available for fresh water all the year round. Almost a half of San Miguel, however is classified as the area where surface water is only seasonally available from May through October. Also in the downstream of the Río Grande, the river water is highly polluted due mainly to discharge of sewage from San Miguel city.

In most part of Morazán, fresh surface water is available only seasonally from May through October. Most sources are small lakes and rivers that dry up during the dry season. Only in 15% of the department, along the Torola river and in the downstream of the Sapo and the San Francisco rivers, fresh surface water is available all the year round.

Most part of La Unión is classified as the area where surface water is only seasonally available from May through October, relying on small lakes and rivers. Only along the Goascorán river, fresh surface water is available throughout the year. Water near the La Unión bay is brackish to saline.

Groundwater potential by department

Usulután has abundant groundwater resources derived from both young volcanic rocks and alluvial plains. Moderate to large quantities of groundwater are available throughout the year in most part of the department, including the capital city, except high altitude areas and hillsides of the Usulután volcano, coastal areas, and a very small area in the northwest. The best aquifers are found in upper layers of the San Salvador formation. The geothermal water associated with the Usulután volcano contains high levels of mineralization.

In San Miguel, moderate to large quantities of groundwater are available in some 20% of the department, including San Miguel city and areas to the west, north and south of the city. Areas along the Río Grande de San Miguel are also favorable for groundwater endowments, but the water is contaminated closer to the river. The southern part of the department, particularly to the north and west of the Olomega lagoon, is also favorable for groundwater exploration. Groundwater in some areas, however, contains arsenic due to volcanic activities. In the northern part of San Miguel, only moderate quantities of groundwater are expected in some areas, derived from old volcanic rocks.

Old volcanic rocks cover most part of Morazán, and thus groundwater potentials are generally low. Detailed surveys, geophysical exploration and infiltration tests would be necessary to

identify favorable aquifers.

In La Unión, some 20% of the department's land, mainly in the south and the east, are favorable for groundwater exploration. Other areas are mostly covered by old volcanic rocks. In coastal areas, brackish to saline water is found in alluvial wells. Groundwater exploration is not recommended in areas at elevations of 10m or lower.

(2) Water use

Water supply and sanitation

The actual service coverage of water supply is higher than the national average (27% in 2001) in Usulután (55%) and San Miguel (37%) but much lower in Morazán (22%) and La Unión (18%). Availability of latrines is extremely low in San Miguel covering only 7% of households while the availability is much higher in the other three departments.

ANDA supplies potable water to the capital city of Usulután by tapping groundwater with springs and deep wells in the coastal plain, at the rate of $0.3\text{m}^3/\text{sec}$. San Miguel City is supplied from the groundwater intake located on the eastern slope of San Miguel volcano; its intake rate is $0.7\text{m}^3/\text{sec}$ from springs and deep wells exploited by ANDA. For La Unión city, ANDA taps the aquifer of the La Unión valley at the flow rate of $0.2\text{m}^3/\text{sec}$.

Irrigation

Only small irrigation facilities exist in the Eastern Region to cover 330ha in San Miguel, 62ha in Usulután, and 90ha in Morazán.

Hydropower

The September 15 hydropower plant is located on the mainstream of the Lempa river, which constitutes the western boundary of the Eastern Region. Geothermal resources are exploited in Berlin and Usulután for power generation, and these facilities are outlined in Section 4.2.

6.5 Issues for Water Resources Development and Management

(1) Characteristics of water resources and problems

El Salvador is endowed favorably with water resources, receiving the average annual precipitation of 1,800 mm. Their distribution in time and space poses constraint to their effective use. Over 90% of the annual rainfall concentrates in the rainy season from May through October. Also, several areas are in rain shadow with less than 1,400 mm annual precipitation. In the Eastern Region, rain shadow areas are found in the eastern most area around the Fonseca gulf and along the border with Honduras and in the midstream of the Río Grande de San Miguel to the east of the San Miguel volcano.

Even during the rainy season, some areas experience dry spells called "canícula" for 6-30 days.

Most part of the Eastern Region experience moderate dry spells, except for the northern part of the Torola river basin and the area of the San Salvador formation. Severe dry spells are experienced along the Pacific coast from the Jiquilisco bay to the La Unión bay and the southern part of La Unión especially along the border with Honduras.

Runoff coefficients are relatively small for most rivers in El Salvador despite a small area of remaining forest cover and degraded forest resources. Areas underlain by relatively young volcanic rocks function effectively as recharging areas for groundwater. Also heavy rainfalls immediately following dry spells or prolonged drought tend to be absorbed more easily by soil. Relatively high evapotranspiration, ranging 1,400-1,900mm/year as observed, is another factor for the low runoff coefficients. Evapotranspiration is particularly high in the Eastern Region: 1,964mm in San Miguel, 1,944mm in La Union, and 1,986mm in San Francisco Gotera. The runoff coefficients are even lower in the Eastern Region: 23% for the Jiquilisco bay area, 14% for the Rio Grande de San Miguel basin, and 16% for the Goascoran river basin. This implies conversely, even discounting the higher evapotranspiration, groundwater potentials are high in the Eastern Region. However, systematic exploration of groundwater resources has not been conducted (Table 6.7).

Table 6.7. Groundwater Aquifers in the Eastern Region

Aquifer	Location	Area of recharge (km ²)	Recharge rate (Mm ³ /year)
Lempa-Usulután	Coastal Plains in Usulután		100
Usulután volcano	Usulután		100
Jocotal basin	San Miguel	92	45
Olomega basin	Olomega lagoon area	100	ND
Quelepa	North of San Miguel volcano		30
Chapeltique	Chapeltique valley	200	60
La Union	Fonseca gulf area	ND	ND
East Pasaquina basin	Morazán	30	ND

Source: The same as Table 6.2.

Not only downstream areas but also some midstream and upstream areas are subject to habitual inundation in El Salvador. While the Country is rarely subject to direct attacks of hurricanes, hurricane-induced rainfalls often cause extensive flooding. In the Eastern Region, extensive lowland areas were inundated by storms caused by the hurricane Mitch from the Lempa downstream, through the Jiquilisco bay area, to the northwestern area of the Olomega lagoon and also in the area around the La Union bay, the southeastern tip around Tamarindo, and a small area along the middle reach of the Lempa river downstream of the September 15 dam.

Contamination of river water is proceeding, mainly associated with larger urban centers throughout the Country. In the Eastern Region, pollution of the Rio Grande de San Miguel by

sewage discharge from San Miguel city, and sewage discharge through a few rivers into the La Union Bay are matters of concern. Also some surface water derived from geothermal activities has high temperature and high TDS contents. Along the middle reach of the Rio Grande de San Miguel, shallow groundwater is contaminated by polluted river water. In the Olomega lagoon area, the pollution of both surface water and shallow groundwater poses serious concern. Traces of arsenic are also reported, presumably due to volcanic activities.

High erosion areas have been identified in the upper basins of larger rivers and in the basins of small rivers with large riverbed gradients draining the western part of the Country into the Pacific ocean. In the Eastern Region, the Torola river basin, the upper basin of the Rio Grande de San Miguel, and the Goascoran river basin are considered to be high erosion areas. Erosions in these areas are strongly associated with sediment depositions in respective downstream areas causing habitual floods.

(2) Issues for water resources development and management in the Eastern Region

The Eastern Region shares with the rest of the Country the common characteristics of water resources and common water-related problems, but both are more conspicuous in the Region. In particular, both floods and droughts are more severe, and the extensive area suffering from dry spells during the rainy season is unfortunately a unique characteristic of the Eastern Region. The Region shares also the erosion and sedimentation problem due to degraded upper basins. Despite the relatively low levels of economic activities and urban development, water pollution is already a serious problem in the Eastern Region due mainly to untreated sewage discharged into rivers. Solid wastes dumped on riverbanks are also commonly observed.

Given these conditions observed in the Eastern Region, the watershed management is of utmost importance for the development of the Region. A river basin is to be taken in its entirety, both quantity and quality aspects treated in an integrated manner, and conjunctive use of surface water and groundwater pursued. The upper basins of the Rio Grande de San Miguel and the Torola river, and the northern part of La Union should be treated particularly carefully by the river basin approach.

A key to the successful watershed management is to enhance the water retention capacity of river basins, particularly in upper and middle basins through reforestation and forest management, adoption of better farming practices such as sloping agricultural land technology (SALT), and water storage on a large and small scale. In the Rio Grande de San Miguel basin, there is no site for a sizable reservoir, and thus small reservoirs and ponds need to be combined. It may be more effective to link small ponds by contour canals for a tank system. This system may be particularly relevant in the Region for the purpose of supplemental irrigation to bridge dry spells during the rainy season and extend cropping season by a few months at most, rather than full scale irrigation in the middle of the dry season.

The service coverage of water supply is still very low in the Eastern Region, particularly in Morazan and La Union. As urbanization proceeds not only inevitably but also as a necessary condition to support the Eastern Region development, the demand for water supply expansion would increase rapidly. Provision should be made for proper treatment of sewage in association with any future expansion of water supply for urban centers.

Annex to Chapter 6

Detailed Data on Potable Water Supply

Table 6.A1: Conditions of Water Supply Systems by Municipality, 2001

Table 6.A2: Population Coverage by Potable Water Supply Services, 2001

Table 6.A3: Population Coverage of Urban Water Supply by ANDA, 2001

Table 6.A4: Unit Consumption of Domestic Water in GMSS, 1999

Table 6.A5: Situation of Potable Water Supply by Department, 2001

Table 6.A1. Conditions of Water Supply Systems by Municipality, 2001

No.	Department	No. of Municipalities	Service by		Without Service	Municipalities without water supply system
			ANDA	Municipality		
1	Ahuachapan	12	11	1	0	
2	Santa Ana	13	12	1	0	
3	Sosonate	16	12	3	1	Cuisnahuat
4	Chalatenango	33	15	18	0	
5	La Libertad	22	16	6	0	
6	San Salvador	19	17	2	0	
7	Cuscatlan	16	12	1	3	Oratorio de Concepcion, El Rosario, San Cristobal
8	La Paz	22	2	2	0	
9	Cabañas	9	6	3	0	
10	San Vicente	13	12	0	1	San Ildefonso
11	Usulután	23	21	0	2	Ereguayquin, San Dionisio
12	San Miguel	20	13	7	0	
13	Morazán	26	6	18	2	Joateca, San Carlos
14	La Unión	18	10	7	1	El Sauce
Total		262	183	69	10	

Source: ANDA, *Boletín Estadístico*, No.23, 2001.

Table 6.A2. Population Coverage by Potable Water Supply Services, 2001

(Unit: %)

Category of Population	ANDA	Others	Total
Urban Area	89.5	6.5	96.1
Connected to tap water system	83.5	6.5	90.0
with public water supply services	6.0	0.0	6.0
Rural Area	30.0	0.0	30.0
Connected to tap water system	20.2	0.0	20.2
with public water services	9.9	0.0	9.9
National Level	60.3	3.4	63.7
Connected to tap water system	52.4	3.4	55.8
with public water services	7.9	0.0	7.9

Source: *ibid.*

Table 6.A3. Population Coverage of Urban Water Supply by ANDA, 2001

(a)

Region	Served Population	Served Population (%)		% of Natl. Urban Total
		Urban Region	Total Region	
GMSS	1,595,810	99	78	48.6
Central Region	528,880	77	30	16.1
Western Region	451,200	88	37	13.7
Eastern Region	317,350	67	24	9.6
Total	2,893,240			88.0

Source: *ibid.*

(b)

Department	Population	%
Ahuachapan	70,350	95
Santa Ana	260,540	98
Sosonate	120,310	64
Chalatenango	31,980	47
La Libertad	290,215	91
San Salvador	1,595,810	99
Cuscatlan	54,125	69
La Paz	72,320	66
Cabañas	33,040	70
San Vicente	47,200	68
Usulután	114,155	85
San Miguel	142,795	64.5
Morazán	12,515	25
La Unión	47,885	72
Total	2,893,240	88

Source: *ibid.***Table 6.A4. Unit Consumption of Domestic Water in GMSS, 1999**

Monthly consumption (m ³)	No. of service connections	%	Consumption (lts./cap./day)	%
0-20	55,395	20	81	7
21-40	166,349	59	174	44
>40	60,189	21	531	49
Total	281,933	100	231	100

Source: PRISMA; elaborated on ANDA, 2000.

Table 6.A5. Situation of Potable Water Supply by Department, 2001

No.	Department	Coverage of Potable Water Facilities (%)				Disinfection of water
		Constructed facility	Working (effected)	Continuous service	Actual coverage d=a x b x c	
		a	b	c		
1	Ahuachapan	58	99.75	68	39	79
2	Santa Ana	48	85	41	17	60
3	Sosonate	47	97	50	23	69
4	Chalatenango	56	94	58	30	77
5	La Libertad	52	92	56	27	78
6	San Salvador	51	90	53	24	78
7	Cuscatlan	49	97	68	32	93
8	La Paz	45	93	46	19	82
9	Cabañas	45	79	44	16	40
10	San Vicente	52	93	49	23	64
11	Usulután	74	93	78	55	90
12	San Miguel	53	98	71	37	86
13	Morazán	36	85	71	22	73
14	La Unión	27	91	76	18	54

Sources: RAS-ES, USAID, 2001.

**Final Report
Volume 4
Sector Review Report**

Part 3

Human Capital

PART 3: HUMAN CAPITAL

1 Demography and Employment

1.1 Demography

Long-term population growth in El Salvador reflects major socioeconomic changes and reveals inherent characteristics of the Country's recent history. The total population in El Salvador increased from some 250,000 in 1820's to 1.43 million in 1930, representing the average annual increase at 1.7%. During the expansion period of coffee production over 1930-80, the population grew at the average rate of 2.4% per annum to reach 4.6 million by 1980. The population growth slowed down considerably thereafter due to the number of victims by the civil war and increased out migration. The average annual population growth was 1.9% during 1980-90. As the civil war ended, the population started to increase rapidly to 5.6 million by 1994. The average annual increase at 2.4% during 1990-1994 is higher than the natural increase, implying large social increase due to the return of refugees and some migrants. The population grown after 1994 has averaged 1.9% per annum, close to the natural increase.

Except for the periods of the coffee boom and the civil war, and a few years after the war, the population in El Salvador has increased consistently at the annual average rate of 1.7-1.9%. This may represent the trend population growth that is made possible by generally favorable natural conditions without any significant technological innovation.

The gross birth rate in El Salvador was 25.2 per 1,000, and the gross death rate 4.8 per 1,000 in 1998 corresponding to the natural population growth at 2.0% per annum. The death rate in El Salvador is already low, comparable not only to Central American countries but also to more advanced countries, while the birth rate is still higher in El Salvador than the rates in Costa Rica and Panama as well as in other advanced countries as shown.

(Unit: per 1,000)

	Nicaragua	Honduras	Guatemala	Costa Rica	Panama	El Salvador	Mexico	USA	Japan
Crude death rate	5	6	7	4	5	6	5	9	8
Crude birth rate	30	31	33	20	21	26	25	15	9

Source: World Bank, World Development Indicators 2002.

The recent increase in the natural population growth in El Salvador may reflect the "dividend of the peace". However, it may be supported more by the increasing remittance than the increase in productivity of the Salvadoran economy. The ratio of total remittance to the GDP decreased once over the post-war years, but has been increasing consistently since 1996 (Table 1.1).

1.2 Employment

(1) Employment opportunities

The agriculture sector has provided the largest employment opportunities throughout the history of El Salvador. While the agricultural GDP decreased its share from 38.0% in 1980 to a 10% level in recent years (10.1% in 2001), the agricultural sector contributed to 26% of the total employment in 1997, still larger than 16% by the industrial and 21% by the commercial sectors.

Employment data in the industry, commerce and services sectors are available for 1997 by type of activities as shown in Table 6.1. In the industry sector, employment in the textile and leather sub-sectors has the largest share (15.3% of the total in the three sectors, reflecting the importance of maquila in the Country's economy. The total employment in maquila industries increased from 17,000 in 1990 to 85,000 in 2000, mostly for female workers (FUNDE, Performance of the Labor Market in El Salvador, 2002).

Table 1.1. Number of People Employed in Industry, Commerce, and Service Sectors, 1997

Activity	Number of Employment		
	Total	Percentage Total	Waged Personnel
INDUSTRY			
food, beverage, and tobacco	44,563	7.17	33,608
industrial textile and leather	95,229	15.33	91,760
wood product, furniture	7,959	1.28	4,640
paper product, printing	9,444	1.52	8,645
derived chemical product	21,764	3.50	21,266
non-metallic minerals	11,364	1.83	10,021
basic metal industry	1,296	0.21	1,294
metal products, machinery, & equipment	19,134	3.08	16,365
other industries	3,748	0.60	3,603
National total	214,501	34.53	191,202
Eastern Region	10,363	15.08	7,345
COMMERCE			
whole sale commerce	28,252	4.55	25,598
retail commerce	197,952	31.87	85,312
National total	226,204	36.42	110,910
Eastern Region	34,484	50.19	12,408
SERVICE			
Restaurants and hotels	48,594	7.82	26,694
financial establishment	26,783	4.31	26,124
Insurance	3,101	0.50	2,980
real estate and services to companies	21,036	3.39	17,797
Sanitation and others	1,185	0.19	796
social and community	37,378	6.02	31,988
entertainment and leisure	7,566	1.22	5,608
personal and home	34,815	5.60	21,329
National total	180,458	29.05	133,316
Eastern Region	23,856	34.72	15,639
El Salvador	621,163	100.00	435,428
Eastern Region	68,703	100.00	35,392

Source: Based on Ministry of Economy. *Anuario Estadístico 1999*.

In the Eastern Region, the industrial employment has only a 4.8% share in the total national employment in this sector, much smaller than its population share (20.4% in 2000). Lack of maquila industries is clearly a major factor for this. Employment in the other two sectors has much larger shares in the respective national total: 15.2% for the commercial, and 13.2% for the service sectors.

Employment in El Salvador has been increasing more or less in line with the increase in economically active population. Consequently, the unemployment rate decreased steadily to 7.2% by 2000. The unemployment rate, however, varies, widely among departments from 5.4% in Cabañas to 9.4% in Ahuachapán. Particularly in the Eastern Region, the unemployment rate is higher than the national average in Usulután (7.6%), Morazan (7.3%) and La Unión (7.7%), except in San Miguel (6.5%).

Table 1.2 Unemployment Rate by Department, 2000

Department	%
Ahuachapán	9.35
Santa Ana	7.50
Sonsonate	7.88
Chalatenango	5.36
La Libertad	6.38
San Salvador	6.41
Cuscatlán	7.31
La Paz	7.71
Cabañas	5.40
San Vicente	8.24
Usulután	7.57
San Miguel	6.48
Morazan	7.27
La Unión	7.67
Average in the Eastern Region	7.25
National average	7.18

Source: *Encuesta de Hogares de Propósitos Múltiples*, 2000 and 2000.

(2) Remittance and labor force participation

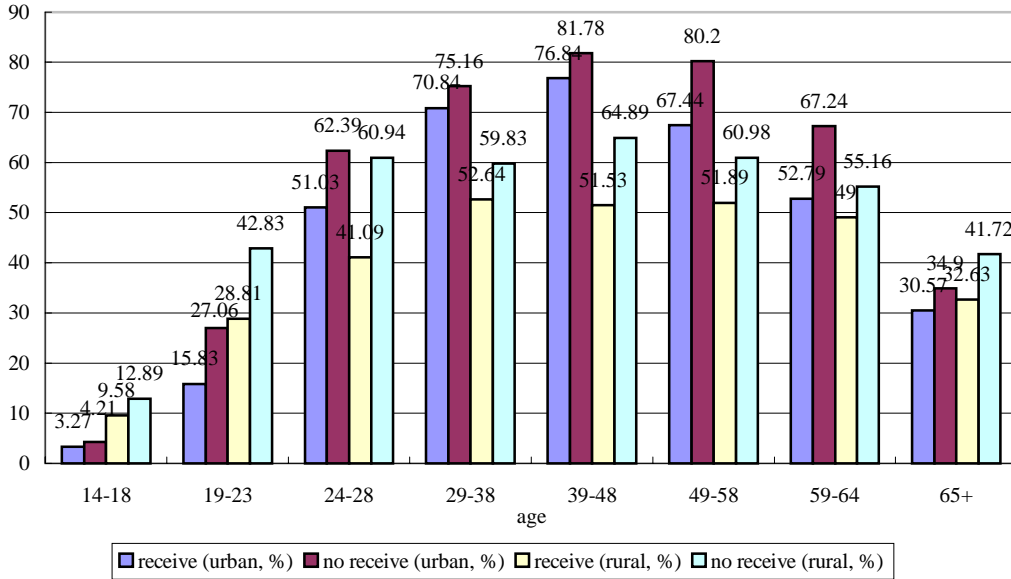
Close to 20% of households receive remittance from a family member living in the US or elsewhere. The remittance tends to reduce people's incentive to work as reflected in differences in labor force participation depending on whether or not they receive remittance. As shown in Figure 1.1, for all the age groups living in urban or rural areas, labor force participation is consistently lower for those receiving remittance than those who do not.

(3) Minimum wage

The minimum wage in El Salvador was US\$144.5 in 1998. This is rather high as compared to other countries in Central America and Mexico. Changes in the minimum wage for selected

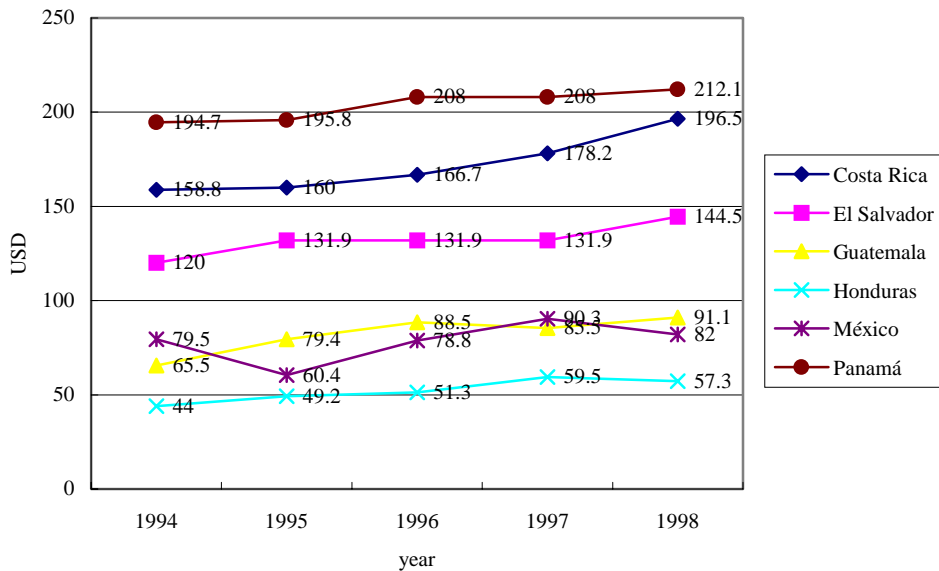
countries in the region are shown in Figure 1.2. The minimum wage in El Salvador is lower than that in Panama and Costa Rica, but much higher than the levels in the three other countries.

Figure 1.1. Remittance and Labor Force Participation by Age Group, 1999



Source: Based on FUSADES, *Crecimiento con Participación Volumen II, 2000*.

Figure 1.2. Changes in Minimum Wage in Selected Countries in Central America and Mexico



Source: FUSADES. *Crecimiento con Participación Volumen II, 2000*.

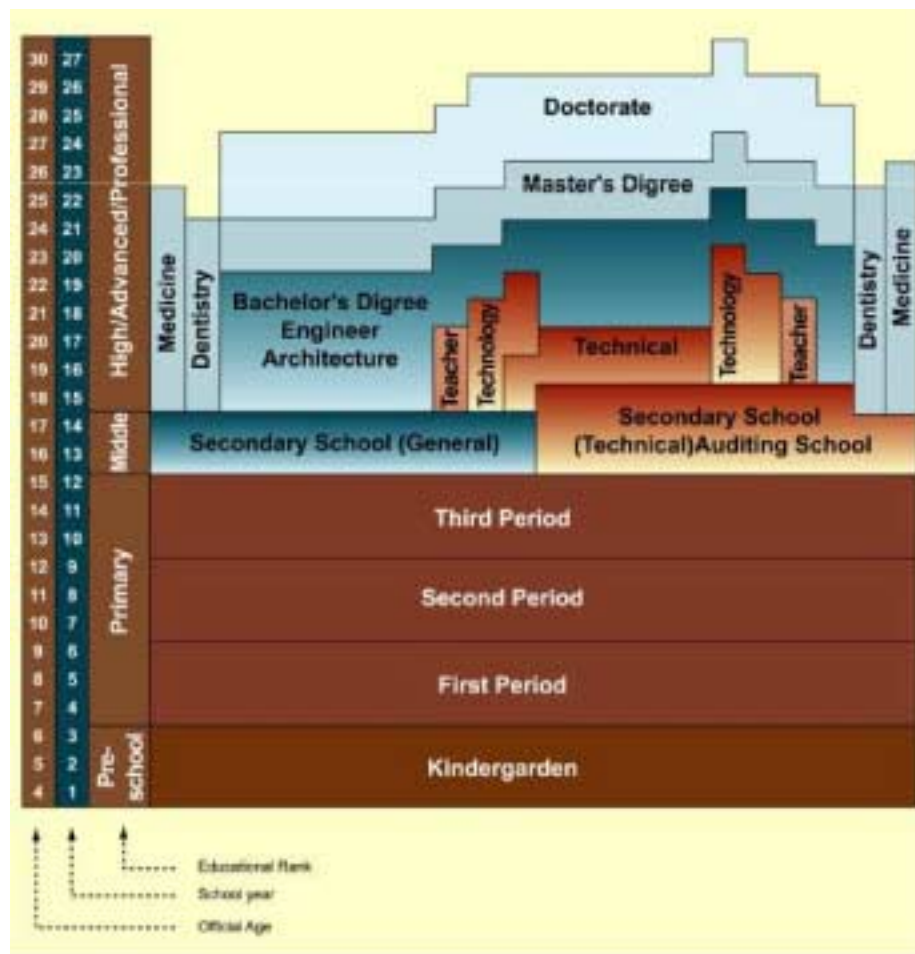
2 Education and Training Opportunities

2.1 Education

(1) Educational system in El Salvador

The formal education system in El Salvador is composed of pre-school education, primary education, secondary education, and higher education, of which the first two levels are compulsory. Pre-school education at kindergarten is for children of 4 to 6 years old. Primary education is for 9 years (1st to 9th grade) consisting of three cycles of 3 years each. It is designed for children normally for age 7 to 15. Secondary education offers education by track: general and vocational. Duration is 2-3 years depending on the tracks. Higher education covers education at technological institutions, universities and post-graduate faculties. Above the secondary school level, students can choose from various alternative passes of educational attainment as illustrated in Figure 2.1.

Figure 2.1. Educational System in El Salvador



Source: Elaborated from Ministry of Education homepage.

(2) Characteristics of education in El Salvador

Low literacy rate and shorter length of study

The literacy rate in El Salvador, 75% in 1999, 92% for male and 76% for female in 2000 (World Bank, op. cit. 2002), is higher than in Nicaragua, Honduras and Guatemala, but significantly lower than in Costa Rica (96% in 2000), Belize (93%), and Panama (93% for male and 91% for female). Also, the literacy rate varies widely among the departments, ranging from 90.7% in San Salvador to 64.6% in La Union. Morazan (66.7%) and Usulután (69.3%) in the Eastern Region also have the literacy rate lower than the national average.

The average length of the study ranges from 6.9 years in San Salvador to 3.2 years in Cabañas. Departments in the Eastern Region have generally shorter study duration: 5.0 years in San Miguel, 4.3 years in Usulután, 3.8 years in Morazan, and 3.4 years in La Union.

Table 2.1. Literacy rate and average length of study in El Salvador, 1999

Department	Literacy rate (15 yrs & older) (%)	Ave. length of study (yr)
Ahuachapán	70.8	3.29
Santa Ana	77.8	4.5
Sonsonate	74.8	4.19
Chalatenango	74.1	4.1
La Libertad	83.1	5.7
San Salvador	90.7	6.9
Cuscatlán	84	5.1
La Paz	77.1	4.5
Cabañas	66.7	3.2
San Vicente	74.2	4.5
Usulután	69.3	4.3
San Miguel	76.1	5
Morazan	66.7	3.8
La Union	64.6	3.4
National ave.	75	4.46
Eastern Region ave.	69.18	4.13

Source: UNDP, *Informe sobre Desarrollo Humano en El Salvador 2000*.

Urban bias in educational spending

Table 2.2 shows the allocation of national budget for the education sector to departments and population distribution by department in 1997. San Salvador has by far the largest allocation (33.5%) of the education budget, larger than its large population share. The Eastern Region as a whole received a proportionally larger share (24.5%) of the education budget than its population share (21.9%). Its allocation to departments, however, is biased to more developed San Miguel and Usulután. Morazan and La Union received shares of the education budget smaller than respective population shares.

Small education budget as a percentage of GDP and national budget

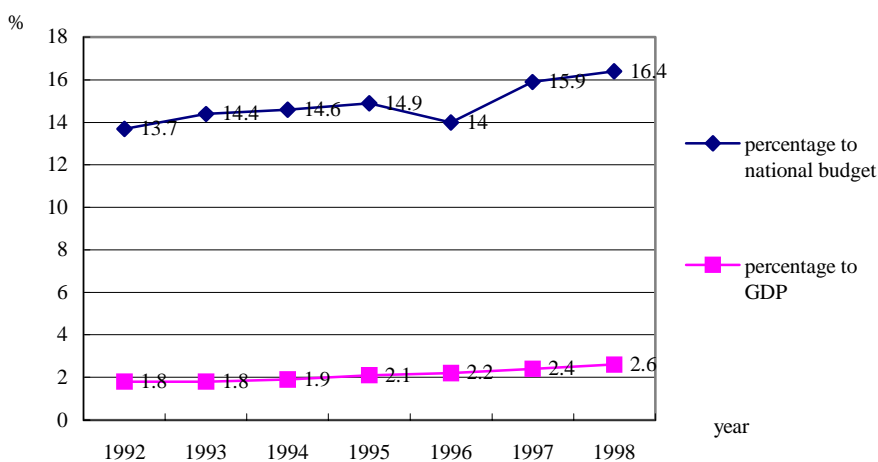
During 1992-98, the ratio of the education budget to the GDP increased consistently in El Salvador. The trend is the same for the education budget as a percentage of the national budget (Figure 2.2). Despite the continuous efforts of the Government to strengthen the education sector in El Salvador, the budget allocation falls short of levels in a few Central American countries and Mexico (Table 2.3).

Table 2.2. Proportion of Budget and Population Distribution by Department, 1997

Department	Budget	Population distribution (1997)
Ahuachapán	4.1	5.50
Santa Ana	8.2	8.70
Sonsonate	6.4	7.40
Chalatenango	3.3	3.60
La Libertad	8.2	10.50
San Salvador	33.5	28.20
Cuscatlán	2.7	3.50
La Paz	4.0	5.00
Cabañas	2.2	2.80
San Vicente	2.7	2.80
Usulután	6.0	5.80
San Miguel	12.0	7.80
Morazan	2.5	3.20
La Unión	4.0	5.10
Eastern Region	24.5	21.90
El Salvador	100.0	100.00

Source: FUSADES, *ibid.*

Figure 2.2. Relationships between Educational Budget, National Budget, and GDP, 1992-1998



Source: MINED, *Educación para Todos. Un Sueño Posible*, 2002.

Table 2.3. Relationships between Education Budget, National Budget and GDP in Selected Countries, 1997

	Educational budget	
	% of national budget	% of GDP
Costa Rica	21.0	4.7
Guatemala	17.0	1.6
Honduras	15.0	4.0
El Salvador	15.9	2.4
Nicaragua	15.0	3.9
México	24.0	5.8
Panama	18.0	5.2

Sources: World Bank, 1997; MINED (for El Salvador).

(3) Educational performance in El Salvador

Secondary education

Secondary schools in El Salvador are divided into two types: general secondary schools with 2 year courses and vocational technical secondary schools with 3 year courses. The latter consist of schools for four tracks: commercial, industrial, health and agriculture. Private schools have large contribution at the secondary level with 52.1% of the total enrollment in the Country.

Table 2.4 shows the number of secondary schools and enrollment by department in 1998. San Salvador has 1,933 secondary schools out of 4,500 in the Country with almost 45% of all the students at this level in 1998. The Eastern Region has a 19.3% share in terms of the number of schools, but its enrollment share is slightly lower at 18.8%. Morazan and La Union have shares of schools and enrollment much lower than respective population share.

Table 2.4. Number of Secondary Schools and Enrollment by Department, 1998

Department	No. of Schools	% of total no. of schools	Total enrollment	Enrollment rate (%)	% of total pop. (1997)
Ahuachapán	127	2.82	704	2.63	5.50
Santa Ana	332	7.38	1,981	7.39	8.70
Sonsonate	233	5.18	1,873	6.98	7.40
Chalatenango	126	2.80	489	1.82	3.60
La Libertad	408	9.07	2,098	7.82	10.50
San Salvador	1,933	42.96	11,930	44.49	28.20
Cuscatlán	142	3.16	806	3.01	3.50
La Paz	160	3.56	1,084	4.04	5.00
Cabañas	58	1.29	213	0.79	2.80
San Vicente	111	2.47	588	2.19	2.80
Usulután	275	6.11	1,637	6.10	5.80
San Miguel	400	8.89	2,283	8.51	7.80
Morazán	74	1.64	367	1.37	3.20
La Unión	121	2.69	762	2.84	5.10
Eastern Region	870	19.33	5,049	18.83	21.90
El Salvador	4,500	100.00	26,815	100.00	100.00

Source: Based on MINED, *Estadísticas Educación, CENSO Annual de Matrícula Estudiantil*, 1998.

The enrollment rate for secondary schools is very low in El Salvador, 37.7% in 2000. This rate is much larger in most Latin American countries: 69.5% in Peru, 62.5% in Panama, 54.0% in Ecuador, 49.0% in Nicaragua, and 48.5% in Costa Rica (Table 2.5). High costs of attending secondary schools may be a major reason for the low enrollment rate. In 2002, the average monthly cost to attend public secondary schools ranged from ¢50 or US\$5.71 to ¢150 or US\$17.1, and private school enrollment cost at least ¢100 or US\$11.4 (APREMA, *Guia para Padres de Familia*, 2000). These costs correspond to 10-20% of the average per capita monthly household income of most departments (Table 2.6). Also, a recent study indicates that costs for uniform, textbooks, food, transport and others account for 57% of the total direct cost of secondary education (World Bank, *Secondary Education in El Salvador: Education Reform in Progress*, 1999). Moreover, the survey conducted in 1997 to population of age 16 to 18 years has revealed reasons for not attending secondary schools as: need to work for 32.6%, family problems for 23.7%, excessive costs for 17.5%, and no value for 18.1%.

Table 2.5. Secondary Education Participation Rate for Selected Countries in Latin America, 1999

Country	Sec. ed. enrollment rate (gross)
Bolivia	37.0
Colombia	72.5
Costa Rica	48.5
Ecuador	54.0
El Salvador (2000)	37.7
Guatemala	25.0
Honduras	33.0
Mexico	64.0
Nicaragua	49.0
Panama	62.5
Peru	69.5

Sources: UNICEF website (<http://www.unicef.org>); MINED, *Educación para Todos*, 2002 (for El Salvador).

Table 2.6. Average Per Capita Monthly Household Income by Area and Department, 2000
(Unit: US\$)

Department	Ahuachapán	Santa Ana	Sonsonate	Chalatenango	La Libertad	San Salvador	Cuscatlán
	56.37	86.21	81.28	78.22	154.39	174.07	87.33
Department	La Paz	Cabañas	San Vicente	Usulután	San Miguel	Morazan	La Unión
	80.67	64.81	79.11	79.11	92.22	65.23	71.65

Source: DIGESTYC, *Encuesta de Hogares de Propósitos Múltiples*, 2000.

In El Salvador, all teachers and professors, from the primary to the university levels, need to major in pedagogy in universities. Licenses are given to those who have completed the degree, and those who do not have a license are not allowed to become teachers. While this system is enforced, there is no corresponding system to upgrade skills and quality of teachers. Many teachers at vocational technical schools do not have any technical background. Teachers

receive generally higher salaries in El Salvador than other professions. For example, teachers get 2.1 times as much as the average wage of all sectors in rural areas (FUSADES, *Crecimiento con Participación: Volume II*, 2000).

FANTEL scholarship

In 2001, MINED has announced the creation of new scholarship. The source of the scholarship comes from the fund called FANTEL (Fondo de ANTEL). The resources of FANTEL came from the privatization of the Country's telephone company, ANTEL. It is used for such projects that contribute to economic and social development of the Country, including the use as FANTEL scholarship with an annual budget of \$4.7 million. This scholarship fund finances university studies at the undergraduate and graduate levels both in-country (30% of award) and abroad (70%) for Salvadoran citizens who have demonstrated academic excellency. The FANTEL is administered by a consortium of an international NGO, LASPAU (Academic and Professional Programs for the Americas) and a national NGO, FEDISAL (Fundación para la Educación Integral Salvadoreña). Each year, total of 60 students have been selected.

Higher education

Technological institutes, universities and graduate schools offer higher education in El Salvador. Table 2.7 shows the number of students in 2000 by major and degree. The largest number of students is found in economy, administration, and commerce with 31,405 students or 27.4%, followed by law (18.4%), technology (16.9%), health (14.2%), and education (11.9%).

Table 2.7. Number of Students by Specialty and Degree in Higher Education, 2000

	Tecnician	Tecnologist	Professor	Engineer, BA, architect	Master	Doctor	Total
Art and architect	78			3,287			3,365
Economy, administration, and commerce	526			30,127	752		31,405
Health	855	1,423		13,767	249		16,294
Science				2,270	21		2,291
Agrofishery and environment	174			1,399	53		1,626
Law				21,047			21,047
Humanity	103			583		3	689
Technology	4,556			14,861			19,417
Education			8,928	4,510	176		13,614
Social science	283			4,627	17		4,927
Total	6,575	1,423	8,928	96,478	1,268	3	114,675
%	5.73	1.24	7.79	84.13	1.11	0.0026	100.00

Source: MINED, *Resultados de la Calificación de Instituciones de Educación Superior*, 2000.

i) Universities

As of this writing in early 2003, there are 27 universities in El Salvador (the number decreased from 29 in 2000): one state-owned and 26 private (Figure 2.3 and Table 2.8). Of 46 institutes

of these universities, 18 are located in San Salvador with the total students of 62,334 or close to 60% of all the university students. The Eastern Region has 13,591 students or 12.6% of the total at nine universities as of 2000. Of these, the university of Interamericano Simon Bolivar in San Miguel closed in 2002. At present, there are five institutes in San Miguel and three in Usulután, and no university in La Unión and Morazan.

University education is concentrated at the undergraduate level and no institute offers masters or doctorate programs in technical fields. This may be due to the dominance of private institutes preferring courses in such fields that require smaller investments without government subsidies. University degrees are offered only in eight fields: biomedicine, civil engineering, food and nutrition, electrical engineering, electronics, computers, industry and mechanics.

The number of students per computer at universities improved from 37.1 in 1999 to 27.0 in 2000. The same is true for Internet-connected computers: from 65.0 students per computer connected to Internet in 1999 to 43.0 in 2000. The performance is lower in the Eastern Region, and even at the most prestigious university UNIVO, the rates are 45.8 students per computer and 47.2 students per Internet-connected computer in 2000.

ii) Technological institutions

Technological institutions receive high school graduates and train them for two years. The degree of technical expert (técnico) is offered at present in 11 fields: computers, automotives, agro-industry, biomedicine, civil engineering, industrial tailoring, electrical engineering, electronics, industrial engineering, mechanics, and food processing.

As of 2000, there are nine technological institutes in El Salvador, five State-owned and four private, for a total of 14 campuses (Figure 2.3 and Table 2.8). Table 2.9 presents data on technological institutions in El Salvador in 2000. The Central American Technological Institute (ITCA) has the largest enrollment of students, accounting for 59% of all the students in this category in 2000. San Salvador has five institutes with 3,321 students accounting for 58.3% of the total. Only three institutes are located in the Eastern Region with 891 students or 18.6% of the total. No institute exists in La Unión and Morazan. There is a plan to construct a technological institute in La Unión, and a feasibility study will be conducted in mid 2003.

Planned Technological Institute in La Unión

MINED has a plan to build new technological institute in La Unión attached to existing national high school, “Centro Escolar de La Unión”, in order to offer technical level career and vocational training courses. Plan consists of four components: (1) Demolish unused and deteriorated infrastructure of Centro Escobar and construct new buildings beside high School; (2) provide necessary equipment and machineries; (3) provide necessary training and technical assistance to the staff; and (4) design the curriculum of the courses.

Figure 2.3. Geographical Distribution of Universities and Technological Institutes, 2002

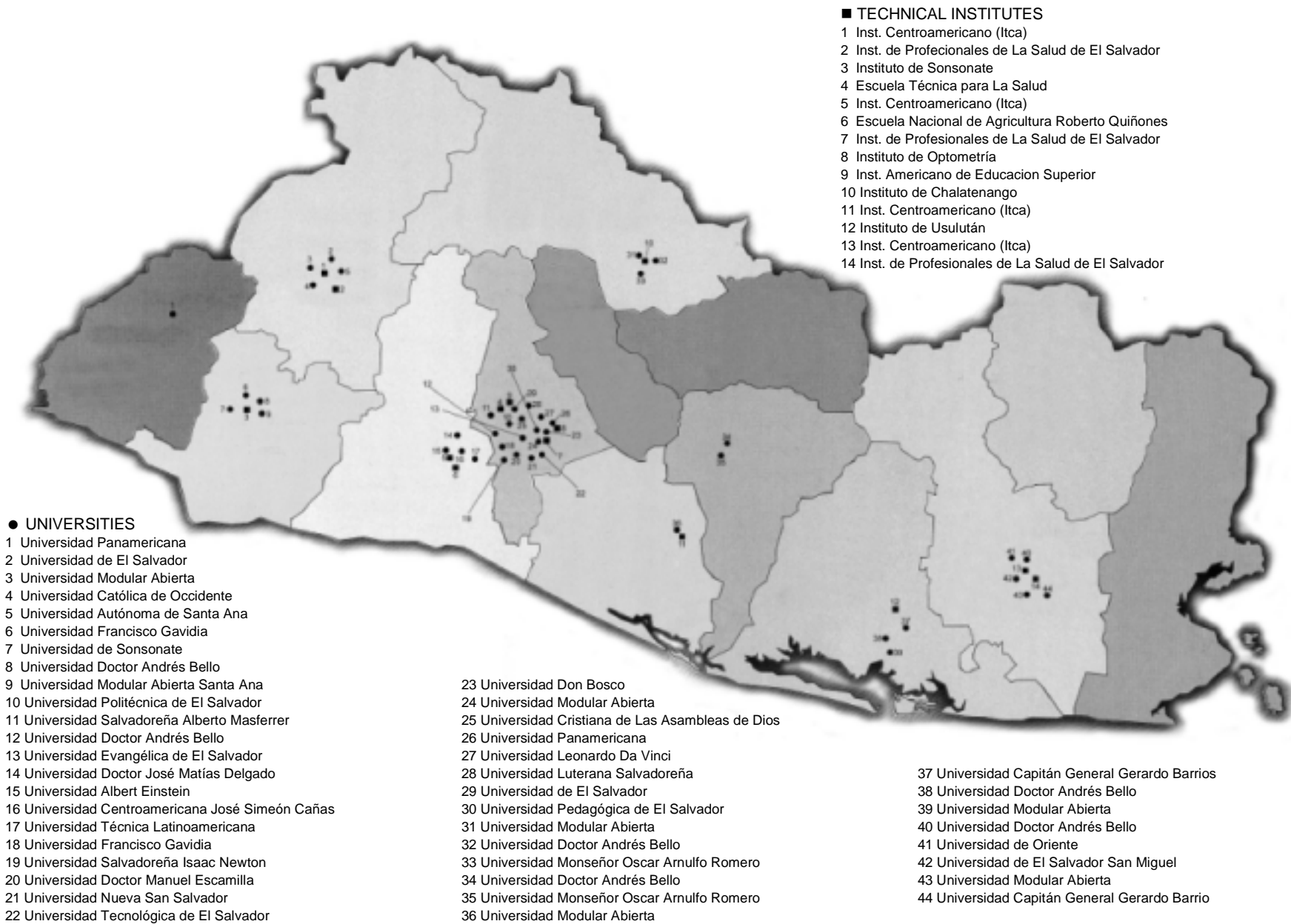


Table 2.8. Regional Distribution of Universities and Number of Students, 2000

Universities	San Salvador	Santa Ana	Sonsonate	Ahuachapán	La Libertad	Chalatenango	Cuscatlán	Cabañas	La Paz	San Vicente	Usulután	San Miguel	Morazán	La Unión	total
1 Albert Einstein					2,402										2,402
2 Autónoma de Santa Ana		712													712
3 Capitán General Gerardo Barrios											1,439	2,997			4,436
4 Católica de Occidente		3,082													3,082
5 Centroamericana José Simón Cañas					8,294										8,294
6 Cristiana de las Asambleas de Dios	450														450
7 de El Salvador	19,714	4,490								671		3,242			28,117
8 de Oriente												4,439			4,439
9 de Sonsonate			2,036												2,036
10 Don Bosco	2,979														2,979
11 Dr. Andrés Bello	1,003		197			172					74	284			1,730
12 Dr. José Matías Delgado					5,086										5,086
13 Dr. Manuel Luis Escamilla	467														467
14 Evangélica de El Salvador	2,799														2,799
15 Francisco Gavidia	7,014	613													7,627
16 Interamericano Simón Bolívar*												234			234
17 Leonardo Da Vinci	352														352
18 Luterana Salvadoreña	379														379
19 Modular Abierta	1,866	1,092	786			271			311		451	431			5,208
20 Monseñor Oscar Arnulfo Romero						464									464
21 Nueva San Salvador	1,878														1,878
22 Panamericana	371			252						454					1,077
23 Pedagógica de El Salvador	2,229														2,229
24 Politécnica de El Salvador	1,931														1,931
25 Salvadoreña Alberto Masferrer	1,785														1,785
26 Salvadoreña Isaac Newton	184														184
27 Técnica Latinoamericana					408										408
28 Tecnológica de El Salvador	16,638														16,638
29 Militar de El Salvador *	295														295
Total students	62,334	9,989	3,019	252	16,190	907	0	0	311	1,125	1,964	11,627	0	0	107,718
% of students	57.87	9.27	2.80	0.23	15.03	0.84	0.00	0.00	0.29	1.04	1.82	10.79	0.00	0.00	100.00
% of students in the Eastern Region															12.62
Total institutes	18	5	3	1	4	3			1	2	3	6			46
% of institutes	39.13	10.87	6.52	2.17	8.70	6.52	0.00	0.00	2.17	4.35	6.52	13.04	0.00	0.00	100.00
% of institutes in the Eastern Region															19.57

Source: MINED, *Resultado de la Calificación de Instituciones de Educación Superior, 2000 and 2001.*

Table 2.9. Technological Institutions in El Salvador, 2000

Name	Location	Enrollment	Ratio (%)
Americano de Educación Superior	San Salvador	61	1.17
Centroamericano (ITCA)		3,366	59.02
Santa Tecla	San Salvador	2372	41.59
Santa Ana	Santa Ana	502	8.80
Zacatecoluca	La Paz	235	4.12
San Miguel	San Miguel	257	4.51
De Chalatenango	Chalatenango	77	1.35
De Optometría	San Salvador	36	0.63
De Profesionales de la Salud de El Salvador		1,418	24.86
San Salvador	San Salvador	531	9.31
Santa Ana	Santa Ana	385	6.75
San Miguel	San Miguel	502	8.80
De Sonsonate	Sonsonate	184	3.23
De Usulután	Usulután	132	2.31
Escuela Nacional de Agricultura “Roberto Quiñónez”	La Libertad	108	1.89
Escuela Técnica para la Salud	San Salvador	321	5.63
Ratio of students in San Salvador (%)			58.23
Ratio of students in the Eastern Region (%)			15.62
Total		5,703	100

Source: Based on MINED, *Resultado de la Calificación de Instituciones de Educación Superior 2000*, 2001.

Departments they have planned for technological institute are: Naval Mechanics, Marine Biology, Hotel Management and Tourism, Port Development and Administration, Naval Electronics, Electronic Communications, and Environmental Management

In addition, they have proposed to conduct the following short-term training courses. Computer assisted fishing, handcraft, foreign language, and computer. MINED expects to open this new technological institute from 2006, although the source of fund for construction has not yet been determined.

Regional research system

There is a plan promoted by tertiary educational institutes in the Eastern Region with the assistance of CND to conduct joint research in the areas which match the regional needs and which contribute to the development of the Eastern Region. By conducting research jointly, universities can share land, equipment, human resources, know-how, and results. In addition through joint research, universities avoid the duplication of their effort. The source of the fund for the plan execution, however, has not yet been determined. The universities and technological institutes who agreed to join this program are: Universidad de Gerardo Barrios, Universidad de Oriente (UNIVO), Universidad de El Salvador, and ITCA-San Miguel.

(4) Education reform in El Salvador

Education reform has been carried out in El Salvador for the period of 1995-2005. It aims to achieve four objectives: (i) building human capital for a global economy, (ii) inculcating values and attitudes to consolidate the peace, (iii) teaching tolerance and understanding consistent with a democratic society, and (iv) transmitting knowledge and skills that will help individuals break up the cycle of intergenerational poverty. For the period of 1999-1994, the Government set targets for: 1) facilitation of access to education, 2) improvement in education quality, 3) formation of values, and 4) promotion of community participation in education. Specific targets set by the Ministry of Education (MINED) are given in Table 2.10.

Table 2.10. Government Targets for the Education Sector, 2000-2004

Indicator	2000	2004
Illiteracy rate (age 15-60)	17.2	12.0
School enrollment rate		
Nursery	34.0	45.0
Basic	81.7	85.0
1st and 2nd cycles	84.0	90.0
3rd cycle	42.0	50.0
Secondary school	26.0	30.0
Over-aged students in 1st and 2nd cycles (%)	15.0	10.0

Source: MINED homepage (<http://www.mined.go.sv>).

The Government is also working toward the improvement of secondary schools in technical areas in cooperation with European Union. The Technical Medium Education Reform Process Assistance (APREMAT) started in 1999 for the duration of six years. The project focuses mainly on curriculum development, instructor training, and installation of facilities and equipment, and 22 pilot schools have been selected from all the departments throughout the Country.

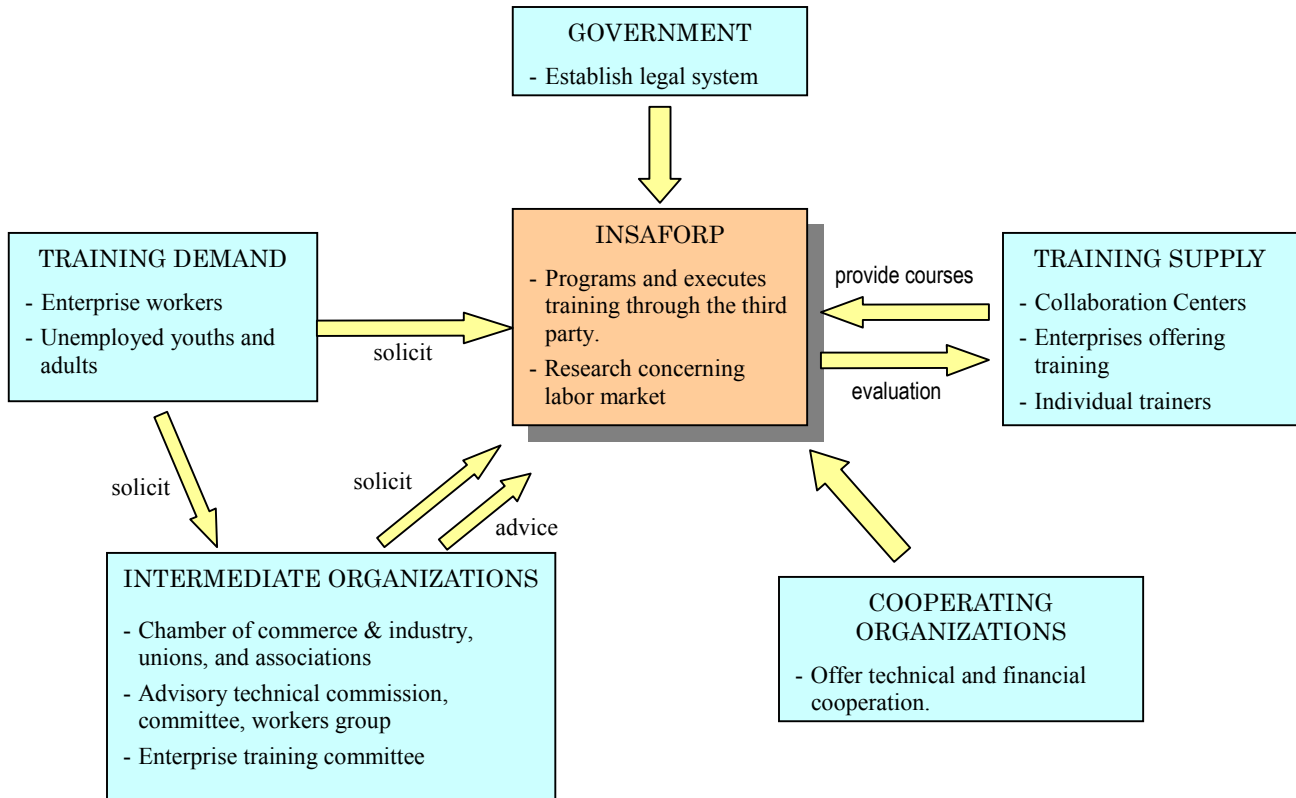
2.2 Vocational Training

In El Salvador, as in many other Latin American countries, vocational training for workers and the unemployed are conducted using the fund based on 1% of the payroll that enterprises pay for their employees. The Salvadoran Institute of Professional Formation (INSAFORP) was created in 1994 as the “training facilitator” for the system. INSAFORP entrusts the execution of training to registered training institutions through tendering. Figure 2.4 shows how INSAFORP functions.

INSAFORP has its own research division, Observatory of Labor Market (OML), to study types of human resources demanded by the Salvadoran economy, and to plan for training courses accordingly. On the supply side, there are various training providers registered in a database. These are collaborative centers such as universities, technological institutions, associations and

unions, enterprises, and individual trainers. Usually, at the end of each training course, performance of training providers is evaluated, and results are taken into account in future tenders.

Figure 2.4. Functions of Training System with INSAFORP



Source: Based on INSAFORP, *Memoria de Labores 2001, 2002*.

According to INSAFORP, there were 98 registered training institutions and individuals in 2001. INSAFORP facilitated 6,126 training courses for 151,987 trainees in 2001, increased rapidly from 4,847 trainees in 1996. San Salvador has 50 accredited training institutions of INSAFORP. The Eastern Region has 14, consisting of five in San Miguel, four in Usulután, one in Morazan, and four in La Unión.

Table 2.11 shows courses offered by INSAFORP and their distribution in 2001. Most frequently offered courses are computing with a 20.0% share in all the courses, followed by cutting and sewing (12.1%), pants sewing (9.4%), bricklayer (8.9%), residential electricity installation (8.5%) and T-shirt sewing (7.6%). The three courses related to sewing have a combined share of 29.2%, reflecting high participation of labor force in maquila.

Table 2.11. Courses Offered by INSAFORP and Their Distribution, 2001

Course	Share (%)	Course	Share (%)
Bricklayer	8.87	Automotive Mechanic (Motor Gasoline)	2.18
Computing	21.96	Auto Body Mechanic	0.27
Carpenter	1.23	Mechanic In Metallic Structure	1.50
Carpenter at Construction	0.68	Mill Machinist	0.27
Sewing (T-Shirt)	7.64	Mechanic In Parallel Lathe	0.68
Sewing (Pants)	9.41	Stamping Machine Operator	7.23
Cutting & Sewing	12.14	Industrial Sewing Machine Operator	2.32
Cosmetology	5.18	Bakery	3.82
Automotive Electricity	0.55	Pastry	0.68
Plumbing	0.41	Autobody Painting	0.41
Electricity Installation (Motors)	0.68	Cooking	0.41
Electricity Installation (Illumination)	0.68	Serigraphy	1.64
Electricity Installation (Residential)	8.46	Automotive Mechanic (Motor Diesel)	0.68
Automotive Mechanic (Motor Diesel)	0.68		

Source: INSAFORP, *Resultados del Proceso de Acreditación de Programas y la Red de Colaboradores del Sistema de Formación Profesional en El Salvador, Period 1997-2001, 2002.*

2.3 Directions for Improving Education and Training in El Salvador

Clearly, secondary and higher education in El Salvador is weak. The enrollment rate in secondary schools is low even by the Latin American standard. The quality of teachers needs improvement particularly in technical areas. For this, the pedagogical licensing system in El Salvador may need to be reformed. University education needs to be diversified to cover wider technical areas and also expanded to offer more master's and doctorate programs. Even at technological institutes, coverage of technical areas is limited. Many companies operating in El Salvador do not expect universities to produce highly skilled specialists and look for skilled experts educated abroad when needed.

In rectifying these situations, the unbalance in regional distribution of education and training institutes, particularly the concentration in San Salvador and urban bias, should also be improved. The low levels of provision and performance of education and training institutes in the Eastern Region as seen would justify the establishment of new institutes there, particularly in the most deprived departments of Morazan and La Unión.

The new institutes to be located in the Eastern Region should be specialized in such technical areas that would become more important as the Region develops particularly in relation to emerging opportunities associated with the La Unión port revitalization. They may include fermentation technology, dye works, computer software, industrial design, food science, environmental management, tourism, hydraulic works, agronomy, soil science and others. These efforts to pull up the status of the Eastern Region should be combined with broad-based improvement of primary and secondary education to push up the overall education level. The on-going APREMAT project may provide a model for curriculum development, teacher

training, and facility improvement. The Eastern Region should attain at least the national average in education attainment at the primary and the secondary level with comparatively larger shares of national resources to be allocated in the Region.

As more industries are established, induced by the La Union port, training needs will expand and diversify. Some industries provide training for their workers as a prerequisite for their successful operation. Training costs may be reduced by selectively attracting those industries that provide on-the-job training with government support. Also when port-related employment opportunities are generated, workers should be recruited from the Eastern Region as much as possible. This would give an incentive for local people to improve their literacy capacity.

3. Overseas Salvadorans

The large number of overseas Salvadorans constitutes important human capital that may be mobilized for the development of Salvadoran economy in general and the Eastern Region development in particular. Only limited data on overseas Salvadoran have been obtained. A survey on overseas Salvadoran particularly in the U.S. has been conducted as part of the Study (Volume 5: Survey Report).

The Ministry of External Relations has kept track of the number of overseas Salvadorans in different countries and cities through diplomatic missions and consulates as given in Table 3.1.

Table 3.1. Number of Overseas Salvadorans by Country and City (as of January 2002)

Country	City/State/Province	No. of Salvadorans
Canada	Toronto	106,853
	Montreal	50,000
	Ottawa	5,000
	Country total	161,853
U.S.A.	Washington D.C., MD and VA	400,000
	New York	400,000
	San Francisco	200,000
	Los Angeles	800,000
	Houston	200,000
	Other	510,000
	Country total	2,510,000
Mexico	Mexico City	3,000
	Tapachula	265
	Country total	3,265
Nicaragua	Managua	5,000
	Chinandega	1,500
	Country total	6,500
Honduras	Tegucigalpa	3,000
Costa Rica	San Jose	14,767
Panama		8,500
Belize	Belmopan	30,000
Dominican Republic	Santo Domingo	194
Puerto Rico	San Juan	225
Argentina	Buenos Aires	90
Ecuador	Quito	232

Country	City/State/Province	No. of Salvadorans
Peru	Lima	77
Brazil	Brasilia	317
	Porto Alegre	12
	Parana	40
	Country total	369
Chile	Santiago	171
Uruguay		33
Venezuela	Caracas	2,000
Colombia		185
Germany	Bonne	3,000
Italy	Rome	160
	Milano	1,742
	Country total	1,902
France	Paris	600
Switzerland	Geneva	600
England	London	804
Sweden		2,320
Spain		2,000
Belgium		400
Japan	Tokyo	77
Taiwan	Taipei	27
Australia	Brisbane	18,755
Israel	Jerusalem	250
Total		2,772,196

Source: Ministry of External Relations.

The Eastern Region depends more on family remittances. The share of families receiving remittances was 30% in the Region in 2000, higher than any other region and much higher than the national average of 20%. It varies among the departments in the Eastern Region, ranging from 40.7% in La Union to 24.4% in Usulután in 2000. The average remittance received was also the largest in the Eastern Region at ¢1,103 per month in 2000. With the lower average income of ¢2,655 per month, the remittance accounted for 41.5% of the household income in 2000. The total remittance from overseas Salvadorans is increasing consistently since the end of the civil war (Table 3.2). Its ratio to the GDP decreased from 14.4% in 1992 to 10.5% in 1996, presumably reflecting return of some migrants. However, it started to increase thereafter to reach 13.9% in 2001.

4. Poverty Situations

4.1 Poverty Trend in Recent Years

(1) Poverty trend

Changes in poverty incidence in El Salvador can be followed since 1991 by multipurpose household surveys conducted every year by the General Directorate of Statistics and Census (DGEC). Most widely used income poverty is used for the analysis. The absolute poverty is

Table 3.2. Family Remittance and GDP in El Salvador(Unit: US\$10⁶)

Year	Remittance	GDP	% of GDP
1992	858.3	5,955	14.4
1993	864.1	6,938	12.5
1994	962.5	8,086	11.9
1995	1,061.4	9,501	11.2
1996	1,086.5	10,316	10.5
1997	1,199.5	11,135	10.8
1998	1,338.3	12,008	11.1
1999	1,373.8	12,465	11.0
2000	1,750.7	13,139	13.3
2001	1,910.2	13,739	13.9
10-year average			12.1

Source: Central Bank of El Salvador.

defined by the cost of the basic nutritional basket (CBNB) as a threshold, or the income necessary to satisfy nutritional needs for a typical family. The relative poverty is defined by the cost of the amplified basket (CAB) as a threshold, or the income necessary to satisfy broader basic needs including food, clothing and housing. The official estimate of the CAB is twice the CBNB. The official poverty thresholds for typical households in urban and rural areas are presented in Table 4.1.

Table 4.1. Official Poverty Threshold and Size of Typical Household, 1993-2001

(Unit: ¢)

Year	Cost of Basic Nutritional Basket (CBNB)		Cost of Amplified Basket (CAB)		Size of typical household	
	Urban	Rural	Urban	Rural	Urban	Rural
1993	993.4	733.0	1,986.8	1,466.0	4.34	5.21
1994	1,060.0	806.5	2,120.0	1,613.0	4.33	5.08
1995	1,082.0	797.2	2,164.0	1,594.4	4.35	5.13
1996	1,249.3	964.0	2,498.6	1,928.0	4.37	5.14
1997	1,249.0	942.0	2,498.0	1,884.0	4.31	5.20
1998	1,230.2	900.0	2,460.3	1,800.0	4.21	5.01
1999	1,186.9	860.0	2,373.8	1,719.9	4.16	4.93
2000	1,146.9	878.5	2,293.8	1,757.1	4.07	4.84

Source: DIGESTYC, "Multipurpose Household Survey" of several years.

Using the official poverty thresholds defined, changes in absolute and relative poverty rates in El Salvador are presented in Table 4.2 for 1991-2000. As shown, there exist large gaps between poverty rates in urban and rural areas. For instance, the total poverty rates in 2000 were 30.7% in urban areas and 54.5% in rural areas (39.6% as a whole). Gaps have widened during this period. Since the size of a typical household is larger in rural areas, gaps are actually larger on a per capita base.

Table 4.2. Poverty Rates in El Salvador by Area as Percentage of Households, 1991-2000

Year	Urban			Rural			Total		
	Total Poverty	Absolute Poverty	Relative Poverty	Total Poverty	Absolute Poverty	Relative Poverty	Total Poverty	Absolute Poverty	Relative Poverty
1991	53.5	23.1	30.4	66.0	33.4	32.6	59.5	28.0	31.4
1992	53.2	22.0	31.2	65.2	34.0	31.2	58.9	27.8	31.2
1993	53.1	22.5	30.6	68.9	36.7	32.3	60.6	29.3	31.4
1994	44.2	16.5	27.7	65.3	35.6	29.7	52.9	24.4	28.5
1995	38.3	11.9	26.4	57.8	26.0	31.8	46.3	17.7	28.6
1996	42.4	14.6	27.9	64.9	32.3	32.5	51.7	21.9	29.8
1997	38.7	12.0	26.7	61.6	27.9	33.7	48.1	18.5	29.5
1998	36.0	12.9	23.1	58.6	28.7	29.9	44.6	18.9	25.6
1999	32.9	10.6	22.4	55.5	27.7	27.8	41.5	17.0	24.4
2000	30.7	9.5	21.2	54.5	27.9	26.6	39.6	16.4	23.2

Source: *ibid.*

(2) Factors affecting poverty

Poverty incidence declined significantly during 1990's owing to a few factors. First, the GDP increased steadily over the period. Second, comparatively more people belonging to poor households outmigrated. Third, remittances from those out migrated lifted some households out of poverty. During this period, the total remittance increased along the GDP to maintain its percentage to the GDP at 11-14% consistently (Table 3.2). Another recent study also clarified the poverty incidence in urban and rural areas based on consumption expenditures, which may give better indication of welfare as households tend to smooth out consumption over time (Rural Development Study, 1998). Based on the 1994 multipurpose household survey, poverty rates were found to be 56% in urban and 77% in rural areas if the high poverty line (monthly per capita expenditure of ¢667 or US\$75) is taken, and 20% in urban and 35% in rural areas if the low poverty line (¢334 or US\$38/capita/month) is taken. The study also clarified that poverty is positively correlated with large family size, low levels of education of household heads, small remittances received, landlessness, and engagement in agricultural wage labor.

(3) Dynamics of poverty

Dynamics of poverty were analyzed by two studies of different types. One study analyzed the variance in poverty rates under different economic conditions in two recent years (BASIS/FUSADES, 2001). The other study examined the effects of the earthquakes in 2001 on poverty and human development (UNDP, 2001). The BASIS/FUSADES study found that poorer households experience larger declines in income during economically more difficult years due to climatic shocks; some of them fall below the poverty threshold to become the "temporary poor" as compared to the "structural poor". Those households with less skills and living further away from urban areas suffered more as they engaged mostly in agricultural activities. This study and another BASIS study (2000) noted the high mobility of households

across occupational categories and income classes as a consequence of economic hardship. The latter study corroborates also the rate of remittance as an instrument to manage risk and to smooth consumption.

The UNDP study reassessed the 1990 human development index (HDI) and its components after the 2001 earthquakes. The two components that experienced a significant shock were the income index and the level of education index. Consequently, the HDI for El Salvador decreased from 0.704 before the earthquakes to 0.691. The calamity also reduced the access to clean water and health services, resulting in degradation of the human poverty incidence (HPI-1) from 19.2 before the earthquakes to 22.8.

4.2 Poverty and Human Development by Department

(1) Income poverty

Incidence of the absolute and the relative poverty, as defined above, are summarized in Table 4.3 by department and by area. Poverty rates range from 7.8% in San Salvador to 36.9% in Cabañas for absolute poverty, from 16.8% in La Libertad to 31.8% in San Vicente for relative poverty, and from 27.2% in San Salvador to 63.9% in Cabañas for total poverty. In the Eastern Region, total poverty rates vary between 47.6% in San Miguel and 59.1% in Morazan, much higher than the national average of 39.6%. The average income shortfall among the poor from the poverty threshold is presented in Table 4.4 by department and by area as the percentage of the respective threshold income or the income gap ratio. The worst situation is found for families living under absolute poverty conditions in rural areas, where the income gap ratio is 45.6%. That is, on the average, absolute poor households living in rural areas have an income that is 45.6% below the poverty threshold. In the Eastern Region, absolute poverty income gap ratios in rural areas are slightly lower than the national average in three departments except Usulután, and in urban areas they are close to the national average of 36.3% in three departments except Morazan having the 39.5% ratio. Variation among departments in relative poverty income gap ratios is generally much smaller. The sum of all income gaps for the absolute and the relative poor is calculated from the poverty gap data, and presented in Table 4.5. For the whole Country, the poverty income gap amounts to US\$414.9 million, consisting of US\$149.6 million for the absolute poor and US\$265.2 million for the relative poor. The total income gap corresponds only to 3.1% of the GDP, US\$ 13,139 million in 2000. In the Eastern Region, US\$39.7 million could fill the absolute poverty income gap.

(2) Characteristics of poor households

Illiteracy rates are generally higher among poorer populations. Table 4.6 presents illiteracy rates for different categories of populations, areas and departments. Adult illiteracy rates vary

Table 4.3. Percentage of Households Living in Poverty, 2000

Department	Rural Poverty Rates			Urban Poverty Rates			Total Poverty Rates		
	Absolute	Relative	Total	Absolute	Relative	Total	Absolute	Relative	Total
Ahuachapán	40.22	23.77	63.99	25.82	26.58	52.41	35.71	24.65	60.36
Santa Ana	28.66	26.18	54.84	11.37	23.63	35.01	19.54	24.84	44.38
Sonsonate	26.61	29.63	56.24	10.52	26.23	36.75	18.98	28.02	46.99
Chalatenango	30.33	29.67	60.00	21.87	25.07	46.94	26.86	27.78	54.65
La Libertad	16.15	19.97	36.12	6.51	14.22	20.74	10.87	16.82	27.69
San Salvador	24.29	22.14	46.43	6.87	19.21	26.08	7.81	19.37	27.17
Cuscatlán	17.87	18.90	36.77	9.21	27.37	36.58	14.18	22.51	36.69
La Paz	20.86	27.66	48.53	13.55	25.05	38.60	17.72	26.54	44.26
Cabañas	46.98	25.81	72.79	21.88	28.88	50.77	36.87	27.05	63.92
San Vicente	34.39	34.84	69.23	12.90	28.51	41.40	24.18	31.83	56.01
Usulután	28.21	30.73	58.94	16.24	25.74	41.98	22.73	28.45	51.18
San Miguel	31.02	31.02	62.04	9.34	25.00	34.34	19.69	27.87	47.57
Morazán	37.16	31.08	68.24	15.86	24.73	40.59	30.15	28.99	59.14
La Unión	26.60	26.94	53.54	17.80	24.63	42.43	23.91	26.23	50.14
El Salvador	27.91	26.63	54.54	9.53	21.18	30.71	16.41	23.22	39.64

Source: JICA Study Team's estimates based on EHPM 2000 from DIGESTYC.

Table 4.4. Income Gap Ratios by Department, 2000

Department	Absolute Poverty (%)		Relative Poverty (%)	
	Rural	Urban	Rural	Urban
Ahuachapán	50.60	43.51	27.07	25.42
Santa Ana	43.05	33.09	27.37	26.19
Sonsonate	43.32	37.00	27.49	24.01
Chalatenango	53.84	45.17	28.20	22.57
La Libertad	48.26	37.25	25.93	24.85
San Salvador	35.22	34.13	25.78	23.21
Cuscatlán	47.00	32.01	22.05	22.24
La Paz	42.26	37.47	23.75	24.31
Cabañas	50.41	38.49	31.16	24.83
San Vicente	53.24	38.14	25.67	26.47
Usulután	45.78	36.32	25.91	25.40
San Miguel	42.01	36.08	29.74	23.03
Morazán	40.76	39.51	27.27	24.95
La Unión	44.01	35.28	25.96	23.63
El Salvador	45.55	36.26	26.84	23.91

Source: *ibid.*

widely among departments, from 9.2% in San Salvador to 34.5% in La Union. The other three departments in the Eastern Region have much higher adult illiteracy ratios than the national average of 19.2%. There is a clear correlation between poverty conditions and illiteracy rates. Illiteracy rates are 12.3% for the non-poor, 25.2% for the relative poor, and 36.0% for the absolute poor. The rates are much higher in rural areas: 23.7% for the non-poor, 34.7% for the relative poor, and 42.8% for the absolute poor. In the Eastern Region, only a half of population

Table 4.5. Estimated Annual Income Gaps, 2000(Unit: US\$10⁶)

Department	Absolute		Relative		Total
	Rural	Urban	Rural	Urban	
Ahuachapán	13.57	4.77	7.32	5.04	30.69
Santa Ana	9.71	4.57	11.22	14.95	40.44
Sonsonate	7.82	3.30	11.43	10.64	33.19
Chalatenango	5.89	3.38	5.28	3.57	18.11
La Libertad	7.48	3.30	9.55	10.53	30.86
San Salvador	2.79	18.10	3.66	76.11	100.67
Cuscatlán	2.73	1.08	2.65	4.50	10.96
La Paz	4.21	2.24	6.19	6.54	19.19
Cabañas	6.59	2.07	4.17	3.46	16.30
San Vicente	4.52	1.78	3.91	4.74	14.96
Usulután	7.27	4.02	8.47	7.89	27.65
San Miguel	8.62	3.48	11.24	12.31	35.64
Morazán	5.30	1.52	5.01	2.72	14.56
La Unión	7.18	2.34	7.88	4.13	21.54
Eastern Region	28.37	11.36	32.60	27.05	99.38
El Salvador	93.67	55.95	97.92	167.31	414.86

Source: *ibid.***Table 4.6. Adult Illiteracy Rates by Department, Area and Poverty Categories, 2000**

(Unit: %)

Department	Rural / Level of poverty			Urban / Level of poverty			Average / Level of poverty			Ave. all categ.
	Absolute	Relative	Non	Absolute	Relative	Non	Absolute	Relative	Non	
Ahuachapán	43.90	35.71	21.27	31.29	28.77	10.91	41.10	33.44	17.61	29.80
Santa Ana	41.12	34.52	23.82	26.47	19.68	9.20	36.77	26.86	14.96	22.19
Sonsonate	44.14	36.17	26.42	20.55	18.56	10.07	38.19	28.59	17.50	24.43
Chalatenango	37.04	33.61	22.22	29.68	15.56	9.38	34.61	26.52	16.23	24.30
La Libertad	40.13	28.72	17.79	16.47	14.98	5.06	32.56	22.50	10.25	14.56
San Salvador	37.36	26.44	16.9	15.93	14.40	6.09	19.65	15.17	6.53	9.16
Cuscatlán	36.64	17.53	14.39	24.07	17.65	6.53	32.63	17.59	11.01	15.30
La Paz	33.46	30.90	23.77	31.95	18.52	12.90	32.99	25.69	18.72	23.09
Cabañas	47.34	38.72	34.96	41.26	25.85	12.38	46.00	33.53	23.29	34.38
San Vicente	46.23	35.96	24.35	29.59	20.76	10.62	41.82	28.84	15.62	26.13
Usulután	44.61	39.37	30.48	33.33	27.78	14.58	40.99	34.50	21.80	29.94
San Miguel	38.81	35.92	28.16	27.84	20.66	11.83	36.10	28.73	17.71	24.16
Morazán	51.38	36.88	32.18	26.79	28.17	12.77	47.25	34.30	22.67	33.60
La Unión	49.68	43.23	33.79	28.00	28.27	14.55	44.77	38.94	26.67	34.49
El Salvador	42.76	34.66	23.70	23.52	17.99	7.68	35.99	25.23	12.34	19.17

Source: DIGESTYC, EHPM 2000.

living under absolute poor conditions in Morazan and La Union can read and write, the highest of all the departments.

Access to clean water is essential for healthy human life and an important factor for poverty conditions. Table 4.7 presents information on the percentage of households having access to

piped water. While 78.4% of households have access to piped water in urban areas, only 34.5% have such services in rural areas. Most striking variance is between 84.1% of non-poor households in urban areas having access to piped water and 28.9% of households under absolute poverty conditions in rural areas having this access. Situations are generally worse in the Eastern Region, and particularly in its rural areas. Less than one fourth of the rural population in Usulután, Morazán and La Unión have access to piped water. The worst case is rural households under absolute poor conditions with only 10.1% having access to this service.

Table 4.7. Percentage of Households with Access to Water through Pipelines, 2000

(Unit: %)

Area	Urban				Rural			
	Non-Poor	Absolute Poor	Relative Poor	Total	Non-Poor	Absolute Poor	Relative Poor	Total
Ahuachapán	83.5	50.0	62.9	69.4	54.3	30.5	40.0	41.3
Santa Ana	80.7	62.3	69.4	75.9	37.1	21.5	34.5	31.9
Sonsonate	74.1	51.9	61.9	68.6	46.3	42.3	51.6	46.8
Chalatenango	89.6	82.7	90.7	88.3	55.4	56.0	52.3	54.7
La Libertad	87.2	63.2	67.0	82.8	50.6	39.1	32.8	45.2
San Salvador	88.2	63.8	74.8	83.9	33.3	17.6	32.3	29.3
Cuscatlán	78.0	57.1	63.5	72.1	30.3	13.5	13.0	24.1
La Paz	71.6	42.4	58.2	64.3	39.6	32.6	33.6	36.5
Cabañas	83.6	50.0	68.9	72.0	39.3	24.3	31.5	30.2
San Vicente	77.2	40.4	64.3	68.8	52.9	38.2	44.2	44.8
Usulután	70.6	47.6	47.7	61.0	19.9	31.7	21.2	23.6
San Miguel	72.3	35.1	55.6	64.6	38.7	19.7	26.3	29.0
Morazán	74.7	57.6	72.8	71.5	18.9	31.8	23.1	25.0
La Unión	79.4	68.3	74.7	76.3	18.8	10.1	13.8	15.2
El Salvador	84.1	58.0	69.0	78.4	39.0	28.9	32.5	34.5

Source: *ibid.*

(3) Human development index

Both the income index and the HDI improved between 1996 and 1999 for all the departments, with the exception of Ahuachapan, as shown in Table 4.8. Only San Salvador and La Libertad exceed the average performance of the Country for both years. All the departments are in the range of the “medium human development” with the HDI value between 0.500 and 0.799. In the Eastern Region, San Miguel ranked at the 4th position in HDI of the 14 departments, followed by Usulután at the 8th, La Unión at the 11th, and Morazán at the 13th in 1999.

Calculations of the HDI and its three components are given in Table 4.9 by department for urban and rural areas. The average value of the HDI in El Salvador is 0.764 in urban areas and 0.604 in rural areas. This difference is larger than between the departments with the highest HDI (0.704 in San Salvador) and the lowest (0.609 in Cabañas). The urban-rural disparity is particularly large for the income index. The urban-rural disparity for the HDI is at the similar level in all the four departments in the Eastern Region, and smaller than the disparity at the

Table 4.8. Human Development Index by Department, 1996 and 1999

Department	1996		HDI ³⁾	HDI ⁴⁾	1999	
	Income index ¹⁾	Income index ²⁾			GDP index	HDI
San Salvador	0.564	0.672	0.721	0.757	0.682	0.765
La Libertad	0.444	0.633	0.640	0.703	0.657	0.727
Santa Ana	0.314	0.578	0.583	0.671	0.586	0.687
San Miguel	0.311	0.576	0.582	0.671	0.595	0.689
Cuscatlán	0.271	0.554	0.575	0.669	0.585	0.697
Sonsonate	0.297	0.569	0.574	0.665	0.581	0.669
La Paz	0.258	0.546	0.559	0.656	0.569	0.668
Ahuachapán	0.266	0.551	0.553	0.648	0.519	0.626
Usulután	0.247	0.539	0.547	0.645	0.555	0.655
San Vicente	0.213	0.516	0.525	0.626	0.548	0.647
Chalatenango	0.181	0.491	0.508	0.612	0.542	0.642
La Unión	0.143	0.455	0.474	0.578	0.556	0.628
Cabañas	0.167	0.478	0.471	0.575	0.515	0.609
Morazán	0.154	0.467	0.458	0.562	0.536	0.619
Country average	0.366	0.602	0.609	0.688	0.622	0.704

Notes: ¹⁾ Values reported in “Informe sobre Índices de Desarrollo Humano en El Salvador de 1997”. ²⁾ Calculation based on per capita GDP at PPP\$ of 1996 applying the logarithmic adjustment formula used in the 2000 Human Development Report. ³⁾ Reported values in the 1997 national report. ⁴⁾ Calculations include the income index of the second column.

Source: PNUD, 2001.

Table 4.9. Components of Human Development Index by Urban and Rural Area, 1999

Department	Income index		Educational level index (ELI)		Life expectancy index (LEI)		HDI	
	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
Ahuachapán	0.593	0.481	0.723	0.604	0.768	0.665	0.694	0.583
Cabañas	0.611	0.425	0.751	0.573	0.720	0.617	0.694	0.538
Chalatenango	0.617	0.471	0.783	0.645	0.730	0.627	0.710	0.581
Cuscatlán	0.642	0.530	0.817	0.737	0.783	0.680	0.747	0.649
La Libertad	0.728	0.534	0.857	0.684	0.800	0.697	0.795	0.638
La Paz	0.635	0.505	0.776	0.673	0.767	0.663	0.726	0.614
San Salvador	0.689	0.519	0.852	0.669	0.820	0.717	0.787	0.635
San Vicente	0.622	0.448	0.793	0.611	0.743	0.640	0.719	0.566
Santa Ana	0.648	0.497	0.805	0.613	0.813	0.710	0.755	0.607
Sonsonate	0.655	0.493	0.790	0.593	0.795	0.692	0.747	0.592
La Unión	0.634	0.514	0.756	0.545	0.770	0.667	0.720	0.575
Morazán	0.628	0.471	0.772	0.577	0.730	0.627	0.710	0.558
San Miguel	0.657	0.498	0.806	0.638	0.797	0.693	0.753	0.610
Usulután	0.625	0.474	0.755	0.597	0.790	0.687	0.723	0.586
El Salvador	0.675	0.498	0.825	0.626	0.792	0.688	0.764	0.604

Source: *ibid.*

national level. This is largely reflection of much smaller income disparities between urban and rural areas in the Eastern Region than in the Country as a whole as shown in Table 4.10.

Table 4.10 Income Disparities between Urban and Rural Areas, 1999

Department/Country	Average per capita income (US\$PPP)		Ratio of urban income/rural income
	Urban areas	Rural areas	
San Miguel	3,526	1,970	1.79
Usulután	2,789	1,709	1.63
La Unión	2,803	2,180	1.29
Morazán	2,475	1,682	1.47
El Salvador	5,702	1,976	2.89

Source: *ibid.*

(4) Gender-related indices

The gender-related development index (GDI) uses the same component indices used for the HDI, adjusted to account for inequalities between men and women. When gender differences are wider, the GDI yields lower value than the HDI. The GDI value was 0.699 for El Salvador in 1999, lower than the HDI. Variance between the HDI and the GDI is similar in San Miguel and Usulután to the national level, but larger in La Unión and Morazán (Table 4.11).

Table 4.11. Components of Gender-related Indices by Department

Department	Income index	ELI	LEI	GDI	GEM
Ahuachapán	0.482	0.636	0.723	0.614	0.555
Cabañas	0.468	0.640	0.674	0.594	0.583
Chalatenango	0.515	0.699	0.685	0.633	0.512
Cuscatlán	0.575	0.770	0.740	0.695	0.593
EL SALVADOR	0.604	0.744	0.748	0.699	0.546
La Libertad	0.637	0.771	0.754	0.721	0.563
La Paz	0.554	0.714	0.721	0.663	0.535
San Salvador	0.671	0.841	0.775	0.762	0.618
San Vicente	0.517	0.697	0.699	0.637	0.562
Santa Ana	0.559	0.708	0.768	0.678	0.461
Sonsonate	0.559	0.677	0.750	0.662	0.532
La Unión	0.511	0.605	0.727	0.614	0.484
Morazán	0.501	0.637	0.684	0.607	0.507
San Miguel	0.581	0.721	0.751	0.684	0.477
Usulután	0.538	0.666	0.745	0.650	0.515

Source: Based on EHPM, 1999.

The gender empowerment measure (GEM) is another composite index measuring gender inequality in three basic dimensions of empowerment: economic participation and decision-making, political participation, and decision-making and power over economic resources. The GEM is calculated at 0.546 at the national level. The four departments in the Eastern Region are below the national average: 0.515 in Usulután, 0.507 in Morazán, 0.484 in La Unión, and 0.477 in San Miguel. The low value for San Miguel reflects its performance in the political participation index, while Usulután has value for this index above the national average.

(5) Human poverty index

The human poverty index (HPI-1) measures deprivations in three basic aspects of human development: longevity, knowledge and standard of living. Assessment of the HPI-1 and its component indices are given in Table 4.12 by department. The HPI-1 for El Salvador took the value of 19.2 in 1999, and three departments of San Salvador, La Libertad and Cuscatlan have better (smaller) value than the national value. The departments in the Eastern Region have much larger HPI-1 value. La Union has the largest HPI-1 value at 31.2 of all the 14 departments, followed by Morazan at 28.7, Usulután at 27.0, and San Miguel at 23.3. This reflects lack of opportunities in the Region expressed by some social indicators. All the four departments have large percentage of population exceeding 50% without access to drinking water. Adult illiteracy rates are high particularly in La Union (35.4%), Morazan (33.3%), and Usulután (30.7), much higher than the national rate of 19.6%. Percentage of population without access to health services is larger than the national average of 24.1% in La Union (31.5%), San Miguel (28.9%), and Morazan (26.1%). La Union has the second highest value regarding the percentage of under weight children 5 years or less, while San Miguel has the best performance in this aspect of all the 14 departments.

Table 4.12. Components of Human Poverty Index (HPI-1) by Department, 1999

Department	% of pop. not surviving to 40-yr old	Adult illiteracy (%)	% of pop. w/o access to:		% of underwt. children under 5	HPI-1
			Drinking water	Health services		
Ahuachapán	11.5	29.2	53.9	36.3	17.2	28.9
Cabañas	13.7	33.3	47.2	36.0	12.1	28.8
Chalatenango	13.1	25.9	30.3	34.9	18.0	23.9
Cuscatlán	12.1	16.0	43.1	18.9	12.7	19.2
El Salvador	10.7	19.6	34.0	24.1	11.2	19.2
La Libertad	10.6	16.9	30.2	31.1	10.0	18.6
La Paz	10.9	22.9	47.1	23.2	7.6	21.7
San Salvador	8.7	9.3	12.9	16.0	9.8	10.7
San Vicente	14.0	25.8	38.8	32.1	12.6	24.0
Santa Ana	9.3	22.2	39.8	29.2	13.9	22.2
Sonsonate	12.1	25.2	39.4	19.6	11.2	21.7
La Unión	12.6	35.4	58.3	31.5	17.0	31.2
Morazán	14.3	33.3	55.6	26.1	12.3	28.7
San Miguel	9.9	23.9	53.8	28.9	3.2	23.3
Usulután	10.9	30.7	59.8	21.2	11.3	27.0

Source: PNUD in Pleitez, 2001.

(6) Effects of 2001 earthquakes

There exists large variance among departments in changes of the HDI value before and after the 2001 earthquakes (Table 4.13). Four departments that experienced the largest changes are La Paz, San Vicente Cuscatlan and Usulután. Changes are particularly large for the income index.

For the level of education index, largest effects come from a significant fall in enrollment ratios. The HPI-1 value increased most significantly in Cuscatlan, La Libertad, La Paz and San Vicente. In the Eastern Region, Usulután experienced the largest increase in the HPI-1 value.

Table 4.13. Impact of Earthquakes in 2001 on Human Development Index

Department	Per capita GDP ¹⁾		Income index		ELI		HDI	
	Before	After	Before	After	Before	After	Before	After
Ahuachapán	2,242	2,113	0.519	0.509	0.638	0.623	0.626	0.618
Cabañas	2,191	2,146	0.515	0.512	0.640	0.631	0.609	0.605
Chalatenango	2,578	2,564	0.542	0.541	0.699	0.694	0.642	0.639
Cuscatlán	3,335	1,863	0.585	0.488	0.770	0.746	0.697	0.657
La Libertad	5,121	4,326	0.657	0.629	0.772	0.751	0.727	0.711
La Paz	3,020	1,139	0.569	0.406	0.716	0.668	0.668	0.598
San Salvador	5,954	5,748	0.682	0.676	0.841	0.833	0.765	0.761
San Vicente	2,671	803	0.548	0.348	0.697	0.662	0.647	0.569
Santa Ana	3,356	3,014	0.586	0.568	0.709	0.700	0.687	0.679
Sonsonate	3,252	2,678	0.581	0.549	0.679	0.667	0.669	0.655
La Unión	2,803	2,775	0.556	0.555	0.605	0.601	0.628	0.626
Morazán	2,475	2,466	0.536	0.535	0.637	0.630	0.619	0.616
San Miguel	3,526	3,327	0.595	0.585	0.722	0.709	0.689	0.681
Usulután	2,789	1,754	0.555	0.478	0.666	0.631	0.655	0.617
El Salvador	4,142	3,624	0.622	0.599	0.744	0.729	0.704	0.691

Note: ¹⁾ PPA\$.

Source: PNUD, 2001.

Poverty rates based on individuals rather than households increased as a result of the earthquakes for all the departments except Chalatenango. The total poverty rates in El Salvador increased from 47.5% to 51.2%. Most affected departments in the Country were La Paz, San Vicente and Cuscatlan. In the Eastern Region, Usulután was most affected, where absolute poverty increased from 28.5% to 39.6%, and total poverty from 62.0% to 72.4%.

4.3 Position of El Salvador

Figure 4.1 presents human development trends in Central America from 1975 to 2000. Costa Rica has the highest levels of human development in the region, exceeding the HDI value of 0.8 (0.820 in 2000), followed by Panama (0.787). Of the four other countries, El Salvador attains the highest level. The rate of HDI improvement is the fastest in El Salvador, especially in the 1990's. This achievement is significant in view particularly of the fact that the per capita GDP had not recovered to the pre-civil war level. For all the component indices of the HDI, El Salvador follows Costa Rica and Panama closely, but for the HPI El Salvador is rather close to the other three less developed countries in Central America (Table 4.14).

Figure 4.1. Human Development Index Trends in Central America, 1975-2000

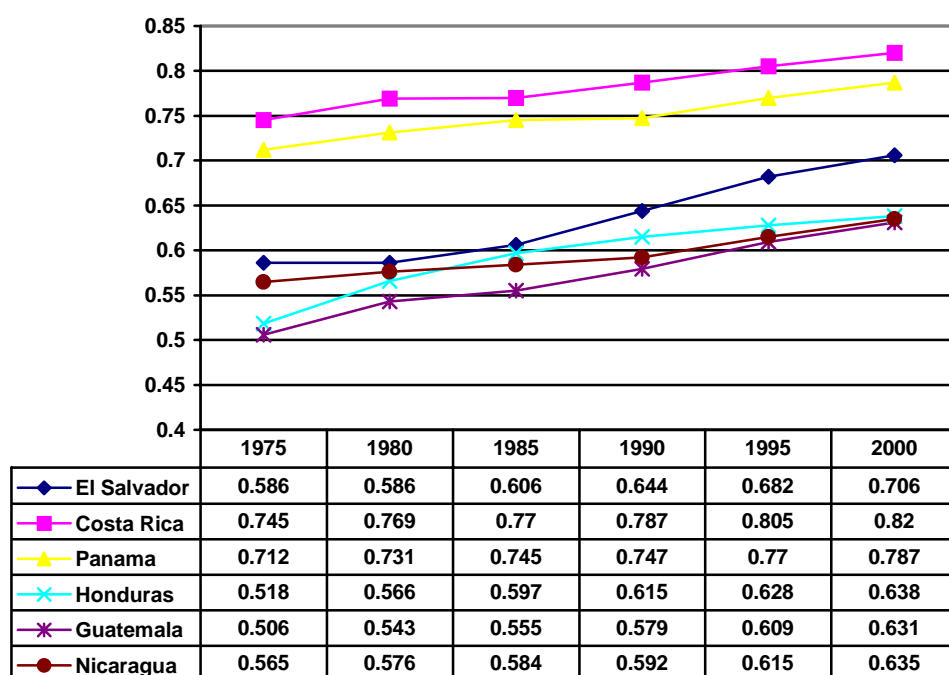


Table 4.14. Human Development Indices in Central America, 2000

Indices / Country	El Salvador	Costa Rica	Guatemala	Nicaragua	Honduras	Panama
HDI/Income classifications out of 173 countries*	104 / -13	43 / 14	120 / -19	118 / 4	116 / 2	57 / 18
<u>Human Development Index (HDI)</u>	<u>0.706</u>	<u>0.820</u>	<u>0.631</u>	<u>0.635</u>	<u>0.638</u>	<u>0.787</u>
Life expectancy at birth (years)	69.7	76.4	64.8	68.4	65.7	74.0
Adult literacy rate (% age >=15)	78.7	95.6	68.6	66.5	74.6	91.9
Combined primary, secondary and tertiary gross enrolment ratio (%)	63.0	67.0	49.0	63.0	61.0	74.0
GDP per capita (PPP\$)	4,497	8,650	3,821	2,366	2,453	6,000
<u>Human Poverty Index (HPI)</u>	<u>18.1</u>	<u>4.0</u>	<u>23.5</u>	<u>24.4</u>	<u>20.5</u>	<u>8.4</u>
Probability at birth of not surviving to age 40 (% of cohort)	10.9	4.0	15.6	11.5	16.0	6.4
Adult illiteracy rate (% age >=15)	21.3	4.4	31.4	33.5	25.4	8.1
Population not using improved water sources (%)	26.0	2.0	8.0	21.0	10.0	13.0
Underweight children < age 5 (%)	12.0	5.0	24.0	12.0	25.0	7.0
<u>Gender related Development Index (GDI)</u>	<u>0.696</u>	<u>0.814</u>	<u>0.617</u>	<u>0.629</u>	<u>0.628</u>	<u>0.784</u>
<u>Gender Empowerment Measure (GEM)</u>	<u>0.454</u>	<u>0.579</u>	n.a.	n.a.	<u>0.405</u>	<u>0.475</u>

* The first row of the table presents two figures, the first one is the Human Development Index, and the second indicates the difference in rankings based on HDI and per capita GDP at Purchasing Power Parity (PPP). A minus sign indicates that the ranking of the country in GDP is below its ranking in HDI and the opposite with a positive sign. The figure indicates the number of steps the country needs to move into these two rankings.
Source: UNDP, *Human Development Report 2002*.

Table 4.15 presents worldwide ranking by the HDI of selected countries covered by the UNDP Human Development Report 2000, together with the estimated HDI value for each department of El Salvador. The two departments with the highest HDI, San Salvador and La Libertad, are ranked high among countries in the range of the “medium human development”. El Salvador itself occupies the 100th rank in 2000 out of 173 countries listed in the report. In the Eastern Region, San Miguel is close to Cape Verde at the 105th rank, Usulután is close to Honduras at the 113th, La Unión is close to Mongolia at the at the 117th, Morazan at the 122nd immediately above Botswana.

Table 4.15. World Rankings of Human Development Index, 2000

Country	Rank	HDI	Country	Rank	HDI	Country	Rank	HDI
Canada	1	0.935	Ecuador	91	0.722	Swaziland	112	0.655
Norway	2	0.934	Iran	97	0.709	<i>Usulután</i>		<i>0.655</i>
United States	3	0.929	China	99	0.706	Honduras	113	0.653
Australia	4	0.929	<i>El Salvador</i>		<i>0.704</i>	<i>San Vicente</i>		<i>0.647</i>
Iceland	5	0.927	Tunisia	101	0.703	Bolivia	114	0.643
Romania	64	0.770	South Africa	103	0.697	<i>Chalatenango</i>		<i>0.642</i>
Venezuela	65	0.770	<i>Cuscatlán</i>		<i>0.697</i>	Namibia	115	0.632
<i>San Salvador</i>		<i>0.765</i>	<i>San Miguel</i>		<i>0.689</i>	Nicaragua	116	0.631
Colombia	68	0.764	Cape Verde	105	0.688	Mongolia	117	0.628
Peru	80	0.737	<i>Santa Ana</i>		<i>0.687</i>	<i>La Unión</i>		<i>0.628</i>
Paraguay	81	0.736	Algeria	107	0.683	<i>Ahuachapán</i>		<i>0.626</i>
Libya	82	0.735	Vietnam	108	0.671	Egypt	119	0.623
Jamaica	83	0.735	Indonesia	109	0.670	Guatemala	120	0.619
Turkey	85	0.732	<i>Sonsonate</i>		<i>0.669</i>	<i>Morazan</i>		<i>0.619</i>
Dominican Rep.	87	0.729	<i>La Paz</i>		<i>0.668</i>	<i>Cabanás</i>		<i>0.609</i>
<i>La Libertad</i>		<i>0.727</i>	Syria	111	0.660	Botswana	122	0.593

Sources: HDI values for El Salvador are based on EHPM, 1999. HDI values from other countries are those reported in UNDP, *Human Development Report 2000*, based on information from 1998.

4.4 Issues for Poverty Alleviation

Poverty rates are very high in El Salvador, and the intensity of poverty is also high. Despite the respectable improvement in the past decades, the human development level of El Salvador is too low for its level of income, as the UNDP studies demonstrated. The aggregate poverty income gap as estimated above, however, is not too large relative to the GDP. This means that appropriate allocation of resources could alleviate the poverty in El Salvador.

Practically all the related studies in the recent past have demonstrated that there are tremendous differences in welfare levels between rural and urban areas, and among different departments and regions of the Country. Given the information on poverty gaps for different areas and departments, the amount of resources necessary to alleviate poverty may be determined for different levels of poverty. For absolute poverty, the Government may be responsible for allocating sufficient resources and distribute them to different areas and departments according

to the needs. This appears justifiable since there exists large variance in the absolute poverty income gap as a ratio of the total household income by department and by area, for instance (Table 4.16). This implies that the gaps cannot be filled easily for some departments and areas by their local resources. For relative poverty, specific levels of poverty to be resolved and specific criteria to distribute necessary resources should be determined by those involved in planning a poverty reduction strategy.

Table 4.16. Annual Household Income and Absolute Poverty Income Gap by Department, 2000

(Unit: US\$10⁶)

Department	Total annual household income (A)	Absolute poverty income gap (B)	Ratio % (C)=(B)/(A)
Ahuachapan	182.8	18.3	10.0
Santa Ana	482.7	14.3	3.0
Sonsonate	375.6	11.1	3.0
Chalatenango	149.5	9.3	6.2
La Libertad	1,022.7	10.8	1.1
San Salvador	3,356.1	20.9	0.6
Cuscatlan	193.6	3.8	2.0
La Paz	238.1	6.5	2.7
Cabañas	92.8	8.7	9.4
San Vicente	128.4	6.3	4.9
Usulután	266.8	11.3	4.2
San Miguel	462.3	12.1	2.6
Morazan	118.3	6.8	5.7
La Unión	209.0	9.5	4.5
Eastern Region	1,056.4	39.7	3.8
El Salvador	7,278.9	149.6	2.1

Sources: (A) DGEC, EHPM 2000, and (B) Table 6.16.

The Eastern Region has comparatively more rural population, and poverty rates are higher than the national average in all the four departments. Illiteracy rates are also higher in the departments of the Eastern Region. The percentage of population without access to drinking water is the largest in the Eastern Region, exceeding 50% in all the departments. The gender disparity is larger in the Eastern Region with the GDI value comparatively lower than the HDI value. Ranking by the HPI-1 is lower for three departments in the Eastern Region, except Morazan, than ranking by the HDI. This implies that the people in the Eastern Region are more deprived of the basic social services such as health, nutrition and education.

These poverty situations in the Eastern Region constitute a structural problem, where various factors are interacting. This problem structure as clarified is strongly related to the rural agricultural economy of the Region as well as inadequate social infrastructure. These are the two main areas where the neglect through the civil war period caused the degradation.

