

Annex A

Profile of the Study Area

Contents

	Page :
A	Profile of the Study Area A-1
A.1	Natural Condition..... A-1
A.1.1	Location A-1
A.1.2	Topography A-1
A.1.3	Climate A-2
A.1.4	Geological Condition A-3
A.2	Socioeconomic Conditions..... A-5
A.2.1	Macro Economy of the Country..... A-5
A.2.2	Regional Economy A-8
A.2.3	Administration..... A-10
A.2.4	Population A-12
A.2.5	Industrial Structure..... A-14
A.2.6	Education..... A-15
A.2.7	Community Structure A-16
A.2.8	Marginal Settlements A-17
A.2.9	Public Health..... A-17
A.3	Urban Structure A-20
A.3.1	Origin and Evolution of the Study Area A-20
A.3.2	Land Use Conditions..... A-22
A.3.3	Population Density A-25
A.3.4	Transportation A-25
A.4	Financial Condition..... A-26
A.4.1	Public Finance A-26
A.4.2	Taxation System and Public Utilities Charge Collection System..... A-27
A.5	Environmental Policy..... A-28
A.5.1	General Review A-28
A.5.2	Organizations Concerned A-29
A.5.3	Environmental Policy on SWM A-30
A.6	Other Infrastructure..... A-33
A.6.1	Water Supply..... A-33
A.6.2	Sewage and Drainage..... A-33
A.6.3	Roads A-34
A.6.4	Priority Ranking of Infrastructure Investment A-35

List of Tables

	Page:
Table A-1: Area and Average Elevation of Municipalities.....	A-2
Table A-2: Season of Year	A-2
Table A-3: Climate Parameters registered in Ilopango Meteorological Station	A-3
Table A-4: Trend of Industrial Structure.....	A-6
Table A-5: Trend of Unemployment Rate	A-7
Table A-6: Major Economic Indicators of El Salvador	A-8
Table A-7: Economic Potential of San Salvador and La Libertad Departments.....	A-8
Table A-8: Population Engaged in Respective Economic Activities (older than 10 years)A-9	A-9
Table A-9: Population Engaged in Respective Economic Activities.....	A-9
Table A-10: GRDP of San Salvador Metropolitan Area in 1998.....	A-10
Table A-11: Political and Administrative Distribution of El Salvador	A-11
Table A-12: Population in the Country	A-13
Table A-13: Estimated Population from 1950 to 1999	A-13
Table A-14: Population in the Study Area in the Past	A-14
Table A-15: Industrial Structure in the Metropolitan Area.....	A-14
Table A-16: Diseases related with MSW transmitted by Vectors.....	A-19
Table A-17: Municipalities forming San Salvador Metropolitan Area.....	A-22
Table A-18: Land Use Conditions in AMSS	A-23
Table A-19: Population Density in AMSS in 1999.....	A-25
Table A-20: Annual Budget of Central Government	A-26
Table A-21: Ordinary Revenue in 1999	A-27
Table A-22: Annual Budget of Related Ministries	A-27
Table A-23: Personal Income Tax Rates.....	A-27
Table A-24: Electricity Bill of “CAESS”	A-28
Table A-25: Water Supply per Municipalities and Houses.....	A-33
Table A-26: Wastewater Discharge Type per House.....	A-34
Table A-27: Specifications of Roads.....	A-35
Table A-28: Programs Developed by PLAMADUR	A-35
Table A-29: Best-Ranked Projects by the Entities that Participated in PLAMADUR	A-36

List of Figures

	Page:
Figure A-1: Faults in and around the Study Area	A-4
Figure A-2: Economic Growth Rate (GDP).....	A-5
Figure A-3: Annual Inflation Rate	A-6
Figure A-4: External Sector	A-7
Figure A-5: Zoning Map in AMSS	A-24

A Profile of the Study Area

A.1 Natural Condition

A.1.1 Location

The Republic of El Salvador is located at the Central American Isthmus in the American continent; in the Western Hemisphere and at northern latitude. Its geographical coordinates are the following: 13° 09' and 14° 27' northern latitude and 87° 41' and 90° 07' western longitude. The topography of the country is with ravines, predominance of mountain ranges and volcanoes. It has a surface of around 21,000.00 km². It is bounded in the north by Honduras, in the west by Guatemala, in the east by Nicaragua through Gulf of Fences, and in the south by the Pacific Ocean. Due to its geographical location, within the Circum-Pacific belt, earthquakes and volcanic outbursts constantly threaten it. About 50 destruction events have taken place since 1520, according to historical records, most of which can be regarded as tectonic occurrences.

The Study Area, San Salvador Metropolitan Area, is located in the central part of the El Salvador, between Ilopango Lake in the east and San Salvador Volcano in the west. The coordinates of the Study Area are as follows:

- Longitude: 89°01' and 89°23' West
- Latitude: 13°32' and 13°55' North

A.1.2 Topography

The Study Area is located in the central plateau, between the coastal mountains and northern frontier mountains. Altitudes of the Study Area varies from 434m of Apopa to 950 m Nueva San Salvador. The Study Area slopes towards to the northeast.

There are some hills and mountains that characterize the scenery of the Study Area:

- Cerro San Jacinto: It is located 4 km southeast of San Salvador. The top of the hill is the meeting point for the following municipalities: San Marcos, Santo Tomas and San Salvador. It has an elevation of 1,115 meters above the sea level.
- Volcán de San Salvador: It is located 11 km northwest of San Salvador. It is formed by two masses: the taller one is known as Picacho of which elevation is 1,959.97 meters above the sea level. The lower one is quite voluminous and has a crater known as El Boquerón, with an elevation of 1,839.39 meters above the sea level.
- Cerro Nejapa: This hill is located 13.5 km north of San Salvador. Several valleys originated at its foothill lead into San Antonio and Acelhuate rivers. Such rivers go round this hill by its eastern and western sides. Cerro Nejapa has an elevation of 918.78 above the sea level.

Table A-1: Area and Average Elevation of Municipalities

Municipalities	Area (km) ²	Elevation (meters above sea level)
San Salvador	72.2	665
Mejicanos	20.2	640
Ciudad Delgado	34.3	620
Cuscatancingo	5.6	640
Ayutuxtepeque	7.6	700
San Marcos	17.1	755
Nueva San Salvador	115.5	950
Antiguo Cuscatlán	19.5	850
Soyapango	28.3	625
Ilopango	23.9	625
San Martín	44.1	700
Apopa	53.7	434
Nejapa	81.3	450
Tonacatepeque	68.2	625
Total	591.5	663

Source: Oficina de Planificación del Area Metropolitana de San Salvador (OPAMSS)

A.1.3 Climate

There exist two seasons and two transition periods in a year in El Salvador. According to records in San Salvador¹ from 1918 to 1967, the following average dates for the beginning and end of seasons were calculated, which are shown in Table A-2.

Table A-2: Season of Year

Seasons of Year	Beginning	End	Days	Weeks
Dry season	November 14 th	April 19 th	157	22.5
Transition from dry to rainy season	April 20 th	May 20 th	31	4.5
Rainy season	May 21 st	October 16 th	149	21
Transition from rainy to dry season	October 17 th	November 13 th	28	4

Source: Dirección General de Recursos Naturales Renovables División de Meteorología e Hidrología, Almanaque Salvadoreño, Ministerio de Agricultura y Ganadería.

According to climatic definitions by Koppen, Sapper and Lauer, San Salvador Metropolitan Area is divided into two areas. One area is hot tropical savanna, where an elevation ranges from 400 up to 800 meters above the sea level. Twelve municipalities are located in this area. The other area is called warm tropical savanna with an elevation ranging from 800 to 1200 meters above the sea level where the municipalities of Nueva San Salvador and Antiguo Cuscatlán are located.

¹ Almanaque Salvadoreño, Ministerio de Agricultura y Ganadería, Servicio de Meteorología e Hidrología.1999.

Table A-3 shows representative climate data in the Study Area, which is recorded at Ilopango Meteorological Station located at 89°07'W, 13°42'N and 610m above the sea level.

Table A-3: Climate Parameters registered in Ilopango Meteorological Station

Item/Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total (Mean)
Mean monthly precipitation (mm)	5.9	4.0	9.7	39.8	153.1	285.7	321.4	316.8	346.8	229.0	38.0	11.0	1761.2 (146.77)
Mean monthly temperature (°C)	22.3	22.9	23.9	24.6	24.3	23.5	23.5	23.3	22.9	22.9	22.5	22.2	23.23
Predominant wind direction	N	N	N	N	N	N	N	N	N	N	N	N	N
Mean wind velocity (km/Hr)	10.2	12.6	11.9	11.1	9.7	8.3	9.3	8.6	7.9	10.1	12.2	14.0	10.5
Mean monthly relative humidity (%)	66	66	67	70	77	84	82	82	86	82	77	68	76

Source: Dirección General de Recursos Naturales Renovables División de Meteorología e Hidrología, Almanaque Salvadoreño, Ministerio de Agricultura y Ganadería

A.1.4 Geological Condition

In the country, basically 6 geological formations are found. They are in chronological order: Metapan, Morazán, Chalatenango, Bálsamo, Cuscatlán and San Salvador.

The Study Area exists on San Salvador formation that is characterized by igneous rocks. The formation consists of acid pyroclasts, volcanic epiclasts, molten and hot tuff, *effusive andesite*; effusive andesite and basalt, pyroclasts, acid pyroclasts, volcanic epiclasts (brown-colored tuff), acid pyroclasts (*Tierra Blanca*), effusive basalt and alluvium, local exchange with pyroclast bands. More than 80% correspond to white acid pyroclasts, Newer Tierra Blanca, which was formed some 1,700 years ago by the volcanic activity of Ilopango Lake. The thickness of San Salvador formation is about 30 to 150 m.

There exist two fault systems in AMSS; one system has a direction of NNW-SSE and the other is ENE-WSW, which are the most recent faults. They are vertical or almost vertical faults. Figure A-1 shows the faults located in and around the Study Area.

The area has undergone around 50 destructive earthquakes since year 1500, and the valley is known as the "hammock valley" (*Valle de las Hamacas*). The last earthquake registered was on October 10th, 1986 with a magnitude of 7.5 degrees in Richter scale. The exposure to earthquakes is the result of local faults in the Study Area and the parallel fault to the Pacific coast, which is known as the insertion of the Cocos plate under the Caribbean plate, at a distance of 200 km from San Salvador.

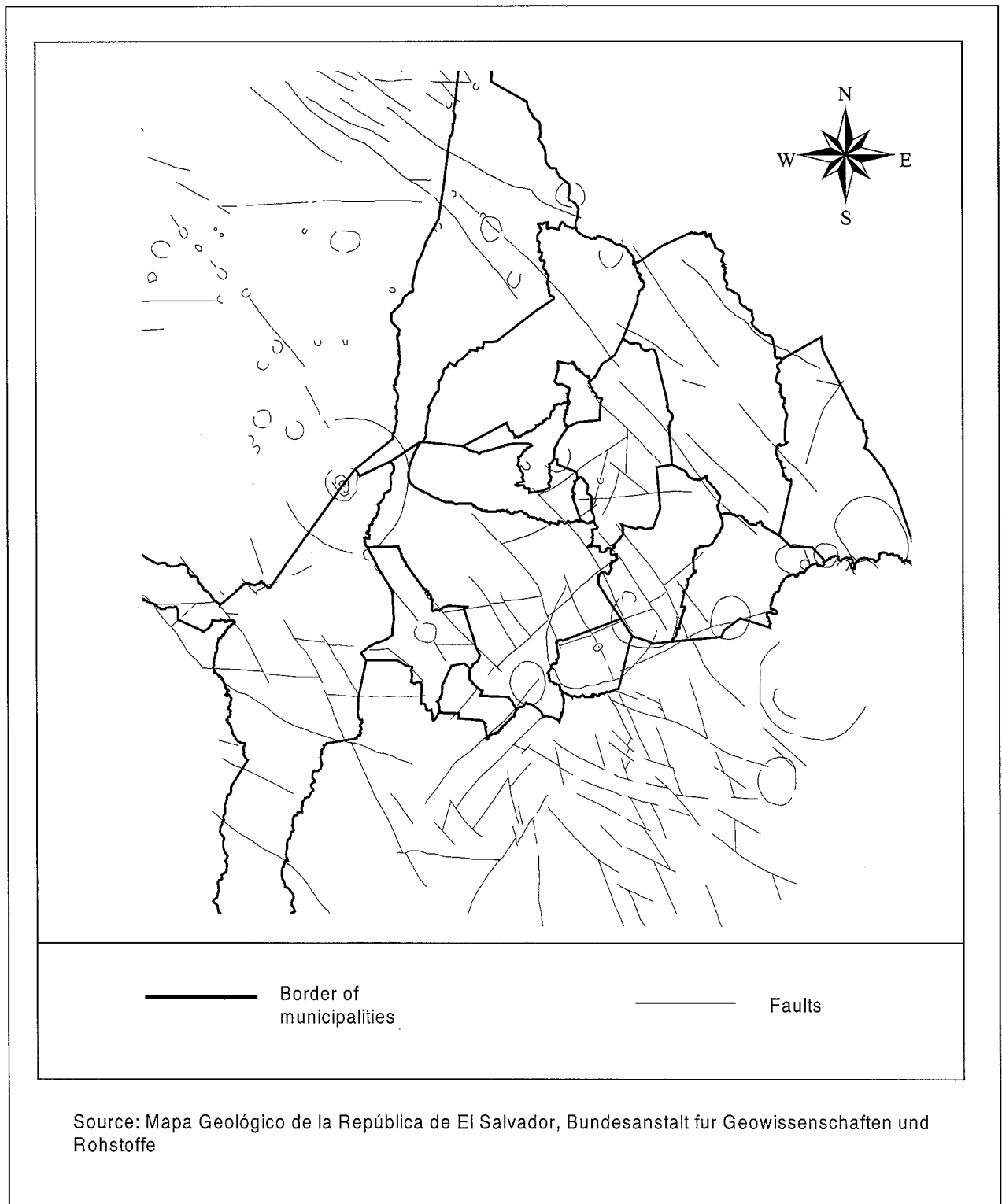


Figure A-1: Faults in and around the Study Area