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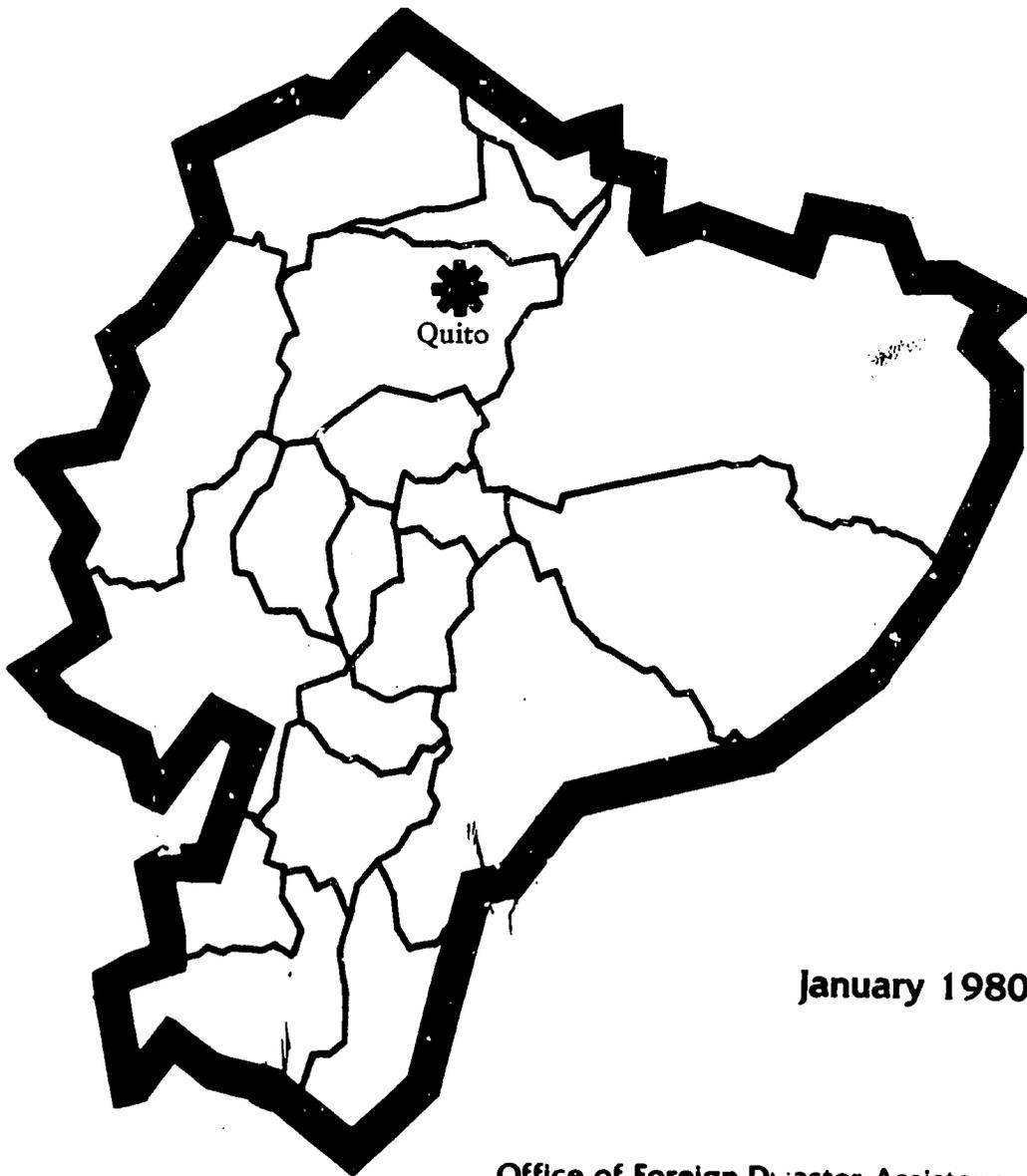
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A Country Profile



January 1980

Office of Foreign Disaster Assistance
Agency for International Development
Washington, D.C. 20523

OFDA COUNTRY PROFILES: APRIL 1980

AFRICA

Cape Verde
Chad
Djibouti
Ethiopia
Mali
Mauritania
Niger*
Sahel Transportation Survey
Senegal
Somalia
Upper Volta
Zaire

ASIA

Bangladesh
Burma
India
Indonesia
Malaysia
Nepal
Pakistan
Philippines

CARIBBEAN

CARICOM Regional Profile
Dominican Republic
Haiti

LATIN AMERICA

Bolivia
Chile
Ecuador
El Salvador*
Guatemala
Honduras
Nicaragua
Peru

NEAR EAST

Turkey

SOUTH PACIFIC

Fiji
Tonga
Western Samoa

INDIAN OCEAN

Island Countries of the
Indian Ocean*

* in preparation

ECUADOR: A COUNTRY PROFILE

prepared for

The Office of U. S. Foreign Disaster Assistance
Bureau for Private and Development Cooperation
Agency for International Development
Department of State
Washington, D. C. 20523

by

Evaluation Technologies, Inc.
Arlington, Virginia
under contract AID/SOD/PDC-C-0283

The profile on Ecuador is one in a series designed to provide baseline country data in support of the planning, analysis and relief operations of the Office of U. S. Foreign Disaster Assistance (OFDA). Content, scope and sources have evolved over the course of the last three years, and no doubt will continue to do so. The relatively narrow focus is intentional. To avoid redundancy, some topics one might expect to find in a "country profile" are not covered here.

If the information provided can also be useful to others in the disaster assistance and development communities, so much the better. Every effort is made to obtain current, reliable data; unfortunately it is not possible to issue updates as fast as changes would warrant. A cautionary note, therefore, to the reader: statistics are indicators at best, and if names and numbers matter, the bibliography will point to a current source.

We invite your comments and corrections. Address these and other queries to OFDA, AID, as given above.

March 1980

TO:

COUNTRY PROFILE USER Dear _____

Please use this form to note any changes, additions, corrections or suggestions you think would update and improve this country profile. Since our aim is to make these profiles as relevant as possible, your critique is essential and very much wanted. Return comments to Lucy Drobot, OFDA Country Profiles, Room 1262A.

NAME/OFFICE: _____ PHONE: _____ Date: _____

TOPIC

COMMENTS

TOPIC	COMMENTS

CONTENTS

List of profiles.....	1
Preface.....	11
1. General Information.....	1-5
1.1 Geographic codes.....	1
1.2 Country names.....	1
1.3 Calendar and holidays.....	1
1.4 Currency.....	1
1.5 Time zones.....	2
1.6 Host country mission and staff in US.....	2
1.7 US mission and staff.....	2
1.8 Treaties and agreements.....	3
1.9 International organization memberships.....	3
1.10 Visa and travel information.....	4
1.11 Ethnic and sociocultural groups.....	4
1.12 Languages.....	5
1.13 Education.....	5
1.14 Religions.....	5
2. Government.....	6
2.1 National government.....	6
2.2 Regional organization.....	6
2.3 Major government figures.....	6
3. Disaster Preparedness.....	7-15
3.1 Host disaster plan.....	7
3.2 US disaster plan.....	7
3.3 Mission disaster team.....	8
3.4 US contact list.....	9
3.5 Voluntary agencies.....	9
3.6 International organizations.....	10
3.7 US assessment.....	10
3.8 Host funding.....	10
3.9 Host stockpiles.....	10
3.10 Host transportation.....	13
3.11 Supply requests.....	14
3.12 Disaster types and history.....	14
4. Population.....	16-17
4.1 National population.....	16
4.2 Regional distribution.....	16
4.3 Major cities.....	17

5. Health, Nutrition and Housing.....	18-24
5.1 Summary of diseases.....	18
5.2 Vital statistics.....	18
5.3 Health services.....	18
5.4 Health personnel.....	20
5.5 Diet summary.....	21
5.6 Nutritional deficiencies.....	21
5.7 Nutrition by region.....	22
5.8 Utensils.....	23
5.9 Housing.....	23
6. Economy.....	25-30
6.1 Overview of economy.....	25
6.2 Petroleum.....	25
6.3 Industry.....	26
6.4 Balance of trade.....	27
6.5 GDP.....	28
6.6 Exports.....	29
6.7 Imports.....	29
7. Agriculture.....	31-35
7.1 Overview of agriculture.....	31
7.2 Land use.....	31
7.3 Current status.....	32
7.4 Production.....	32
7.5 Crop dates.....	33
7.6 Fishing.....	34
7.7 Agricultural exports.....	35
7.8 Agricultural imports.....	35
8. Physical Geography.....	36-39
8.1 Climate.....	36
8.2 Temperatures.....	36
8.3 Precipitation.....	36
8.4 Landforms.....	37
8.5 Altitude and coordinates.....	37
8.6 Land use.....	38
8.7 Waterways.....	38
8.8 Mountains.....	39
8.9 Volcanoes.....	39

9. Transportation and Logistics.....	40-56
9.1 Road network.....	40
9.2 Road links.....	41
9.3 Bridges.....	43
9.4 Vehicles.....	43
9.5 Railroads.....	44
9.6 Ports.....	45
9.7 River craft.....	49
9.8 Harbor craft.....	49
9.9 Shipping lines.....	49
9.10 Airports.....	50
9.11 Personal entry requirements.....	52
9.12 Aircraft entry requirements.....	53
9.13 Airlines.....	54
9.14 Types of aircraft.....	54
9.15 Air distances.....	55
10. Power and Communications.....	57-59
10.1 Electric power.....	57
10.2 Radio network.....	57
10.3 Telecommunications.....	58
10.4 Television.....	59
Bibliography.....	60-61

1. General Information

1.1 Geographic Codes

AID	518
State region	ARA
FIPS	EC

1.2 Country Names

Legal	Republic of Ecuador
Short	Ecuador
Local	Republica del Ecuador

1.3 Calendar and Holidays

January 1.....New Year's Day
 February 27-28*.....Carnival
 April 13*.....Good Friday
 April 14*.....Easter Saturday
 May 1.....Labor Day
 May 24.....Battle of Pichincha
 July 24.....Simon Bolivar's Birthday
 August 10.....Independence Day
 October 9.....Independence of Guayaquil
 October 12.....Columbus Day
 November 2.....All Soul's Day
 November 3.....Independence of Cuenca
 December 6.....Founding of Quito
 December 25.....Christmas Day

* Dates vary year to year

Fiscal year: Calendar year

1.4 Currency (November 1979)

100 centavos = 1 sucre
 US \$1.00 = 25.000 sucres

1.5 Time Zones

EST; GMT + 5

1.6 Host Country Mission and Staff In US (August 1979)

Embassy of Ecuador
 2535 15th Street, N.W.
 Washington, D.C. 20009
 Phone: (202) 234-7200

Minister, Charge d' Affairs
 ad interim (August 1, 1978)...Horacio Sevilla-Borja
 Minister.....Jorge Ramos
 Counselor (Cultural and Press
 Affairs).....Piedad De Suro
 Second Secretary.....Alejandro Suarez
 Asst. Military Attache.....Lt. Col. Carlos M.
 Freire
 Air Attache.....Brig. Gen. Jaime E.
 Suarez
 Naval Attache.....Capt. Fausto Cevallos

1.7 US Mission and Staff (October 1979)

Embassy of the United States
 120 Avenida Patria
 Quito, Ecuador
 Phone: 548-000

Ambassador.....Raymond E. Gonzalez
 Deputy Chief of Mission.....Rudy V. Fimbres
 Economic/Commercial Section.....Walter G. West
 Commercial Section.....Robert H. Bateman
 Political Section.....Gerald M. Sutton
 Labor Officer.....Angel M. Rabasa
 Consul, Consular Section.....Lella S. Belaval
 Administrative Section.....Charles R. Doscher
 Agricultural Section.....Lloyd Holmes
 Agency for International Development..Joe J. Sconce
 Public Affairs Officer (USICA).....Robert A. Rockweiler

Consulate
 9 de Octubre y Garcia Moreno
 Guayaquil
 Phone: 511570

Consul, Consular Section.....Robert A. Bishton
 Commercial Section.....Richard T. Heffern
 Consul, Consular Section.....Edward H. Wilkinson
 Administrative Section.....Lee M. Carter
 Branch Public Affairs Officer (USICA)...Eugene C. Harter, Jr.

1.8 Treaties and Agreements

Agricultural Commodities
 Commercial Air Transportation Services
 Investment Guarantees
 Peace Corps
 General Agreement for Economic, Technical and Related Assistance

1.9 International Organization Memberships

Organization of American States
 Inter-American Institute of Agricultural Sciences
 International Rice Commission
 International Wheat Council
 Inter-American Indian Institute
 Latin-American Free Trade Association (LAFTA)
 United Nations
 Each UN-Related Agency except the General Agreement on
 Tariffs and Trade
 Andean Common Market
 International Telecommunications Satellite Consortium
 (INTELSAT)
 Inter-American Development Bank
 Organization of Petroleum Exporting Countries (OPEC)
 Sistema Economico Latino Americano (SELA)

1.10 Visa and Travel Information

Valid passport, migratory control card (no charge) and return/onward ticket required for stays up to 3 months. May be extended 3 months. Check consulate/embassy for specific requirements.

Smallpox certificate required. Yellow fever, typhoid, and typhus immunizations recommended.

1.11 Ethnic and Sociocultural Groups

Population of Ecuador stems from two basic elements: the South American Indian and Hispanic. Some elements of both remain unmixed, but generally a physical mixture of the two origins is displayed in varying degrees by the majority of the population. A third racial group, the African Negro, was introduced by the Spaniards during the sixteenth century and have since mingled to a limited extent with both Whites and Indians.

Estimates of the proportions of various racial elements are disparate and inconclusive because of the blurring of racial distinctions. Roughly 40-60% of the population is Indian; 30-50% Mestizo, 7-10% Caucasian and 3-10% Black or Mulatto. Because of racial mixing, physical appearance alone seldom serves as the major criterion for determining ethnic identity. Instead, language and general lifestyle assume greater significance as determinants.

The Hispanic elite is concentrated in the cities whereas Indians are present in large numbers in both cities and rural areas and in all three geographic regions. The Indians of the Sierra (the Andean highlands) are the largest of the three groups. Continuous contact with Hispanic society has resulted in a degree of assimilation but has not erased the cultural variety exhibited by the numerous Sierra groups. In the Oriente, the cultural contrast between Hispanics and Indians is the most pronounced and tribal identity generally is maintained. Indians in the Costa are in various stages of assimilation and only small isolated groups retain a traditional way of life.

The Negro population is concentrated in the coastal region in Esmeraldas Province. This population tends to be culturally similar to the lower social strata, living mainly by subsistence farming and manual labor, speaking Spanish, and professing Catholicism.

1.12 Languages

Spanish is the official language spoken by 93%; 7% speak the Indian language Quechua.

1.13 Education

Free and compulsory. National illiteracy rate is 30%; higher in rural areas. Access to schools in rural areas is difficult.

1.14 Religions

No state supported religion. 90% are Roman Catholics. Big cities have representatives of the Protestant and Jewish faiths; some animism among Indians.

2. Government

2.1 National Government

Constitutional rule was suspended in June 1970 when the bicameral National Congress was dismissed. Since January 1976, power has been held by a three-man military junta, called the Supreme Council of Government, which rules with the assistance of a Cabinet. In May 1979, the first elections in eleven years were held. Jaime Roldos Aguilera was elected President for a 5-year term to begin August 10, 1979. Personal antagonism between the President and the head of Congress has paralyzed the new government. Because of the impasse, Ecuador's oil-based prosperity is endangered.

2.2 Regional Organization

20 Provinces	-	Headed by governors appointed by President
97 Cantons	-	Headed by political chiefs and elected cantonal councillors
795 Parishes	-	Headed by political lieutenants, 169 urban and 626 rural

2.3 Major Government Figures (January 1980)

President.....	Roldos Aguilera, Jaime
Vice President.....	Hurtado Larrea, Oswaldo
Min. of Agriculture & Livestock.....	Andrade Fajardo, Antonio
Min. of Finances & Public Credit.....	Asplazu Seminario, Fernando
Min. of Foreign Relations.....	Pareja Diezcanseco, Alfredo
Min. of Government & Justice.....	Dunn Barreiro, Roberto
Min. of Industries, Commerce & Integration.....	Salgado, Germanico
Min. of Labor.....	Feraud Blum, Carlos
Min. of National Defense.....	Subia Martinez, Marco, Maj. Gen.
Min. of Natural Resources & Energy.....	Cardenas Batallas, Jose Corsino
Min. of Public Education & Sports.....	Garcia Feraud, Galo
Min. of Public Health.....	Gullen Murillo, Humberto
Min. of Public Works & Communications.....	Saa Chacon, Francisco
Min. of Social Welfare.....	de Sorroza, Inez Arrata

3. Disaster Preparedness

3.1 Host Disaster Plan

Civil Defense Director (in charge of disaster preparedness): Colonel Hector Espinosa (AID Seminar, 1974), Telephone: 240-210 (Home), 525-718 (Office).

Responsibilities of Civil Defense Office:

- Survey and assessment
- Food
- Water
- Health
- Relief supplies
- Coordination with local government, voluntary agencies, U.S. Embassy, International organizations
- Records and reporting
- Logistics and transportation
- Infrastructure
- Communications
- Security

Civil Authority:

- National Civil Police (PCN) - 12,000
- National Customs Police (PNA)- 1,120

Maintain order, control traffic, mostly urban. Possible vehicle source. Dispersed across country.

3.2 US Disaster Plan

Mission Disaster Relief Officer	-	Harry Ackerman, USAID
Deputy Relief Officer	-	Cmdr. Renaldo Lazo
Chief of Mission	-	Mr. Richard Bloomfield, Amb.

3.3 Mission Disaster Team

<u>Name/Office</u>	<u>Function</u>
Harry Ackerman, USAID	MDRO
Katherine Kemp, Admin.	Medical services
Col. Jos. Yore, USMLO	Shelter & survival supplies
Ltc. Maurice Dougherty, IAGS	Engineering, sanitation, electrical problems, debris clearance, building inspection and condemnation, road and bridge inspection and clearance
Katherine Kemp, Admin.	Communications
Cecil Richardson, Con.	Consular affairs and communications with Non-USG Americans
Capt. Steve Ralph, Dao	Transportation, logistics, fuel supplies and distribution
Col. Edward Palmer, Dao	Rescue and relief assessment operations
Philip M. Lopes, PC	Coordination activities
Edwin M. Corr, DCM	Security
Harry Ackerman, USAID	Monitoring overall activity
Allen C. Hankins, USAID	Administration and reporting
Holley M. Bell, USIS	Information (press releases, photos, news media servicing)
Katherine Kemp, Admin.	Clerical and typing
Allen C. Hankins, USAID	Food for Peace
Col. Jos. Yore, USMLO	Deputy MDRO
Gerald Sutton, Pol	Political and protocol affairs

3.4 US Contact List

	<u>Office No.</u>	<u>Ext</u>
AID - Mr. Hankins	521-100	270
DAO - Mr. Richards	230-020	281
DEA - Mr. Kuykendall	230-020	208
FAS - Mr. Anderson	230-020	236
IAGS - Ltc. Dougherty	233-903	-
MSG - Gysgt. Blundell	230-020	220
NASA - Mr. Shaddeau	514-000	-
PC - Mr. Lopes	232-509	-
State - Ms. Kemp	230-020	276
USIS - Mr. Bell	230-020	239

3.5 Voluntary Agencies

CARE:

5th Floor, Edif. Proinco, Reina Victoria 447; Tel. 231-574.
 James Puccetti, Director, Austria 232; Tel. 241-294. Guayaquil
 Office, Julian Coronel 311; Tel. 04-300-410. Bob Flick, Guayaquil
 Representative, Tel. 04-342-347.

Food Relief:

Catholic Relief Services (CRS) Edif. Conf. Episcopal,
 Av. America and La Gasca; Tel. 230-298.
 Mark Reilly, Director, Colon 1346; Tel. 520-014.

Food Relief
 Counterpart Agency:

Comision de Promocion Humana. Clothing, medicines from
 Diocesan Directors--reached through CRS.

Red Cross of Ecuador:

Dr. Hugo Merino Grijalva, Pres.
Elizalde Y Ave. Colombia
Phone: (O) 214-966
(H) 232-304

Dr. Victor M. Yopez Miranda, VP
Elizalde Y Ave. Colombia
Phone: (O) 214966
(H) 522-083

3.6 International Organizations

UNDP: UN Building, San Gregorio 120 and 10 De Agosto; 233-680
Resident Representative Juan Pascoe Eloy, Alfaro 2763; Tel. 249-066.

World Food Program (FAO): Same address as UNDP; Tel. 232-996.
Ing. David Alaluf, Head Turquia No. 1; Tel. 240-183.

Pan American Health Organization: In Ministry of Public Health
Building; Juan Larrea 444; Tel. 522-100. Dr. Orlando Aguilar, Country
Representative, Manuela Saenz 595 and F. Hernandez; Tel. 249-797.

Organization of American States: 6 De Diciembre 4580; 247-122.
Dr. Gabriel Ospina, Resident Representative, Cigant 121 and Guillermo Reis;
Tel. 527-193.

3.7 US Assessment

MDRO assists in assessment; reports to AID/W. Rescue and Relief
Assessment/Operation - Lt. James Rogers, DAO evaluates GOE requests.
Recommends action to MDRO.

3.8 Host Funding

Ecuador Civil Defense law allocates up to S/.10 million for emergency
financing at discretion of President.

3.9 Host Stockpiles

Data unavailable for health, heavy equipment, disaster supplies,
communications, scientific and professional organizations.

Public Grain Storage Facilities, by Region, January 1978
(tons)

	ENAC		EMPROVIT		Total
	<u>Silos (1)</u>	<u>Warehouses</u>	<u>Warehouses</u>		
<u>Sierra</u>					
Carchi	2,699	455	-		3,154
Imbabura	-	909	-		909
Pichincha	3,864	7,013	4,318		15,195
Cotapaxi	-	182	-		182
Tungurahua	-	909	-		909
Chimborazo	3,000	9,013	614		12,627
Bolivar	4,000	136	-		4,136
Canar	-	182	-		182
Azuay	-	682 (2)	432		1,114
Loja	3,560	91 (3)	250		3,901
Subtotal	17,123	19,572	5,614		42,277
<u>Coast</u>					
Esmeraldas	-	91	-		91
Manabi	-	91	-		91
Guayas	16,000	11,182	2,136		29,318
Los Rios	-	45	-		45
El Oro	-	91	-		-
Subtotal	16,000	11,500	2,136		29,536
Total	33,123	31,072 (4)	7,750		71,945

(1) Includes EDIALCE silos (15,000 mt) taken over by ENAC.

(2) According to data from Seguridad Alimentaria, there are only 455 mt.

(3) According to Seguridad Alimentaria there exists a 4,545 mt warehouse which belongs to MAG.

(4) Of which 14,545 tons is rented from the private sector.

Private Grain Storage, By Region 1978
(tons)

	Wheat Mills		Rice Mills	
	<u>Silos</u>	<u>Warehouses</u>	<u>Silos</u>	<u>Warehouses</u>
<u>Sierra</u>				
Carchi	-	818	-	-
Imbabura	-	-	-	-

Private Grain Storage, By Region 1978
(tons)

	Wheat Mills		Rice Mills	
	<u>Silos</u>	<u>Warehouses</u>	<u>Silos</u>	<u>Warehouses</u>
<u>Sierra (cont'd)</u>				
Pichincha	11,068	2,227	-	154
Cotapaxi	4,545	-	-	-
Tungurahua	-	2,818	-	-
Chimborazo	-	4,182	-	-
Bolivar	-	-	-	-
Canar	-	-	-	13
Azuay	-	-	-	-
Loja	-	364	-	345
Subtotal	15,613	10,409	-	594
<u>Coast</u>				
Esmeraldas	-	-	-	73
Manabi	-	-	-	827
Guayas	46,818	6,000	25,519	50,984
Los Rios	-	-	-	12,295
El Oro	-	-	-	127
Subtotal	46,818	6,000	25,519	64,306
Total	62,431	16,409	25,519	64,900
	Animal Food Plants		Malting Plants	
	<u>Silos</u>	<u>Warehouses</u>	<u>Silos</u>	<u>Warehouses</u>
<u>Sierra</u>				
Carchi	-	2,273	-	-
Imbabura	-	227	-	-
Pichincha	2,286	3,808	15,000	-
Cotapaxi	-	-	273	45
Tungurahua	-	750	-	-
Chimborazo	-	-	-	-
Bolivar	-	-	-	-
Canar	-	-	-	-

	Animal Food Plants		Malting Plants	
	<u>Silos</u>	<u>Warehouses</u>	<u>Silos</u>	<u>Warehouses</u>
<u>Sierra (cont'd)</u>				
Azuay	-	136	-	-
Loja	-	-	-	-
Subtotal	2,286	7,194	15,273	45
<u>Coast</u>				
Esmeraldas	-	-	-	-
Manabi	9,045	3,128	-	-
Guayas	8,864	7,746	1,045	-
Los Rios	-	-	-	-
El Oro	-	-	-	-
Subtotal	17,909	5,928	1,045	-
Total	20,196	13,122	16,318	45

3.10 Host Transportation

Army:

<u>Vehicles</u>	<u>Quantity</u>
All models, 1/4 ton	142
All models, 1/4 ton	20
Cargo, 2 1/2 ton	68
Dump, 2 1/2 ton	65
Cargo, 4 TO 6 ton	6
Tractor truck, 5 ton	14
Special purpose vehicles	10
<u>Trailers</u>	
Cargo, 1/4 ton	17
Utility, 1/4 ton	31
Cargo, 1 and 1 1/2 ton	19
Water tank, 1 and 1 1/2 ton	10
Cargo, 1/3 ton	39

All Armed Forces:

Aircraft

Short Skyvan	1
Cessna 1505	23
Cessna 02A	1
Piper Navajo, PA-31-300	1
Alouette III helicopters	6
Puma SA-330 helicopters	2

All Armed Forces:

Watercraft

Coastal: 3 - PTF (fast patrol boats) 2 - PTG (mission attack boats)
 River: 5 - PBR river patrol craft
 Amphibious: 1 LSM (med landing ship) 1-LST (med landing tank)
 Auxiliary: survey ship (AGS), light cargo ship (AKC),
 fleet ocean tug (ATF)
 Service: YR floating workshop, YTL small harbor tug, YTB
 light harbor tug.

Note: See also Waterways, Section 8.7. Rio Guayas system important in disaster relief. See also Transportation and Logistics, Section 6.9.

3.11 Supply Requests

Possible supplies requested from outside sources: (1) trauma kits (earthquake), (2) pump-purifier systems, water containers (major flood), (3) food (oil, oatmeal, bulgur, dried milk), (4) tents, poles, stakes, (5) heavy wool blankets, (6) Coleman gasoline stoves, (7) cooking and eating utensils, (8) chemical toilets, (9) small boats, motors (large-scale flooding).

3.12 Disaster Types and History

Flood, earthquake, epidemic, drought, fire, landslide.

Disaster History

<u>Disaster</u>	<u>Location</u>	<u>Date</u>	<u>Number Killed</u>	<u>Number Victims</u>	<u>Number Home- less</u>	<u>Dollar Dmg (000)</u>
Earthquake	Western Ecuador	42	200			
	Pelilled	8/05/69	6,000	100,000		\$20,000
	Loja Province	12/09/70	29	60,000		\$4,000
	Esmeraldas	4/09/76	10			\$4,000
	Cotopaxi, S. of Quito	10/06/76	9	20,000		\$0
Epidemic	Guayaquil & areas	67	36	528		\$0
	W portions of Quito	1/00/77	300	1,500		
Equine Enceph.	Playas area	5/13/69	400	40,000		\$0
Fire	Guayas Prov. Colimes	10/14/66	0	800	492	\$134
Flood	Milagro	2/08/67	0	20,000	400	\$100
	Guayas, Emeral, Manabi	4/08/70	20	140,520		\$500
	Imbabura	11/00/70	0	100		\$20
	Guayas Prov.	3/00/71	0	10,000		\$0
	NE, Putumayo R	7/00/71	0	2,400		\$50
Landslide	Quito-Sto Domingo Rd	5/00/66	50	500		\$0
	Quito	3/09/71	20	6		\$0
	Esmeraldas	2/11/76	60			
Volcanic Eruption	El Sangay	7/08/75	0	0		\$0
	Cotopaxi	12/00/76	0	0		\$0

4. Population4.1 National Population

Total population in 1978 was 7.5 million with an annual growth rate of 3.5%. 60% of the population lives in rural areas, although there has been a steady migration to urban areas. Rural subsistence farmers make up the majority of the population.

4.2 Regional Distribution

Population By Province
(1975)

<u>Province</u>	<u>Total</u>	<u>Urban</u>	<u>Rural</u>
Azuay	376,802	119,446	257,356
Bolivar	148,591	19,465	129,126
Canar	151,734	19,725	132,009
Carchi	123,449	38,393	85,056
Cotopaxi	245,522	36,337	209,185
Chimborazo	310,506	80,417	230,089
El Oro	272,597	131,664	140,933
Esmeraldas	213,186	75,681	137,505
Galapagos	4,266	2,474	1,792
Guayas	1,578,592	999,256	579,336
Imbaburu	223,276	73,238	150,038
Loja	350,542	79,924	270,618
Los Rios	400,609	101,354	299,255
Manabi	832,692	223,161	609,531
Morona Santiago	56,381	9,591	46,790
Napo	64,779	3,887	60,892
Pastaza	24,231	5,573	18,658
Pichincha	1,030,289	686,172	344,117
Tungurahua	288,103	98,696	189,307
Zamora Chinchipe	38,179	4,200	33,979
Zonas En Discusion	18,193	--	18,193

1975 Population By Age Group

0 - 4 yrs.	17.8%
5 - 14 yrs.	28.3%
Under 20 yrs.	56.8%
15 - 64 yrs.	51.2%
Over 64 yrs.	2.7%

Males - 3,568,000; females - 3,522,000 (1975)

4.3 Major Cities

<u>City</u>	<u>Population</u>	<u>Province</u>
Quito	700,000	Pichincha
Guayaquil	850,000	Guayas
Cuenca	75,000	Azuay

5. Health, Nutrition and Housing

5.1 Summary of Diseases

Enteroparasitic and acute respiratory diseases are the main causes of death. Childhood diseases, such as measles and whooping cough, combined with widespread and severe malnutrition, are a major cause of death among children, especially in rural areas. Infant mortality shows seasonal variations, with highest levels between January and March; also higher in the Sierra region. Other diseases include: tetanus; typhoid; poliomyelitis (incidence decreasing); tuberculosis; venereal diseases. Rabies in animals and humans (serious epidemic in November 1977).

Transmission of malaria has been localized in the two tropical provinces of Esmeraldas and Najo. Yaws is limited to the northwest border. Between 15 and 20 cases of louse-borne typhus are reported each year in the Sierra. Incidence of plague and viral encephalitis have decreased. Yellow fever eradicated.

5.2 Vital Statistics

Birth rate	41.0/1,000 population	(1977)
Death rate	10.1/1,000 population	(1977)
Infant mortality	64.3/1,000 live births	(1975)
Life expectancy	60.0 years	(1977)

5.3 Health Services

Health services are provided by the Ministry of Public Health, the Social Security system, the Armed Forces, and by private corporations and practitioners. The first two and the last are the most important in terms of coverage. The structure of the Ministry of Health's (MSP) network of services corresponds to the political/administrative divisions of the country (see below). In the major cities there are specialized and university hospitals which provide one or more of the traditional services (internal medicine, surgery, gynecology-obstetrics, and pediatrics). In each provincial capital (20) there is a base hospital offering the four traditional services. In addition, the provincial capital has an urban health center to provide out-patient services for 30,000 people.

Cantonal capitals (91) have a hospital health center equipped with 15-25 beds providing gynecological-obstetric, pediatric and emergency services; specializes in outpatient services.

Each parish subdivision (about 820 in the country) is supposed to have a health subcenter. The staffing pattern for health subcenters is as follows: one doctor, one auxiliary nurse, one odontologist, one auxiliary odontologist, and one sanitary inspector. The subcenter usually has 1-2 beds for observation, but it is mainly for outpatient services and it is located in areas with over 1,500 people. In smaller villages there are health posts staffed by one auxiliary nurse who also does home visiting. The health post is visited about twice a month by a health team similar to the one working in the subcenter.

Patients are referred from the health post upwards, but there are constraints to the smooth operation of the referral system due to the cost of transportation and the time needed to travel to higher level health facilities. This system is not operational for the bottom 25 percent of the population living in isolated rural areas. This population group (about 1.8 million) is served by traditional healers and midwives.

Structure of Health Services, 1977

<u>Establishment</u>	<u>Number</u>	<u>Beds(1)</u>	<u>Location</u>
Hospital	37	5,730	Main cities and provincial capitals
Hospital health center	64	1,952	Cantonal capitals
Urban health center	68	-	Urban centers
Health subcenter	354	-	Parish seat with over 1,500 people
Health post	191	-	Villages with less than 1,500 people
Other	7	-	
Total	721	7,682	

(1) Beds for in-patient treatment. Data on beds for observation only are not available.

Source: World Bank: Development Problems and Prospects of Ecuador, 1979.

Distribution of Hospital Beds

Ministry of Health Institutions	2.3%
Private	14.5%
Semi-public	83%
Total number in 1975 - 14,300	

5.4 Health Personnel (1974)

	<u>MD's</u>	<u>Ratio(1)</u>	<u>Other Profes- sionals(2)</u>	<u>Ratio</u>
Total	2,619	1/2,608	592	1/11,537
Sierra	1,460	1/2,266	311	1/10,640
Costa	1,119	1/2,984	260	1/12,842
Oriente	36	1/4,944	20	1/8,900
Galapagos	4	1/1,000	1	1/4,000

	<u>RN's</u>	<u>Ratio</u>	<u>Others(3)</u>	<u>Ratio</u>
Total	797	1/8,570	332	1/20,572
Sierra	554	1/5,973	179	1/18,486
Costa	219	1/15,247	149	1/22,409
Oriente	23	1/7,739	4	1/44,500
Galapagos	1	1/4,000	-	-

(1) Ratio of health personnel per population.

(2) Includes dentists, pharmacists, biochemists and obstetricians.

(3) Includes social workers, medical technologists, psychologists, health instructors, nutritionists, etc.

Health care in rural areas is grossly inadequate, often primitive. 80% of medical personnel practice in major urban areas.

Ministry of Public Health (1977)

<u>Type</u>	<u>In the Country</u>	<u>Working for MOH</u>
Doctor	4,664	1,459
Odontologist	1,643	325
Obstetrician	308	215

<u>Type</u>	<u>In the Country</u>	<u>Working for MOH</u>
Graduate nurse	1,388	489
Nursing auxiliary	10,300	2,076
Technical auxiliary	1,121	466

Source: World Bank: Development Problems and Prospects of Ecuador, 1979.

In contrast to the high ratio of doctors to population, there is a serious shortage of nurses (less than one nurse per doctor, a reverse ratio of that required for adequate services). In mid-1977 there were nearly 1,400 university-trained registered nurses and about 10,000 nursing auxiliaries (8 months of training after primary school).

5.5 Diet Summary

Carbohydrates: Sierra - corn, potatoes; coast - wheat, rice.

Meats: Sierra - mutton and pork in north, goat in south, Guinea pig (rural); coast - beef, fish.

Vegetables: Green vegetables, onions and cabbage.

Beverages: Coffee, herb tea; milk consumption low.

Deficiencies: Calcium, vitamins A, B1, B2.

FAO's recommended MDR 2,284 calories/day. Average per capita intake: 2,078 calories, of which 34% cereals.

<u>Protein</u>	<u>Fat</u>	<u>Carbohydrate</u>	<u>Calcium</u>	<u>Phos</u>	<u>Iron</u>	<u>Vit A</u>	<u>Na</u>	<u>K</u>
53.5	61.2g	388.1g	800mg	800mg	14mg	-	-	-

5.6 Nutritional Deficiencies

The National Nutrition Institute estimates that about 47% of pre-school children suffer some degree of malnutrition, including 1.2% who suffer mild degree malnutrition. The Institute also points out that the average diet is deficient in calories (18%); in proteins (19%); in calcium (44%); and in vitamin A (44%). Rickets and anemia a problem in tropical and sub-tropical zones. The presence of goiter indicates a

lack of iodized salt, although data from the Ministry of Public Health indicates that as of mid-1978, about 85% of the salt consumed in the country was iodized.

5.7 Nutrition by Region

Coast

Average caloric intake is between 1,700 and 1,875 calories in the form of three meals: breakfast of gruel made from barley or banana with coffee; lunch of fish with cooked green bananas and rice; dinner of green bananas (cooked) and rice.

Beverages: carbonated or fermented grains, juices, coffee, herb waters, cow's milk (limited), goat's milk.

Flour: wheat, barley, pea flours as tortillas made on clay stoves.

Fruits: bananas, narangillas, mangoes.

Grain: rice, barley, wheat.

Meat/Fish/Fowl: limited use of pork and beef; sardines (fresh), tuna (canned, dried), codfish, fresh river fish; chicken.

Vegetables: carrots, cabbage, cauliflower, peas (limited use of all).

Lard: used for cooking.

Sierra

Average caloric intake of 1,700-1,875 calories in the form of three meals: breakfast of herb water with brown sugar, barley gruel or toasted corn; lunch of salted corn or barley in various forms, gruel, or a sweet gruel called "desabrido", also hominy; dinner of soups made of grains and "desabrido."

Beverages: fermented and carbonated drinks, juices, coffee and herb water

Dairy: cow's milk, goat's milk, donkey milk; cheese (limited use of all).

Flour: corn, beans, peas, barley, wheat, (corn and wheat into bread baked in home ovens).

Fruits: (seasonal) - oranges, peaches, pears, bananas.

Grain: corn, barley, quinoa (whole or ground).

Meat/Fish/Fowl: beef, pork, lamb, Guinea pig (limited use of all; dried fish once a year; chicken.

Vegetables: potatoes, mellocos, ocas (like potatoes) carrots, cabbage, chick peas, lentils.

Lard/Fat: from whatever animal killed; used in cooking.

5.8 Utensils

Coast

Meals are prepared outside on a hearth (coal or straw are used for fuel). Cheap aluminum, clay or enameled iron pots (1-10 liters) and plates, jugs, spoons, and cups of clay, wood, and iron.

Sierra

Hearths fueled with wood or straw are used to prepare meals inside the home. Clay, enameled iron, and cheap aluminum pots (1-10 liters), wood, metal, clay spoons, plates, jugs, cups, and bottles.

5.9 Housing

Housing in both rural and urban areas is inadequate. Poor conditions include: lack of low cost housing, crowding and little or no access to electricity, sewer service and water (only 8% of rural population has access to potable water).

Urban dwellings are made of concrete, stone, brick, frame or adobe. Houses in urban slums and rural areas are made of adobe, reed or cane, or wattle and daub. Roofs are either of thatch or corrugated iron. In rainy areas houses are often built on stilts to avoid flooding.

Population Covered By Drinking Water
And Sewerage Networks, 1970-78

<u>Year</u>	<u>Total Population</u>	<u>Population Covered</u>		<u>Percentages Population Covered</u>	
		<u>Drinking Water</u>	<u>Sewerage</u>	<u>Drinking Water</u>	<u>Sewerage</u>
1970	5,740,417	1,687,682	1,285,853	29.4	22.4
1971	5,921,749	1,776,525	1,338,315	30.0	22.6
1972	6,108,810	1,918,166	1,441,679	31.4	23.6
1973	6,301,779	2,079,587	1,575,445	33.0	25.0
1974	6,590,463	2,241,757	1,779,425	34.0	27.0
1975	6,788,657	2,357,724	1,929,540	34.7	28.4
1976	7,009,410	2,785,438	2,130,915	39.7	30.4
1977	7,237,887	3,338,925	2,591,274	46.1	35.8
1978	7,474,138	3,702,357	2,956,599	49.5	39.5

Source: World Bank: Development Problems and Prospects of Ecuador, 1979.
Planificación

6. Economy

6.1 Overview of Economy

The economy has gone through a period of rapid growth due mainly to exports. Between 1971 and 1977, GDP grew at 9.3% annual rate in real terms and by end of 1977 per capita income was US \$770. Petroleum exports were main reason for growth despite a decline in export volume since 1974.

However, the period of economic expansion induced by the boom is coming to a close. In 1978, Ecuador has been adjusting itself to a balance of payments constraint, and its economic growth has slowed to an estimated 6.8%.

Despite recent growth history and the relatively high average income, much of the population continues to live in poverty. Average income for poor urban dwellers is US \$150 and for rural poor this drops to US \$60. While national unemployment is only 3%, underemployment is estimated as high as 30% of labor force.

High world prices for coffee and cocoa have added to economic growth increasing wages of most urban workers. Government investment programs in agriculture are aimed at increasing production and mechanizing production techniques. Since the oil boom, the agricultural sector has been neglected and the 1977-81 economic plan calls for an investment of US \$400 million for agricultural development.

The fishing industry has seen steady growth, aided by government development programs. Forestry is also an important industry with Ecuador the world's principal producer of balsawood. Minerals, including gold, silver, copper, lead and zinc reserves, totaling one million tons have been discovered in Azuay.

6.2 Petroleum

After a maximum of 59 million barrels in 1973, crude oil exports began to decline, falling to 38 million barrels in 1977. However, due to high international prices, petroleum still accounted for 40% of total exports in 1977. The decline can be accounted for by unrealistically high prices asked for Ecuadorian oil which foreign buyers have not met, leading to stockpiling exportable oil; and an increased domestic demand for oil due to unrealistically low prices (gasoline 18 cents a gallon as of July 1979).

Ecuador-Crude Balances, 1972-77
(1000 barrels)

	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>
Production	28,614	77,616	65,627	60,783	70,023	66,954
Imports (inc. compensation)	8,530	6,868	9,425	8,265	8,005	5,175
Exports	NA	71,213	59,778	52,532	61,720	50,453

Sources: Banco Central del Ecuador, Boletín Estadístico No. 12 and No. 18. Estadística Petrolera, 1976; and World Bank: Development Problems and Prospects of Ecuador, 1979.

Industry Petroleum Products (500 barrels)

	<u>1974</u>	<u>1975</u>	<u>1976</u>
Refined petroleum	12,754.3	14,544.7	15,454.8
Diesel oil	3,020.5	3,162.0	2,885.9
Kerosene	593.5	1,429.0	1,914.6
Gasoline	4,814.1	5,680.4	6,079.5
Residual fuel oils	3,191.3	3,583.2	3,775.6
Distillate fuel oils	110.3	142.2	151.5
Turbo - fuels	957.1	466.3	466.9
Natural gas (cubic meters)	62,064.5	55,735.3	n.a.

6.3 Industry

Accounted for 16.7% of GDP in 1977. Majority is light industry, although government plans to invest US \$1,500 million in heavy industry development, priority being given to petrochemicals, pharmaceuticals, cement, and steel.

The industrial sector expanded in 1970-77 by nearly 10% annually; expansion stimulated by growth of petroleum revenues, a favorable investment climate, financial stability, and to some extent, by the emergence of the andean integrated market.

Major constraints to development include inadequate infrastructure, small size of the domestic market, heavy concentration of industrial ownership, reluctance by owner-managers to accept new share capital for expansion, and limitations on available financing for other than well established firms. See Exports and Imports sections, 6.6 and 6.7.

6.4 Balance of Trade

The trade deficit registered in 1975 was reversed in 1976. Fluctuations in the trade balance reflect variations in the volume and price of petroleum, since petroleum continues to represent more than half of the value of merchandise exports.

Bananas, a traditional Ecuadorean export product, have declined in relative importance because of unfavorable world prices. Higher coffee prices accounted for this product's larger share of total exports and its displacement of bananas. In 1975-76, cocoa prices dropped, and, combined with a smaller volume of shipments, resulted in a decline in its export value.

Regarding the composition of imports, the combined purchases of raw materials and capital goods account for more than 80% of the total. Most of the increase in imports went to the industrial sector. Consumer goods, durable and non-durable, represented less than 15% of the total, with non-durable goods dominating.

Balance of Payments (Millions US\$)

	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>
Exports of goods, NFS	1,110	1,419	1,603	1,734
Imports of goods, NFS	-1,295	-1,340	-1,811	-1,728
Resource gap (deficit = -)	-185	79	-208	6
Net factor payments	-67	-117	-170	-206
Net transfers	32	31	36	40
Balance on current account	-220	-7	-341	-161
Direct foreign investment	95	-20	35	40
Net MLT borrowing				
Disbursements	137	233	637	514
Amortization	-33	-56	-47	-247
Subtotal	104	177	590	267
Capital grants	-	-	-	-
Other capital (net)	-45	53	-172	-109
Other items n.i.e.	-	-	-	-
Increase in reserves (-)	65	-203	-112	37
Gross reserves (end year)	312	559	744	765
Net reserves (end year)	257	457	613	646

	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>
Fuel and related materials				
Imports				
of which: petroleum	14	7	9	9
Exports				
of which: petroleum	617	737	648	678

6.5 GDP

Gross Domestic Product By Sector of Origin, 1970-77
(percentage of total based on constant 1970 prices)

	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>
Agrarian sector	24.7	24.6	23.8	22.8
Agriculture & forestry	16.1	16.1	15.5	14.6
Livestock	7.8	7.5	7.3	7.2
Fishing & hunting	0.8	1.0	1.0	1.1
Mining & quarrying	6.3	5.4	5.7	5.2
Petroleum	5.2	4.4	4.7	4.3
Other	1.1	1.0	1.0	0.9
Manufacturing	16.7	17.5	17.5	18.7
Food, drink & tobacco	5.8	6.2	6.2	6.6
Textiles & apparel	2.4	2.5	2.5	2.7
Other industries	8.5	8.9	8.8	9.5
Electricity & water	1.3	1.3	1.4	1.5
Construction	6.2	6.0	6.0	5.8
Dwellings	1.9	1.7	1.8	1.6
Other buildings	1.2	1.0	1.1	1.2
Other constructions	3.1	3.3	3.1	3.0
Commerce	12.2	12.5	12.7	13.4
Transportation & communications	6.6	7.0	6.6	6.8
Financial services	2.2	2.4	2.7	3.0
Ownership of buildings	8.9	9.4	10.0	10.2
Government services	9.6	9.0	9.1	8.4
Other services	5.2	5.1	4.6	4.2

	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>
GDP, Producer prices	100.0	100.0	100.0	100.0
Tariffs on Imports	4.9	4.2	3.7	4.7
GDP, market prices	104.9	104.2	103.7	104.7

Sector: World Bank: Development Problems and Prospects of Ecuador, 1979.

6.6 Exports

The 1972-74 petroleum boom slowed in 1976-78, resulting in diminished overall export performance. Small gains in exports of major agricultural products (cacao, coffee and fish) were offset by this decrease in oil exports. Trade partners for exports: US, Peru, Panama, Chile, Germany; for imports: US, Japan, Germany, Switzerland, Colombia.

Merchandise Exports (Average 1976-78) (US\$ Million)

	<u>US \$</u>	<u>%</u>
Petroleum	678	48.0
Bananas	163	11.5
Coffee	220	15.6
Cacao	48	3.4
Fishery	39	2.8
All other commodities	265	18.8
Total	1,413	100.0

Source: World Bank, Development Problems and Prospects of Ecuador, 1979.

6.7 Imports

Import dependency increased moderately from 1975 to 1977. The most noteworthy change in imports took place in the imported capital goods component of investment which rose dramatically during that period. This change reflects the effect of investment incentives which spurred the demand for foreign capital goods. Despite the growth of imports, the economy's overall dependence on imports does not seem to have increased according to the national accounts and import permit figures.

Import Permits, C.I.F., By Use, 1975-77
(US\$ million)

	<u>1975</u>	<u>1976</u>	<u>1977</u>
Consumer goods	122.5	99.2	167.8
Non-durables	61.6	59.0	---
Food	(17.7)	(11.1)	(28.1)
Pharmaceuticals	(22.4)	(28.3)	(30.5)
Other	(21.5)	(19.6)	(---)
Durables	60.9	40.2	109.2
Household goods	(24.1)	(21.7)	(---)
Private motor cars	(24.0)	(7.6)	(---)
Other	(12.8)	(10.9)	(---)
Fuel and lubricants	13.7	7.4	9.4
Raw materials and			
Intermediate goods	369.2	445.8	602.8
Agriculture	29.8	22.9	34.6
Industry	281.1	355.4	475.9
Construction	58.3	67.5	92.3
Capital goods	434.3	438.3	724.5
Agriculture	36.6	25.5	28.0
Industry	256.1	253.9	400.6
Transport equipment	141.6	158.9	295.9
Unclassified	3.5	2.4	3.9
Total Imports	943.2	993.1	1,508.4

Source: World Bank: Development Problems and Prospects of Ecuador, 1979.

7. Agriculture

7.1 Overview of Agriculture

Agriculture accounted for 23% of non-oil GDP in 1977, a decline from 28% in 1970. The agricultural sector has been growing by 5.7% during 1970-76, with sub-sector growth rates of 4.1% for crops, 6.0% for livestock, 10.1% for forestry, and 15.0% for fisheries. In 1977, agricultural growth declined to 1.4%, but rebounded again to 5.5% in 1978. With production growth lagging somewhat behind overall growth of private consumption, demand for food spilled over into imports. Supply shortages exerted an upward pressure on domestic food prices.

Despite recent dominance of petroleum in the economy, the agricultural sector remains the major source of employment, with about 55% of the labor force. Until 1972, the sector accounted for more than 85% of export earnings; in 1976, it accounted for 20%.

There are three agricultural regions:

Costa - mainly tropical; specializes in bananas, plantains, coffee, cacao, sugarcane, beef ranching, rice, hard corn, yuca, citrus, oilseeds, and fibers.

Sierra - highland valleys produce temperate climate; foodgrains, pulses, potatoes, vegetables and deciduous fruits are grown, and most dairy enterprises are located here. Sheep herds are maintained on high-altitude pastures.

Oriente - limited access has resulted in little input to agricultural sector. However, certain areas have potential for beef, rice, oilseeds, and yuca.

7.2 Land Use

Arable land per rural person is low, particularly in the Sierra, where minifundia represent 54% of the farms, with less than 2 ha. each; equivalent to 0.34 ha. per capita. Situation is better in the Costa (0.51 ha. per capita). However, continued rural population growth will severely limit land resource availability.

Land Ownership

% of farms: below 5 ha 68.0%
 above 50 ha 5.0%

7.3 Current Status (1979)

Rains occurred in May over the Sierra and eastern regions while dry weather prevailed in the Costa region. Crop conditions are now reported to be normal, but crop production is still expected to be below average.

7.4 Production

Production By Commodity, Value and Indices
Total Agricultural and Food Production, Annual 1968-77
(thousand metric tons)

<u>Commodity</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>Prelim. 1977</u>	<u>Growth Rates(2)</u> <u>%</u>
Wheat	54	51	46	36	-3.9
Rice, paddy	233	321	290	237	8.9
Corn	142	113	96	112	-3.5
Barley	56	55	57	35	-4.9
Beans, dry	28	26	31	30	-4.2
Potatoes	503	499	550	504	5.9
Cotton	12	9	7	8	16.1
Cottonseed	20	15	16	13	17.5
Castor beans	21	16	13	16	-4.8
Bananas(1)	2,295	2,130	2,425	2,383	2.0
Coffee	76	71	83	68	1.7
Cacao	72	75	64	69	1.6
Sugar, raw	268	287	294	264	4.1
Sugar, noncentrifugal	40	40	40	40	-
Beef and veal	59	67	58	61	5.6
Mutton and lamb	4	5	3	4	-
Pork	18	16	13	15	-
Milk	544	580	590	590	3.0
<u>Aggregates of Production</u> (million dollars at constant prices)					
Crops	297.6	289.9	309.3	292.2	2.5
Livestock	62.5	66.9	63.0	65.0	2.5
Total agriculture	360.1	356.8	372.3	357.2	2.5
Total food	318.2	318.5	328.7	320.5	2.3

<u>Commodity</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	Prelim. Growth Rates(2)
					<u>%</u>
<u>Indices of Production</u>	(1961-65 = 100) - - - - -				
Crops	126	122	131	123	2.5
Total agriculture	129	128	134	128	2.5
Total food	126	126	130	127	2.3
Per capita agriculture	95	91	92	86	-0.5
Per capita food	93	90	90	85	-0.6
<u>Index of Production</u>					
1961-65 population - 4,780,000	136.4	140.8	145.0	149.2	

(1) Exportable-type production.

(2) Growth rates for the volume of production of specific commodities are for 1970-76, while all other growth rates are for 1968-76.

(3) Preliminary.

Source: USDA, Indices of Agricultural Production for the Western Hemisphere, 1978.

7.5 Crop Dates

<u>Region and Crop</u>	<u>Seeding Months</u>	<u>Harvesting Months</u>	<u>Harvests per Annum</u>
<u>Coast</u>			
Rice	January - February June - July	May-June October - November	Two
Hard maize	January - February June - July	April - May September - October	Two
Soybeans	January - February June - July	May - June October - November	One
Sesame	February - March	June - July	One
Peanuts	January - February	May - June	One

<u>Region and Crop</u>	<u>Seeding Months</u>	<u>Harvesting Months</u>	<u>Harvests per Annum</u>
Cotton	February - March	July - August	One
Castor beans		July - August	One
African oil palm			Permanent
Coffee		May - June - July	Permanent
Cacao			Permanent
Bananas		May - June	Permanent
<u>Sierra</u>			
Maize	September - October	April - May July - August	One
Beans	September - October	April - May	One
Potatoes	All Year		
Wheat	January - February	July - August	One
Barley	February - March	August - September	One
Oats	February	August	One
Broad beans	January	June July	One

Source: World Bank: Development Problems and Prospects of Ecuador, 1979.

7.6 Fishing

Estimated Fish Catch, 1975-77 (tons fresh weight)

<u>Species</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>
Tuna	36,200	29,100	25,000
Sardine - type	132,000	236,600	370,000
Shrimp	5,740	7,600	9,500
Lobster	38	48	70
Other crustaceans	2,000	1,800	3,930
Other fish	42,000	8,800	22,000
Molluscs	3,500	4,320	4,500
Turtle	500	600	---
Total	<u>222,038</u>	<u>298,838</u>	<u>435,000</u>

Source: INP

7.7 Agricultural Exports

	<u>Exports 1973-76</u> (US\$ Million f.o.b.)			
	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>
Traditional Exports	215.0	327.0	263.0	208.0
Bananas	109	114	142	137
Coffee	67	67	64	33
Cocoa	27	103	42	33
Sugar	12	43	15	5
Non-Traditional Exports	109.5	328.4	723.9	597.5
Banana products	0.9	0.8	1.1	1.1
Fish and seafood*	16.7	24.3	28.8	35.8
Oilseeds	3.8	8.7	5.9	2.3
Wood, wood products	4.4	6.3	8.1	8.7
Cocoa products	6.3	9.0	22.7	25.4
Straw products	2.0	2.9	5.0	6.0
Abaca fiber	0.9	1.7	5.5	5.6
Molasses and brown sugar	0.3	1.6	2.1	1.2
Tea	0.4	0.8	0.8	0.8

* Included in sector

7.8 Agricultural Imports

	<u>Imports c.i.f.</u> ('000 US \$)	
	<u>1974</u>	<u>1975</u>
Wheat	35,473.6	33,518.4
Oats	1,836.9	2,901.5
Vegetable oils	4,647.0	12,311.1
Animal oils	7,960.0	7,418.2
Milk products	1,529.9	3,044.7
Fertilizer	52,199.8	15,542.7
Tobacco	11,931.0	6,093.0

8. Physical Geography

8.1 Climate

Because of varying altitudes, there is a wide range of climates:

Tropical lowlands: hot, humid, moderated along the coast by Humboldt current. Temperatures ranging from 65°F to 90°F.

Andean plateau: Spring-like weather year-round. Annual mean temperature of 56°F except Quito, where temperature may drop from 75°F to 35°F in 24 hours.

Oriente: hot, humid tropical jungle. Rainfall year-round.

The equator crosses the country in the north.

See also Land Form, section 8.4 and Altitudes and Coordinates section 8.5.

8.2 Temperatures (Fahrenheit)

<u>City</u>	<u>Range</u>	<u>Jan</u>	<u>Apr</u>	<u>Jul</u>	<u>Oct</u>	<u>Extrema</u>
Cuenca	Max	69	69	65	70	81
	Min	50	50	47	49	29
Guayaquil	Max	87	88	84	86	98
	Min	72	72	67	68	52
Quito	Max	67	69	71	71	86
	Min	46	47	44	46	25

8.3 Precipitation (Inches)

<u>City</u>	<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sep</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>
Cuenca	2	2	3	4	4	1	.9	1	2	3	2	3
Guayaquil	8	11	12	8	2	.4	.2	*	*	*	.1	1
Quito	4	4	6	7	5	2	.8	1	3	4	4	3

8.4 Land Forms

Ecuador is on the west coast of South America. Neighbors are Colombia to the north and Peru to the east and south. The Galapagos Islands, 970 km. west of the Pacific coast, form part of Ecuador.

Total area of 270,670 sq. km. (104,506 sq. miles); Galapagos Islands - 8,006 sq. km. Length north-south is 714 km. (444 miles); width east-west is 658 km. (409 miles).

Three distinct regions:

Coast (Costa) - low alluvial plain from 20-115 miles wide comprising about one-quarter of national territory. Extends from sea level to the base of the Cordillera Real of the Andes at about 1,500'. The Guayas in the southwest and the Esmeraldas in the northwest form main river systems and serve as arteries for transportation.

Highlands (Sierra) - one-quarter of total land area. Region formed by two parallel ranges of the Andes from 70-180 miles wide with an intervening narrow central plateau nearly 400 miles long. This inter-Andean plateau is divided into 10 basins of altitudes from 7,800' to 9,500', some draining east and some west. The region has many massive snowcapped volcanoes.

Oriente - eastern interior jungles, beginning at base of Andes (4,000'). Land drops sharply and is divided by water torrents escaping cold highlands. At 850' jungle becomes almost level and streams widen to slow rivers as they move down the Amazon basin to the Atlantic.

Galapagos Islands - inhabited by varied forms of plant and animal life. Surrounding waters are one of the world's richest tuna fisheries.

8.5 Altitudes and Coordinates

Quito	00° 08' S	78° 29' W	9,222 ft.
Cuenca	02° 53' S	78° 39' W	8,301 ft.
Guayaquil	02° 10' S	79° 53' W	20 ft.

8.6 Land Use

21% (2.2 acres per capita) of the total area used for agriculture. 52% is forested; products include: balsa and tagua nuts, kapok, cinchona bark and other tropical woods.

8.7 Waterways

There are numerous rivers. Those flowing into the Pacific are most important, providing the only means of transportation in the coastal region during the rainy season. Other rivers originate in the Amazon watershed and in the Inter-Andean region. Hydroelectric potential is high but little developed.

Inland waterways provide about 959 miles of transport routes that are important in meeting transportation requirements. The Andes mountains divide the two main watersheds, the Coastal Plains on the west, and the Upper Amazon Basin on the east. The system includes the Rio Guayas system, three coastal rivers (Rio Chone, Rio Esmeraldas, and Rio Santiago), and four rivers of the Eastern Lowlands (Rio Putumayo, Rio Napo, Rio Macuma, and Rio Namangoza).

Rio Guayas System:

Rio Guayas - 34.8 miles of navigable water with a depth of 11.8 to 25.8'. Throughout entire course, river can accommodate Class A and Class B ships.

Rio Daule - 92 miles of navigable water. Craft of about 5.9' draft can navigate river year-round 53 miles to Santa Lucia; during high water period launches travel to Balzar, 91.8 miles upstream from the mouth.

Rio Babahoyo - 83 navigable miles with a depth of 17.7' in lower reaches.

Rio Vinces - 93 navigable miles to Quevedo by craft of 5.9' draft except during low water season (July - January) when navigation is difficult upriver.

Canal Guayas-Salado - 4.3 navigable miles with depths of 13.1' at low water and 13.1' at high level water. Has single chamber lock 394' long by 75.5' wide.

Estero Salado - 46 navigable miles with a depth of 29.5' at low water and 42.6' at high water.

8.8 Mountains

Two Andean mountain ranges, the Western and Eastern Cordilleras, have more than a dozen peaks exceeding 16,000' in altitude; one of these, Cotopaxi, is the highest active volcano in the world. The Sierra is subject to occasional severe earthquakes.

8.9 Volcanoes

<u>Name</u>	<u>Height</u>	<u>Activity</u>	<u>Last Eruption</u>
Cotopaxi	19,347	Steaming	
Cayambe	18,996	Dormant	
Sangay	17,159	Active	1946
Tungurahua	16,512	Dormant	
Cotacachi	16,204	Active	1955
Pichincha	15,696	Dormant	

9. Transportation and Logistics9.1 Road Network

Roads are principal means of transportation. There are a total of 28,125 km. of highways. The Pan-American Highway runs for 1,392 km. through the country with branch roads to the coast. Surface widths vary from 7.9' to 29.8'.

<u>Regions and Provinces</u>	<u>The Road System</u>				
	<u>Permanent Roads: -Paved -Gravel -Dirt(km)</u>	<u>Seasonal Roads: Summer Roads (km)</u>	<u>Total (km)</u>	<u>Permanent Roads (%)</u>	<u>Seasonal Roads (%)</u>
<u>Sierra</u>					
Carchi	549.5	599.0	1,148.5	47.8	52.2
Imbabura	915.7	238.7	1,154.4	79.3	20.7
Pichincha	2,103.5	88.0	2,191.5	95.9	4.1
Cotopaxi	1,532.5	397.5	1,930.0	79.4	20.6
Tungurahua	1,098.4	-	1,098.4	100.0	-
Chimborazo	996.7	312.0	1,308.7	76.1	23.9
Bolivar	704.0	505.5	1,209.5	58.2	41.8
Canar	563.5	116.2	679.7	82.9	17.1
Azuay	798.7	321.6	1,120.3	71.3	28.7
Loja	1,092.8	947.1	2,039.9	53.6	46.4
Total Sierra	10,355.3	3,525.6	13,880.9	74.4	25.6
<u>Costa</u>					
Esmeraldas	334.0	430.0	764.0	43.7	54.3
Manabi	978.0	4,171.0	5,149.0	19.0	81.0
Guayas	1,312.8	1,566.3	2,879.1	45.6	54.4
Los Rios	1,072.0	1,880.0	2,952.0	67.7	32.3
El Oro	898.5	428.0	1,326.5	36.3	63.7
Total Costa	4,595.3	8,475.3	13,070.6	42.5	57.5

<u>Regions and Provinces</u>	<u>Permanent Roads: -Paved -Gravel -Dirt(km)</u>	<u>Seasonal Roads: Summer Roads (km)</u>	<u>Total (km)</u>	<u>Permanent Roads (%)</u>	<u>Seasonal Roads (%)</u>
<u>Oriente</u>					
Napo	-	427.0	427.0	100.0	-
Pastaza	-	207.0	207.0	100.0	-
Morona Santiago	-	213.6	213.6	100.0	-
Zamora Chinchipe	-	315.0	315.0	100.0	-
Total Oriente	-	1,162.6	1,162.6	100.0	-
Galapagos	-	68.0	68.0	100.0	-
Total Country	16,181.2	12,000.9	28,182.1	57.4	42.6

Source: JUNAPLA, Inventario de Carreteras 1976, p. 18, World Bank: Development Problems and Prospects of Ecuador, 1979.

9.2 Road Links

Santa Elena-Manglaralto-Puerto Lopez (Guayas-Manabi)
 Esmeraldas-Atacames-Sua-Muisne (Esmeraldas)
 Santa Ana-Portoviejo-Crucita (Manabi)
 San Vincente-San Isidro Y Esmeraldas-Tablazo (Esmeraldas)
 Nobol-Jipijapa-Montecristi (Manabi)
 Tulvan-Tufino-Maldonado (Carchi)
 Portoviejo-Rocafuerte-San Antonio (Manabi)
 Tosagua-Calceta-Quiroga (Manabi)
 Bolivar-El Angel (Carchi)
 Portoviejo-Pimpiguasi-Junin-Calceta (Manabi)
 Empalme-Nobol-Guayaquil (Guayas)
 Otavalo-Apuela (Imbabura)
 Puntilla-Samborondon (Guayas)
 Esmeraldas-Santo Domingo-Quevedo-Babahoyo-Naranja-Huaquillas (De Esmeraldas Hasta El Oro)

Quito-Nanegal (Pichincha)
 Quito-Papallacta-Baeza (Pichincha-Napo)
 Aloag-Santo Domingo (Pichincha)
 Quito-Sangolqui (Pichincha)
 Chota-El Angel (Imbabura-Carchi)
 Carretera Panamericana (Norte Y Sur)
 Ibarra-Cayambe (Imbabura-Pichincha)
 Quevedo-Moraspungo-El Corazon (Los Rios-Cotopaxi)
 Loja-Vilcabamba-Yangana (Loja)
 Latacunga-Quevedo-Manta (Cotopaxi-Los Rios-Manabi)
 La Toma-Cariamanga-Macara (Loja)
 Guaranda-Echandia (Bolivar)
 Catarama-Pueblo Viejo (Los Rios)
 Zamora-Macas-Puyo-Tena-Baeza-Lago Agrio (De Zamora A Napo)
 San Juan-Vinces-Palestina (Los Rios-Guayas)
 Puyo-Ambato-Guaranda-Babahoyo-Jujan-Ducur (De Pastaza A Canar)
 Lago Agrio-Francisco De Orellana (Napo)
 Riobamba-Banos (Chimborazo-Tungurahua)
 Cañabamba-Bucay-El Triunfo (Chimborazo-Guayas)
 Alausi-Huigra-El Triunfo (Chimborazo-Guayas)
 Gun-Guayaquil-Progreso-Salinas (Canar-Guayas)
 Progreso-Playas-Salinas (Guayas)
 Descanso-Paute-Casa De Maquinas (Azuay)
 Chicticay-Gualaceo Limon (Azuay-Zamora Chinchipe)
 Gualaceo-Sigsig (Azuay)
 Circo-Pasaje (El Oro)
 Las Chinchas-La Avanzada (Loja-El Oro)
 Velzcruz-Rio Pindo-Saracay-La Avanzada (Loja-El Oro)
 Empalme-Celica-Alamor (Loja)
 Zamora-Loja (Zamora Chinchipe-Loja)

Alternate routes to peripheral regions of the country do not exist. There are three major routes linking the coast to the Pan-American Highway in the Sierra: Guayaquil-Gun, Guayaquil-Riobamba (Pallatanga), Santo Domingo-Aloag (Quito). Two improved earth routes also exist; Quevedo - Latacunga and Guaranda-Babahoyo. Quito can be approached from the north by two routes: via Guallabamba or via Quiche to Tumbaco.

9.3 Bridges

Estimated 1,200 high bridges.

<u>Essential Bridges</u>	<u>Latitude</u>	<u>Longitude</u>
Guayaquil Hwy Br Ov Dry Estero	2° 135'	80° 4' W
Guayaquil Hwy Br Ov Dry Rio Belen	2° 155'	80° 7' W
Guayaquil Hwy Br Ov Estero Salado	2° 125'	79° 54' W
Latacunga Hwy Br 2 Ov Rio Pumacunchi	0° 565'	78° 37' W
Latacunga Hwy Br 1 Ov Rio Cutuchi	0° 545'	78° 38' W
Portoviejo Hwy Br Ov Rio Portoviejo	1° 35'	80° 28' W
Quito Hwy Br Ov Quebrada San Bartolo	0° 165'	78° 32' W
Quito Hwy Br Ov Rio Machangara	0° 155'	78° 31' W
Quito Hwy Br Ov Rio Machangara	0° 175'	78° 33' W

9.4 VehiclesRegistered Vehicles for 1972; By Type and Province

<u>Province</u>	<u>Auto</u>	<u>Bus</u>	<u>Sm Bus</u>	<u>Jeep</u>	<u>Pickup</u>	<u>Truck</u>	<u>Tan-ker</u>	<u>Dump Trk</u>	<u>Psgr Trk</u>	<u>Statn Wag</u>	<u>Van</u>
Azuay	974	348	25	509	1,758	220	13	101	121	398	74
Bolivar	99	130	3	109	259	44	8	20	105	34	-
Canar	73	80	33	79	272	146	22	68	52	45	8
Carchi	254	94	31	189	375	208	7	40	10	98	10
Cotopaxi	461	127	66	161	1,253	226	53	59	235	251	50
Chimborazo	459	275	53	186	1,319	315	5	55	9	27	3
El Oro	353	196	31	434	1,163	784	9	45	94	82	8
Esmeraldas	214	96	20	98	576	174	6	47	57	18	2
Imbabura	428	184	21	154	843	185	11	32	53	166	17
Loja	236	96	58	265	895	79	10	32	178	31	-
Los Rios	524	486	89	505	1,339	1,008	28	86	149	58	23
Manabi	629	337	4	276	1,708	234	11	91	535	98	26
Napo	22	16	6	61	122	56	3	49	7	15	2
Pastaza	76	43	4	45	219	31	3	42	46	38	7
Pichincha	8,546	989	759	1,533	9,274	1,756	84	405	972	628	570
Guayas*	8,842	558	842	1,176	11,304	2,510	43	177	11	872	279
Tungurahua	776	335	46	104	1,426	273	5	55	69	277	41
Morona	7	---	---	38	21	11	---	---	---	---	---
Zamora	4	---	---	15	21	9	---	---	---	---	---

* Guayas has 3,578 vehicles classified as other.

There are 29 vehicles classified 'other' in the provinces of Azuay, Canar, Carchi, Cotopaxi, Loja, and Manabi.

The total number of vehicles in each province is: Azuay, 4,549; Bolivar, 815; Carchi, 1,317; Cotopaxi, 2,844; Chimborazo, 2,707; El Oro, 3,199; Esmeraldas, 1,308; Imbabura, 2,094; Loja, 1,885; Los Rios, 4,295; Manabi, 3,955; Napo, 359; Pastaza, 554; Pichincha, 26,641; Guayas, 30,192; Tungurahua, 3,407; Morona, 77; Zamora, 49.

Registered Vehicles for 1972, By Authority-Ownership

<u>Province</u>	<u>Private</u>	<u>For Hire</u>	<u>State</u>	<u>Public Forces</u>	<u>City</u>	<u>Institu- tional</u>	<u>Diplo- matic</u>	<u>Total</u>
Azuay	3,363	1,071	22	44	7	39	3	4,549
Bolivar	526	275	12	--	2	--	-	815
Canar	633	244	4	1	1	1	-	855
Carchi	678	575	41	5	7	11	-	1,317
Cotopaxi	2,223	566	26	12	17	--	-	2,844
Chimborazo	1,926	712	35	23	1	10	0	2,707
El Oro	2,210	875	38	62	14	--	-	3,199
Esmeraldas	870	382	20	7	--	21	-	1,308
Guayas	24,191	4,941	397	388	108	163	4	30,192
Imbabura	1,507	552	24	8	2	--	1	2,094
Loja	1,296	455	33	76	9	16	-	1,885
Los Rios	2,814	1,361	64	32	--	24	-	4,295
Manabi	2,702	1,184	59	2	--	8	-	3,955
Napo	246	82	8	1	1	21	-	359
Pastaza	288	223	11	23	--	9	-	554
Pichincha	20,016	3,247	933	1,244	217	984	-	26,641
Sucua	28	48	--	1	--	--	-	77
Tungurahua	2,195	1,121	39	32	5	15	-	3,407
Zamora	38	8	--	--	--	3	-	49
Total	67,750	17,922	1,766	1,961	391	1,325	8	91,102

Note: Reflects total vehicles by classes in Ecuador as of Oct. 1974.

9.5 Railroads

General: Railroads are undependable for emergency use and are inadequate for the economic needs of the country.

Extent of network: The Empresa Nacional de Ferrocarriles del Estado network of three unconnected railroads is made up of 615 miles of 3' 6" gauge and 95 miles of 2' 5" gauge lines. The 599-mile 3' 6" gauge Central Railroad (Guayaquil-Quito-San Lorenzo and Sibambe-Cuenca) traverses the rugged Andes mountains and is main line. Three short rail lines (Bahía De Caraquez-Chone, Puerto Bolívar-Pasaje, and Puerto Bolívar-Piedras) and part of the Central Railroad lie in the level portions of the Coastal Plain. (The Bahía De Caraquez-Chone and the Puerto Bolívar-Pasaje Lines are not in operation). The network has no international railroad connections and no electrification.

Repair facilities: The ESR has major shops at Altago and Quito and smaller shops at Bucay, Riobamba, and Sibambe.

Railways are government controlled. Extensive construction work is being undertaken.

9.6 Ports

Balao (Esmeraldas)

Coordinates: Lat. 1° 0' N; long. 79° 38' W.

Accommodation: Normal anchorage depth of 64 m. Inner anchorage "La Poza" for ships up to 9.14 m. draft. Loading and unloading by lighters.

Provisions: Not available.

Water: Not available.

Development: New port under construction at river mouth projected depth 10.67 m. Two piers, warehouses, etc. Two breakwaters now almost completed.

Tanker
Terminals: At Balao.

Bunkers: Available only by previous arrangement with Anglo Ecuadorean Oilfields Ltd. or S.A. Gulf Oil.

Shiprepairs: Minor only, in local repair shops.

Towage: Normally not necessary but several small tugs available.

- Pilotage: Compulsory. Pilot meets ship 3.2 to 4.8 km. off shore.
- Airport: Tachina, about 3.2 km.
- Working Hours: 24 hours all year.
- Note: If vessel is chartered by "Transnave" (Gov. Transport Co.), no charges are required. If vessel is chartered by private company all charges must be met.

Guayaquil (Guayas Prov.)

- Coordinates: Lat. 2° 12' 17" S; long. 79° 52' W.
- Approach: Channel leading into Guayaquil harbor now only accessible at all times to vessels drawing less than 8.23 m. Channel and vicinity dredged to depth of 8.53 m. Vessels with deeper draft must wait for rising tide.
- Tides: Range of tide about 2.44 m.
- Accommodation: The new Puerto Maritimo, constructed about 11.2 km. S of the center of the city, on the calm waters of the Salado estuary, offers modern accommodation and facilities for five ocean-going vessels along its 914.4 m. marginal wharf, making Guayaquil, Ecuador's largest city, accessible for the first time to large ships.
- Development: Project to build a berth and storage tanks for internal use as well as to supply ships. Project to build a ship repair dock for large vessels. There is at present a floating dock owned by the Ecuadorean Navy where vessels up to 2,000 tons can be repaired. Project to build two additional berths for loading bananas and one for handling general cargo.
- Shiprepairs: One floating dock, lifting capacity 3,500 tons, operated by Astilleros Navales Ecuatorianos (Astinave). Tel: 342361. Cables: "ASTINAVE".

Pilotage: Compulsory. Fees included in general port charges.
Traffic: Approx. 1,700 vessels.
Airport: 8 km. from the center of city, for medium sized jets only.
Local Holiday: Stevedore's Day.

La Libertad

Coordinates: Lat. 2° 12' S; long. 80° 55' W.

Accommodation: Usual anchorage is seaward of the mooring buoys at the pipelines. Anchorage also in open bay where vessels anchor in about 12.19 m. of water. Pier for coastal vessels belonging to the Anglo-Ecuadorian Oilfields Ltd., with depths alongside from 4.88 to 6.40 m. A 10" pipeline extends from the refinery west of La Libertad to a point 3.2 km. off shore where there are four mooring buoys.

Water: No water.

Bunkers: Upon special request.

Towage: Two tug launches available.

Pilotage: Pilot is available for mooring vessels at the oiling berth.

Traffic: Approximately 30 vessels in and out.

Manata (Managi Province)

Coordinates: Lat. 0° 57' S; long. 80° 44' W.

Accommodation: Open roadstead with anchorage for largest vessels. Two finger jetties for four ocean-going vessels, depth 12.19. m at L.W. Cargo loaded/dis-

charged at quayside with ships' own gear. A few lighters available.

Storage: One warehouse for general cargo; ample open storage space.

Shiprepairs: No facilities.

Pilotage: Not compulsory at present.

Airport: Approximately 16 km. from port. Only for small Cessna planes.

Puerto Bolivar

Coordinates: Lat. 3° 14' S; long. 80° 01' W.

Accommodation: Depth at entrance, 9.14 m. at L.W. Depths at Espigeon Quay vary from 6.40 m. at inner end to 9.45 m. at quay head.

Water: No fresh water available.

Bunkers: Not available. May be obtained from Guayaquil.

Development: A marginal pier, 109.7 m. long, for general cargo is being built.

Shiprepairs: Not available.

Towage: One tug for assistance in berthing.

Pilotage: Compulsory, ETA to be sent through Radio Naval of Guayaquil 24 hours before arrival. Pilot boards vessel on port side one mile from the sea buoy.

Airport: 6 km. from port.

9.7 River Craft

Craft generally employed on the inland waterways: launches, dug-outs, motorboats, and barges. Several ferries in use with 500 ton capacity.

9.8 Harbor Craft

Puerto Maritimo in Guayaquil has 6 tugs ranging from 150 to 800 horsepower and 10 lighters of 150 tons capacity. At the old port in Guayaquil there are approximately 87 lighters ranging in capacity from 10 to 100 tons, eight tugs ranging from 16 to 180 horsepower. Several water barges and numerous smaller launches and marine craft are available. Other ports have a few craft, plus fishing boats and some lighters with usually one tug in the Port of San Lorenzo. Additionally, Port Manta has ex-US-YFB 107' long with 1,200 horsepower and one small 35' motor launch for pilotage service.

9.9 Shipping Lines

Anglo-Ecuadorian Oilfields Ltd:

Casilla 634, Quito; coastal transport (tankers).

Flota Mercante Grancolombiana, SA:

APDO 371, Guayaquil; founded 1946 with Colombia and Venezuela. On Venezuela's withdrawal in 1953, Ecuador's 10% interest was increased to 20%. The fleet consists 35 vessels (27 owned by it and 8 chartered) of a total gross tonnage of 250,000. It operates services from Colombia and Ecuador to European ports, US Gulf ports and New York, Mexican Atlantic ports and East Canada; offices in Quito, Cuenca, Bahia, Manta, and Esmeraldas.

Flota Bananera Ecuatoriana, SA:

Edif. Gran Pasaje, 6 Piso, of 602 APDO 6883, Guayaquil; 2 vessels; owned by government of Ecuador and private stockholders.

Flota Bananera Franco-Ecuatoriana:

Purchases and ships bananas to Europe; 6 ships; capital provided by Swiss CONFICOMEX 50%, Federacion De Bananeros 35%, government 15%.

Transnave:

Controlled by the Navy; will eventually transport the bulk of Ecuador's crude oil destined for export markets.

Small shipping firms in Ecuador operate coastal services to Panama and Peru.

9.10 Airports

There are more than 160 airfields in Ecuador. Major airfields, (other than for Guayaquil and Quito):

<u>Airfields</u>	<u>Location</u>	<u>Longest Rwy Diameter (ft.)</u>	<u>Surface</u>	<u>Elev- Feet</u>	<u>Capa- city</u>
Cotopaxi	Latacunga	9,170 X 150	Pavement	7,873	C-130
Gen Ulpiano Paez	Salinas	7,900 X 100	Asphalt	33	C-141
Portoviejo	Portoviejo	4,590 X 100	Asphalt	300	C-130
Taura	Guayaquil	9,850 X 200	Asphalt	56	C-141
Eloy Alfaro	Manta	10,000 X 100	Asphalt	40	C-130
Mariscal Lamar	Cuenca	6,200 X 100	Concrete	8,304	C-130
Ponce Enriquez	Loja	4,593 X 100	Asphalt (fair)	4,167	C-130
Pastaza	Pastaza	4,593 X 118	Gravel (good)	3,495	DC-6

NB: For up-to-date information consult latest issue of weekly International Notams, International Flight Information Manual, and/or ICAO's Air Navigation Plan for appropriate region.

GUAYAQUIL/
Simon Bolivar

<u>Location</u> <u>Coordinates</u>	<u>Eleva- tion M/Temp C</u>	<u>Runway Characteristics</u>				<u>Aircraft Strength (1,000 kg)</u>	<u>Fuel/ Octane</u>
		<u>NR/Type</u>	<u>Slope %</u>	<u>Aircraft/ Length M</u>	<u>CL</u>		
02° 09' 12" S 79° 53' 00" W	4 25.1	03/21 INSTR	0.05	2440	A	AUW 86/4	100JA1

Remarks: Alternate aerodromes: Bogota/Eldorado, Cali/Palmesca, Lima-Callao/Jorge Clavez Intl., Panama/Tocumen, Quito/Mariscal Sucre, Talara/Capitan Montes.

Aids: ILS 21-II, RDME, RVOR, LVA 21, LR, LTX, LB, LO, MD, MB, MT, MTD, MC, MFD, MTX, MO, H80, L4, 5, 9. No telex.

QUITO/
Marisaca! Sucre

<u>Location</u> <u>Coordinates</u>	<u>Eleva-</u> <u>tion M/</u> <u>Temp C</u>	<u>Runway Characteristics</u>				<u>Aircraft</u> <u>Strength</u> <u>(1,000 kg)</u>	<u>Fuel/</u> <u>Octane</u>
		<u>NR/Type</u>	<u>Slope</u> <u>%</u>	<u>Aircraft/</u> <u>Length M</u>	<u>CL</u>		
0° 8' 20" S 78° 29' 6" W	12.9	17/35 INSTR	0.54	3120	A	AUW 86/4 100JA1	

Remarks: Alternate aerodromes: Bogota/Eldorado, Cali/Palmesca, Guayaquil/Simon Bolivar, Lima-Callao/Jorge Chavez Intl., Panama/Tocumen, Talara/Captain Montes.

Aids: ILS PO, RDME, RVOR, LVA 35, LR, LTX, LB, LO, MD, MC, MT, MTD, MFD, MTX, MO, H 102, L4, 5, 9. No telex.

Key

Abbreviations

- INSTR Instrument Approach Runway
- N-INSTR Non-Instrument Runway
- PA I Precision Approach Runway Category I
- PA II Precision Approach Runway Category II
- REG-NS Intl Non-Scheduled Air Transport, Regular Use
- REG-S International Scheduled Air Transport, Regular Use

Radio Aids

- ILS Instrument Landing System
- DME Distance Measuring Equipment
- VOR VHF Omni-Directional Range
- RL Radio Locator

Lighting Aids

LPA	Precision Approach Lighting System
LSA	Simple Approach Lighting System
LVA	Visual Approach Slope Indicator System
LAV	Abbreviated Approach Slope Indicator System
LR	Runway Edge, Threshold & Runway End Lighting
LC	Runway Center Line Lighting
LTD	Runway Touchdown Zone Lighting
LTX	Taxiway Lighting
LB	Aerodrome or Identification Beacon
LO	Obstruction Lighting

Marking Aids

MD	Runway Designation Markings
MC	Runway Center Line Markings
MT	Runway Threshold Markings
MTD	Runway Touchdown Markings
MS	Runway Sidestripe Markings
MFD	Fixed Distance Markings
MTX	Taxiway Center Line & Holding Position Markings
MO	Obstruction Markings

Runway Surface and Length

H	Hard Surface (numbers = ft. in hundreds)
S	Non-Hard Surface (number = ft. in hundreds)

Additional Lighting

L1	Portable Runway Lights (electrical)
L2	Boundary Lights
L3	Runway Flood Lights
L4	Low Intensity Runway Lights
L5	Low Intensity Approach Lights
L6	High Intensity Runway Lights
L7	High Intensity Approach Lights
L8	Sequenced Flashing Lights
L9	Visual Approach Slope Indicator (VASI)

9.11 Personal Entry Requirements

Passport; visa recommended. All business and government personnel must have passports and visas.

Visa: For tourists no visa needed, but proof of nationality and on-going passage required. Visas available from Ecuadorian consuls and must be obtained prior to entry. Five photographs required. Scale of fees for various visas.

Health: Smallpox certificates required. Yellow fever, typhoid and typhus immunization recommended.

Other: Business travelers should have letter of recommendation from firm they represent, stating occupation, purpose of visit, length of stay and financial responsibility. 50 sucre exit tax to be paid by all international passengers immediately prior to departure.

9.12 Aircraft Entry Requirements

Flight plan must be filed with ATC. Requests for permission to overfly or land in Ecuadorian territory must be received by Civil Aviation Directorate (telegram to Diraviacivil, Quito) at least 48 hours in advance of flight in the case of private commercial aircraft and 2 hours before arrival in case of private non-commercial aircraft. Requests must include the following:

1. Type of aircraft and registration number.
2. Name of pilot and number of crew and passengers.
3. Complete itinerary.
4. Estimated date and hour of arrival and departure for Ecuador.
5. Name of airport(s) concerned and supply requirements, if any.
6. Purpose of flight and type of cargo.

International chartered flights for the specific purpose of transporting tourist groups to Ecuador and returning to their places of origin, or going on to other places outside the country (with the same tourist group), and which comply with existing rules, may be performed by foreign aviation companies with no limitation as to number of such flights. Such flights shall arrive only at international airports in Quito or Guayaquil.

Prior permission must be obtained for chartered flights (including air travel club flights) from Directorate of Civil Aviation, Quito, Ecuador through Aeronautical Authority of company's country within a period of not more than 5 days prior to date of intended flight. Application should contain the following:

1. Name, nationality, address and activities of applicant.
2. Planned route for prospective flight (origin and destination).
3. Dates of arrival and departure of aircraft at/from Ecuadorean airport.
4. Statement as to whether persons and/or commodities are to be transported. In case of commodities, name and address of consignee.
5. Type, characteristics and license number of aircraft.
6. Names of crew members.
7. A copy of the relative charter party.

9.13 Airlines

Domestic service: scheduled air services for the large population concentrations in the Sierra and Coastal areas. Numerous non-scheduled carriers and aerial crop dusting companies utilize helicopters or light aircraft.

International service: nine foreign air carriers provide scheduled international air services connecting Ecuador with the US, France, Netherlands, and other Latin American countries. Ecuatoriana offers international scheduled service to the US (New York, Los Angeles, San Francisco and Miami), Colombia, Chile, Mexico, Peru, and Panama.

9.14 Types of Aircraft

Ecuador has 46 major civil transport aircraft of at least 20,000 pounds gross weight; most of these are piston-driven. The major civil aircraft inventory consists of:

- 4 BAC Viscount
- 2 De Havilland DHC-4B
- 12 Douglas DC-3/C-47
- 3 Nord Noratlas 720
- 4 Douglas DC-6
- 3 Hawker-Sidley HS-743
- 4 Lockheed L-177 Electra

Domestic Airlines:

Aerolineas Nacionales del Ecuador, SA-Andes:

Aeropuerto Simon Bolivar, APDO 4113 Guayaquil; regular cargo services Miami-Panama-Quito, Guayaquil; fleet 4 DC-6A, 1 DC-3, 1 DC-46, 1 CL 44.

Compania Ecuatoriana de Aviacion SA-CEA:

Calle Guayaquil Esq. Chile, APDO 505, Quito; scheduled passenger and cargo service to Miami, Mexico, Panama, Cali, Guayaquil, Lima and Santiago; fleet: 3 Electras L-188, 4 DC-6, 1DC-4, 1 B-23, 2 720B, 1 707-320B (another on order).

Transportes Aereos Militares Ecuatorianos-Tame:

AVDA 10 De Agosto 239, APDO 2665, Quito; BR in Guayaquil; F 1962; domestic scheduled services for passengers and freight; fleet: 4 DC-6B, 2HS748, 4 C-3, 4 Lockheed Electras.

Foreign Airlines:

Ecuador is also served by the following foreign airlines:

Air France, Air Panama, Avianca (Colombia), Braniff, Iberia, KLM, Lan de Chile, Lufthansa, Viasa, Aeroperu.

9.15 Air Distances

From Guayaquil to:	<u>Statute Miles</u>
Cuenca.....	79
Havana.....	1,748
Houston.....	2,423
Kingston.....	1,405
La Paz.....	1,269
Lima.....	706
Loja.....	132

From Guayaquil to:	Statute <u>Miles</u>
Managua.....	1,079
Manta.....	101
Medellin.....	650
Panama City.....	778
Quito.....	170
San Juan.....	1,707
Talara.....	188
Tegucigalpa.....	1,288

From Quito to:	Statute <u>Miles</u>
Talata.....	358
New York.....	2,830
San Juan.....	1,536
Santiago.....	2,357
Sao Paulo.....	2,678
Houston.....	2,357
Lima.....	825

10. Power and Communications10.1 Electric Power

About 21% (124,000 kw) of output comes from hydroelectric plants (1976). Per capita output low. 20 km of inter-connecting system; total capacity 590,000 kilowatts, produced in 1,200 generating plants (owned by municipalities, factories, and coastal communication facilities on ships).

45% of the population had access to electrical service.

Hydroelectric potential high (1 million kilowatts), most existing service is thermal.

Electricity: Production and Consumption
(thousand Kwh)

_____ Consumption of Electricity _____

<u>Year</u>	<u>Production of Electricity</u>		<u>Residential</u>			
	<u>Total</u>	<u>Lighting</u>	<u>Industrial</u>	<u>Commercial</u>	<u>Other</u>	
1973	1,256,338	1,046,617	400,332	414,697	147,029	84,559
1974	1,430,456	1,210,632	452,001	464,488	177,409	116,734
1975	1,649,561	1,386,752	553,559	550,330	190,438	92,425
1976	1,884,989	1,610,423	646,867	615,361	232,503	115,692
1977	n.a.	1,819,778	730,959	695,358	262,728	130,733

Source: INECEL, Division de Explotacion, Seccion Estadisticas, World Bank: Development Problems and Prospects of Ecuador, 1979.

10.2 Radio Network

Major towns are connected by radio-telephone. There are over 270 radio stations; 1.7 million radio receivers in 1971.

267 commercial stations, two cultural stations and one religious (La Voz de los Andes). Most important commercial stations:

Emisoras Gran Colombia:

Casilla 2246, Quito; F 1943;

Radio Casa de la Cultura:

Casilla 67, Quito

Radio Tropicana:

Avda Boyaca 1616, APDO 4144, Guayaquil;

Radiofisura del Ecuador:

AVDA Boyaca 1616, APDO 4144, Guayaquil;

La Voz de la Democracia:

Guayaquil 1524, APDO 288, Quito;

La Voz de los Andes:

HCJB, Casilla 691, Quito; F 1931; Programs in thirteen languages including Spanish, English and Quechua. 225,000 receivers in 1971.

Asociacion Ecuatoriana de Radiodifusion:

Luis Felipe Borja 505, APDO 2246, Quito; independent non-governmental association of radio stations.

Radio Quito

Casilla 57, Quito

10.3 Telecommunications

2 state-owned entities: northern Telecommunication Company, headquartered in Quito, and Southern Telecommunication Company, headquartered in Guayaquil. 94,000 telephones in 1970. Automatic long distance service in Quito, Guayaquil, Esmeraldas, and Santa Elena in 1971.

Domestic and international telegraphic services; 1972, automatic teleprinter and use of Colombian satellite station at Choconta.

Instituto Ecuatoriano de Telecomunicaciones:

Casilla 3066, Quito.

10.4 Television

TV inaugurated in 1960 in Guayaquil. In 1971, 280,000 television receivers.

Corporacion Ecuatoriana de Television:
Casilla 1239, Guayaquil; commercial.

Telecuador:
Casilla 5902, Guayaquil; Casilla 70, Quito; the country's first commercial station began operations in 1960.

Telesistema del Ecuador:
Casilla 6534, Guayaquil; commercial.

La Ventana de los Andes:
Casilla 691, Quito; private, non-commercial, cultural.
115,000 television sets in 1973.

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