

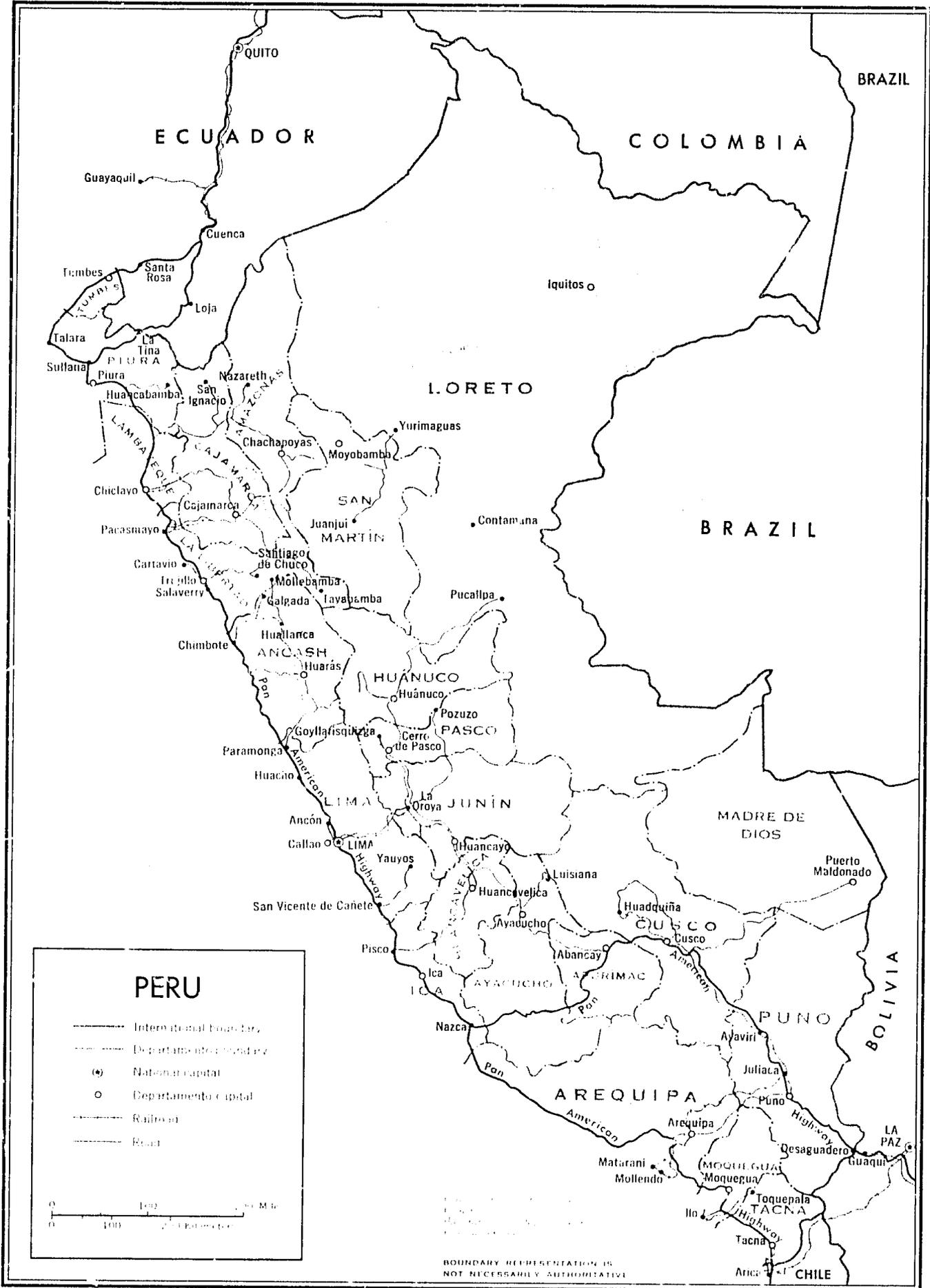
PN-AAT-765
42025

Peru

A Country Profile



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



ECUADOR

COLOMBIA

BRAZIL

Guayaquil

Cuenca

Iquitos

Tumbes

Santa Rosa

Loja

Talara

Sullana

Piura

La Tina

Huancabamba

Nazareth

LORETO

Yurimaguas

Chachapoyas

Moyobamba

Chiclayo

Pacasmayo

Cartavio

Trejo

Salaverry

Chimbote

Santiago de Chuco

Mollebamba

Galgada

Iyabamba

Pucallpa

Contamana

BRAZIL

Huallanca

Huarás

HUANUCO

Huánuco

Pozuzo

Cerro de Pasco

Goyllarisquiza

Paramonga

Huacón

LIMA

Oroya

La Oroya

Huancayo

Luisiana

Huancavelica

Ayacucho

Abancay

AYACUCHO

Ica

ICCA

Nazca

Pisco

Arequipa

Matarani

Mollendo

Moquegua

Moquegua

Ilo

Tacna

Tacna

Anicó

CHILE

MADRE DE DIOS

Puerto Maldonado

Huadquiña

Cusco

Cusco

PERU

AYACUCHO

AREQUIPA

PUNO

Ayaviri

Juliaca

Puno

Desaguadero

Desaguadero

Desaguadero

Desaguadero

Desaguadero

Desaguadero

Desaguadero

Desaguadero

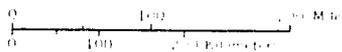
Desaguadero

BOLIVIA

LA PAZ

PERU

- International Boundary
- Departmental Boundary
- ⊙ National Capital
- Departamento Capital
- Railroad
- Road



BOUNDARY REPRESENTATION IS NOT NECESSARILY AUTHORITY

PERU: A COUNTRY PROFILE

prepared for

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

by

Evaluation Technologies, Inc.
Arlington, Virginia
under contract AID/SOD/PDC-C-2112

The profile of Peru is part of a series designed to provide baseline country data in support of the planning 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 several years; 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, A.I.D. as given above.

January 1983

OFDA COUNTRY PROFILES: SEPTEMBER 1983

AFRICA

Cape Verde
Chad
East Africa Regional Profile
Djibouti
Ethiopia
Kenya
Somalia
Sudan
Tanzania
Uganda
Gambia-Senegal
Mali
Mauritania
Niger
Sahel Transportation Survey
Upper Volta
Zaire
Zambia

ASIA

Bangladesh
Burma
India
Indonesia
Malaysia
Nepal
Pakistan
Philippines
Sri Lanka

NEAR EAST

Turkey

SOUTH PACIFIC

Fiji
Tonga
Western Samoa

CARIBBEAN

CARICOM Regional Profile
Antigua
Barbados
Belize
Dominica
Grenada
Guyana
Montserrat
St. Kitts-Nevis-Anguilla
St. Lucia
St. Vincent
Trinidad and Tobago
Dominican Republic
Haiti
Jamaica

CENTRAL/SOUTH AMERICA

Bolivia
Chile
Costa Rica
Ecuador
El Salvador
Guatemala
Honduras
Nicaragua
Peru

INDIAN OCEAN

Island Countries of the
Indian Ocean
The Comoros
Madagascar
Maldives
Mauritius
Reunion
Seychelles

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1. General Information1.1 Geographic Codes

AID	527
FIPS	PE
State region	ARA

1.2 Country Names

Legal	Republic of Peru
Local	Republica del Peru
Short	Peru

1.3 Calendar and Holidays

New Year's.....	January 1
Maundy Thursday	
Good Friday	
Labor Day.....	May 1
Sts. Peter & Paul.....	June 29
National Holidays.....	July 28, 29
Santa Rosa de Lima.....	August 30
Peruvian National Day.....	October 9
All Saints.....	November 1
Immaculate Conception.	December 8
Christmas.....	December 25

Fiscal year: calendar year

1.4 Currency (July 1980)

Sol is monetary unit: 333 soles = \$US1: 100 Centavos = 1 Sol

See also Section 6.2, Current Status.

1.5 Time Zone

EST; GMT - 5

1.6 U.S. Mission and Staff (September 1982)

Embassy of the United States
Corner of Avenidas Inca Garcilaso de la Vega and Espana
APO Miami 34031
P.O. Box 1995
Lima 100
Phone: 286-0000

Ambassador.....Frank V. Ortiz, Jr.
Deputy Chief of Mission.....Gerald P. Lamberty
Economic/Commercial Section.....M. Gordon Jones
Commercial Section.....Thomas P. Clary
Political Section.....Daniel H. Clare
Labor Officer.....Richard T. Booth
Consul, Consular Section.....Cecil S. Richardson
Administrative Section.....Harry E. Young
Agricultural Section.....Norval Francis
Agency for International Development.....Malcolm H. Butler
Public Affairs Officer.....William R. Lenderking
Narcotics Assistance Unit.....Larry C. Thompson
Office of the Defense Attache.....Capt. Lucian Martinez USN
Military Assistance Advisory Group...Col. John T. Payne USAF

1.7 Host Country Mission and Staff in US (August 1982)

Embassy of the Republic of Peru
1700 Massachusetts Avenue, N.W.
Washington, D.C. 20036
Phone: 833-9860 to 9869

Ambassador.....Ferrnando Schwalb
Minister-Counselor.....Alfonso Rivero
Counselor.....Gilbert Chauny
First Secretary.....Francisco Garcia-Yrigoyen
Military Attache.....Major General Jose Alberto La Rosa
Naval Attache.....Rear Admiral Jaime Pareja
Air Attache.....Major General Jose Ramon Espinoza
Police Force Attache.....Lieutenant General Juan Balaguer

1.8 Sister Cities

Arequipa	Charlotte, NC
	Vancouver, WA
Callao	Sioux City, IA
Chimbote	Pensacola, FL
Cuzco	Santa Barbara, CA
Lima	Cleveland, OH
Miraflores*	Pensacola, FL
Trujillo	Flint, MI

* Actually a district

1.9 Treaties and Agreements

Agricultural Commodities Agreement
 Agricultural Commodities for Drought Assistance
 Air Transport Agreement
 Disposition of Equipment and Materials Furnished by the
 United States under the Military Assistance Agreement
 Duty Free Entry, Exemption from Internal Taxation, and Free
 Transportation within Peru for Supplies for US Rehabilitation
 and Relief Agencies Distributing Surplus Agricultural Food
 Products
 Economic and Technical Cooperation
 Financial Arrangements for the Furnishing of Certain Supplies and
 Services to Naval Vessels of both Countries
 Furnishing of Defense Articles and Services to Peru Agreement
 Investment Guarantees Arrangements
 Military Assistance Agreement
 Radio Communications between Amateur Stations on behalf of Third
 Parties Agreement
 Reciprocal Customs Privileges
 Technical Cooperation Arrangement
 Waiver of Non-Immigrant Passport Visas and Visa Fees and Exchange
 of Notes
 Weather Stations

1.10 International Organization Memberships

Andean Pact, Association of Iron Ore Exporting Countries, FAO, G-77, GATT, Inter American Defense Board, Inter American Development Bank, Intergovernmental Council for Copper Exporting Countries, Intergovernmental Maritime Consultative Organization, IBRB, ICAO, ICO, IDA, IFC, ILO, IMF, ISO, ITU, LAFTA, NAM, OAS, U.N., UNESCO, UPU, WHO

1.11 Visa and Travel Information

Valid passport required. Sufficient funds for stay and return ticket required. Check embassy for currency regulations and specific requirements.

Yellow fever immunization required of travelers over 6 months of age arriving from infected areas. Smallpox vaccination required of travelers over six months of age arriving from a country any part of which is infected.

1.12 Ethnic and Sociocultural Groups

Though Peruvian physical types range from European to Amerindian with most somewhere between, society perceives ethnic groups as follows: Criollos, whites of Spanish ancestry and culture, 13% of population, constituting national elite; mestizos, Spanish speaking, literate middle class with mixed ancestry, Hispanic culture, 37% of population; indigenes*, "indian" in culture and language, comprising rural peasantry in Sierra and Amazonian tribal peoples, 49% of population. (Remaining 1% includes Blacks, Jews, Asians, Arabs, other Europeans.) Indigenes who learn Spanish, seek better-paid work and social services more available in urban areas are termed cholos. "Cholification" and "mestization" are traditional modes of upward mobility.

All occupations involving manual labor are considered low status. Mestizos tend to stereotype indigenes as backward, lazy and stupid. Education, health and other social services seldom available to rural population especially in Sierra. Resources and upper classes concentrated in major urban areas of coast. Frontier attitudes prevail in Selva; as a result, Amazonian tribes are vanishing in face of cultural and ecological disruption.

* "Indian" is considered pejorative term in Latin America.

1.13 Language

Though Quechua was recognized as a second official language in 1975, official business is conducted in Spanish. (Hispanic language and culture determine social status.) English is most common second language for educated elite. Mestizos often understand Quechua or Aymara but prestige of Spanish is so great that use of Indian language is avoided. Language distribution varies significantly between geographic regions.

Overall, 87% of population is Spanish-speaking, 26% Quechua-speaking and 3% Aymara-speaking. 81% of population is monolingual. Spanish monolingual population, 69% of total, is centered on coast and in urban areas; those who speak only Quechua and Aymara in the central and southern Sierra, the "mancha india."

1.14 Religion

Over 90% Roman Catholic. Fragmentary survival of Indian beliefs within Catholic context.

1.15 Education and Literacy

The government is endeavoring to restructure public and private educational systems, with a view to increasing vocational education and de-emphasizing purely academic disciplines. The overall enrollment is 25%. Of those enrolled, 80% are receiving primary education. About 72% of the adult population is literate.

2. Government

2.1 National Government

Frequently amended constitution of April 1933 is nominal basis of government. 1968 military coup led by Gen. Juan Velasco Alvarado established strongly centralized government, headed by military president and cabinet, ruling by decree. Congress was dissolved and elections suspended. Velasco government dictated "transformation" of Peruvian society through "revolutionary" policies including land redistribution, nationalization of foreign enterprise, state control of major industry, utilities and financial institutions, and educational reform. Military disregard for sociocultural realities and conflict with entrenched civilian bureaucracy, in conjunction with recession, fall in export commodity prices and domestic budgetary problems in 1975, precipitated second coup in which Velasco's Prime Minister, Francisco Morales Bermudez, assumed Presidency. His initial commitment to his predecessor's policies has been modified by rightist pressure: private enterprise restored, educational reforms negated, press censored and strikes banned. In 1977-78, harsh economic austerity measures provoked massive general strikes accompanied by violent protest; despite this, regime allowed elections for constitutional assembly to draft new constitution in preparation for general elections in 1980. Moderate-left Popular American Revolutionary Alliance, led by Victor Raul Haya de la Torre, won largest number of seats.

2.2 Regional Organization

For administrative purposes, there are 23 departments and an additional region, the constitutional province of Callao, subdivisions of the central government. No local government. The 23 departments are further divided into 140 provinces, which are divided into 1,554 districts. Departments are administered by prefects appointed by the central government; sub-prefects and governors, the provincial and district heads, are appointed by prefects.

2.3 Major Government Figures (October 1982)

President.....	Belaunde Terry, Fernando
First Vice President.....	Schwalb Lopez Aldana, Fernando
Second Vice President.....	Alva Orlandini, Javier
Prime Minister.....	Ulloa Elias, Manuel

Min. of Aeronautics.....	Garcia Calderon, Jose, Lt. Gen. (Ret.)
Min. of Agriculture.....	Ericcson Correa, Nils
Min. of Economy & Commerce.....	Ulloa Elias, Manuel
Min. of Education.....	Benavides Munoz, Jose
Min. of Energy & Mines.....	Montero Aramburu, Fernando
Min. of Fisheries.....	Deustua Jameson, Rene
Min. of Foreign Relations.....	Arias Stella, Javier
Min. of Housing & Construction.....	Velarde Aspillaga, Javier
Min. of Industry, Commerce, Tourism & Integration.....	Puente y Lavalle, Gonzalo de la
Min. of Interior.....	Gagliardi Schiaffino, Jose, Lt. Gen. (Ret.)
Min. of Justice.....	Buendia Gutierrez, Armando
Min. of Labor.....	Grados Bertorini, Alfonso
Min. of The Navy.....	Carvajal Pareja, Jose, V. Adm. (Ret.)
Min. of Transportation & Communications.....	Chavez, Belaunde, Fernando
Min. of War.....	Cisneros Vizquerra, Luis, Lt. Gen. (Ret.)

3. Disaster Preparedness

3.1 Host Country Disaster Plan

National Civil Defense System (NCDS), a part of the National Defense System within Ministry of interior, created 3/10/72 and composed of one central committee; administers every phase of disaster operations and relief assistance. Members of all committees chosen from state ministries and the armed forces. Before assuming control, central committee makes formal request for disaster declaration from executive. Headquarters for the 5 regions (level after national) are Piura, Lima, Arequipa, Cuzco and Iquitos. Senior military commander in charge at each level.

3.2 Host Disaster Team

National Committee for Civil Defense

- a. Gr1. G.C. Julio Villafuerte Jurgens
Director Superior
Calle 1 y 21 - Urb. Corpac
Telephone: 413277, Ext. 12,13
- b. Colonel Pip Cesar Coquis Herrera
Sub-Director
Calle 1 y 21 - Urb. Corpac
Telephone: 413277, Ext. 21
- c. Colonel Pip Carlos Juarez Ruiz
Director General de Operaciones
Calle 1 y 21 - Urb. Corpac
Telephone: 413277, Ext. 17
- d. Colonel Sep Luis Rizo Patron Pasara
Director de Enlace y Cooperacion
Calle 1 y 21 - Urb. Corpac
Telephone: 413277, Ext. 26
- e. Cmdr. Pip Juan E. Rojas Zarate
Director de Movilizacion
Calle 1 y 21 - Urb. Corpac
Telephone: 413277, Ext. 10

- f. Major G.C. Enrique Gonzalez Missa
Director de Capacitacion y Difusion
Calle 1 y 21 - Urb. Corpac.
Telephone: 413277, Ext. 24, 38
- g. Mayor Jefe Pedro Moran Miranda
Director de Informaciones y Comunicaciones
Calle 1 y 21 - Urb. Corpac
Telephone: 413277, Ext. 14
- h. Mayor G.C. Freddy Lizarraga Barrera
Director Oficina de Relaciones Publicas
Calle 1 y 21 - Urb. Corpac
Telephone: 413277, Ext. 16
- i. Comdr. G.C. Arquimedes Rojas Cenepo
Director de Logistica
Calle 1 y 21 - Urb. Corpac
Telephone: 413277, Ext. 18

3.3 US Plan (April 1980)

Ambassador determines existence of emergency and notifies State/AID, Washington. Command post established in the Embassy by AID/Director and liaison made with GOP, other embassies, donors. After disaster needs identified, requests made to AID/OFDA. If disaster needs unclear, survey team dispatched. Ambassador may donate up to \$25,000 for immediate relief. For urgent humanitarian reasons, DOD authorized to carry out emergency actions without prior approval; reports all such actions to Ambassador. However, all disaster jurisdiction, authority rests with GOP.

Command Team (CT) Disaster Relief Organization:

Deputy Chief of Mission (DCM or Ambassador) supervises all mission relief efforts.

Disaster Coordinator - AID/Director acts as Ambassador's senior representative with GOP, State; establishes command post, assigns responsibilities, authorizes funds, approves GOP requests for assistance including air transportation.

Deputy Coordinator - Embassy Administrative Officer assists Coordinator, mobilizes CT logistical and manpower resources.

Disaster Relief Officer - AID Urban Development Officer coordinates AID resources, organizes and carries out damage surveys as necessary, prepares disaster situation reports. Determines relief supplies and logistical needs, arranges for US food and medicine distribution. Maintains liaison with the major relief agencies to coordinate activities, exchanges data and receives requests for assistance assistance.

Consular Officer - Embassy Consular Officer - Assistance to American citizens; responsible for reporting number and names of US citizens, casualties and for arranging available assistance to them.

Liaison Officer - Embassy Political Officer - will provide support and coordination with GOP entities in respective areas. Maintains liaison with foreign embassies to avoid duplication of effort.

Logistics, Transport and Supply Officer - AID/Executive Officer arranges procurement, receipt and delivery of US relief goods except sustenance and travel of US officials. Coordinates and/or requests shipments of supplies from abroad. Arranges for local purchase of priority items. Arranges for care and/or evacuation of all US AID employees affected by disaster.

Communications - Embassy Communications and Records Officer provides for efficient receipt and dispatch of communications related to disaster by either radio or telephone.

Information Unit - USICA PAO - The United States International Communication Agency (USICA) is responsible for advising on public affairs policy within Peru and the preparation of radio and press bulletins as necessary to keep the public informed about USG relief activities; and will, unless waived by prior agreement, coordinate all news releases pertaining to disaster relief operations, with AID and MAAG, if U.S. military participates. Normally, a Public Affairs Team will be dispatched from USSOUTHCOM as part of the Disaster Area Survey Team.

Finance and records - AID/Controller maintains system control over all US relief assistance and prepares necessary reports.

Field surveys - AID/Chief Engineer organizes and carries out damage surveys as necessary.

CHMAAG - OPCON of US military forces if involved.

USCINCSO: Command of all military personnel via MAAG in Peru.
Latter command of in-country military relief operations.

USSOUTHCOM: Responds at request of chief of US mission.

See also Survey Team, section 3.9

<u>Title</u>	<u>Name</u>	<u>Regular Assignment</u>
CT Coordinator	Leonard Yaeger	AID Director
Deputy CT Coordinator	Edward Paukert	Emb. Adm. Officer
Chief, Consular Unit	John Coffman	Emb. Consular Officer
Chief, Logistical Unit	William Busch	AID Executive Officer
Chief, Communication Unit	Al Riley	Emb. Communication Off
Chief, Disaster Relief Unit	Paul Vitale	AID Chief Urban Dev.
Chief, Liaison Unit	Leslie Scott	Emb. Pol. Officer
Chief, Military Unit	Col. John Smitherman	Chief MAAG
Chief, Financial Unit	John Davison	AID Controller
Chief, Information Unit	Allen Hansen	USICA PAO

3.4 Host Contact List

INAPROME (Instituto Nacional de Proteccion al Menor y ala Familia:
Formerly - Junta de Asistencia Nacional)

- a. Dra. Matilde Perez Palacios, Presidente
Av. San Martin No. 685, Pueblo Libre
- b. Comandante Ep Carlos Flores Quiroz, Director General
Av. San Martin No. 685, Pueblo Libre
Telephone: 610295

Peruvian Air Force

Minister of Air Force - Lt. General (r) Jose Gagliardi Schiaffino
Ministry of Air Force
Campo de Marte (w/o number)
Telephone: 243047

Peruvian Army

Minister of the Army - General E.P. (r) Jorge Muniz Luna
Ministry of the Army
Complejo de Guerra - Monterrico
Telephone: 362994

Peruvian Navy

Minister of Navy - Vicealmirante (r) Mario Castro de Mendoza
Ministry of Navy
Av. Salaverry (w/o number)
Telephone: 286115

Oficina Nacional de Apoyo Alimentario (ONAA)

Raphael Martilleni
Edificio Plaza, Natalio Sanchez 220 - 14th floor, Lima
Telephone: 246493

Regional Military Headquarters

- a. First Region - Piura
Crl. Ep Federico Bouroncle Yopez
Secretario Ejecutivo de la Primera Region
Telephone: 324592
- b. Second Region - Lima
Crl. Ep Augusto Zevallos Tavera
Secretario Ejecutivo de la Segunda Region
Telephone: 232288 - 231603
- c. Third Region - Arequipa
Crl. Ep Domingo Campos Montoya
Secretario Ejecutivo de la Tercera Region
Telephone: 28125
- d. Fourth Region - Cusco
Crl. Ep Pedro del Carpio Arguedas
Secretario Ejecutivo de la Cuarta Region
Telephone: 3142
- e. Fifth Region - Iquitos
Crl. Angel Valdivia Talavera
Secretario Ejecutivo de la Quinta Region
Telephone: 4846

Regional Civil Defense Headquarters(#)

(#) Same as Regional Military Headquarters

ORDEZA - Lima

Ingeniero Ernesto Saldarriaga Jimenez
Coordinator for AID Projects
Av. 2 de Mayo 1560, San Isidro
Telephone: 406858

Cuerpo General de Bomberos Voluntarios del Peru

- a. Comandante General Waldo Olivos
Rebeca Oquendo No. 358
Brena
Telephone: 244005
- b. Ingeniero Mario Podesta Bastante
Coordinator
Rebeca Oquendo No. 358
Brena
Telephone: 244005

3.5 US Contacts

Mr. Edwin Gharst Corr, Ambassador
Av. Arequipa 5th Block, Lima
Telephone: Office: 286000, Ext. 243/245 - Home: 323692

Mr. Gerald P. Lamberty
Telephone: 286000, Ext. 244/246 - Home: 409666

Mr. Leonard Yaeger, Director, USAID
Telephone: 286200, Ext. 141 - Home: 350150
286000, Ext. 210/202

Mr. Edilberto Alarcon, Disaster Relief Officer, USAID
Telephone: 286200, Ext. 176 - Home: 352631

Mr. John R. Davison, Controller, USAID
Telephone: 286200, Ext. 125/126 - Home: 456546
286000, Ext. 218

Mr. William C. Busch, Executive Officer, USAID
Telephone: 286200, Ext. 112 - Home: 221202
286000, Ext. 216

Mr. William Lenderking, U.S.I.C.A.
Telephone: 286000, Ext. 315/316 - Home: 222841

Capt. Louis Martinez, Naval Attache
Telephone: 286000, Ext. 361 - Home: 350938

Col. Robert E. Spurrier, Army Attache
Telephone: 286000, Ext. 360 - Home: 413248, Apt. 51

Col. Norman H. Runge, Air Attache
Telephone: 286000, Ext. 353 - Home: 497218

Col. John A. Smitherman, Chief, MAAG
Telephone: 286000, Ext. 373 - Home: 404915

Mr. Edward T. Paukert, Embassy Administrative Officer
Telephone: 286000, Ext. 281/282 - Home: 230468

Mr. Daniel Clare, Embassy Political Officer
Telephone: 286000, Ext. 205 - Home: 724947

Mr. Cecil Richardson, Embassy Consular Officer
Telephone: 286000, Ext. 375 - Home: 223618

Mr. Al Riley, Embassy Communications Officer
Telephone: 286000, Ext. 227 - Home: 355379

3.6 Primary Volags (CNDC)

CRS, CWS, SAWS, CARE: Major sources of supplies, personnel; excellent relationship with GOP; should be consulted for massive food donations; coordinate their activities with ONAA and NCDS. See Host Contact List, section 3.4. Peruvian Red Cross has own disaster service; member of all administrative committees within NCDS but any efforts must meet with approval of latter.

Peruvian Red Cross

Embajador Juan Garland Combe, President
Jn. Chancay No. 881 - Lima
Telephone: 237872

Caritas Del Peru

Rev. Padre Enrique Leon Palomino, Secretary General
(same address as CRS but different Tel: 511552)

CARE

Mr. Dale Harrison, Director
Los Laureles 485, San Isidro
Telephones: 400589 - 405091

Seventh Day Adventist Welfare Service (OFSA)

Mr. William H. Jenson, Director
Av. Angamos No. 770, Miraflores
Telephone: 458297, 469032

Catholic Relief Services

Mr. Lynn Renner, Program Director
Parque Internacional de Industria y Comercio
Calle Omicron No. 492 (CDA. 38, Av. Colonial), Callao
Telephone: 510765 - Home: 222883

Church World Services

Dr. Hans Hoyer, Director
Av. Arenales 395, Of. 210
Telephone: 234817

3.7 International Organizations

Individual countries; OAS, through limited funds, can help coordinate relief; UN, via World Food Program and UNICEF, gives technical assistance for reconstruction, coordination of relief; International Red Cross always a valuable source of assistance.

Organization of American States (OAS)
Embajador, Antonio Lulli Avalos, Director
Av. Arequipa No. 2544 - Lima
Telephone: 409245

United Nations Disaster Relief Coordinator

Mr. Leopoldo Tettamanti, Representative
Av. Central No. 643 - San Isidro
Telephone: 419135

3.8 US Assessment

USSOUTHCOM Disaster Area Survey Team (DAST) designated within Canal Zone to assist DCM in estimates and assessment of relief. DAST dispatched in 2 groups: Quick Reaction Element (QRE) with one generalist, 4 specialists within 6 hours; rest within 12 hrs.

USIS responsible for radio, press bulletins, all other policy information for public. Usually a public affairs team dispatched from USSOUTHCOM as part of DAST.

3.9 Survey Team

DAST prepares numbered grid map of disaster zone, requests information from Civil Defense Committee Liaison Officer about transportation to each grid zone. DAST only conducts damage survey and report; no involvement with local relief action. DAST chosen from following:

<u>Position/Skill</u>	<u>Source</u>
Officer in charge	USARSO
Civil engineer	USARSO
Public health officer	USARSO
Communications officer	USARSO
Preventive medicine officer	USARSO
Sanitary engineer	USARSO
Medical specialty team	USARSO
Medical supply officer/NCO	USARSO
Radio operators and repairmen	USARSO
Logistics/supply NCO	USARSO
Operations/administrative officer	USARSO
Operations/administrative NCO	USARSO
Civil affairs officer	USARSO
Food service supervisors & assistants	USARSO

3.10 Host Resources

Peruvian Air Force has 3 C-130's, 15 Buffalo, 20 other cargo aircraft and helicopter. Peruvian Navy has 12 aircraft.

3.11 US Volags

<u>Agency</u>	<u>Personnel Intl/Local</u>	<u>Programs</u>
American National Red Cross	---	Ed; Med & PH
Benedictine Sisters	5/	Ed; Med & PH
CARE	4/	CHP; Med & PH
The Carr Foundation	---	Communications
Catholic Medical Mission Board, Inc.	---	Med & PH
Catholic Relief Services - United States Catholic Conference	3/	CD; Coops & Loans Ec & Dev PI; Ed; Food Prod & Ag; Med & PH
Sisters of Charity of Cincinnati	1/	Ed; Med & PH
Church of the Nazarene, General Board, Department of World Missions	2/	Ed; Med & PH
Church World Service	2/20	CD; CHP; Coops & Loans; Food Prod & Ag; Med & PH
Columban Fathers	32/12	Coops & Loans; Ed; SW
Columban Sisters, US Region - Conde Villa, San Martin; Lima	---	Ed; Med & PH
Credit Union National Association, (CUNA, Inc.) - Panama City	---	Coops & Loans
Direct Relief Foundation	---	Equip & Mat Aid; Med & PH
Dominican Sisters, Congregation of St. Mary of the Springs - Chimbote	5/	Med & PH; Nutrition; SW

<u>Agency</u>	<u>Personnel Int'l/Local</u>	<u>Programs</u>
Dominican Sisters, Congregation of Our Lady of the Sacred Heart	6/4	Med & PH
The Ford Foundation	---	Ec & Dev PI; Ed; Food Prod & Ag; Pop & Fam Serv
Foster Parents Plan International, Inc.- Chimbote	---	CD; Ed; Med & PH; Nutrition; SW
Franciscan Sisters of Clenton, Iowa - Chulucanas	2/	Ed
Franciscan Sisters of St. Joseph, Sisters of St. Joseph of the Third Order of St. Francis, Inc.	2/	CD
Franciscan Sisters of Little Falls, Minnesota	4/	Ed; Med & PH
Franciscan Sisters of Our Lady of Lourdes, Third Order Regular of St. Francis Congregation of Our Lady of Lourdes - Chulucanas	2/	SW
Goodwill Industries of America, Inc., International Office	5/13	Ed
Heifer Project International - Pucallpa	---	Food Prod & Ag
High Scope Educational Research Foundation - PUNO	---	Ed
Holy Cross Missions (Holy Cross Foreign Mission Society) -- Cartavio; Chimbote; Trujillo	5/	SW
Sisters, Servants of the Immaculate Heart of Mary - Lima	5/	Ed; Med & PH; SW
International Educational Development, Inc.	27/	Communications; CD; Ed; Med & PH

<u>Agency</u>	<u>Personnel Intl/Local</u>	<u>Programs</u>
International Executive Service Corps	15/	P & Bus Admin
The International Eye Foundation - Lima	---	Med & PH
Sister of St. Joseph of Cardondelet - Chimbote; Arequipa; Ocobamba; Andahuaylas; Apurimac; Moho	25/3	Ed
Lutheran Church -- Missouri Synod	---	Food Prod & Ag
Marianists, Province of St. Louis - Callao; Trujillo; Lima	25/13	Ed
Sons of Mary Missionary Society - Lima; El Agustino	11/67	CD; CHP; Ed; Med & PH; Pop & Fam Serv
Maryknoll Fathers - Arequipa; Lima; Acora; Chucuito; Juli; Puno; Pusi; Taraco; Yunguyo	57/	Communications; CD
Maryknoll Sisters of St. Dominic, Inc. - Ciudad de Dios; Lima; Arequipa; Huancane; Juli; Ica; Ilane	32/1	CD; Coops & Loans; Ed; Med & PH; SW
Medical Assistance Programs, Inc.	---	Equip & Mat Aid; Med & PH
Medical Mission Sisters, Society of Catholic Medical Missionaries, Inc.- Provincia de Caylloma	1/	Med & PH
Sisters of Mercy, Burlingame, California	2/	Med & PH
Sisters of Mercy, Pittsburgh Mother-House - Chimbote	4/	CHP; Ed; Med & PH; SW
National Association of the Partners of the Alliance, Inc. - Lima	---	CD; Ed; Med & PH

<u>Agency</u>	<u>Personnel Int'l/Local</u>	<u>Programs</u>
National Council of Catholic Women - Lima; Iquitos Loreto	---	Equip & Mat Aid; Med & Ph
Norbertine Fathers	6/	Ed
OXFAM - America - Tambopata Valley	---	Food Prod & Ag
Pan American Development Foundation	---	Ed; Med & PH
The People-to-People Health Founda- tion, Inc., Project HOPE	1/	Med & PH
Planned Parenthood Federation of America, Inc., International Division Family Planning Inter- national Assistance - Lima	---	Pop & Fam Serv
The Population Council, Inc.- Lima	---	Pop & Fam Serv
Sisters of the Most Precious Blood - Lima; Santa	8/	Ed; Med & PH; SW
Sisters of Providence of St. Mary-of- the Words - Lima	6/	Ed
Public Welfare Foundation - Taraco; Conima; Llave; Acora	---	Food Prod & Ag
Rockefeller Foundation	---	Ed; Food Prod & Ag; Pop & Fam Serv
Salesians of St. John Bosco, Province of St. Philip the Apostle	16/151	Ed; Food Prod & Ag; SW
The Salvation Army - Trujillo; Callao; Punta Arenas; Bellavista; Lima	4/	Ed; SW
Seventh-Day Adventist World Service, Inc. - Juliaca; Miraflores; Lima	---	Equip & Mat Aid; Med & PH
Summer Institute of Linguistics, Inc.	262/80	Ed; Food Prod & Ag; Med & PH

<u>Agency</u>	<u>Personnel Intl/Local</u>	<u>Programs</u>
United Church Board for World Ministries, United Church of Christ, Divisions of World Mission and World Service - Huarmey Valley; Aija Province	2/	Ed; Med & PH; SW
United Methodist Committee on Relief	---	CHP; Equip & Mat Aid
Urusline Sisters of the Immaculate Conception - Carmen de la Legua - Reynoao, Callao	5/108	Communications; CD; Ed; Med & PH
World Neighbors, Inc.- Ayacudio; Amazon River (jungle areas)	/2	CD
World Presbyterian Missions, Inc., The Foreign Missions Board of the Reformed Presbyterian Church Evangelical Synod - Huanta	15/	Communications
World University Service, Inc., US Committee - Ayacucho; Alpachaka	---	Food Prod & Ag
World Vision Relief Organization, Inc.	---	SW
Young Women's Christian Association of the USA, World Relations Unit of the National Board	---	CD; WOMEN

Key:

CD.....	Community Development
CHP.....	Construction, Housing and Planning
Coops & Loans.....	Cooperatives, Credit Unions & Loans
Ec & Dev Pl.....	Economic & Development Planning
Ed.....	Education
Equip & Mat Aid.....	Equipment & Material Aid
Food Prod & Ag.....	Food Production & Agriculture
Ind Dev.....	Industrial Development
Med & PH.....	Medicine & Public Health
Pop & Fam Serv.....	Population & Family Services
P & Bus Adm.....	Public & Business Administration
SW.....	Social Welfare

3.12 Disaster Types and History

Earthquakes, floods, drought, epidemic, famine. Disasters frequent; average 1 or 2 annually. Seismically active Andes bisects country. Lack of ground cover in Sierras results in fast runoff during rains; increases flash flood potential on western slopes of Andes. Annual jungle floods can be severe, causing crop damage, secondary flooding.

4. Population

4.1 National Demographic Characteristics

Total population in 1977 was 16.5 million, with a 2.9% rate of growth from 1970 to 1977. Population growth one of the fastest in Latin America.

Population distribution among geographic regions: Costa 46%; Sierra 44%; Selva 10%.

Age dependency ratio is high with 54% of the population under age of 19.

4.2 Regional Distribution

Total population, density (per sq km), % urban, % of total population by department for most recent census (1972)

<u>Department</u>	<u>Population (absolute)</u>	<u>Density</u>	<u>% Urban</u>	<u>% of Total</u>
Total	13,572,052	10.9	59.6	100.0
Amazonas	196,469	5.1	34.0	1.51
Ancash	726,665	20.8	46.7	5.35
Apurimac	307,805	15.4	23.3	2.27
Arequipa	530,528	8.8	81.7	3.97
Ayacucho	459,747	10.8	33.4	3.40
Cajamarca	916,331	27.0	17.6	6.77
Callao	315,605	2247.1	99.0	2.35
Cuzco	712,918	9.8	36.0	5.32
Huancavelica	331,155	16.4	21.3	2.46
Huanuco	420,764	12.2	27.2	3.06
Ica	357,973	17.5	71.5	2.64
Junin	691,130	16.6	60.1	5.10
La Libertad	806,368	34.7	59.2	5.72
Lambayeque	515,363	40.2	73.1	3.78
Lima	3,485,411	106.3	93.9	25.46
Loreto	494,935	1.1	49.7	3.83
Madre de Dios	21,968	0.3	42.5	0.18

Moquegua	74,573	4.8	71.0	0.55
Pasco	176,750	8.4	59.8	1.31
Piura	854,668	24.4	51.9	6.29
Puno	779,594	11.2	24.0	5.76
San Martín	224,310	4.4	58.5	1.66
Tacna	95,623	6.7	79.7	0.70
Tumbes	75,399	16.7	73.8	0.56

4.3 Migration

Economic and social incentives motivate ever-increasing movement from rural to urban areas. Cultural integration resulting from improved communications and transportation systems and "cholification" (acculturation of Indians) are key factors. In aggregate terms, direction of migration rural to urban. Migration consists of two parallel movements: rural to small urban centers and then to larger urban areas, following "fill-in" pattern between generations.

Largest flow of migrants has been between regions (from Sierra to Costa and from areas within Costa to Lima). In recent years relative importance of net migration within regions and to other cities in the Costa has been growing. Latter consistent with recent rapid acceleration of growth of medium size cities.

4.4 Urban Centers

Urban population growth rate accelerating rapidly. At present yearly rate of 5.6%, urban population will double in 13 years.

Urbanization process has displayed three principal features: movement to the coastal areas, increased concentration in larger cities and overwhelming primacy of Lima.

In recent years, urbanization patterns have been changing gradually, with the medium size cities growing faster than Lima, and absorbing an increasingly larger share of the incremental population.

Cities by Size of Population
1975, 1978, and 1979

<u>City</u>	Estimated Mid-Year Population <u>1979</u>	Average Annual Growth in Percent, <u>1975-79</u>
Lima (Metro. area)	4,746,226	4.8
Arequipa	462,773	5.1
Trujillo	384,155	6.0
Chiclayo	280,181	5.0
Chimbote	262,615	6.2
Huancayo	195,224	5.0
Piura	179,978	4.4
Cuzco	164,302	3.5
Iquitos	165,864	5.1
Pucallpa	90,049	5.6
Tacna	85,441	5.3
Ica	72,621	1.7
Ayacucho	64,639	5.0
Huanuco	58,392	4.2

A. Total Population in cities with Estimated Population for 1979 in excess of 50,000 were 7,212,460 for a annual percentage rate of 4.9.

Source: Oficina Nacional de Estadística.

5. Health, Nutrition and Housing

5.1 Health Sector Overview

Despite 30 years of progress in control of transmissible diseases, infant mortality and morbidity, present health status of Peruvian population is characterized by high incidence of sickness and death with major discrepancies between urban and rural areas and between socio-economic groups with respect to both health conditions and availability of services. Lima consumes 70% of public sector health resources.

Major causes of death and illness are gastroenteritis (especially for ages 0-5) and upper respiratory diseases (including TB); in 1975-76, 10 principal causes of morbidity were: dysentery (49,000 cases reported), influenza (39,000 cases), helminths (31,000 cases), tuberculosis (22,000 cases), malaria (18,000 cases), measles (10,000 cases), whooping cough (9,000 cases), typhoid-paratyphoid (9,000 cases), salmonella (8,000 cases), hepatitis (6,000 cases).

Mortality rates show downward trend, but remain high in comparison to those of other developing countries. 50% of all deaths occur in children aged under 5 years, with influenza and pneumonia leading cause of death. Nutritional deficiencies are primary health problem in this age group and a direct or contributing cause of death in 57% of all child deaths. Mortality rates range from 5.9/1,000 in Lima to over 13/1,000 in Apurimac, Cuzco, Puno and Huancavelica.

5.2 Vital Statistics (1975-80)

Birth rate per 1000 inhabitants	39.41
Mortality rate per 1000 inhabitants	11.6
Infant mortality per 1000 live births	101.0
Years of life expectancy at birth	57.2

5.3 Health Services and Facilities

The country is divided into 10 health regions and 56 "hospital areas" which have a hospital with a physician, health centers and health posts with nurses and auxiliaries as well as medical personnel from a corps of compulsory Civil Service (SEGIGRA). Regional hospitals have all specialities, surgery, X-ray and laboratory facilities. Specialist facilities and hospitals are concentrated in urban areas. 33% of the

population does not have effective access to health facilities, although in the Indian areas there is heavy dependence on local healers. The Ministry of Health is responsible for all health centers and most health posts but less than one-third of the hospitals. Other organizations providing health services are Social Security, charitable societies and cooperatives.

In 1972, total of 435 hospitals: 421 general, 14 other. 29,063 beds: 14,023 in the capital (4.6/1,000 population) 15,063 in rest of country (1.3/1,000 population) Of total beds: 26,849 classed general; 1,661, mental illness; 112, tuberculosis; 464, other.

Distribution of Health Facilities by Regions , 1974
(ranked from the least to the most marginal)

<u>Health Regions</u>	Population			MDC/*
	1974 ('000)	Beds/ 1,000	MD's/ 10,000	Per- son /Yr
Lima Region - department of Lima (except provinces of Chancay, Cajatambo, Callao)	3,843.7	4.41	15.89	3.98
South Western Region (Arequipa, Moquegua and Tacna)	765.4	3.60	7.84	2.06
South Central Region (department of Ica, provinces of Lucanas, Parinacochas and Castrovirreyna)	635.1	2.04	3.78	1.18
North Central Region (departments of Ancash, La Libertad, provinces of Chancay and Cajatambo)	1,998.1	1.54	3.12	0.89
Middle Central Region (departments of Pasco, Junin, Ayacucho except provinces of Lucanas and Parinacochas) and Huancavelica (except Province of Castrovirreyna)	1,678.7	1.45	1.64	0.69

<u>Health Regions</u>	Population			MDC/*
	1974 ('000)	Beds/ 1,000	MD's/ 10,000	Per- son /Yr
Eastern Region (department of Loreto), counties of Honoría and Puerto Inca (Huanuco)	858.8	1.20	1.71	0.64
North Western Region (departments of Amazonas, Cajamarca, Lambayeque, Piura and Tumbes)	3,029.05	0.99	1.86	0.57
South Eastern Region (departments of Apurimac, Cuzco and Madre de Dios)	1,191.6	1.07	1.15	0.32
Central Eastern Region (department of Huanuco except counties of Honoría and Puerto Inca)	467.0	0.84	1.52	0.37
South Altiplanica Region (department of Puno)	<u>914.8</u>	<u>0.62</u>	<u>0.77</u>	<u>0.22</u>
Total/Averages	15,382.7	2.12	5.75	1.53

* Consultations with physician

Source: Ministry of Health,....

5.4 Cold Chain

No facilities at the national airport. There are cold storage facilities in Lima, in the "Institutos Nacionales de Salud," Calle Capac Yupanqui No. 1400, Apartado No. 451, telephone: 71-9920, or 71-7443".

Dry ice is available in Lima at commercial establishments, but not guaranteed elsewhere in the country. Hospitals around the country with more than 150 beds maintain cold-rooms. Health centers and some health posts have refrigerators, but it is not evident that they function to the required standard. Nor is it evident that any effective cold-chain for in-country shipment exists; but the Ministry of Health should be approached with inquiries on current status.

5.5 Medical Supplies

Responsible agency: Ministerio de Salud, Ave. Salaverry s/n Lima, tel.: 32-3535, telex: 20433. There is an established, standardized drugs reference list available from the above address. Importation of drugs through private channels is authorized, and the private sector also includes the commercial manufacture of drugs and their distribution through town and rural pharmacies, and private and public clinics. Directions should be written in Spanish.

5.6 Health Personnel

Health personnel as of 1976:

Doctors	10,008; 6.2/10,000 Population
Dentists	3,139
Graduate nurses	6,670
Auxiliaries	11,357

5.7 Diet Summary

Minimum Daily Requirements (FAO): 2,343 calories as follows:

<u>Protein</u>	<u>Fat</u>	<u>Carbohydrates</u>	<u>Calcium</u>	<u>Phosphorous</u>	<u>Iron</u>
54.1g	117.2g	263.6g	800mg	800mg	14mg

Wheat in various preparations (bread and pasta) a basic staple over much of the country, with maize an important secondary staple (consumed in semolina, flour or toasted forms). In the Sierra, potatoes (especially dried form) a basic staple, and in the high plateau dried frozen potatoes particularly important. Other local tubers also consumed, and other cereals, notably barley in gruel form, in the Sierra. At lower altitudes, plantains and cassava are widely consumed, and sweet potatoes are common elsewhere. Rice consumption is on the increase, although still expensive as a staple.

The chief accompanying dishes are: kidney beans, horse beans, dry beans and peas (field varieties), chick peas, lentils, castor beans. Oil is mostly vegetable in origin (cottonseed, sunflower, soybean), butter rarely consumed; on the coast some fish oil used.

Greatest consumption of leafy vegetables in the Sierra, although a wide variety of vegetables in season eaten over most of the country: tomatoes, cabbage, pumpkins. Fruits plentiful in the Sierra region.

Coastal and riverine areas notable for higher milk and fish consumption; otherwise, dairy products a small part of the diet. Meat is a luxury eaten in small quantities in soups and other dishes: chiefly beef, also pork and goat meat. The highlands provide little meat, although local products occasionally consumed are llama meat, alpacas and guinea pigs. Forest Indians complement their domestically produced food with occasional meat from hunting.

Condiments include a wide variety of spices, (especially chillies) garlic and onions.

5.8 Regional Food Preferences

Costa

Urban-rural diets differ little; the diets of high-low income levels differ mainly in quantity and/or frequency of consumption of more expensive foods. Most common staples are rice, broad beans, tubers, noodles and bread. Milk is consumed in Greater Lima, Arequipa and a few other metropolitan areas where it is trucked in daily.

Beverages: coffee, water, milk, sodas, fruit juices

Cereals: rice, wheat, corn

Cooking oil: cottonseed oil, corn oil, fats

Dairy products: (cow, goat) fresh and canned milk, cheese, butter

Fruits: (fresh) bananas, apples, strawberries, oranges

Meats/fish/fowl: (fresh) beef, pork, fish, chicken, duck

Vegetables: tomatoes, carrots, turnips, legumes, potatoes, onions

Sierra

The major provincial cities of the Sierra have food consumption patterns similar to those of the Costa, modified by limitations in transportation and storage. Cultural prejudice, poverty and isolation

further limit diet in rural areas. People subsist on potatoes, wheat, barley, oats and indigenous cereals unknown outside the Andes. Area farms seldom grow leafy vegetables and fruit; onion and peppers, produced in some volume, are limited to garnishes. There is heavy consumption of habas, starchy broad beans; meat consumption is marginal; chickens are kept for eggs to be sold at market; llamas and guinea pigs are only meat sources for most farm households.

Beverages: water, some goats' milk

Cereals: corn, wheat, barley, oats, indigenous grains

Cooking oil: cottonseed oil, fats (lard)

Dairy products: goats' milk, cheese

Fruits (fresh): oranges, sweet lemons

Meat: (fresh)/fish(dried)/fowl(fresh) sheep, he-goat, llama, guinea pig, fish, chicken

Vegetables: lettuce, carrots, potatoes, sweet potatoes, onions
peppers

Selva

Little difference between urban and rural consumption patterns in Spanish-speaking population; little variety. Consumption of fruits highest per capita in country; heavy consumption of fish. Tribal population relies on hunting and fishing.

Beverages: cocona, maracuya and orange juice

Fruits: (fresh) cocona, banana, maracuya, orange

Meat/fish/fowl(fresh): pork, fish, chicken

5.9 Nutritional Deficiencies

PEM especially in infants, with incidence rising from the metropolitan area (lowest incidence) through the Costa, the Sierra and the forest zone; over 60% of children under six years of age suffering some degree of malnutrition.

Vitamin A deficiency and associated xerophthalmia considered a serious problem in the coastal and Sierra regions. Anaemia, due both to helminthiasis and from deficiency in diet, a widespread problem, especially in forest zone. Goiter, affecting about 20% of the population, has a regional pattern similar to that of malnutrition, though older children and adolescents most affected. There is a long established salt iodization program.

5.10 Utensils

Methods and utensils used in cooking and eating do not vary in urban areas throughout Peru, but may vary greatly in rural areas and between higher and lower income groups.

Costa: Food is prepared inside homes on gas or kerosene stoves which may require kerosene, gas, wood or charcoal for fuel. A variety of pots, 1/2, 1 and 2 liters, ceramic or aluminum, are used. Stainless steel knives and forks are used.

Sierra: Food is prepared inside homes on wood or kerosene stoves. One-liter ceramic pots are used. Spoons and forks of wood or stainless steel are used.

Selva: Food is prepared on fires outside the home in one-liter ceramic pots. Spoons are used.

5.11 Overview of Housing

Several major waves of rural to urban migration since the 1940's have changed Peru's population from predominantly rural to 55% urban by 1975, and put a great strain on urban resources. Metropolitan Lima, the destination of 58% of migrants to coastal areas, quadrupled its population between 1940 and 1970 (4,290,735 in 1977). Of the estimated 3.1 million housing units in Peru in 1977, 62% were in urban areas but only 51% of dwellings in Lima were considered of standard quality. The Metropolitan (Lima) Development Plan (PLANDEMET) estimates an additional 910,549 units will be needed in that city by 1990 to accommodate the projected population.

About 65% of all families own their own homes, though not necessarily the land; a single-family detached home is the predominant type (80%). The present high rate of inflation has priced all but a tiny minority out of the housing market. Self-help or "auto-construccion" is the only means for poor people to build permanent shelters, though such structures tend to be "under-built" or "over-built".

1977 Urban and Rural Housing Needs by Region

<u>Regions</u>	<u>Total Units</u> <u>1977</u>	<u>Housing Needs</u>		<u>Total</u>
		<u>New Units</u> <u>1972-77</u>	<u>Replacement</u> <u>Units 1972</u>	
<u>National</u>	3,147,903	473,539	2,195,890	2,669,429
Urban	1,960,341	429,803	1,057,202	1,487,005
Rural	1,187,562	43,736	1,138,688	1,182,424
<u>Coastal</u>	1,812,813	345,263	1,020,149	1,365,412
Urban	1,468,461	342,525	680,404	1,022,929
Rural	344,352	2,738	339,745	342,483
<u>Sierra</u>	1,054,171	86,397	947,476	1,033,873
Urban	373,366	63,439	292,013	355,452
Rural	680,805	22,958	655,463	678,421
<u>Selva</u>	280,919	41,879	228,265	270,144
Urban	118,514	23,839	84,785	108,624
Rural	162,405	18,040	143,480	161,520

Source: Banco de la Vivienda del Peru, based on National Housing Census, 1972 as cited in A.I.D. Peru Shelter Assessment, February 1979.

Urban Households

<u>Department</u>	<u>Average Number</u> <u>of People per</u> <u>Household</u>	<u>Department</u>	<u>Average Number</u> <u>of People per</u> <u>Household</u>
Amazonas	5.5	La Libertad	5.2
Ancash	5.1	Lambayeque	5.3
Apurimac	4.6	Lima	5.1
Arequipa	5.1	Loreto	6.5
Ayachucho	4.6	Madre de Dios	5.0

<u>Department</u>	<u>Average Number of People per Household</u>	<u>Department</u>	<u>Average Number of People per Household</u>
Cajamarca	5.9	Moquegua	5.0
Callao	5.2	Pasco	4.8
Cuzco	4.0	Piura	5.6
Huancavelica	4.7	Puno	4.4
Huanuco	5.7	San Martin	5.7
Ica	5.5	Tacna	5.0
Junin	5.1	Tumbes	5.8

Source: Compania Peruana de Investigacion de Mercados, S.A., Censo Muestra de Provincias, 1978, p. 13 as cited in A.I.D. Peru Shelter Assessment, February 1979.

5.12 Housing Policies and Institutions *

Ministry of Housing and Construction (MOHC) has overall direction of the housing sector. The Banco de la Vivienda del Peru (BVP) is its financial arm; EMADIPERU (Peruvian Real Estate Management Enterprise) administers MOHC housing portfolio. Several quasi-independent entities (e.g., Direccion General de Obras Sanitarias (DGOS and ELECTROPERU) have responsibility for infrastructure.

The state-owned, semi-autonomous BVP is the principal source of finance for low-income housing and has had extensive experience in contracting foreign loans, including U.S.A.I.D. loans for housing reconstruction after the 1970 earthquake.

17 Savings and Loan Associations (7 in Lima), regulated by BVP, are authorized to lend for housing and infrastructure.

Banco Central Hipotecario (BCH), Central Mortgage Bank, finances higher-income housing.

All banking institutions have been seriously decapitalized during the past few years by rapid inflation, necessitating government support, in part through subsidies, for BVP and S and L's.

Numerous other public and private institutions have responsibilities and programs related to housing. The Institute for Investigation of Housing Action (Instituto de Investigaciones para la Accion en Vivienda, INIAVI), a private voluntary organization, has potential for making an important contribution to self-help housing through its program of technical assistance using professional construction engineers, "master" supervisors, and teaching materials.

* Structure and function of institutions as of November 1979, when the country was in a transitional phase prior to the election of a civilian government in May 1980.

5.13 Disaster/Low-cost Housing *

Following the disastrous May 1970 earthquake several types of emergency housing were provided by the GOP and international donors, some more readily accepted than others.

500 hemispherical, inflatable "igloos" of spun polyurethane were supplied by the German Red Cross for use in Caraz, Callejon de Huayles. A 1976 survey found 272 still standing and only a few not occupied. In many instances the original units had been regrouped, enlarged by the addition of separate or abutting adobe structures, or otherwise modified. Though earthquake resistant and well insulated, the domes were not popular, their long-term occupancy apparently dictated by necessity rather than choice.

Several hundred multi-family units with corrugated cement asbestos roofing were built by the GOP in mountainous urban areas. The communal living arrangement, dirt floors, and lack of windows have been cited as reasons for their generally negative reception. In addition, the time required for building (3 to 6 months) limited their effectiveness as emergency housing. Some units were still occupied in 1976; others were being used for commercial or governmental purposes; still others had been disassembled and moved to other sites. The 662 A.I.D.-funded wood frame four-family modulers, built in rural communities of Callejon de Huayles, met with many of the same objections as the GOP units. The plan to reuse materials in permanent structures proved unfeasible due to deterioration of the wood frames and cracking of the cement asbestos roofing.

More than one thousand 3X4.5 m windowless shelters of corrugated zinc sheets over wood frames provided by the OAS were built in rural areas of Yungay and Huaylos. Their thermal characteristics (too hot during the day and too cold at night) were the chief drawbacks.

The USG also supplied tents which were still in use long after the initial emergency period. Since they could not provide adequate protection in rain and cold weather, the purchase and delivery of corrugated metal and aluminum roofing to cover temporary structures erected by earthquake victims became a high GOP priority.

The USG responded to Peru's need for temporary housing after the October 1974 earthquake near Lima by financing the purchase of locally obtainable "esteras" (woven cane mats) to be used in building shelters rather than investing in the far more expensive tents. The warm, dry weather of the region at the time of the emergency permitted that solution. Obtaining estereras proved difficult, however, because they had to be purchased from several small manufacturers along the entire coast.

* Charlotte and Paul Thompson's Preliminary Report on Post Disaster Housing in Peru (October 12, 1976) is main data source.

5.14 Housing Types

Urban

Two types of settlements house the majority of urban poor: tugurios (inner city tenements) and pueblos juvenes (squatter communities). Firm statistics are lacking but a 1976 study reports more than 2.3 million people living in pueblos juvenes in 28 cities. Other studies suggest that at least 75% of Lima's population live in tugurios or pueblos juvenes.

Tugurios may be multi-story, multi-family houses; small, one- or two-room units off alleyways (callejones); or tenement-like structures built as rental accommodations. They are typically over-crowded, in deteriorating condition, and often with communal water and sanitary facilities.

By invading public and private land, migrants have built pueblos juvenes on the outskirts of cities. In contrast to tugurios, progressive improvement of living conditions has characterized these settlements. Largely through self-help development, temporary shelters lacking public services are often replaced by permanent dwellings with them. Population densities are low relative to inner city ones though increasing ("tugurization") in older settlements in the 1970's. Approved pueblos juvenes are eventually legitimized and the residents given title to their lots.

Rural

Rural houses are typically small with one or two rooms. Roofs are flat in dry Costa, gabled in Sierra; windows are often lacking. Kitchen may be separate low-roofed structure; cooking is often done over an open fire. Houses in rainforests of Selva are built of local materials and on stilts for protection from animals and flooding. Steeply pitched roofs of palm fronds allow run-off in heavy rains.

5.15 Materials and Construction

Five general kinds of traditional (non-engineered) structures are found throughout the country: adobe (sun-dried earthen bricks), quincha (wood frame with walls of mud-covered cane infill), tapial (rammed earth), unreinforced masonry (brick or block without proper reinforcing systems), and wooden houses (wood frame and timber, built by owner).

Despite the heavy structural and human losses in the 1970 earthquake, due to the primitive technology of traditional adobe construction, the low cost and climatic suitability of adobe accounts for its continued widespread use.* Although found in nearly every region except the jungle, adobe structures are concentrated in parts of the Sierra and along coastal river valleys where necessary adobe soils and bonding grasses are found. In coastal regions where the climate is dry and wood scarce, roofs of adobe houses may be flat (formed by laying a mesh of cane, bamboo mats, and mud over bamboo poles) or in southern coastal areas made of quincha (A-frame of mud plastered over a lattice work of bamboo and cane). Heavy rains in mountain areas make pitched roofs (usually 30°) necessary; they may be 2-sided or 4-sided, tile or sod. In larger cities of the Sierra, corrugated metal and asbestos roofing are growing in popularity. In addition to tapial and adobe block structures in mountain regions, adobe with small stone coursing and, in the high Andes, stone wall houses are also seen. "Self-help" in adobe construction is usually limited to assisting a hired mason (albanil), though skilled albanils are decreasing in number. Adobe occupies a middle position in the housing hierarchy: more desirable than quincha in the coastal region or tapial in the Sierra but lower in value than brick or concrete block.

The vulnerability of adobe structures to earthquake damage in Peru is due to the country's generally inferior adobe (only a few regions have good adobe soils) and to dangerous building features such as high and heavy walls, heavy roofs, improper building configuration and balance, lack of reinforcement. Poor soil composition (high content of rock, clay, sand or, in coastal regions, salt), combined with inadequate stabilization and improper drying and curing of adobe accounts for its characteristic

weaknesses: brittleness and susceptibility to erosion. Through research initiated by the GOP in 1971 some new techniques to reduce vulnerability of traditional structures have been developed but not widely implemented. Among the developments is the promising use of asphalt as an effective adobe stabilizing agent, suitable for most regions. The introduction of stabilized adobe is expected to meet with resistance because of tradition, added cost, and problems of supply.

Peru produces nearly 95% of its own construction materials although difficult access to rainforests limits availability of lumber west of the Andes. An expensive though preferred technology for permanent buildings in coastal and mountain areas where seismic design criteria are needed is reinforced concrete skeleton frame (1979 A.I.D. Shelter Sector Assessment). Walls are of concrete block, fired tile or brick; reinforced fired tile is used for roofs and floors.

Temporary shelters in coastal regions made of cane mats ("asteras") stretched over wood poles are inexpensive and relatively long lasting in dry climate but offer inadequate protection in winter.

Materials and technology standards are described as generally higher than income and climate justify. Several projects to test low-cost techniques for seismic zone construction have had mixed results. Taste and tradition are obstacles to innovation. The desired goal of many residents of pueblos jovenes is to acquire enough bricks, blocks ("materiales noble"), and steel to make a permanent room with concrete columns and beams regardless of cost.

1972 census data: 56% of houses in Peru have roofs of permanent materials (14% concrete); 71% of urban houses have permanent roofs (25% concrete); 23% of houses countrywide, 38% of urban have walls of brick, concrete blocks, stone or reinforced concrete, with totals rising to 72% country-wide and 81% urban when adobe is included.

* An earthquake (6.6 on the Mercalli scale) in the area of Arequipa on February 16, 1979, caused slight damage to pueblos jovenes in Arequipa and extensive structural damage in the provinces of Condesuyos, Castilla, and Camana. In the town of Chuquibamba, for example, virtually all adobe buildings were damaged and in need of reconstruction with stronger materials. The towns of Aplao, Pompacolca, and Viraco reported similar damage.

5.16 Public Utilities and ServicesUrban and Rural Housing Without Basic Services by Region, 1977

<u>Regions</u>	<u>Total Housing Units 1977</u>	<u>Lacking Services</u>		
		<u>Water</u>	<u>Sewerage</u>	<u>Electricity</u>
<u>National</u>	3,147,903	2,268,003	2,470,905	2,043,613
Urban	1,960,341	1,099,197	1,291,712	886,584
Rural	1,187,562	1,168,806	1,179,193	1,157,029
<u>Coastal</u>	1,812,813	1,064,753	1,200,012	896,627
Urban	1,468,461	729,776	860,141	571,352
Rural	344,352	334,977	339,872	325,275
<u>Sierra</u>	1,054,171	952,379	1,009,499	907,565
Urban	373,366	280,106	331,885	236,179
Rural	680,805	672,273	677,614	671,386
<u>Selva</u>	280,919	250,871	261,393	239,421
Urban	118,514	89,315	99,686	79,553
Rural	162,405	161,556	161,707	160,368

Source: BVP calculations based on 1972 National Housing Census as cited in A.I.D. Peru Shelter Sector Assessment, February 1979.

Services are more likely to be available in urban areas than in rural, in urban areas as a whole than in squatter communities. In the latter, until infrastructure is provided, water of doubtful quality is delivered to each home by tank truck (often at exploitative rates) and stored in cisterns or barrels; kerosene lanterns and candles are used for lighting, kerosene stoves for cooking. Pit latrines provided in more crowded areas are the only sanitary service.

6. Economy

6.1 Overview of Economy

Agriculture is basis of economy; sector contributes 16% of GDP (1977), employs 40% of the population, and is buttressed by mining (copper, zinc, lead, oil) and fishing industries. Manufacturing, primarily for domestic market, provides 31% of GDP. Overall per capita GNP averages US\$ 830 (1977).

Except for location of mines in Sierra, subsistence agriculture dominates that regional economy; production levels for most crops are stagnant or falling; high man/land ratio (343 persons/ sq km of arable land) is aggravated by high population growth rates and erosion due to deforestation. Vast undeveloped Amazon territories offer only possibility of bringing new farmlands as well as oil reserves into production, but distances from coastal cities, sparse population and often unfavorable climatic and soil conditions limit present exploitation of area.

Full benefit of diverse natural resources is limited by vast distances and rugged terrain, which fosters separate and unequal development of country's three regions, and imposes high transportation and infrastructure costs. Modern sector: mechanized and irrigation agriculture, fishing, manufacturing, construction, commerce and services are concentrated on coast (along with most of the urban population) centered on Lima-Callao. The income distribution is skewed, with the highest quintile enjoying 58.6% of the national income, while the lowest quintile receives 3.1%. Per capita income on the coast is twice the national average, 3 times that in the Sierra and 5 times that in the Selva. Increasing imbalance encourages migration from Sierra to coastal cities, resulting in rising urban unemployment.

The last decade's changes in political leadership and economic policies in conjunction with peculiarities of world economy in 1970's have contributed to Peru's recent economic difficulties: higher than historical inflation rates, continuing balance of payments deficits, lowering of economic growth rates, decreasing real wages and very high external debt service requirements. Necessary GOP austerity programs to redress international reserve position (-\$1 billion in 1978) and 48% debt service ratio preclude implementation of social and economic reform programs, generating widespread strikes and riots in 1977 and 1978. International observers generally reluctant to predict future course of economy.

Looking forward through the 1980's and beyond, Peru's natural resource base and demographic factors are the principal forces facilitating and limiting economic welfare. Rich unexploited mineral deposits, abundant

hydroelectric potential, and moderate petroleum reserves are obvious strengths; limited availability of water in the coastal areas, and demographic pressure are obvious limitations. Population growth will place increasing pressure on agricultural land, the provision of basic public services, and food and energy supplies.

6.2 Current Status, 1980

During the past three years, 1977-79, the Peruvian economy has suffered severe recession--the most severe since World War II. Peru's estimated GDP for 1979 was 17% less than it would have been if the economy had grown by 5% per annum from 1970. From 1977 on, per annum GDP growth has been about zero, reflecting the combined impact of substantial growth of mining sector output and an absolute decline of output for the urban-based manufacturing, construction, and related trade and finance sectors. Inflation accelerated from an average annual pace of less than 10% in the early 1970's to 56% in 1978 and 68% in 1979 due to monetized fiscal (and public sector) deficits and corrective devaluations. Simultaneously, decreased real credit to the private sector has reduced real demand, thereby eroding employment opportunities and real incomes in the urban sector. Since 1976, urban real wages and incomes have declined by about 30% for lower income households (and by even larger percentages for middle and upper income households), and unemployment and underemployment in the Lima metropolitan area has increased from a level of 26% in 1975 (April-May) to 47% in 1978 (July-August).

However, very good performance of Peru's external sector in 1979, increased foreign exchange availability sufficiently to resume normal service of Peru's large external debt (\$9.3 billion at year-end 1979) and pay for an increased volume of imports. The increase in export earnings and a negotiated reduction of public sector external debt amortization produced a \$1,572.1 million increase in Peru's (banking system) net international reserve position in 1979, and freely disposable foreign exchange holdings of the Central Bank were at record high of \$1,022 million at year's end. The brisk recovery of external account solvency fulfills the indispensable condition of allowing near-term growth of imports.

Despite government control and regulation of interest rates and the effective exchange rate, an inflation rate of 60% is expected in 1981. During the third quarter of 1980, the sol may have been overvalued by about 15% over the assumed purchasing power parity. The actual nominal exchange rate of the sol with respect to the U.S. dollar would have been overvalued by about 25%.

6.3 Key Indicators

Between 1951 and 1976, real GDP growth averaged almost 5.5% annually and allowed real GDP per capita to double, in spite of the accelerating population growth.

GNP and GDP at Current Prices

<u>Year</u>	<u>GNP</u>	<u>GDP</u>
1974	441,915	448,602
1975	562,645	572,495
1976	789,476	808,633

Source: World Bank, Peru: Long-Term Development Issues, 1979.

From 1960 to 1970, the share of agriculture in GDP decreased significantly, while the shares of both industry and services increased. The average annual growth rate of all sectors fell between 1960-70, especially that of agriculture. Gross domestic investments grew substantially, while consumption growth rate decreased slightly.

Growth of Production (average annual growth rates (%) by sector)

<u>Sector</u>	<u>1960-70</u>	<u>1970-77</u>
GDP	5.4	4.6
Agriculture	1.9	0.6
Industry	5.5	5.1
Services	6.2	5.4

Source: World Bank, Peru: Long-Term Development Issues, 1979.

	Gross Domestic Product (GDP) Per Capita			
	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
Population (mid-year 000)	16,357.5	16,819.2	17,293	
GDP (millions of S/.)	1,132,678	1,744,907	3,032,300	4,556,097
GDP in soles per capita	69,245	103,745	175,348	
GDP in 1973 soles	449,823	446,834	459,345	476,341
Annual change in real GDP (%)	0	-0.7	2.8	3.7
Principal exchange rate (S/. per \$)	84.3	156.7	224.2	
GDP in US dollars per capita	821	662	782.22	
GDP in US dollars (billion)	13.4	11.1	13.5	

	Balance of Payments US \$ Millions		
	<u>1977</u>	<u>1978</u>	<u>1979</u>
Exports (FOB)	1,726.5	1,940.7	3,474.0
Imports (FOB)	2,164.0	1,600.5	2,090.5
Trade balance	-438.4	+340.2	+1,383.5
Net outflow on interest and profits	-426.4	-577.7	- 944.6
Net on other services and grants	- 61.4	+ 45.7	+ 178.9
Balance on current account	- 926.2	- 191.8	+ 617.8

6.4 Imports

The agricultural sector imports most of its inputs and investment goods. Moreover, the economy has become increasingly dependent on imported foodstuffs. The manufacturing sector remains heavily dependent on imported goods, and since it has been almost totally oriented towards the domestic market, it generates little foreign exchange. The economy's dependence on imported energy has also been increasing in the last decade.

Imports FCB by Principal Categories 1976-78
(Millions of US Dollars)

	<u>1976</u>	<u>1977</u>	<u>1978</u>
Consumer goods	176.4	172.6	103.6
Raw materials	1,031.9	1,049.7	734.3
Capital goods	675.2	468.6	458.0
Miscellaneous	4.3	8.7	5.6
Total customs	1,887.0	1,699.6	1,301.5
Adjustments and Non-Monetary Gold	212.2	464.4	299.0
Total Imports	2,100.0	2,164.0	1,600.5

Source: Direccion General de Aduanas, Banco Central de Reserva del Peru.

6.4 Exports

Export earnings in 1979 amounted to \$3,467 million--a 79% increase from the 1978 level of \$1,941 million. The increase in earnings derives from substantially higher export prices for petroleum, silver, and copper, generally bouyant market conditions for other traditional mineral and agricultural exports, as well as a \$342 million increase in non-traditional (generally industrial sector) exports.

Exports FOB by Principal Commodities 1975-78
(Thousands of US Dollars)

	<u>1976</u>	<u>1977</u>	<u>1978</u>
Agricultural products	281,789	336,638	281,175
Cotton	70,905	48,048	38,062
Sugar	91,178	74,210	51,656
Coffee	101,000	196,300	168,241
Wool	18,706	18,080	23,216
Marine products	200,679	215,155	237,500
Fishmeal	177,500	179,000	191,800
Fishoil	303	870	1,113
Other marine products	22,876	35,285	44,587
Mineral products	690,700	900,662	912,071
Copper	226,969	392,346	438,590
Iron	63,500	90,538	73,822
Silver	145,138	172,535	206,930
Lead	63,593	81,743	89,682
Zinc	191,500	163,500	133,047
Petroleum	53,344	52,224	179,815
Petroleum & related products	53,344	52,224	179,815
Other products	132,968	220,921	330,091
Total Exports	1,359,480	1,725,600	1,940,652

Source: Direccion General de Aduanas, Banco Central de Reserva del Peru.

7. Agriculture

7.1 Overview of Agriculture

Sugar and cotton are the leading crops; fish meal heads exports. (Peru has the world's largest fishing industry). Forest resources in the eastern part of the country are virtually untapped.

In recent years, aggregate output growth of the agricultural sector has been low, per capita agricultural incomes have stagnated, and the country's dependence on imported foodstuffs has increased. Yet agriculture still provides a substantial share of Peru's export earnings and employs over 40% of the labor force. The government has focused efforts on agrarian reform (expropriation and redistribution of land) and increased production. However, Peru has a poor and regionally unbalanced natural resource base on which to build a dynamic agricultural sector. Two constraints are: scarcity of farmland and variation in quality of land and climate (broken topography, erratic climate, long fallow periods because of declining fertility, and high altitude).

7.2 Crop Production

Crop Production 1972-74 (thousand tons)

	<u>1972</u>	<u>1973</u>	<u>1974</u>
Sugarcane	8758	8750	9220
Cotton	87	82	88
Potatoes	1968	2047	1940
Corn	616	589	-
Rice	591	477	-
Barley	159	160	-
Wheat	130	-	-
Coffee	71	72	54
Tobacco	2	5	-
Cacao	2	-	-

	<u>1972</u>	<u>1973</u>	<u>1974</u>
	(thousand head)		
Livestock			
Cows	4127	4310	*3784
Pigs	1904	2071	*1688
Sheep	*17064	16918	*12514
Goats	1860	1946	-
Horses*	1460	1427	-

* Includes mules and donkeys

(thousand tons)

Fish catch	12612.9	10606.1	4768.3
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Source: World Bank, Peru: Long-Term Development Issues, 1979.

7.3 Major Crops

Sugarcane - irrigated coastal plantations; white sugar export crop; chancaca, homemade brown sugar produced.

Cotton - tangus, concentrated in Piura, Lima and Ica departments.

Potatoes - several varieties, most important item in national diet; low yields in Sierra, high in Costa. Other root crops: sweet potatoes, oca olluco, grown mostly at high altitudes.

Corn - more land cultivated than any other crop. Produced for human consumption in Sierra; for animal feed in Costa.

Rice - irrigated valleys of north coast, some in Selva; high per acre yield.

Barley - grown in Sierra for human consumption, some for animal feed.

Wheat - basic food stuff; most imported since Peruvian climate is not suitable for large production.

Coffee - valleys of Sierra, high Selva; exported; rapidly developing.

Quinoa and canihua - indigenous grains grown in high altitude of Puno department.

Legumes - chickpeas, lentils, and beans grown in coastal valleys.

Fruits - great variety (apples, grapes, pears, peaches, bananas, pineapples, melons, papayas, avocados, mangoes, olives and citrus fruits) throughout the country; consumed locally; commercial orchard near Lima.

Other - coca, cacao, tea, tobacco, jute and peanuts; truck produce - carrots, onions, tomatoes, squash - available in Lima.

7.4 Crop Dates

<u>Crop</u>	<u>Planted</u>	<u>Harvested</u>
Barley*		
Mountain areas	November-March	May-September
Corn:		
Coastal areas	January-June	June-November
Mountain areas	September-December	April-July
Amazon basin	April-September	July-December
Rice:		
Coastal areas (except Piura)	September-March	May-September
Piura	April-June	July-October
Amazon basin	October-April	February-August
Wheat:		
Coastal areas	April-July	Sept-December
Mountain areas	November-March	May-September
Sugarcane:		
Coastal areas	November-June	January-December
Mountain areas	January-December	January-December
Amazon basin	January-December	January-December
Tobacco (transplanting)	April-June	October-November

<u>Crop</u>	<u>Planted</u>	<u>Harvested</u>
Beans:		
Coastal areas	March-July	July-November
Mountain areas	September-December	April-July
Amazon basin	April-September	August-December
Broadbeans	---	August-December
Chili Peppers:		
Seeding	May-June	---
Transplanting	August	April
Cucumbers	---	August-March
Potatoes:		
Coastal areas	April-July	August-November
Mountain areas	September-January	February-June
Amazon basin	March-April	August-September
Fibers:		
Cotton:		
Piura	January-April	July-October
Viru	May	January
Santa	May-June-July	February
Nepena	June-July	February-March
Casma	April-June	January-February
Barranca	July	May
Huacho	July	April-May
Chancay	July-August	April-June
Carabayllo	August-September	April-July
Lurin	August-September	April-July
Canete	July	April-May
Chincha	April-October	March-July
Pisco	July-August	April-June
Ica	April-August	March-July
Amazon basin	November-December	June-July
Coffee:		
Chanchamayo.....	---	March-June
Cajamarca-Amazonas.....	---	June-September
Cuzco.....	---	April-September
San Martin.....	---	March-June
Udima.....	---	July-October
Huanuco.....	---	March-June

* Can be seeded any month of the year for forage use

7.5 Agricultural Imports

Estimate of Agricultural Imports, 1973-75
(in millions of dollars)

<u>Value Current Prices</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>
<u>Total</u>	238.0	357.0	395.0
Wheat	96.0	136.0	145.0
Corn	20.9	41.4	48.0
Rice	-	-	31.0
Dairy products	28.2	37.0	40.0
Meats	15.4	16.6	16.5
Vegetable oil	27.0	40.0	44.3
Sorghum	2.4	8.0	4.5
Soybeans	5.4	3.8	8.5
Other	42.7	74.2	57.2

Source: World Bank, Peru: Long-Term Development Issues, 1979.

See Economic Imports, section 6.3.

7.6 Agricultural Exports

Agricultural Exports, 1973-75
(in thousands of US \$)

	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>
<u>Cotton</u>				
Value	63,306	96,467	53,000	78,500
Volume (thousand of q.)	1,019	1,034	737	820
Price (US\$/q.)	62.13	93.30	71.90	95.0
<u>Sugar</u>				
Value	78,078	197,290	264,944	106,500
Volume (MT)	407,011	462,171	390,000	374,000
Price (US\$/q.)	8.82	19.63	31.25	13.1
<u>Coffee</u>				
Value	63,568	34,848	47,000	111,000
Volume (MT)	58,397	27,026	40,000	43,000
Price (US\$/q.)	50.07	59.31	54.05	118.0

	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>
<u>Wool</u>				
Value	11,797	7,136	8,841	18,700
Volume (MT)	4,057	2,061	2,756	7,500
Price (US\$/MT)	2,908	3,462	3,208	2,486
<u>Other Agriculture</u> (value)	30,999	21,981	20,050	20,000
<u>Total Agriculture</u> (value)	<u>247,748</u>	<u>357,722</u>	<u>393,835</u>	<u>334,700</u>

See Economic Exports, section 6.4
 NB - See Imports for Footnotes

7.7 Current Crop Status (1979)

Dry weather during January-March delayed the planting of the 1979 rice crop. The crop, due for harvest in the second half of the year, is expected to be lower than the previous season because of the smaller area planted.

Peru



502483 1-76 (541314)
 Lambert Conformal Projection
 Standard parallels 3°00' and 15°20'
 Scale 1:10,000,000
 U.S. Geological Survey
 Washington, D.C.

Railroad
 Road
 Airport

8. Physical Geography

8.1 Land Forms

1960 legislation divided Peru into three regions distinctly different in topography and climate.

1) The Costa, arid to semi-arid littoral and foothills of the Andes below 6,545 ft., 10 to 100 miles wide, is divided into two regions: low Costa, a littoral below the altitude of 850 ft., almost eliminated by a coastal range with heights up to 3,500 ft., then broadens in the north where sand dunes make up the Sechura Desert in Lima and Ica departments; high Costa consists of dry Andean foothills carved by erosion. 40% of the people live on 11% of the land.

2) The Sierra (26% of Peru's land area) Andean chains and high plateau between the Selva and the Costa; ranges from 60 miles wide in the north to 200 miles wide at the southern border. These mountains are the principal barrier to communication and transportation links between coast and interior. This region is also the most populous (50%, mostly Indian); contains major deposits of mineral wealth.

3) The Selva, tropical rainforest and mountain slopes east of the Andes below 6,545 ft., has two zones: low Selva, Amazon lowlands characterized by gently undulating plains at heights between 2000 and 3000 ft., predominantly rainforest with patches of open land where movement is restricted to extensive river network; high Selva, alternating hills and valleys varying from 50 to 100 miles in width, soil and rainfall conducive to agriculture. Because of rain and extensive river erosion few slopes are manageable. Mahogany and cedar are grown commercially in the Selva; oil exploration is increasing.

See also Mountains, section 8.6.

Altitudes/Coordinates

	<u>Altitude(ft)</u>	<u>Coordinates</u>
Costa		
Lima	394	12°05" S 77° 03" W
Mollenda	80	17°00" S 72° 07" W
Sierra		
Arequipa	8,460	16°21" S 71° 34" W
Cajamarca	8,660	07°09" S 78° 30" W
Cuzco	10,866	13°33" S 71° 59" W
Selva		
Iquitos	384	03°45" S 73° 13" W

8.2 Climate

Peru is divided by the Andes mountains into three regions with extreme contrasts in climatic features. The climate in the Costa is dominated by the effect of the cold von Humboldt ocean current. From above this current cold moisture-laden air is blown into the Costa by winds from the southwest. When the lateral movement of the winds is inhibited by the Andes, they form a static cloud layer that covers most of the Costa from April to December causing low temperatures with high humidity, but no rain. During the rest of the year, with the southern movement of the sun, the cloud layer disappears, bringing sunshine and a lowering of the high pressure.

The Sierra climate varies widely with arid western slopes having rain up to 200 mm. in the December-April period, little cloud coverage and temperatures varying from 13 to 20°C, depending on altitude. In the Central Sierra, rain is concentrated in the December-April period when it ranges from 600 to 1,000 mm. (although with wide annual variations). Temperature fluctuates between 5 and 20°C. The Altiplano in the south is cold and humid owing to both the presence of Lake Titicaca and the altitude. Precipitation of 600 to 1,000 mm. falls from December to May, some in the form of snow and hail.

East of the Sierra are vast tropical lowlands, the Selva. The Selva is subdivided into the Ceja de Selva (or Piedmont) and the Low Selva (below 600 to 700 m.). The former has continuous rainfall of 1,000 to 3,000 mm. with average daily temperatures of 18 to 21°C. The Low Selva is a very hot and humid plain (30 to 33°C and around 2,000 mm of rain well distributed over the year) of dense vegetation consisting predominantly of rain forest.

8.3 Precipitation (inches)

Region City	<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>
Costa												
Lima	0.1	*	*	*	0.2	0.2	0.3	0.3	0.3	0.1	0.1	*
Mollendo	*	0.1	*	*	0.1	0.1	*	0.2	0.2	0.1	0.1	*
Sierra												
Arequipa	1.3	1.8	0.7	0.2	*	*	*	*	0.0	*	*	0.4
Cajamarca	3.6	4.2	4.6	3.4	1.7	9.3	9.2	9.2	2.3	2.3	1.9	3.2
Cuzco	6.4	5.9	4.3	2.0	0.6	0.2	0.2	0.4	2.6	2.6	3.0	5.4
Selva												
Iquitos	9.1	10.4	9.4	13.6	10.7	5.7	6.4	5.2	10.5	7.3	9.1	10.3

8.4 Temperatures (Fahrenheit)

Region City	<u>Range</u>	<u>Jan</u>	<u>Apr</u>	<u>Jul</u>	<u>Oct</u>
Costa					
Lima	Max	88	80	67	71
	Min	66	63	57	58
Mollendo	Max	79	76	67	70
	Min	66	65	57	59

<u>Region</u> <u>City</u>	<u>Range</u>	<u>Jan</u>	<u>Apr</u>	<u>Jul</u>	<u>Oct</u>
Sierra					
Arequipa	Max	67	67	67	68
	Min	49	48	47	47
Cajamarca	Max	71	70	70	71
	Min	48	47	41	47
Cuzco	Max	68	71	70	72
	Min	45	40	31	43
Selva					
Iquitos	Max	90	87	88	90
	Min	71	71	68	70

8.5 Land Use

Use of Farmland by Natural Region, 1972
(in thousands of hectares)

	<u>Country</u>	<u>Costa</u>	<u>Sierra</u>	<u>Selva</u>
Crop land 1/	3,691	806	2,280	605
Natural grassland	15,129	496	14,301	332
Forest and woodland	3,069	366	1,411	1,292
Other	1,656	179	1,372	105
Total	23,545	1,847	19,364	2,234

1/ Includes land under short and long-term fallow ("barbacho" and "tierra de descanso").

Use of Crop Land, 1972
(in thousands of hectares)

Crop land	3,691
Arable crop land	3,143
Annual crops	1,979
Fallow	1,164

Permanent crop land	548
Perennial crops	293
Cultivated pasture	241
Forest plantations	14

Source: World Bank, Peru: Long-Term Development and Issues, 1979.

8.6 Mountains

1) Cordillera Occidental, the height of land between the Atlantic and Pacific, closely parallels the coast to Lima, where it turns inland, eventually forming the rim of the Lake Titicaca Basin. Except in the broad northern Piura Peninsula, spurs of it extend almost into the sea. In its highest section, Cordillera Blanca, Mount Huascarán, (22,205 ft.), is the tallest of its many snowcapped peaks.

2) Cordillera Central, a discontinuous series of high ranges, parallels Cordillera Oriental from the Ecuadorian border to Nudo de Pasca where it veers inland, broadens, rises to culminate in the snowcapped Cordillera Vilcabamba, Cordillera Vilcanota and Cordillera Carabaya. Ultimately, it forms the eastern rim of the Lake Titicaca Basin, the northeastern rim of which joins the Cordillera Central to the Cordillera Oriental.

3) Cordillera Oriental, a discontinuous series of marginal ranges fringing the Amazon, extend into Bolivia, there called the Yungas. Rivers, rising in the high Sierras, have formed deep canyons, crossing these lower mountains; Pongo de Manseriche is the best known.

The three mountain chains are interconnected by large random ridges, 3000 to 6000 ft. above the plateau level. Arable land is most abundant in the high mountain valleys and along low streams. Settlements extend as high as 13,000 ft.

Highest peaks:

Sargantay	22,542'	
Huascarán	22,205'	09°05" S, 77°50" W
Yerupaja	21,765'	
Coropuna	21,696'	
Auzangate	20,944'	
Huandoy	20,852'	
Pasco	15,118'	

8.7 Volcanoes

Mount Misti, dormant, 19,098 ft., is located at the southern end of Cordillera Occidental.

8.8 Seismicity

The Atacama or Peru-Chile trench runs along the entire Peru coast. 1970 earthquake within active seismic-zone arc running from Venezuela to Chile. Epicenter at sea 25 km W of Chimbote on fault surface 140 km long (parallel to coast) and 65 km wide. Caused massive avalanche from Mt. Huascarán; 800 m. wide ice/rock slide that traveled 200 mph. Many smaller rock/soil slides along steep roadcuts, valley walls along Rio Santa and its tributaries, especially in Canon del Pato. Artificial ponds/lakes formed by slides, and high groundwater caused flooding; land abandonment widespread.

8.9 Waterways

Principal bodies of water are the Marañon, Ucayali, and Amazon Rivers and Lake Titicaca.

More than fifty rivers flow from the Andes to the Pacific across the Costa. Except the largest, Rio Santa, which flows from north to south, the seasonal coastal streams flow westward irrigating the agricultural lands of the Costa.

Larger rivers of a more complex system flow eastward into the Amazon Basin. The Marañon River, a major Amazon tributary, originates at Lake Lauricocha in the Sierra and flows almost to Ecuador before turning eastward, passing into the Amazon Basin through Loreto Department where it crests at more than 30 ft. for three months annually. The Huallaga River rises near Cerro de Pasco, parallels the Marañon on its northward course; separated from it by the Cordillera Central. The Apurimac and the Mantaro Rivers also rise near Cerro de Pasco, the Apurimac flowing eastward and the Mantaro flowing south. Rising in the southeast, the Urubamba River, known in its upper courses as Vilcanota, Sacred River of the Incas, combines with the Apurimac and Urubamba River to form the Ucayali which flows northward, crosses the Selva, joins the Marañon south of Iquitos and forms the Amazon proper. The Amazon flows west from Iquitos across the Brazilian border into the Atlantic. Except in the high Selva where rapids interrupt normal flow, these rivers form a complete, navigable transportation network in the isolated Selva.

Lake Titicaca: an inland sea with an area of 3,200 sq. miles (maximum depth: 1,200 ft.) provides a trade route between Peru and Bolivia and supports a sizeable fishing industry.

9. Transportation and Logistics

9.1 Road Network

In 1979, 52,400 km. total; 5,400 km. paved, 9,900 km. gravel, 14,400 km. improved earth, 22,700 km. unimproved earth.

Constructing roads or railroads outside the Costa is a major and often difficult engineering challenge. Roads deteriorate rapidly -- and sometime disappear -- and maintenance is expensive. Today there still is no all-weather road connecting the Costa and the Sierra with the Selva, and roads within the Sierra are scarce and rudimentary.

Pan American Highway - paved, well-maintained, runs 1,710 miles north to south from border to border paralleling the coast. At Nazca it branches into two southern extensions: one going eastward to Cuzco then south through Ayauri, Juliaca, Puno and Desaquadero across the Bolivian border; the other continuing along the coastal route passing Arequipa, Matarani, Mollendo, Tacna and the Chilean town, Arica. Numerous paved, gravel, or dirt feeder roads intersect the Pan Am highway, connecting the agricultural areas and cities of the Costa. Many extend into the Sierra; fewer (about thirty), some considered tracks, extend into the Selva interconnecting three regions.

Central Highway - also called the Transandean Highway, is an important feeder. 523 miles long, it extends eastward from Lima to La Oroya, passing through Cerro de Pasco and Huanuco in the Sierra in its route to Pucallpa in the Amazon Basin.

Longitudinal Road - 713 miles long, runs southward from La Oroya down the Mantaro River Valley to Huancayo, passing through the departmental capitals of Ayacucho, Abancay, Cuzco and Puno, where it joins the inland branch of the Pan American Highway. It connects the principal towns of the central and southern Sierra and adjacent agricultural areas.

9.2 Vehicles

In 1976, there were 278,264 passenger cars and 156,295 commercial vehicles.

Trucks	119,960	136,109
Buses	13,700	16,151
Other Motor Vehicles	60,875	68,887

9.3 Surface Miles

Abancay											
820	Arequipa										
396	1217	Ayacucho									
1766	1868	1417	Cajamarca								
907	1335	511	1164	Cerro de Pasco							
197	623	594	1963	1104	Cuzco						
2132	2235	1783	333	1530	2329	Chachapoyas					
1675	1777	1326	265	1073	1872	457	Chiclayo				
1334	1437	986	431	732	1532	798	340	Chimbote			
665	1055	269	1305	399	862	1672	1214	874	Huancavelica		
655	1330	258	1159	252	852	1525	1068	727	147	Huancayo	
1012	1440	615	1268	105	1209	1634	1177	837	503	356	Huanuco
1317	1420	969	637	715	1514	1003	546	205	857	710	Huaraz
609	711	612	1157	619	806	1523	1066	725	344	490	Ica
778	1207	382	1035	129	976	1401	944	604	270	124	La Oroya
917	1020	569	848	315	1115	1215	757	417	457	310	Lima
844	249	1240	2032	1494	647	2398	1941	1601	1219	1489	Moquegua
1947	2049	1598	536	1344	2144	529	272	612	1486	1340	Piura
1432	1860	1035	1688	525	1629	2055	1597	1257	923	777	Pucallpa
729	1061	1125	2495	1636	532	2861	2404	2063	1394	1384	Pto. Maldonado
584	296	980	2164	1491	387	2531	2073	1733	1249	1239	Puno
962	400	1358	2184	1646	764	2550	2093	1752	1371	1641	Tacna
1465	1568	1117	300	863	1663	667	209	131	1005	858	Trujillo
2223	2326	1874	813	1621	2420	805	548	889	1762	1616	Tumbes
Huanuco											
819	Huaraz										
723	708	Ica									
233	586	490	La Oroya								
420	400	308	187	Lima							
1599	1583	875	1366	1184	Moquegua						
1449	818	1338	1216	1029	2213	Piura					
415	1240	1143	653	840	2019	1869	Pucallpa				
1740	2046	1338	1507	1646	1084	2676	2161	Pto. Maldonado			
1595	1716	1005	1362	1316	260	2345	2016	Puno			
1750	1735	1027	1517	1335	163	2364	2170	1202	378	Tacna	
968	336	856	735	548	1732	481	1388	2194	1864	1883	Trujillo
1725	1094	1614	1492	1306	2489	276	2145	2952	2621	2641	758 Tumbes

9.4 Railroads

Two major systems:

Central Railroad: 306 miles from Callao to Lima to La Oroya to Huancayo; crosses central Andes (highest railroad in the world), connects with Cerro de Pasco railroad and the narrower gauge Huancayo-Huancavelica railroad which runs 98 miles to the mercury mines at Huancavelica.

Southern Railroad: 688 miles Arequipa to Cuzco to Mollendo, Matarani; crosses the southern Andes, serves as a major link with Bolivia.

Rail Carriers:

Empresa Nacional de Ferrocarriles del Peru (ENAFER-Peru):
Ancash 207, APDO 1379, Lima; Peruvian National Railways.
Government operated; 1,628 km, open; operates the following lines:

Central Railway (Ferrocarril Central del Peru): Casilla 391, Lima; 512 km open.

Southern Railway (Ferrocarril del Sud): Casilla 194, Arequipa; 1,073 km open; also operates steamship service on Lake Titicaca.

Tacna-Arica Railroad (Ferrocarril Tacna-Arica):
A. Aldarracin 484, Tacna; 62 km open (1,435 mm gauge).

Empresa Minera de Ferrocarril del Centro del Peru (formerly Cerro de Pasco Railway): Auguste N. Wiese 891, Lima; 212 km open (1,435 mm gauge).

CIA. de Ferrocarril y Muelle de Pimentel: Pimentel, Chiclayo; 43 km open (914 mm gauge).

Empresa de Ferrocarril de Supe-Barranca Apass: Barranca, Supe; 40 km open (600 mm gauge).

9.5 Ports

Callao

Coordinates: Lat. 12° 03' S; long. 77° 09' W.

Approach: Anchorage 4 km. from shore in 12.8 to 18.3 m. Vessels up to 9.75 m. can dock at Callao. Dredging to a uniform 10.97 m. is in progress inside the harbor and outside the channel. The center channel is held at 10.67 m. Depth at entrance 10.67 m H.W., and 8.53 m L.W. Tides: Spring rise, 1.22 m.

Accommodation: Four finger piers each average 182.9 m. long and marginal wharfage provide 22 berths for ocean-going vessels plus two petroleum berths. The total area of the four piers is 42,756 sq. m. A dry dock is close to the port works. There is a petroleum pier and mineral pier, both facilities for handling bulk cargoes.
Storage: 12 warehouses for inward cargo. Clean oil storage tanks totalling 4,300 tons with pipeline connection to berth for vessels up to 9.14 m draft.
Provisions: Available.
Water: Available.

Tanker terminal: Two oil berths. Night berthing possible. Water and bunkers available.

Bunkers: Fuel oil and diesel medium grades from petroleum pier by Petroperu.

Shiprepairs: Available.

Towage: Three tugs available.

Pilotage: Compulsory.

Airport: International Jorge Chavez, 8 km.

Working hours: 07.00 to 16.00 hours; 17.00 to 24.00 hours

Cargo worked: Grain elevator of over 23,000 tons capacity with two independent towers which can unload wheat at 300 tons/hr.

Chancay

- Coordinates: Lat. 11° 35' S.; long. 77° 17' W.
- Approach: Weather: Continuous heavy swell July to October.
- Accommodation: Anchorage 0.8 km. from shore in 22 m. Vessels loaded/discharged by lighters. One cargo mole 210 m. long, with 6 m. alongside. Lighters: 13, total capacity 500 tons. Four haulage tractors and eleven trucks.
- Towage: Three tugs (lighters only).
- Pilotage: Compulsory.
- Airport: International Lima/Callao, 64 km.
- Cargo worked: Maximum daily load/discharge 1,000 tons with one ship in port, 500 tons for two.

Chimbote

- Coordinates: Lat. 9° 05' S.; long. 78° 37' W.
- Accommodation: Anchorage 2.4 km. offshore in 12.8 m. One concrete mole 185 m. long with 9 m. alongside. Vessels usually enter Boca Grande and operate alongside. Seven lighters for shipping fishoil. One 265 m. concrete mole owned by steel mill, 9.75 m. maximum alongside, with travelling crane over loader. When not in use, operated for general cargo load/discharge. Capacity 250 tons per hatch daily. One fork lift truck, 160 wagons and three locomotives. Eight cranes from 4 to 40 tons.
- Towage: Two tugs.
- Airport: Local, 1.6 km.

Conchan

- Coordinates: Lat. 12° 10' S.; long. 76° 56' W.

Accommodation: There are five buoys for mooring in 15.24 m. water depth. Maximum length is 228.59 m. with a maximum size of 40,000 d.w.t. There are two submarine lines 16' x 10' (discharge and load) 670.53 m. offshore. Capacity of the tanks on shore is 350,000 barrels. Landing is by launch via Chorillos, a southern suburb of Lima, approx. a 90-minute trip.

Pilotage: Vessels take on pilot at Callao before proceeding to Conchan. On sailing, it is not necessary to return to Callao. The pilot will either remain on board during the stay in port or return to take the vessel out as required.

Eten

Coordinates: Lat. 6° 57' S.; long. 79° 52' W.

Accommodation: Open anchorage about three-quarters of a mile offshore, in 11 m. One mole, 850 m. long with 7.31 m. alongside. Vessels loaded and discharged by lighters. Thirteen lighters, total capacity 600 tons, but only 350 tons unloaded per day with one vessel in port, and 200 tons if more. Rail links from mole to town.

Pilotage: Compulsory.

Airport: Local, 1.6 km.

General San Martin

Coordinates: Lat. 13° S.; long. 76° 17' W.

Approach: Situated on west side of Paracas Bay, 40 km. south of Pisco, the port which it has replaced.

Accommodation: One berth for four vessels of up to 11 m. draft. Vessels required to wait in anchorage for reception.

Storage: Three warehouses (transit and storage sheds); area for open storage and a dangerous goods store.

Towage: One 800 h.p. tug for berthing; one 174 h.p. tug for handling lines.

Pilotage: Compulsory.
Airport: At Pisco, 35 km.
Local holiday: May 1.

Huacho

Coordinates: Lat. 11° 7' S.; long. 77° 37' W.
Accommodation: Anchorage 1.6 km. offshore in 18.3 m. One mole 220 m. long, with 3.35 m. alongside. Vessels discharge into lighters. 12 lighters (50 tons capacity each) and four small motor tugs. Maximum general cargo handling rate 400/500 tons daily with one ship in port and 230/350 tons if more.
Provisions: Available.
Water: Available.

Towage: Four tugs available.
Pilotage: Compulsory.
Airport: International Lima/Callao, 118 km.

Huarmey

Coordinates: Lat. 10° 49' S.; long. 77° 44' W.
Approach: Weather: heavy swells affect the port from June-August.
Accommodation: Vessels anchor in the open road in 12.8 to 14.6 m. up to 300 yards southeast of Harbor Is. (Is. Corcovado) in the middle of the bay. A fixed red light, 10.97 m. high, is on the head of the small pier used for loading lighters of which there are only 4, capacity 240 tons. On the pier there is one fixed donkey with a 2-ton capacity.
Provisions: Limited.
Water: Not available.
Towage: One tug available.
Pilotage: None.

Ilo

Coordinates: Lat. 17° 38' S.; long. 71° 21' W.

Accommodation: Anchorage 1.6 km. from shore with 92 m. Government-owned concrete pier with two main berths for ships up to 20,000 tons, maximum draft 9.75 m.; 15-ton crane. Handles blister copper and fishmeal exports, with bulk loading facilities. Eight haulage tractors, seven fork lift trucks, one crane of 6 tons, 29 trucks.
Private Wharf: 150 m. pier, owned by Southern Peru Copper Corp. with 10.06 m. and 16.76 m. at sides; three cranes.

Towage: Two tugs.

Pilotage: Compulsory.

Airport: Local, 4.8 km; Arequipa, 400 km.

La Pampilla

Coordinates: Lat. 11° 55' S.; long. 77° 08' W. 12.8 km north of Callao.

Accommodation: Buoy system 4,500 m. offshore in a depth of 18.29 m. with a 24" discharge line, able to handle vessels up to 250,000 d.w.t. with an overall length of 335.27 m. For loading there is a buoy system with a 16" line, 3,500 m. long in a depth of 12.19 m. Vessel's maximum length is 213.35 m., or draft of 10.97 m.

Pilotage: Vessels take on pilot at Callao before proceeding to Pampilla.

Matarani

Coordinates: Lat. 17° 00' S.; long. 72° 07' W. Port for Arequipa, with which it is connected by rail, and Bolivia, via Lake Titicaca.

Approach: Entrance is close to shore, and vessel must make a double right-angle turn round breakwater to enter.

Accommodation: Anchorage, 1.6 km. in 62 m. Three vessels up to 170.7 m. long can be accommodated alongside wharf, which is of steel and concrete, 539.4 m. long; maximum draft of vessels alongside is 9.14 m. 23 hauling tractors, 19 fork lift trucks, 500 trucks and two payloaders. All shipping business from Mollendo has been transferred to this port. Storage: Excellent warehouse facilities, both for general cargo and for wheat in bulk, which is discharged by suction at 200 tons/hr.

Cargo terminal facilities: A conveyor belt has been installed for loading bulk concentrates, capacity up to 1,000 tons/hr.

Bunkers: Not available.

Towage: Two tugs available.

Pilotage: Pilot boards vessel outside breakwater.

Airport: Nearest is at Mollendo, 16 km. (for emergencies only).

Local holiday: (Anniversary of Mollendo) January 6.

Working hours: 07.30 to 11.30; 12.30 to 16.30; 2nd shift, 18.30 to 24.00; 01.00 to 06.00.

Pacasmayo

Coordinates: Lat. 7° 24' S.; long. 79° 35' W.

Accommodation: Anchorage 1.6 km. offshore in 11 m. Depth at entrance, from 7.31 m. Depth alongside cargo role (iron) 533 m. long, 3 m. Vessels loaded and discharged by ten lighters with 54.8 tons total capacity; loading 20 to 25 tons, discharging 10 to 15 tons/hr. Two locomotives, 10 wagons of 10 tons.

Towage: Two tugs.

Pilotage: Compulsory.

Airport: Local, 1.6 km.

Paita

- Coordinates: Lat. 5° 5' S.; long. 81° 7' W.
- Approach: Weather: winds N. in summer, but no great intensity.
- Accommodation: Anchorage in 11 m. protected by breakwater. One 365 m. pier taking two vessels each side simultaneously; 8.53 to 9.14 m. L.T. alongside. 17 haulage tractors, 8 fork lift trucks, 41 trucks.
- Towage: Two tugs (one pusher-type).
- Pilotage: Compulsory.
- Airport: National airport at Piura, 56 km.

Pimentel

- Coordinates: Lat. 6° 50' S.; long. 79° 56' W.
- Accommodation: Depth at entrance, 11 to 13 m.; at quays, 5.5 m. One cargo mole (iron), 752 m. long. Average depth alongside, 3.66 m. 13 lighters available, total capacity 1,700 tons. Vessels loaded and discharged by lighters. Maximum discharge per day 300 tons or, if more than one vessel is in port, 150 to 200 tons per day. Two 0.15 m. pipes 1,770 m. long for oil discharge. Railway to Chiclayo and sugar estates of Pomalca, Saltur, and Pucala.
- Towage: Six tugs.
- Airport: Chiclayo, 16 km.
- Local holiday: May 1.

Puerto Chicama

- Coordinates: Lat. 7° 42' S.; long. 79° 27' W.
- Approach: Weather: weather conditions generally good, but surf days frequent from July to September.

Accommodation: Anchorage 1.6 km. from shore in 11 m. One pier 825 m. long average depth alongside 7 m. Vessels loaded and discharged by lighters. Port has 20 lighters total capacity 800 tons; maximum daily discharge, 500 tons general cargo (250 tons if more than one vessel in port). Four small steam winches. Provisions: Available from Trujillo.

Towage: Four tugs.

Airport: Huanchaco, 40 km.

Local holiday: May 1.

Cargo worked: Maximum loading rate for sugar, 750 tons per day if only one vessel in port.

Puerto de Supe

Coordinates: Lat. 10° 48' S.; long. 77° 46' W.

Accommodation: Anchorage, 0.8 km. offshore in 11.9 m. One cargo mole, 324 m. long. Average depth alongside 7 m. 13 lighters, total capacity 1,000 tons. Vessels loaded and discharged by lighters. Maximum daily discharge rate, 1,100 tons (400 tons only if more than one vessel in port). 38 platforms, five tons each. Six tractors, three fork lifts, 4 tons capacity each from mole on to platform. 29 trucks. Cranes: Four cranes, capacity 13 tons each

Towage: Four tugs.

Pilotage: Compulsory.

Airport: International Lima/Callao; 142 km.

Salaverry

Coordinates: Lat. 8° 13' S.; long. 78° 59' W. Port of entry for Trujillo. Largest port in northern Peru

Accommodation: Anchorage within protection of a breakwater in 9.75 m. of water. Draft of vessels limited to 8.53 m. at L.T. and up to 8.53 m. according to tide and state of sea. One pier 225 m. long by 25 m. wide to take two ocean-going vessels of about 15,000 tons. Depth alongside 9.14 m. A 12 in. pipeline along the breakwater and under Pier 1 allows tankers to load molasses and alcohol. 13 haulage tractors, 26 fork lift trucks, 76 trucks, 20 wagons and one 70-ton locomotive. Submarine pipeline handles inward oil products. Another pier 225 m. long, 30 m. wide, equipped for bulk sugar, loads 300 to 350 tons/hr.

Storage: Two warehouses

Provisions: Available.

Water: Available.

Towage: One tug available.

Airport: N.I.A.: International Lima-Callao, 416 km; daily flights to local airport at Huanchaco, 24 km from Salaverry.

Pilotage: Compulsory.

Cargo worked: Loading general cargo 10 tons/hr. per gang, minerals 30 to 35 tons/hr.

San Juan

Coordinates: Lat. 15° 21' S.; long. 75° 09' W.

Approach: Tides: 0.61 to 1.37 m.

Accommodation: One pier 220 m. long and with depths alongside ranging from 7.6 m. at the foot of wharf to 15.9 m. at the head. Two large vessels can be accommodated. When anchoring, leave about 3/4 mile to enable ships leaving pier to maneuver. Terminal cargo ships dock on south side of one pier, port side to pier, using own mooring lines; depth of water 13.10 m. at foot of pier and 15.85 m. at pier head. Ore carriers up to 103,000 tons call regularly.

Provisions and water: Not available

- Handling facilities: One travelling ore loader on ore pier served by conveyor belt 1.066 m. wide and 633.9 m. long leading to ore dump. Capacity 2,000 tons/hr; there is a possibility this may be increased to 3,000 tons/hr.
- Towage: One tug and three lighters.
- Pilotage: Compulsory.
- San Nicolas
- Coordinates: Lat. 15° 14' S.; long. 75° 15' W.
- Approach: The San Nicolas Bay is a clear open approach. There is a wreck in position, Lat. 15° 13' 23' S.; long. 75° 15' W.
Weather: Winds sometimes very strong
Tides: Between 1 and 1.5 m.
Largest Vessel: Maximum length o.a. 320 m. maximum draft 18 m.
- Accommodation: Private wharves: Only one belonging to Hierro Peru; Peruvian Enterprises.
Storage: Space available for iron ore in bulk.
Provisions: Available.
Water: Available only in an emergency.
- Bunkers: Only available in extreme emergencies under government authorization.
- Pilotage: Available on "OAS" 500 Kc/s, 4345 Khz
- Traffic: About 120 vessels, and about 9 million tons of iron ore handled a year.
- Medical facilities: Hospital available.
- Airport: Private airport at San Juan Port.
- Working hours: 08.00 to 12.00 and 13.00 to 17.00 hours Monday/Friday.
Saturday, 08.00 to 12.00 hours
- Cargo worked: Iron ore in bulk, 400 ton/hr; iron ore in slurry form, 2,000 tons/hr.

Supe

Coordinates: Lat. 10° 49' S.; long. 77° 44' W. An unprotected lighterage port.

Accommodation: The anchorage is in approx 8 m. from 275 to 460 m. from the head of the bay. Larger vessels can find 11 to 13 m. further out, but are much exposed to swells there. On the end of the short pier is a fixed red light. From June-August the port is subject to heavy swells. No water available.

Pilotage: Not available.

Talara

Coordinates: Lat. 4° 35' S.; long. 81° 17' W.

Approach: Ships should approach to 3.2 km. off Talara Point and anchor (11 m.) to await pilot. Holding ground is good. Vessels approaching from the southward should keep at least 4.8 km. off Parinas Point then steer to pass about 2.4 km. west of Sea Line Buoy then haul in toward Talara Point. Good anchorage with Talara Lighthouse bearing 100° distant one mile, in 11 m. 1.1 to 1.3 km. N.N.E. of this anchorage is position usually selected to anchor loaded tankers awaiting dispatch. Weather: winds S.E. in morning, S.W. in afternoon, strong.
Largest vessel: 17,500 tons d.w.

Accommodation: Pier No. 1, 234.7 m. by 15.24 m. at north end and 7.62 m. at shore end takes ships drawing up to 5.49 m. and medium sized tankers are loaded here. There are two piers for loading and unloading and one submarine line. Mole with 10.67 m. least depth alongside used for bunkering large vessels and for unloading inflammable bulk cargoes. Pier No. 2 is 76.19 m. long and is exclusively for loading petroleum bulk products; vessels up to 11.58 m. draft can be accommodated at this pier. Five lighters. Care must be taken to avoid the offshore drilling rigs in the Talara area.
Storage: Refrigerated space only for use of Petro-Peru
Provisions and water: Available.

Tanker terminals: Three oil berths. Night berthing at two berths only. Water and bunkers available.

Bunkers: Fuel oil and diesel medium grades available. A submarine pipeline 335.2 m. long attends to large tankers in 11.58 m.

Towage: Petro-Peru have five launches and one motor tug.

Pilotage: Compulsory.

Airport: Local, 4.8 km.

Tambo de Mora

Coordinates: Lat. 13° 30' S.; long. 76° 20' W. Used only by fishing boats.

Accommodation: Anchorage one mile offshore in 9.1 m. One cargo mole, 371 m. long (wood and iron) equipped with two steam winches, cap. 6 tons. Seven lighters, total cap. 250 tons. Two small motor tugs. Maximum daily discharge rate: 300 tons. Vessels loaded and discharged by lighters. Provisions and water: Not available.

Airport: International Lima/Callao, 128 km.

9.6 Amazon Ports

5400 navigable miles in the Amazon River transport system. Servicing and port facilities undeveloped.

Loreto Department

Borja
Located on the Marañon River.

Iquitos
Principal Amazon port which can handle ocean-going vessels; airport facilities.

Puerto Maldonado

Lesser port, located on the Madre de Dios River east Cuzco near the Bolivian border.

Pucallpa

Located on the Ucayali River can accommodate ocean-going vessels at high tide; eastern terminus of the central highway; airport facilities.

Yurimaguas

located on the Huallaga River; airport facilities nearby.

Lake Titicaca

130 mile bank; ferry service between Puno, Peru and Desaguadero, Bolivia. Airport facilities at Puno.

9.7 Shipping Lines**Empresa Nacional de Puertos (ENAPU-Peru):**

Terminal Maritimo del Callao, Edificio Administrativo, 3 Piso, Lima; Government agency administering all coastal, river and lake ports.

Asociacion Maritima del Peru:

Lima; association of international shipping companies using Peruvian ports.

Comision Nacional de Marina Mercante:

Ministerio de Marina, Avda Salaverry S/N, Jesus Maria, Lima; F. 1962; promotes the development of the Merchant Navy.

Compania Peruana de Vapores, SA:

Gamarra 676, Chucuito, Casilla 208, Callao; Government-owned; 161,256 d.w.t.; operates five regular services to US Gulf, US Atlantic and US Pacific ports, Japan and Europe.

Among the European lines serving Peru are the Pacific Steam Navigation Company, the Norwegian Knutsen Line, the Swedish Johnson Line the Italian Societa per Azioni di Navigazione "Italia", the French Compagnie Generale Transatlantique, the Royal Netherlands Steamship Company, the German Hamburg Amerika, Norddeutscher Lloyd and Westfal Larsen lines. Several United

States lines operate between the US and Peru, the most prominent being Grace line and Moore McCormack Line. The Kawasaki Kiser Kaisha Line operates services to Australia and the Bank Line serves India. The Booth Line serves the Peruvian reaches of the Amazon, the Compania Sudamericana de Vapores and the Flota Gran Colombiana serve Peruvian ports but carry no passengers.

Most trade is through the port of Callao. Peru's merchant fleet totalled 27,386,607 GRT in 1970.

9.8 Airports

Relative isolation of the three regions necessitates comprehensive air service. Small airports can be found in many cities throughout the country.

Amazonas	Cajamarca	Lima	Pasco
Chachapoyas	Cajamarca	Lima-Callao	Oxapampa
Ciro Alegria		Las Palmas Air Base	Ricran
Galilea	Cuzco		
Rodriguez	Cuzco	Loreto	Piura
de Mendoz	Patria	Andoas	Piura
		Anatico	San Pedrillo
Ancash	Huanuco	Atalava	Talara
Anta	Huanuco	Caballochoca	
Casma	Tingo Maria	Hermosa	Puno
Chimbote	Tournavista	Intuto	Juliapa
		Iquitos	Puno
Apurimac	Ica	Madre de Dios	
Andahuaylas	Humay	Pampa	San Martin
Huanacopampa	Ica	Pucallpa	Huallaga
	Nazca	Shepahua	Juanjui
Arequipa	Pisco		Moyobamba
Acarí		Madre de Dios	Rioja
Arequipa	Junin	Alerta	Uchiza
Huambo	Jauja	Iberia	
Mollendo		Laganto	Tarapot
Orcopampa	Mazamari	Manu	Tocache Nuevo
Vitor		Puerto Maldonado	
	La Libertad		Tacna
Ayacucho	Pacasmayo	Moquequa	Tacna
Ayacucho	Trujillo	Ilo	
San Francisco		Moquequa	Tumbes
			Tumbes

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.

AREQUIPA/Rodriguez Ballon Int'l.

<u>Location</u> <u>Coordinates</u>	<u>Eleva-</u> <u>tion M/</u>		<u>Runway Characteristics</u>				<u>Aircraft</u> <u>Strength</u> <u>(1,000 kg)</u>	<u>Fuel/</u> <u>Octane</u>
	<u>Temp C</u>	<u>NR/Type</u>	<u>Slope</u> <u>%</u>	<u>Aircraft/</u> <u>Length M</u>	<u>CL</u>			
16°20'14" S 71°34'09" W	2563 22.7	09/27	0.85	2980	A	AUW 73/2	100/A-1 Turbo	

Remarks: Alternate aerodromes - Leticia/Alfredo Vasquez Cobo
Aids: MD, MC, MT, MTX, MO, H82, L4, 9. No Telex. No instrument approaches.

CHICLAYO/Cap. Fap Jose Abelardo Quinonez Gonzales

<u>Location</u> <u>Coordinates</u>	<u>Eleva-</u> <u>tion M/</u>		<u>Runway Characteristics</u>				<u>Aircraft</u> <u>Strength</u> <u>(1,000 kg)</u>	<u>Fuel/</u> <u>Octane</u>
	<u>Temp C</u>	<u>NR/Type</u>	<u>Slope</u> <u>%</u>	<u>Aircraft/</u> <u>Length M</u>	<u>CL</u>			
06°47'S 79°50'W	28 26.3	18/36	n.a.	2520	A	AUW68	None	

Remarks: No alternate aerodrome listed.
Aids: LSA, LR, LTX, LB, LO, MD, MC, MT, MTX, MO.

IQUITOS/Coronel Fap Francisco Secada Vignetta

<u>Location</u> <u>Coordinates</u>	<u>Eleva-</u> <u>tion M/</u>		<u>Runway Characteristics</u>				<u>Aircraft</u> <u>Strength</u> <u>(1,000 kg)</u>	<u>Fuel/</u> <u>Octane</u>
	<u>Temp C</u>	<u>NR/Type</u>	<u>Slope</u> <u>%</u>	<u>Aircraft/</u> <u>Length M</u>	<u>CL</u>			
03°47'08"S 073°18'37"W	124 29	06/24 Instr	n.a.	2500		AUW 136	100/A-1 Turbo	

Remarks: Alternate aerodromes - Iquitos old aerodrome.
Aids: MD, MC, MT, MTX, MO, H82, L4, 9. No Telex.

LIMA-CALLAO/Jorge Chavez Int'l.

<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>		
12°01'06"S 77°06'44"W	32 26.5	15/33	n.a.	3507	A	AUW 160/4 251/5 323/8	100/A-1 Turbo

Remarks: Alternate aerodromes - Chiclayo/Cap. Fap Jose Abelardo Quinonez Gonzales, Guayaquil/Simon Bolivia, Panama/Tocumen, Pisco/Pisco, Talara/Capitan Montes

Aids: RILS(15-1), LPA(15-1), LR, LC, LTD(15), LTX, LB, LO, MD, MC, MT, MTD, MTX, MO.

PISCO/Pisco

<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>		
13°41'S 76°14'W	12 24.1	03/21	n.a.	3020	A	AUW 23	None

Remarks: No alternate aerodrome listed.

Aids: LSA(21), LVA, LR, LTX, LB, LO, MD, MC, MT, MTX, MO.

TACNA/Tacna

<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>		
18°04'S 70°16'W	502 24.2	02/20	n.a.	2500	n.a.	AUW 12/1 73/2	None

Remarks: Alternate aerodrome - Moqueque.

Aids: LR, MD, H82, L4. No Telex.

TALARA/Capitan Montes

<u>Location</u> <u>Coordinates</u>	<u>Eleva-</u> <u>tion M/</u> <u>Temp C</u>	<u>Runway Characteristics</u>				<u>CL</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>				
04°34'25"S	86	16/3	n.a.	2450	A	AUW 12/1	100/A-1	
81°15'08"W	27.2					126/4	Turbo	

Remarks: No alternate aerodromes listed.

Aids: LVA, LR, LTX, LB, LO, MD, MC, MT, MTX, MO, H80, L4, 5. No Telex.

KeyAbbreviations

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)

9.9 Personal Entry Requirements

Passport required. Transients stopping over for 24 to 48 hours require no visa. In applying for a business visa, the applicant must have a letter from the firm he represents, stating occupation, purpose of trip, length of stay and financial responsibility. Tourists must declare upon entering the country \$8.00/day for period of anticipated stay.

9.10 Aircraft Entry Requirements

All private and non-scheduled commercial aircraft overflying or landing for commercial or non-commercial purposes must obtain prior permission from the Direccion General de Transporte Aero Aeropuerto Lima/Callao Internacional Jorge Chavez, Aparto 680, Lima, Peru (telegraph address: DIGTA Lima-Callao/Telex: None) at least 24 hours prior to departure. All requests must include provision for pre-paid reply, and a response must be received with the exception that private aircraft capable of carrying no more than 6 persons are exempt from the requirements

of obtaining a reply in response to their request. All requests must include: Name of the person making the request, names and nationality of the crew, aircraft type, nationality and registration marks, number of passengers, point of origin and point of destination of the flight, points at which commercial, technical or optional (alternate airports) landing may be made in Peru, reason for flight, date of entry and departure from Peru.

Private and tourist aircraft of foreign registry must obtain after proper justification, permits to operate temporarily within Peru for the purposes of tourism, or for the study of economic-commercial possibilities in the regions visited. The request must contain the following information: Names, nationality and temporary residence in Peru for the person making the request, names of owner, operator, pilot and passengers of the aircraft, lengths of stay in Peru, communications and camera equipment, including details on their characteristics, with which the aircraft is equipped, purpose of the flights. The Direccion General de Transporte Aero will grant this type flight permit and inform the applicants. The flight permit may be revoked at any time without recourse. Prior to departure from Peru all pilots are required to obtain a departure permit from the Direccion General de Transporte Aero.

9.11 Airlines

Aeroperu:

Plaza San Martin 910, Lima; the national airline; operates internal services and international routes from Lima to Santiago, Buenos Aires, Guayaquil and Miami; Rio de Janeiro, Sao Paulo, La Paz, Quito, Bogota, Manaus, Caracas, Cayenne, Panama, Mexico, Paris. Plans to expand service to Los Angeles and New York.

Aeronaves del Peru:

Aeropuerto Internacional Jorge Chavez, Oficina 11; scheduled cargo services between Lima and Miami via Iquitos and Pucallpa.

Compania de Aviacion Faucett:

Edificio Hotel Bolivar, Jiron Union 926, APDO 1429, Lima; scheduled internal passengers services and cargo services to Miami.

Following international airlines also serve Peru: Aerolineas Argentinas, Air France, Air Panama, Alitalia, Avianca (Colombia), British Airways, Braniff, Canadian Pacific, Ecuatoriana, Iberia, KLM, LAB (Bolivia), LAN (Chile), Lufthansa, Pan American, Varig (Brazil), Viasa (Venezuela), Aeroflot, Cubana, British Caledonian Airways, Japan Air Lines, Lineas Aereas Paraguayas, Swissair.

9.12 Air Distances

	<u>Statute Miles</u>
Lima to :	
Antofagasta (Chile)	900
Bogota	1,172
Buenos Aires	1,958
Caracas	1,710
La Paz	672
Guatemala City	2,052
Houston	3,144
Miami	2,619
Panama City	1,465
Quito	825
San Francisco (USA)	4,508
San Juan (Isla Grande)	2,234
Santiago	1,538
Rio de Janeiro	2,245
Washington, D.C.	3,520
Cuzco (Peru)	418

10. Power and Communications

10.1 Electric Power

Most villages in outlying areas have no electricity and in many towns voltage fluctuates. The largest power plants are:

Empresas Electricas Asociadas (Lima Light and Power Company) 1971 capacity 600,000 Kwh, from its plants and with its affiliates provided a third of the country's power.

Santa Corporation - located in Canon del Pato on the Santa River. Government owned, second largest, provided power for Chimbote steel plant and for the cities of Chimbote, Trujillo, Huaras, Carhuaz, Carez and Pacasmayo.

Mantaro Electric Power Company - a Government-owned hydroelectric project on the Mantaro River, completed in 1973 with a projected harness of 1.7 million Kwh.

Installed Generating Capacity and Electric Energy Generation and Consumption by Power Sector Regions, 1973 1/

	Public Service	Captive Plants	Total MW	%	Hydro	Thermal
Installed Capacity/MW						
Northern Region	254.6	196.0	450.6	20.9	110.9	339.7
Central Region	917.7	467.7	1385.4	64.3	1057.9	327.5
Subtotal	1172.3	663.7	1836.0	85.2	1168.8	667.2
Eastern Region	135.6	162.1	297.7	13.8	109.5	188.2
Southern Region	12.2	8.0	20.2	1.0	-	20.2
Total - MW	1320.1	833.8	2153.9	100	1278.3	875.6
	%					
	61.3	38.7	100		59.3	40.7

	<u>Public Lighting</u>	<u>Residen- tial</u>	<u>Commer- cial</u>	<u>Indus- trial</u>	<u>Agricul- tural</u>
Emergency Energy					
Consumption 2/ - GWh					
Northern Region	26.8	116.6	24.0	603.8	49.3
Central Region	151.5	832.8	457.2	1302.3	13
Subtotal	178.3	949.4	481.2	1996.1	62.3
Eastern Region	2.3	14.5	6.5	32.8	-
Southern Region	24.4	102.8	17.0	250.3	4.4
Total - GWh	205.0	1066.7	504.7	2279.2	66.7
%	3.5	17.8	8.4	38.0	1.1
	<u>Mining</u>	<u>Fish- eries</u>	<u>Other</u>	<u>Total GWh</u>	<u>%</u>
Emergency Energy					
Consumption 2/ - GWh					
Northern Region	57.5	25.2	3.5	906.7	15.1
Central Region	1414.8	34.8	14	4310.4	71.9
Subtotal	1472.3	60.0	17.5	5217.1	87.0
Eastern Region	-	-	2.4	58.5	1.0
Southern Region	298.1	6.9	16.8	720.7	12.0
Total - GWh	1770.4	66.9	36.7	5996.3	100
	29.5	1.1	.6	100	

1/ For power sector purposes, the country has been divided into regions as follows:

- The Northern Region includes the departments of Amazonas, Ancash, Cajamarca, La Libertad, Lambayeque, Piura and Tumbes.
- The Central Region includes the departments of Ayacucho, Huancavelica, Huanuco, Ica, Junin, Lima and Pasco.
- The Eastern Region includes the departments of Loreto and San Martin.
- The Southern Region includes the departments of Apurimac, Cuzco, Madre de Dios and Puno, Arequipa, Moquegua and Tacna.

2/ Refers to consumption by ultimate consumer, irrespective of whether energy is generated by a public service system or a private service supplier.

Source: World Bank, Peru: Long-term Development Issues, 1979.

Emergency Power:

1970 earthquake did severe damage to transmission lines from Canon del Pato hydroelectric plant in Huallanca to Huaraz. Generators and capacities installed after quake: Trujillo (2 X 800 kW), Casma (2 X 200 kW), Nepena (50 kW), Yautan (50 kW), Huarmey (200 kW), San Marcos (50 kW), Chiquian (50 kW), and Chavin (50 kW). Powerhouses built for all, except at San Marcos and Chiquian.

10.2 Telecommunications

Since 1969 there has been a gradual nationalization of the telecommunications system; Entel-Peru (Empresa Nacional de Telecomunicaciones del Peru) was created and service expanded. 1975: 309,000 telephones (152,000, 1968). International service linking Peru with 14 countries. 90 microwave stations in 1973.

10.3 Radio

Government stations:

Radio Nacional de Peru: Avda Petit Thouars 441, Lima; F. 1937: Stations at Lima, Tumbes, Iquitos, Puno and Tacna; five medium-wave and twelve short-wave transmitters.

There are two other Government stations and 8 cultural stations.

Principal commercial stations: Radio America: Casilla 1192, Lima. Radio el Sol: Avda, Uruguay 355, Lima. Radio Panamericana: Avda, Arequipa 1110, Casilla 4392, Lima.

There are 188 other commercial stations in Peru. In 1974 there were about 2,001,000 radio receivers.

Number of stations: Lima 35 (29AM; 6FM) Piura 10, Trujillo 8, Iquitos 8, Arequipa 7, Chiclayo 7, Ica 7, Huancayo 7, Puno 5, Chimbote 5.

10.4 Emergency Communications

Communications to Canal Zone command post available through MAAG mission radio. Latter has 2 single side band radios. (One with generator at Jorge Chavez Airport, one at MAAG office). Local communications: MAAG has 3 vehicular FM radios, 2 walkie-talkies that mesh with FM's. Embassy also has walkie-talkies (HN-36, RR-36, PE-56); range of 5 miles. In-field communications will be one MRC-107A communications jeep with generator trailer, point-to-point HF/SSB command, local ground-to-air VHF, UHF, and portable NAVAID beacons.

Mission Radio System Frequencies: 13980.0 Khz, 500 kW; 20961.5 Khz, 1,000 kW. Call sign for Peru: OAE-21. Call sign for mission radio in Canal Zone: AHF-4. See US Assessment, section 3.8

10.5 Television

Government Stations:

Ministerio de Educacion Publica: Direccion de Cultura, Avda. Nicolas de Pierola, Lima; daily cultural programs.

Canal 7: 1040, Jose Galvez, Jesus Maria.

Commercial Stations:

Televisora America-Canal 4: Esq de Montero Rosas y Mariano Carranza, Lima; station at Huacho.

Televisora Arequipa-Canal 6: Avda J Galves 1040, Arequipa.

Televisora Panamericana: Canal 5, Avda Arequipa 1110, Lima; stations at Trujillo, Piura, Chiclayo, Chimbote.

The Organizacion Regional de Television del Peru plans to establish commercial stations in 13 towns.

Number of television sets (1976): 500,000.

10.6 Other Communication Systems

Inter-provincial communication links have not existed because of the divisive geographic character of the country. However, educational opportunities, migration of people to urban areas, and desire to attract tourists have emphasized the need for better communications. The Government has created the Ministry of Transport and Communication and transferred companies from private to Government ownership, improving communications in the cities and extending communications in remote areas.

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