



Chile

A Country Profile

June 1978

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

Chile



502463 1:76 (541387)
 Lambert Conformal Projection
 Standard parallels 24°00' and 49°00'
 Scale 1:10,500,000; inset 1:30,000,000
 Boundary representation is not necessarily authoritative

— Railroad
 — Road

OFDA COUNTRY PROFILES: APRIL 1980

AFRICA

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

ASIA

Bangladesh
Burma
India
Indonesia
Malaysia
Nepal
Pakistan
Philippines

CARIBBEAN

CARICOM Regional Profile
Dominican Republic
Haiti

LATIN AMERICA

Bolivia
Chile
Ecuador
El Salvador*
Guatemala
Honduras
Nicaragua
Peru

NEAR EAST

Turkey

SOUTH PACIFIC

Fiji
Tonga
Western Samoa

INDIAN OCEAN

Island Countries of the
Indian Ocean *

* in preparation

CHILE: A COUNTRY PROFILE

prepared for

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

by

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

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

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

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

April 1980

TO:

COUNTRY PROFILE USER Dear _____

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

NAME/OFFICE: _____ PHONE: _____ Date: _____

TOPIC

COMMENTS

TOPIC	COMMENTS

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1.6 US Mission and Staff (February 1981)

Embassy of the United States
 Codina Building
 1343 Agustinas, Santiago
 Tel: 82801-4

Staff:

Ambassador.....George W. Landau
 Deputy Chief of Mission.....Charles W. Grover
 Economic/Commercial Section.....Ludlow Flower, III
 Commercial Section.....David C. Lacey, Jr.
 Political Section.....Michael L. Durkee
 Labor Officer.....Robert L. Craven
 Consul, Consul Section.....Arturo S. Macias
 Administrative Section.....James W. McGunnigle
 Regional Security Officer.....Joseph A. McNulty
 Agricultural Section.....Lawrence R. Fouchs
 Agency for International Development....Dick F. Apodaca
 Public Affairs Officer.....Phillip W. Arnold

1.7 Sister Cities

Antofagasta	Corvallis, OR
Chillan	Sunnyvale, CA
Concepción	West Hartford, CT
La Serena	Millbrae, CA
Pinaflor	Rialto, CA
Pucon	Lake Oswego, OR
Santiago	Minneapolis, MN
Talca	Newington, CT
Valparaiso	Long Beach, CA
Valdivia	Mount Pleasant, MI
Vina del Mar	Sausalito, CA

1.8 Host Country Mission and Staff in US (February 1981).

Embassy of the Republic of Chile
1732 Massachusetts Avenue NW
Washington, D.C. 20036
Tel: 785-1746

Ambassador.....Jose Miguel Barros
Minister Counselor.....Carlos de Costa Nora
Minister Counselor.....Juan Larrain
Counselor.....Lucia Avetikian de Renart
Military Attache.....Maj. Gen. Rigoberto Rubio
Air Attache.....Brig. Gen. Sergio Linares
Naval Attache.....Rear Admiral German Guesalaga

1.9 Treaties and Agreements

Agricultural Commodities
Customs
Defense
Economic and Technical Cooperation
Finance
Investment Guaranties
Maritime Matters
Military Missions
Pacific Settlement of Disputes
Relief Supplies and Packages
 Granting: Duty Free Entry
 Exemption from Internal Taxation
 Free Transportation
Remote Sensing
Telecommunications
Tracking Stations
Trade and Commerce
Visas
Weather Stations

1. General Information1.1 Geographic Codes

AID	513
FIPS	CI
State region	ARA

1.2 Country Names

Official	Republic of Chile
Local	Republica de Chile
Short	Chile

1.3 Calendar and Holidays

New Year's Day.....	January 1
Good Friday.....	*
Labor Day.....	May 1
Navy Day.....	May 21
Assumption Day.....	August 15
Independence Day.....	December 18 & 19
Columbus Day.....	October 12
All Saints Day.....	November 1
Immaculate Conception.....	December 8
Christmas Day.....	December 25

Fiscal year: calendar year

1.4 Currency

40.000 Pesos = US \$1 (March 1980)

1.5 Time Zones

EST + 1; GMT - 4

1.6 US Mission and Staff (October 1979)

Embassy of the United States
 Codina Building
 1343 Agustinas, Santiago
 Tel: 82801-4

Staff:

Ambassador.....George W. Landau
 Deputy Chief of Mission.....Charles W. Grover
 Economic/Commercial Section.....Ludlow Flower, III
 Commercial Section.....David C. Lacey, Jr.
 Political Section.....Robert E. Service
 Labor Officer.....Robert L. Craven
 Consul, Consul Section.....Arturo S. Macias
 Administrative Section.....James W. McGunnigle
 Regional Security Officer.....Joseph A. McNulty
 Agricultural Section.....Max F. Bowser
 Agency for International Development....Dick F. Apodaca
 Public Affairs Officer.....Brian Bell

1.7 Sister Cities

Antofagasta	Corvallis, OR
Chillan	Sunnyvale, CA
Concepcion	West Hartford, CT
La Serena	Millbrae, CA
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Pucon	Lake Oswego, OR
Santiago	Minneapolis, MN
Talca	Newington, CT
Valparaiso	Long Beach, CA
Valdivia	Mount Pleasant, MI
Vina del Mar	Sausalito, CA

1.8 Host Country Mission and Staff in US (August 1979)

Embassy of the Republic of Chile
1732 Massachusetts Avenue NW
Washington, D.C. 20036
Tel: 785-1746

Ambassador.....Jose Miguel Barros
Minister Counselor.....Carlos de Costa Nora
Minister Counselor (Financial
and Economic Affairs).....Sergio Undurraga
Counselor.....Humberto Cresta
Military Attache.....Brig. Gen. Carlos E. Morales
Air Attache.....Brig. Gen. Sergio H. Pineiro
Naval Attache.....Rear Admiral Jorge Hess

1.9 Treaties and Agreements

Agricultural Commodities
Customs
Defense
Economic and Technical Cooperation
Finance
Investment Guaranties
Maritime Matters
Military Missions
Pacific Settlement of Disputes
Relief Supplies and Packages
Granting: Duty Free Entry
Exemption from Internal Taxation
Free Transportation
Remote Sensing
Telecommunications
Tracking Stations
Trade and Commerce
Visas
Weather Stations

1.10 International Organization Memberships

Inter-governmental Council of Copper Exporting Countries (CIPEC)
U. N. Economic and Social Council (ECOSOC)
Food and Agriculture Organization (FAO)
Group of 77 (G-77)
General Agreement on Tariffs and Trade (GATT)
Inter American Defense Board (IADB)
International Bank for Reconstruction and Development (IBRD)
International Civil Aviation Organization (ICAO)
International Development Association (IDA)
International Finance Corporation (IFC)
International Hydrographic Organization (IHO)
International Labor Organization (ILO)
Inter-governmental Maritime Consultative Organization (IMCO)
International Monetary Fund (IMF)
International Telecommunication Union (ITU)
Latin American Free Trade Association (LAFTA)
Organization of American States (OAS)
Latin American Economic System (SELA)
United Nations (UN)
United Nations Educational, Scientific, and Cultural Organization
(UNESCO)
World Health Organization (WHO)
World Meteorological Organization (WMO)

1.11 Visa and Travel Information

Passport required. Visa not required for tourists who stay up to 3 months. Holders of official diplomatic passports must obtain visa. Check Embassy/Consulate for specific requirements. Smallpox vaccination required.

1.12 Ethnic and Sociocultural Groups

Majority of population is mestizo (European-Amerindian descent), with European element dominant in upper social levels. National orientation toward European rather than Indian-mestizo values. Relative geographic isolation precluded waves of mass immigration like those in Brazil and Argentina. However, significant numbers of German, British, Spanish, Italian, Yugoslav, and Lebanese immigrants arrived in late 19th and early 20th centuries. Assimilation into Hispanic mainstream is highly encouraged and population is more

uniform than in any other west coast country, though Germans and British tend to marry within own groups, speak original languages at home, and maintain their own school systems. English population centered in Iquique, Valparaiso, Magellanes; German in Puerto Montt, Valdivia, Osorno, Puerto Varas; Yugoslav in Porvenir, Punta Arenas, Antofagasta.

About 400,000 (1969) Mapuche Indians remain settled on reservations between Bio-Bio and Tolten Rivers; some retain traditional language, customs, and religious beliefs; others have converted to Christianity and follow national patterns of behavior.

Perhaps largest gap occurs between rural and urban social structures. Capital and port cities are centers of ethnic cultures. Greater cultural diversity, more mobility based on education and wealth, and large middle class characteristic of cities. Rural society rigidly hierarchical: small landowner the upper class, poor peasant the working class.

1.13 Languages

Spanish is official language; use essentially universal. English is growing in use as second language for upper class, replacing French; neither is common.

1.14 Religion

Roman Catholicism professed by over 85% of population. No state religion. Religious freedom guaranteed by constitution.

1.15 Education and Literacy

Chile is a leader in efforts to provide universal education, at least through primary grades. Primary school enrollment ratio is 119.0%. (Ratio greater than 100% of relevant age group results from the enrollment of students above the ordinary primary school age and indicates a combination of grade-level repetition and delayed entry). Secondary school ratio is 29.0%. Literacy: 90%.

2. Government

2.1 National Government

Military junta, in power since September 11, 1973 coup, made up of commanding officers of army, air force, navy, and national police. Popular Unity (Leftist) parties dissolved; activities of others suspended; elections suspended and National Congress dissolved. New constitution being drafted. At present, most cabinet members and provincial governors, all presidential appointees, are military officers. State of "national emergency" (suspension of civil liberties and guarantees, military rule) expected to continue for several years.

Executive has always been dominant branch of government. President could call Congress into special session, declare urgency of dispatch for particular bill; had exclusive authority over initiating legislation to alter political or administrative systems, create new services or salaried positions, and increase government employees' salaries. Appointed cabinet members, judges, diplomats, intendants, governors, other civilian military officials. Legislature had final authority over approval of laws, created new programs, abolished old; could reduce or modify budget, censure ministers or intendants, and force their resignation. Functionally independent judiciary.

State plays larger role in Chilean economy than in that of any other Latin American country. Even before Allende's election, public sector accounted for about 40% of domestic product and 60% of all investments, handled 50% of nation's short-term credit, and employed 13% of labor force. Because president could not remove civil servants appointed by previous administrations, change could only be effected by creating new agencies. All-pervading bureaucracy resulted: more than 50 semi-autonomous agencies employ 40% of all public employees, all bent on perpetuation of status quo.

2.2 Regional Organization

Chile is subdivided into 12 regions, each of which consists of one or more provinces; 25 provinces total. Provinces are further divided into 87 departments, these into sub-delegations, and sub-delegations into districts. However, the three last named are designated only as government units.

Communes (comunas) are the administrative subdivisions of provinces. Territory of commune corresponds to that of sub-delegation. Municipalidad (Municipal Council) administers affairs of 1 or more communes.

Provinces are headed by intendants appointed by president; they also act as governors of those departments in which provincial capitals are located. Governors appoint sub-delegates to oversee subdelegations; they in turn appoint inspectors as district heads. In towns with less than 10,000 population, mayors (alcaldes) are elected by municipal councils from their memberships. In larger urban areas, mayors are presidential appointees.

Local legislation promulgated by municipal councils is subject to approval of intendants.

<u>Region</u>	<u>Provinces</u>	<u>Capital</u>
I	Tarapaca	Iquique
II	Antofagasta	Antofagasta
III	Atacama	Copiapo
IV	Coquimbo	La Serena
V	Aconcagua, Valparaiso	
VI	O'Higgins	Rancagua
VII	Curico, Talca, Maule, Linares	Talca
VIII	Nuble, Concepcion, Arauco, Bio-Bio	Concepcion
IX	Cautin, Malleco	Temuco
X	Valdivia, Osorno, Llanquihue, Chiloé	Puerto Montt
XI	Aysen	Coyhaique
XII	Magellanes	Punta Arenas

2.3 Major Government Figures (February 1980)

President.....	Pinochet Ugarte, Augusto, Maj. Gen.
Member, Ruling Junta.....	Matthel Aubel, Fernando, Brig. Gen.
Member, Ruling Junta.....	Mendoza Duran, Cesar, Gen.
Member, Ruling Junta.....	Merino Castro, Jose Toribio, VAdm.
Min. of Agriculture.....	Marquez de la Plata, Irarrazaval, Alfonso
Min. of Economy, Development & Reconstruction.....	Federici Rojas, Jose Luis
Min. of Education.....	Prieto Bafalluy, Alfredo
Min. of Finance.....	de Castro Spikula, Sergio
Min. of Foreign Relations.....	Cubillos Sallato, Hernan
Min. of Housing & Urbanization.....	Estrada Leigh, Jaime, Gen. (Ret.)

Min. of Interior.....	Fernandez Fernandez, Sergio
Min. Of Justice.....	Madariaga Gufierrez, Monica
Min. of Labor.....	Pinera, Jose
Min. of Lands.....	Peri Fagestrom, Rene, Gen.
Min. of Mines.....	Quinones Lopez, Carlos
Min. of Natl. Defense.....	Benavides Escobar, Cesar Raul Manuel, Maj. Gen.
Min. of Public Health.....	Medina Lois, Alejandro, Brig. Gen.
Min. of Public Works.....	Torres, Rojas, Patricio Hernan, Brig. Gen.
Min. of Transportation.....	Boisset Mujica, Caupolican, Gen.
Min. Sec. of Government.....	Badiola Braberg, Sergio, Brig. Gen.

3. Disaster Preparedness

3.1 Host Country Disaster Plan

On March 22, 1974, Decree 369 officially created the National Emergency Preparedness Office of the Ministry of Interior. (Oficina Nacional de Emergencia del Ministerio del Interior - ONEMI). This decree charged ONEMI with planning, coordinating, and executing disaster preparedness and operation activities.

The director of ONEMI created by resolution Regional Emergency Centers (Centros Regionales de Emergencia) in Antofagasta, Valparaiso, Concepcion, and Puerto Montt. Centers promote disaster planning activities in areas under their jurisdiction and maintain disaster stockpiles.

Regional, provincial, and community emergency committees supervised by regional intendants, provincial governors, and mayors respectively were organized to establish emergency operations centers.

In case of disaster ONEMI will: 1) coordinate operations to lessen the effects of an emergency which has occurred or is forecast, and put relevant plans into operation; 2) propose the necessary supreme decree declaring a disaster area or a disaster prevention state (at the request of the regional intendant(s), and, in coordination with the Ministry of National Defense, will also nominate the disaster area chief if the area affected or threatened is larger than a region. The chief will assume command as the representative of the Ministry of the Interior, 3) arrange and coordinate any national and international aid needed in the affected area, based on the requirements of the disaster area chief or the regional intendants.

Seven disaster plans of varying levels are specified in the disaster legislation:

- The National Emergency Preparedness Plan (Plan Nacional de Emergencia)
- The General Emergency Preparedness Plan (Plan General Ejecutivo de Emergencia, PGEE)
- Regional, Provincial, and Community Plans (Planes Regionales, Provinciales y Comunales)

- Forest Fire Prevention and Combat Plan (Plan de Prevencion y Combate de Incendios Forestales)
- * -School Evacuation and Security Plan (Operacion DEYSE - De Evacuacion y Seguridad Escolar)
- Hospital Evacuation and Security Plan (Plan SEH - De seguridad y Evacuacion Hospitalaria)
- Protection of Vital Establishments Plan (Plan y Organizacion de la Proteccion de Establecimientos Vitales)

The PNE & PGEE plans have been completed, (status of other plans being investigated).

3.2 US Plan

The Ambassador, as principal liaison between GOC and USG, determines whether disaster warrants US assistance and if assistance is acceptable to GOC. Decides the extent and time of US participation in relief activities. He assumes responsibility for overall control of US relief in host country. Through USIS he disseminates and coordinates all news releases concerning US effort.

Initiates, with MDRO and MGDRO, request to AID/OFDA for support from USSOUTHCOM through State Department channels with USSOUTHCOM as addressee; thus SOUTHCOM is alerted to situation and can begin operations. MILGP and USSOUTHCOM should receive copies of all incoming and outgoing traffic.

MDRO's duties include: establishing contact with Col. Brucher of ONEMI to ensure timely notification of occurrence or threat of disaster; when existence of disaster is determined, reporting occurrence to Ambassador, offering survey and assessment assistance, dispatching appropriate mission personnel for initial site survey, determining whether situation warrants exercise of Ambassador's disaster relief authority, and activation of CTMDRO; informing Ambassador of findings. Establishing contact with US Volags, international organizations, other donor nations; providing Ambassador with daily updates; reporting to AID/W.

Medical services receive GOC requests for their services through MDRO, evaluate requests against inventory and need as determined by disaster assessment team. Recommend action to MDRO and prepare list for OFDA. When supplies arrive, aid ONEMI personnel in distributing them.

Shelter and survival supplies' duties parallel those of medical services team except that requests for supplies go to USSOUTHCOM as well as OFDA and the coordinating GOC body is civil defense.

Engineering, sanitation, debris clearance follow similar procedures except for coordinating equipment inventory with GOC and assuring appropriate use of equipment.

Communications team establishes command center in 9th floor of Embassy (MILGP Headquarters); maintains direct contact with mission assessment team and, if requested by MDRO, with GOC command center. Monitors and expedites all cable traffic with OFDA, AID/State LA Bureaus, USSOUTHCOM and other countries. Coordinates with NASA (direct line to Washington).

Transportation and logistics, rescue and relief assessments/operations teams follow similar patterns of operation.

Coordination activities team establishes and maintains contact with international organizations (UNDP, UNDR0 etc.), other donors, and US Volags to obtain data, exchange information, and agree on priorities.

Clerical and typing section maintains chronological file on each disaster and provides secretarial assistance for duration of disaster.

Food for Peace ascertains food availability from Junta Nacional de Auxilio Escolar y Becas, World Food Program, and voluntary agencies.

USCINCSO is informed of relief effort status as soon as Ambassador requests assistance within his disaster relief authority. COMUSMILGP makes initial report to USSOUTHCOM with copy to AID/OFDA of readily available disaster information, including intended action by Ambassador, initial damage estimates, location of disaster area, extent of damage, lines of communication, comprising air, road, rail systems in disaster area; condition of such systems, availability of local surface transportation; cargo handling personnel and equipment. Personnel and logistics support requirements: need for USSOUTHCOM Disaster Area Survey Team (DAST), availability of billets and mess facilities for military personnel, type and quality of supplies, services and equipment needed, amount of AID funds requested, extent of any relief action taken by COMUSMILGP prior to Ambassador's formal request.

Military provides complementary role to missions in government sphere, providing main and alternate emergency operations center if needed and coordinating with FACH counterparts.

A list of MILGP personnel with special skills currently in-country is attached to mission disaster plan. Details include names, addresses, telephone numbers or alternate means of communication, skills, rank/title, and some additional comments.

CTMDRO Center

MILGP offices on 9th floor of Embassy. 5 offices, each with telephones (1 direct, 2 extensions), and small conference room.

Ambassador's conference room on 8th floor is used for briefings of CTMDRO and representatives of GOC and donor organizations.

3.3 Host Contacts

ONEMI List

<u>Name</u>	<u>Position</u>	<u>Telephone</u>
Sergio Fernandez Fernandez	Min. of Interior	31478
Col. Waldo Brucher	Dir. of ONEMI	83165-0, 48166-H
Cdte. Jorge Larranaga	Natl Forest Fire Command	83165
Col. Carlos Reyes	Deputy Dir., ONEMI	83165
Sr. Alfredo Saleh	Chief, Civil Protection Coordination	83165-0 42876-H
Sr. E. Guerra	Dir. of Distribution	83165
Sr. E. Feliu	Dir. of Administration	83165
Sr. J. Barckhahn	Dir. of Funding	81785
Sr. Cdte. Jose Calandroni	Dir. of Transportation	81785
Sr. A. Maturana	Dir. of Legal Department	81785

(O) Office (H) Home

3.4 US Contacts

<u>Name/Office</u>	<u>Function</u>	<u>Telephone</u>
Ambassador George W. Landau	Chief of Mission	82801X240 48008-09 (H)
Charles D. Matthias	Mission Disaster Relief Officer, clerical & typing monitoring overall activities, administration, and reporting	82-64-1 258776
John F. Murtha	Alternate MDRO	82-64-1 287524 (H)

<u>Name/Office</u>	<u>Function</u>	<u>Telephone</u>
Brian Bell, USIS	Information (press releases, photos, news media servicing)	82-80-1 285826 (H)
Josian Brownell, CONS	Consular affairs	82-80-1 48255 (H)
Gerald Foucher, Peace Corps	Coordination activities	25-36-39 281454 (H)
Maj. Charles Geiseweite, IAGS	Engineering, sanitation, electrical problems, debris clearance, bldg. inspection & condemnation. road & bridge inspection & clearance	68-9-79 282852 (H)
Edward T. Greaves, CARE	Food & water preparation, treatment & distribution	49-39-61 258167 (H)
Lt. Col. James Mays, MILGP	Communications, rescue & relief assessments, security	82-80-1 41165 (H)
Richard Waetjen, NASA	Communications, coordina- tion	81-70-2/1 484051 (H)
James L. Roush	AID	82641X280
Capt. James Switzer	DAO	82801X292
George Framgullie	DEA	82801X213
Col. Richard A. Mayfield	MILGP	82801X271

3.5 Host Funding

No information available at present, except "extremely limited budget." (Assessment in mission plan.)

3.6 US Funding

Ambassador's DRA. Additional USG aid (also commodities etc. from Food for Peace; ongoing aid later).

3.7 Host Assessment

No information on ONEMI assessment staff. Mission indicates that GOC response to Chilean disasters (minor) and those in other Latin American countries has been timely and generally well executed.

3.8 Disaster Area Survey Team

CTMDR officer in charge: Lt. Col. James Mays, MILGP

Composition of USSOUTHCOM Disaster Area Survey Team (DAST) varies with type of disaster and the area involved. Minimally, team will have capabilities listed below.

<u>Position/Skill</u>	<u>Source</u>
*Officer-in-Charge (OIC)	193D INF BDE (CZ)
*Civil Engineer (OIC)	193D INF BDE (CZ)
*Public Health Officer	193D INF BDE (CZ)
*Communications Officer	193D INF BDE (CZ)
Preventive Medicine Officer	193D INF BDE (CZ)
Sanitary Engineer	193D INF BDE (CZ)
Medical Specialty Team (medical doctors, veterinarian and medical technicians as designated by CDR, 193D INF BDE)	193D INF BDE (CZ)
Medical Supply Officer/NCO	193D INF BDE (CZ)
Radio Operators and Repairmen	193D INF BDE (CZ)
Logistics/Supply NCO	193D INF BDE (CZ)
Operations/Administrative Officer	193D INF BDE (CZ)
Operations/Administrative NCO	193D INF BDE (CZ)

Civil Affairs Officers	193D INF BDE (CZ)
Food Svc Supervisors & Assistants	193D INF BDE (CZ)
USAFSO Air Operations Officer	USAFSQ
*Air Field Survey Team	USAFSQ
Combat Control Team	USAFSQ
Army Aviation Operations Officer	193D INF BDE (CZ)
Shallow Water Boat Team	193D INF BDE (CZ)
Flight Surgeon	USAFSQ

DAST will be self-sufficient for seven days except for gasoline.

*Upon receipt of notification of a request for assistance, those personnel indicated by an asterisk above shall be designated the advance element to assist the in-country US military command in conducting a survey of the disaster area and formulating the Ambassador's/ Chief of Mission's request for military assistance.

3.9 Host Resources

The following supplies are available in ONEMI's Santiago warehouse:

- 5000 folding cots
- 500 mattresses
- 839 portable kerosene one-burner stoves
- 3500 blankets (another 8000 blankets are located in warehouses in Valparaiso and Puerto Montt.)

3.10 Medical Supplies

US:

Mission plan includes lists of prescription and other medicines, and supplies stocked by Mission, Peace Corps, USAID (Canal Zone).

Host:

Contacts:	Dr. Manuel Borgo	Office	81-84-2
(for doctors,	Dr. Gerardo Gomez	Hospital	95-8-15
medicines, vaccines,		Home	28-67-21
field hospitals)		Office	49-97-89*

*(every day, 3-5)

Other:

WHO - Dr. Carlos Sotello

3.11 Food Stocks

AID/SOUTHCOM disaster relief stockpile composition, with appropriate quantities, is attached to mission plan.

CARE, Catholic Relief Services, and SAWS are the Volags concerned with food distribution within Chile. CARE works with JUNAEB and has Title II commodities located in regional and local warehouses and in approximately 3000 schools throughout the country. Title II commodities consist of wheat flour, oil, wheat soy blend, oats, cookies, and spaghetti. Stocks of these commodities vary according to the arrival of shipments from the United States and the rate of consumption at the schools. Minimum stock balances average 500 tons, and the maximum can exceed 3000 tons.

3.12 Transport

See also Road Network, section 9.1.

Attachments to mission plan include lists of USG vehicles in Chile which are available for use in disaster situation.

USAF operational navigation charts (courtesy IAGS) showing exact latitudinal and longitudinal locations of ports and airfields are located in the office of the MDRO.

Vehicles, Trucks, Heavy Equipment:

(Information requested from ONEMI, unavailable)

Aircraft:

1 DC-3; 1 DC-6; 1 Hercules 130

These planes are instantly available from the Chilean Air Force (FACH). Other aircraft will be released as needed and as available when disaster strikes.

Coastal and River Patrol Boats:

Chile has no Coast Guard but patrol boats from the Chilean Navy have always been made available when needed. Listing of resources not available.

3.13 Communications

* ONEMI telecommunications system (10/11/75)

Central Headquarters connected by:

1. Radio VHF/FM to 4 mobile units; range of 50 Km.
2. Telex to intendants except for Arauco and Coyhayque (Region XI).
3. Telephone direct lines to ENTEL subscriber and emergency networks, Seismology Department of University of Chile, police patrol radios, intendants.
4. Radio HF/SSB to Valparaiso and Concepcion C.R.'s and to 12 mobile units. Also connections with FF.AA, police, investigations, SNS, MOP, SAR, RECNA, SAG and other telecommunications services from 2 to 15 Mhz.
5. 1000 watt stations is Antofagasta, Concepcion, Puerto Montt, and Puerto Arenas.

MILGP: 5 kWm-2 radios with capacity of communicating with Panama.

Locations of these radios:

Los Cerrillos Airfield	-	58-90-17
Home of Major Newcomb	-	27-46-68
Home of Msgt Thomas	-	25-30-99
MILGP Navy Section (VALPO)	-	50650/50667
Home of YNC Shaw (VALPO)	-	83679

IAGS: 12 transceiver radios
5 radios: handie talkies

NASA: 2 Collins kwm, 2 portable HF/SSB with 1 kW linear amp base station.

HF radio communications to Quito, Ecuador, with connections to the Goddard Flight Center via COMSAT.

5 direct telephone lines to Santiago.

5 direct telephone lines to Goddard Space Flight Center, Washington, DC, via ENTEL and COMSAT. Under emergency conditions, these lines could be released for service into the FTS or Washington, DC, telephone system.

3.14 Electricity

NASA can provide three-phase 120/208 volt 60 cycle USA-style power plant for lights and power for portable refrigerators, hospital, headquarters, etc. Also available from NASA:

1 500 kW generator; 4 350 kW generators; 1 100 kW generator - trailer-mounted.

Fuel capacity: approximately 90 days' supply. Distribution: 3 phase 208/5000 volts.

3.15 Storage

MILGP hangar at Los Cerrillos is available. Approximately 45'x70', unheated; no toilet. Small refrigerator and freezer available.

USIS warehouse of approximately 1500 SF located at Arauco 750.

The bi-national center (under the direction of USIS Officer Victor Niemeyer) could make available its parking lot with sheds, hallways, and several classrooms.

Approximately 7000 primary schools around the country can provide temporary shelter and warehouse space. Generally, no refrigeration available at these schools. Government schools have been utilized in the past after the occurrence of earthquakes and floods.

CARE Director Edward T. Greaves or Junta Nacional de Auxilio Escolar y Becas (JUNAEB) Director Jorge Vega should be contacted for use of schools.

NASA has a 50-seat cafeteria at Peldehue. It is equipped with a 21.9 CF freezer and 1 47.9 CF refrigerator. These facilities could be made available for food storage.

Peace Corps training center located at Valenzuela Llano 88-A is a house with 10 rooms, refrigerator, and stove. Facilities for housing and feeding 30 to 50 people.

SAWS has Seventh Day Adventist churches located throughout the country which would be available during emergencies. There are 25 in Santiago, 10 in Temuco, and others in smaller towns and cities.

3.16 Voluntary Agencies

Asociacion Christiana de Jovenes

1360 Compania, Santiago; Tel: 65101
Hernan Emeres, General Secretary
Mila Brooks, US Regional Representative

CARE

42 Orrego Luco, Santiago
Edward Greves, Director

Commodities distributed by CARE through National Council of School Assistance and Scholarships (NSC) and National Council of Nursery Schools (NCNS) are stored in warehouses maintained by these two programs. NSC has 5 large zonal warehouses which receive commodities from port; thence, stocks shipped to system of local warehouses. Distribution controlled throughout by CARE. NCNS has main warehouse in Santiago and nine regional warehouses.

Catholic Relief Services

1822 Erasmo Escala, Of. 314, Santiago
Nunzio Bianco, Director

Largest warehouse, in Santiago, has a capacity for 1,380 metric tons; a second warehouse also in Santiago has a capacity for 700 MT; others are located in Iquique (400MT); Coquimbo (800MT); Chillan (300MT); Concepcion (450MT); Padre las Casas (450MT); Osorno (250MT); Valdivia (250MT); Puerto Montt (700MT); and Punta Arenas (200MT).

Red Cross warehouse at Seminario 973 in Santiago contains supplies for both the International Red Cross and the Chilean Red Cross. Supplies from the International League can be used only with prior authorization from headquarters in Geneva. They include men's, women's, children's and infants' clothing, blankets, women's shoes and nurses' bags. These items constitute the stockpile for the southern cone of South America. Transportation usually donated by a member of IATA.

Chilean Red Cross Disaster Supplies

Approximately 4000 blankets, pots, pans, kitchenware, plates, cups, and saucers, enough for 200-300 people. Also in stock are several hundred family clothing packages.

Seventh Day Adventist World Service

2317 Casilla, Santiago
Richard O'Fall, Director

3.17 International Donors

Organization of American States

Exequias Alliende 2385
Tel: 25-58-13
Director: Enrique Fugon

No supplies; no vehicles available for use.

When a Latin American government declares a national emergency, the OAS Headquarters within the country sends a telex to Washington Headquarters. Individual member countries then send supplies as needed.

Red Cross

Av. Santa Maria 0150
Tel: 77-12-16
Director: Dr. Agustin Inostrosa P.

Natural disasters and catastrophes form only a small part of the work of the Chilean Red Cross. Approximately 120,000 members divided into 128 local chapters.

UNICEF Regional Headquarters

Isidora Goyenechea 3322
Tel: 28-95-15
Director: Carlos Martinez Sotomayor

UNICEF is the only international organization committed to reconstruction and rehabilitation programs following a national emergency. It works with other members of the UN family - FAO, WHO, UNESCO and UNDP. However, these groups provide only technical assistance for implementation of UNICEF-planned programs; UNICEF contributes the funding, equipment, and supplies that make the program operable. Rehabilitation programs are generally designed for a period of three years. They are directed to the marginal population group, those with meager financial and economic resources, within the stricken country. Stockpiles are located in Brooklyn, New York, Copenhagen, New Delhi, Asia, and Africa.

World Health Organization

Huerfanos 1273, 11th floor
Tel: 88-76-3
Director: Dr. Carlos Davila

During the past two years, the Pan-American Health Organization (Regional Division of WHO) has held two conferences for discussion on how future disaster assistance can be better coordinated and more effective.

3.18 Disaster Types and History

Earthquakes, flood, drought, volcanic eruption, avalanche, landslide, storm.

Over 100 major earthquakes, some with associated fires and tsunamis, have been recorded since 1857. Though most epicenters have been north of Valparaiso, damage has occurred in south. Valparaiso, Concepcion, and the area between Concepcion and Valdivia have sustained major damage since 1900.

Drought struck provinces of Atacama, Coquimbo, and Aconcagua 1967-1972, extending into the central valley in 1967-1969. 10 provinces were declared a disaster by GOC.

Serious storm-engendered flooding affected 13 southern and central provinces in June 1974.

Villarica volcano in Osorno province erupted in 1969 and again in 1972. The Hudson volcano south of Puerto Aisen erupted in 1971.

Summary Disaster History

<u>Disaster</u>	<u>Location</u>	<u>Date</u>	<u>Number Killed</u>	<u>Number Victims</u>	<u>\$DMG</u>
Civil Strife	Nationwide	9/11/73	0	3,300,000	0
Drought	Nationwide,				
	C. Valley	68	0	120,000	55,000
	Central Chile	72	0	31,800	55,000
Earthquake	Valparaiso	8/16/06	1,500		100,000
	Chile	22	1,000		
	Concepcion	1/24/39	30,000		920,000
		9/00/42	5		28,000
		4/00/43	12		100,000
		8/00/46			
		4/00/49	35		39,000
		12/00/49	6		5,000
		5/00/53	12		500,000
		12/00/53	3		7,310
		9/00/58			10,100
	Arauco Penin.	5/21/60	6,000	2,000,000	550,000
	Chile	60	570		
		3/00/63	280		235,000
	C. Valley,				
	4 provinces	3/28/65	400	20,000	125,000
	Taltal&Catalina	12/28/66	4	3,004	400
	C, Valparaiso	7/08/71	85	2,348,522	236,000
Flood	Antofagasta				
	to Aisen	7/00/65	600	350,000	10,000
	Three Major				
	Cities	6/20/71	0	90,000	2,500
	Central &				
	South	7/00/74	32	40,000	10,000

<u>Disaster</u>	<u>Location</u>	<u>Date</u>	<u>Number Killed</u>	<u>Number Victims</u>	<u>\$DMG</u>
Storm	N. Coast	7/23/68			
	Santiago Area	7/20/77	15	16,800	6,800
	S. Regions: VIII, IX, X	7/28/77	0	0	0
Volcanic Eruption	Villarica	3/00/64	30,000		

Please Note: This insert comes from OFDA's Foreign Disaster History File. It should be considered a rough, "working copy," in that the file is constantly being updated. Main focus, at the moment, is to document all AID disaster relief assistance. Any additional information, "missing" data, or corrections are welcome.

4. Population4.1 National Demographic Characteristics

Mid-1978 population estimated at 10.7 million with a 1.7% rate of growth from 1970-1978 (adjusted World Bank data). Growth rate historically below average for both Latin America and for countries with comparable per capita incomes.

Population (Estimates at June 30th)

<u>Area*</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>
756,626 sq. km.**	10,454,387	10,655,757	10,857,128

* Excluding Chilean Antarctic Territory

** 292,132 sq. miles.

Age Distribution of the Population

	<u>1970</u>	<u>1975</u>
Median Age (Years)	20.1	21.3
0-4	12.9	11.8
5-14	25.2	23.7
15-64	57.2	59.5
65 +	4.8	5.1
Total age dependency ratio	75.0	68.2

Source: World Bank, Chile: The Economy in Transition, 1979.

4.2 Regional Distribution

Distribution and rate of growth vary unduly from one region to another. Highest population densities and largest growth rates in the industrial centers and rich agricultural areas of the central zone,

bordered by the Province of Aconcagua in the north and Linares and Maule in the south. By 1970 this zone included almost 60% of the population; Province of Santiago alone accounted for more than 1/3 of the population.

Regional Population

	<u>Area</u> (sq. km.)	<u>Population</u> (6/30/78)	<u>%</u>
I. Tarapaca	58,073	229,824	2.1
II. Antofagasta	125,306	302,294	2.8
III. Atacama	78,268	191,155	1.8
IV. Coquimbo	30,647	401,931	3.7
V. Aconcagua	16,109	1,181,638	10.9
VI. Del Libertador Gen. Bernardo O'Higgins	18,193 30,518	570,052 707,047	5.2 6.5
VII. Del Maule	36,823	1,466,627	13.5
VIII. Bio-Bio	31,760	663,325	6.1
IX. De la Araucania	67,090	862,003	7.9
X. De los Lagos	108,998	61,998	0.6
XI. Aisen del Gen. Carlos Ibanez del Campo	132,033	107,411	9.9
XII. Magallanes y Antartica Metro. Region/Santiago	13,808	4,111,823	37.9

*Before 1975 the country was divided into 25 provinces. With the new administrative system the 12 regions are sub-divided into 40 new provinces.

Source: OAS, America en Cifras, 1979.

4.3 Urban Centers

Population increasingly concentrated in urban areas. According to Chilean census, 75% of population urban by 1970. Urban growth due to internal migration. Provinces of Santiago, Valparaiso, and Concepcion were primary gainers, since they are major industrial-commercial centers. Most migration is between cities rather than directly rural-urban. (Urban defined as administrative center which provides a certain level of public services; does not depend on a specified minimum population or population density.)

Principal Towns
(population at June 30th, 1978)

Santiago (capital)	3,448,700	Temuco	156,000
Vina del Mar	362,100	Talca	129,100
Valparaiso	248,200	Rancagua	122,500
Talcahuano	204,100	Arica	118,500
Concepcion	172,800	Chillan	111,800
Antofagasta	137,000		

Source: OAS, American en Cifras, 1979.

5. Health, Nutrition, and Housing

5.1 Health Sector Overview

Patterns of death and disease approaching those of industrialized countries. Enteric diseases, however, are still a significant problem. Communicable diseases as a whole decreasing in importance due to immunization programs. High incidence of typhoid fever, especially in Santiago and Valparaiso, with apparently high prevalence of carriers. Hepatitis an important problem. Rabies persisting in some foci only; Santiago, south of the country, and at the Chilean-Peruvian border, with no human cases in recent years. Brucellosis prevalent. Hydatidosis widespread and a hazard in humans. Venereal diseases highly prevalent. Tuberculosis still a significant but declining problem.

Death rates and incidence of disease higher south of Maule River, especially for respiratory diseases; similarly, rural and urban slum rates are markedly higher than average urban ones. Inadequate sanitation in former areas is an ongoing problem.

5.2 Vital Statistics (1976)

Birth rate/1000 inhabitants	23.4
Death rate/1000 inhabitants	7.6
Infant Mortality/1000 live births	54.7
Life expectancy at birth (1975-80)	64.4

Source: Inter-American Development Bank: Economic and Social Progress in Latin America, 1979.

5.3 Health Services and Facilities

Country divided into 12 health regions plus the metropolitan area of Santiago. Each region is divided into hospital areas with 1 general hospital, 1 or more specialized hospitals and dispensaries for out-patients. In the rural areas, there are sanitary posts with 1 or more auxiliary workers. Health is the responsibility of various services, among which Ministry of Public Health, armed forces, social security, railways, police, etc. Also a large private sector.

Most health resources concentrated in cities (mainly Santiago, Valparaiso, Concepcion, Temuco, Antofagasta, Arica, Talca). Hospital San Juan de Dios with full range of specialized services in Santiago.

Hospitals

Santiago: San Juan de Dios is largest; has full range of medical services and nursing school.

Consultorio Numero Uno (polyclinic), outpatient facility

University of Chile Medical School Hospital

Catholic University Hospital

Clinica Santa Maria - private

Clinica Alemana

National police have 300 hospital beds, a system of first aid posts, and mobile units in vicinity of Santiago, Valparaiso and Concepcion. The Chilean Red Cross also has clinics.

Valparaiso: Hospital Alemana

5.4 Medical Supplies

List of standard drugs for use in hospitals and dispensaries available from National Health Service (Mac-Iver 541, Santiago). Private import of drugs is authorized. Distribution through large private sector (pharmacies). Directions and labelling should be in Spanish.

Facilities for cold storage in all hospitals and most of the urban dispensaries. Facilities for cold storage in rural areas are poor. Cold chain not operating properly within Ministry of Health but facilities available from other administrative services.

5.5 Health Personnel (1976)

Health manpower includes some 5,000 physicians and half as many graduate nurses. Great shortage of health personnel in rural areas. Population per physician 2,323; population per hospital bed 311.

Source: World Bank: Chile: An Economy in Transition, 1979.

Distribution of Health Personnel, 1971

<u>Health Zone</u>	<u>MD</u>	<u>DDS</u>	<u>Pharm</u>	<u>Nurses</u>	<u>Midw</u>	<u>LT</u>
Total	4,506	1,134	332	1,754	1,164	390
Tarapaca-Antofagasta	204	41	18	117	90	38
Atacama-Coquimbo	134	53	20	48	61	20
Aconcagua	46	19	5	22	21	3
Valparaiso	428	78	34	214	106	21
Santiago	2,617	554	155	718	467	206
O'Higgins-Colchagua	155	48	12	81	60	18
Curico-Talca-Maule-Linares	142	59	15	48	62	18
Nuble	65	26	7	24	24	5
Concepcion-Arauco-Bio-Bio	314	109	43	221	130	6
Malleco-Cautin	157	62	12	84	58	11
Valdivia-Osorno	126	40	5	57	41	25
Magallanes	58	19	3	33	17	8
<u>Health Zone</u>	<u>Dtns</u>	<u>TA</u>	<u>Kines</u>	<u>OP</u>	<u>Aux</u>	<u>SP</u>
Total	446	141	200	585	17,231	13,999
Tarapaca-Antofagasta	46	6	11	40	942	702
Atacama-Coquimbo	22	11	3	55	807	562
Aconcagua	12	2	2	3	347	361
Valparaiso	39	2	11	38	1,546	1,295
Santiago	199	94	137	278	8,050	6,289
O'Higgins-Colchagua	17	8	3	27	659	604
Curico-Talca-Maule-Linares	34	2	3	39	1,031	906
Nuble	12	-	2	21	427	291
Concepcion-Arauco-Bio-Bio	26	11	14	17	1,494	1,349
Malleco-Cautin	18	5	4	24	859	690

<u>Health Zone</u>	<u>Dtns</u>	<u>TA</u>	<u>Kines</u>	<u>OP</u>	<u>Aux</u>	<u>SP</u>
Valdivia-Osorno	12	-	6	15	586	461
Llanquihue-Chiloe-						
Aisen	1	-	1	11	285	280
Magallanes	8	-	3	17	198	209

Key to Abbreviated headings, in order:

MD	Physicians
DDS	Dentists
Pharm	Pharmacologists
Nurses	
Midw	Midwives
LT	Lab technicians
Dtns	Dieticians
TA	Technical auxiliaries
Kines	Kinesiologists
OP	Other professionals
Auxs	Auxiliaries
SP	Service personnel

5.6 Diet Summary

Staple food is mainly wheat eaten as bread or pasta; some maize and rice. Large consumption of potatoes and some of sweet potatoes. For high income groups, regular consumption of meat, especially beef; also poultry, pork, mutton and less often goat. A variety of oil seeds and olive oil; some animal fats and butter. A large variety of green vegetables, also onions, tomatoes, cabbages, carrots, and green beans. Consumption of fruit in summer. Soup or stew is made with a variety of pulses (dried beans, dried peas, chick peas, and lentils).

Unassimilated groups (Mapuche and Atacama Indians) have different diet: more maize and very little fruit and vegetables. Staple food for Andean groups is based on maize, potatoes, and beans with little meat and animal products.

Calorie intake as % of requirements: 117

Per capita protein intake (grams): 78

PEM: pockets of malnutrition among lower income groups on outskirts of towns and among people in remote areas. The most seriously affected group is infants between 6 and 24 months. Some vitamin (A and B complex) deficiencies are reported. A number of foci of goiter.

5.7 Utensils

Food cooked on stove or in fireplace inside house. Fuels: gas, kerosene, wood. Cooking utensils are similar to those used in US: cast iron, enamelware, aluminum, or stainless steel. Cutlery - metal spoons, forks, knives.

5.8 Housing

Chile is presently suffering from a serious and worsening housing shortage. Because of massive rural to urban migration, the housing deficit is most conspicuous in the urban localities. Squatter villages ("callampa") have proliferated on the fringes of the cities. The shanty usually consists of a single room, without sanitary facilities, and constructed of whatever can be obtained through scavenging.

The typical low income rural house has one or two rooms with rough board or wattles. The interstices are filled with clay, the floor may be earthen or brick, and the roofs are thatched. A rough lean-to or veranda serves as a kitchen and dining room. Middle income residential housing is characterized by adobe walls and a slanting roof of oval tiles.

Higher income housing is constructed of masonry or wood, with masonry predominating in Santiago and the central portions of the country, and wood in the south and far north. Although there has been considerable apartment construction in Santiago, the units are only a few stories high.

Access to electricity (1975) - % of population - urban 90, rural 35
Access to piped water (1976) - % of population - urban 98, rural n.a.

6. Economy

6.1 Overview of Economy

Policies implemented since 1973 have realized a steady increase in output and a reduction of Chile's historical dependence on a single primary export commodity (copper). High copper prices and increased funds from foreign lenders induced a temporary economic recovery in 1974. However, an austerity program was introduced in early 1975 as a result of a drastic fall in real copper prices (copper earnings fell almost 50%) and an increase in oil prices. Real GDP fell more than 11%. After the economy bottomed out in early 1976, progress was made to restore and stabilize the economy. Output, employment and wages have increased since 1976; the public sector deficit has been virtually eliminated; net international reserves are at a high level; and inflation has been reduced from 400% in 1973 to 30% in 1978. Copper output has reached record levels.

Industrial sector is essentially geared to import replacement in small market; principal industries are copper, iron and steel, pulp and paper, petrochemicals, fertilizers, and consumer goods. Lack of specialization and government protection of domestic products and encouragement of vertical integration over intra-industry linkages have inhibited specialization and efficiency; lack of effective protection for products based on natural resources has deterred development of such industry. Present government seeks to open up economy and reorient it toward exports of resource-based products, and toward more advanced manufactures directed to Andean common market.

Production increases in mining sector have been negligible in recent years, but improved efficiency and rising output in copper production resulted in 1974 shipments 1 1/3 times those of 1973, though 1975 shipments declined as did prices. Government decisions to acquire needed equipment should add to expected increases in production, at least in the short-term. Iron ore industry is now entering on development programs to increase output; nitrate industry needs rehabilitation. Petroleum production is declining at 10% per year because no significant new wells have been found. Drilling of new wells in Straits of Magellan slated for 1979-80.

6.2 Key Indicators

GNP per capita in 1977: US \$1,170

Income distribution 1968: % of national income, highest quintile 51,
lowest quintile 4

Gross National Product in 1978

	<u>US \$ Mln.</u>	<u>%</u>
GNP at market prices	16,635	100.0
Gross domestic investment	1,768	10.6
Gross national savings	981	5.9
Current account balance	-730	-4.3
Exports of goods, NFS	3,089	18.6
Imports of goods, NFS	3,413	20.5

Source: World Bank, Chile: An Economy in Transition, 1979.

6.3 Balance of Payments

Balance of Payments 1976-78
(millions US \$)

	<u>1976</u>	<u>1977</u>	<u>1978</u>
Exports of goods, NFS	2,392	2,636	3,089
Imports of goods, NFS	1,946	2,723	3,413
Resource gap (deficit = -)	+446	-87	-324
Interest payments (net)	-323	-339	-424
Workers' remittances	-	-	-
Other factor payments (net)	-3	-23	-39
Net transfers	+28	+50	+57
Balance on current account	+148	-399	-730
Direct foreign investment	+7	+30	+187
Net MLT borrowing			
Disbursements	737	888	2,124
Amortization	-685	-852	-910
Subtotal	+52	+36	1,214
Capital grants	-	-	-
Other capital (net)	+84	+254	+6
Other items n.e.i.	+164	+72	-60

	<u>1976</u>	<u>1977</u>	<u>1978</u>
Increases in reserves (+)	+455	-7	+617
Gross reserves (end year)	783	827	1,521
Net reserves (end year)	-96	-103	+515

Source: World Bank, Chile: An Economy in Transition, 1979.

6.4 Trade Partners

Principal Trading Partners (US\$'000)

	<u>Imports</u>		<u>Exports</u>	
	<u>1974</u>	<u>1975</u>	<u>1974</u>	<u>1975</u>
Argentina	323,816	107,890	169,255	166,417
Belgium & Lux.	34,903	20,101	33,219	56,146
Brazil	84,890	82,193	144,046	97,999
Ecuador	78,107	91,303	3,604	19,131
France	54,426	34,630	86,536	70,311
Germany, Fed. Rep.	151,446	127,558	336,688	239,151
Italy	18,145	25,145	161,261	80,147
Japan	48,574	77,991	407,409	186,637
Mexico	29,943	23,150	22,729	10,011
Netherlands	48,394	33,080	94,022	90,741
Peru	25,858	46,296	15,653	24,971
Spain	31,073	30,033	33,678	67,739
Sweden	19,437	13,098	52,194	34,316
Switzerland	10,789	6,105	1,776	1,175
United Kingdom	68,909	48,544	217,225	137,178
USA	415,694	446,611	286,057	146,471

6.5 Imports

The decline of copper revenues in 1975 forced a significant reduction of the import bill from 1974 to 1976. In 1977, increased economic activity, appreciation of the peso, demand for consumer durables, and the reduction of tariffs resulted in a leap in imports, especially consumer goods. The growth in imports continued through 1978, with food imports leading the way.

Imports by Type of Good, 1973-1978
(millions of US \$)

<u>Type of Good</u>	<u>1975</u>	<u>1976 (b)</u> (Current prices)	<u>1977 (b)</u> (Current prices)	<u>1978 (b)</u>
Food (a)	361	342	331	458
Consumer goods (Non-food)	117	101	341	413
Intermediate goods	904	846	1,106	1,331
of which (fuels and lubricants)	(252)	(338)	(407)	(-)
Capital goods	<u>325</u>	<u>367</u>	<u>466</u>	<u>688</u>
Total	1,707	1,656	2,244	2,890

(a) Includes both intermediate and final consumer goods.

(b) Provisional.

Source: World Bank, Chile: An Economy in Transition, 1979.

6.6 Exports

In 1975, copper, which previously had accounted for 70-80% of Chile's export earnings, fell to a record low price. The price then rallied through the first quarter of 1976, before plummeting again. Record output levels increased the value of copper exports; however, depressed world prices left real copper earnings in 1976-78 well below the level of 1971-72.

Non-copper exports grew steadily from 1975-1978, although not enough to offset the copper decline.

Non-Copper Exports, 1975-78
(millions of US \$)

<u>Year</u>	<u>Other Mining</u>	<u>Agriculture(a)</u>	<u>Industrial(b)</u>	<u>Total</u>
1975	185	86	391	662
1976	197	119	520	836
1977	216	160	628	1,003
1978 (c)	221	204	781	1,206

(a) Includes fresh fruit, beans, onions, garlic, and wool.

- (b) Includes fishmeal, frozen shellfish, pinewood, paper, pulp, chemicals, petrochemicals, basic metals.
 (c) Provisional.

Source: World Bank, Chile: An Economy in Transition, 1979.

Cooper Exports, 1975-1978
 (millions of US \$)

<u>Year</u>	<u>Current Prices</u>	<u>Constant 1975 dollars (a)</u>
1975	890	890
1976	1,246	1,175
1977	1,187	971
1978 (b)	1,202	903

- (a) Deflation by IBRD Index of Chilean import prices.
 (b) Provisional.

Source: World Bank, Chile: An Economy in Transition, 1979.

7. Agriculture

7.1 Overview of Agriculture

21% of land area classed as agricultural including natural and improved pastures; of this, 13.7 million acres are capable of crop production, but only 3.2 to 3.7 million acres are cultivated annually; remainder left fallow or used as pasturage. (27% of total area of Chile is natural forest, much of it suitable for commercial exploitation.) Sector employed 18% of labor force, contributed 10% of GDP in 1979.

Crop types and land use vary markedly from one region to another. In desert north, agriculture is possible only in river valleys and along lower slopes of Andes on alluvial fans of mountain streams. Fruits and vegetables are grown in river valleys; at higher elevations, corn, beans, alfalfa raised on small plots; above 8,000', moisture allows grazing of sheep, goats, llamas, alpacas. In Atacama and Coquimbo provinces, winter fog fosters grazing sheep and goats on western slopes of coastal range. Moving southward fruits and vegetables in river valleys, cereals, sheep, and goats become more important. Irrigation agriculture prevails with dry farming in the south.

The central region, comprising Aconcagua through Nuble provinces, has climate, terrain, and potential like those of central valley of California. Contains 42% of arable land. Rice, tobacco, hemp, and sunflower seed are grown only here as are 80% of barley, beans, corn, over 1/3 of wheat and potatoes. 97% of irrigated vineyards, 57% of non-irrigated vineyards located here; also 30% of cattle, including 40% of dairy herds.

South central region including Concepcion through Cautin provinces, has 31% of arable land. With lake region, it is the principal beef producing area. 70% of Chile's oats, 40% of wheat grown here; over 40% of non-irrigated vineyards and major apple orchards are found here. The lake region (Valdivia, Osorono, and Llanquihue provinces) is limited to cold-climate crops but good farming practices result in high per acre yields. Region produces 30% of potatoes, 20% of oats, 15% of wheat, and 50% of lumber. Important dairying center.

Austral region, comprising Chiloe, Aisen, and Magallanes provinces, is noted for sheep raising with an emphasis on high quality wool production. 50% of sheep in country raised here. Also important as beef producer.

A number of factors, among them government's failure to provide adequate agricultural inputs while holding product prices unrealistically low in relation to international market, lack of vocational education among agricultural workers, poor management, and inefficient distribution of

farmland, have led to underutilization of agricultural lands and resources. Since World War II, per capita agricultural indices have declined, though national indices continued to increase during 1950's and 60's. Redistribution of farmland under Allende government, though necessary, increased production deficits by increasing uncertainty in the more efficient private sector and failed to provide adequate technical and managerial assistance to asentamientos (recipients of expropriated land). Present government has moved to stabilize land reform by restoring 20% of expropriated holdings to individual producers while leaving 80% under jurisdiction of Agrarian Reform Corporation (CORA). GOC hopes, through reorganization of Ministry of Agriculture, to increase effectiveness of technical assistance and availability of credits/inputs.

Major short-term goals are substitution for food and feedgrain imports, and increases in meat and milk production. Long-term advantages lie in tree fruits, vegetables, grapes and wine, and live-stock (beef, mutton, milk); substantial domestic and foreign demand is expected for these products. Improved water-use systems, producer inputs, and marketing facilities necessary for optimum levels of production.

Agricultural output declined 9% in 1978, especially in the production of sugarbeets, cereals, rapeseed, milk, and beef (as a result of decreased food imports, primarily wheat, increased 39%). Major increases occurred for fruit, sunflower, pork and poultry production.

7.2 Crop Production

Agricultural Production of Principal Crops

Production ('000 metric tons)	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>
Wheat	1,003	866	1,219	893
Barley	121	89	143	126
Oats	131	96	124	93
Rye	11	9	16	11
Maize	329	248	355	257
Dry beans	74	70	112	112
Lentils	12	14	24	19
Potatoes	738	539	928	981
Rice	76	98	120	105

Production ('000 metric tons)	1975	1976	1977	1978
Sunflower seed	18	27	15	30
Sugar beet	1,617	2,276	2,208	840
Rapeseed	61	105	83	52
Tomatoes*	156	164	172	n.a.
Water melons*	157	159	163	n.a.
Melons*	110	116	123	n.a.
Grapes*	985	998	1,012	n.a.

*FAO estimates

Source: World Bank, Chile: An Economy in Transition, 1979.

7.3 Crop Dates

<u>Crop</u>	<u>Planting</u>	<u>Harvest</u>
Potatoes	Jun - Nov	Feb - May
Dry beans	Oct - Nov	Feb - April
Broadbeans	March - Aug	Sep - Nov
Chickpeas	June - Aug	Dec - March
Lentils	April - Nov	Dec - March
Peas	May - Oct	Dec - April
Apples (Central zone)	---	Dec - March
Grapes	---	Jan - March
Peaches	---	Jan - March
Pears	---	Jan - April
Plums	---	Dec - March
Lemon (main crop)	---	June - Sep

7.4 Agricultural Imports

Food imports rose sharply from \$136 million in 1970 to record \$595 million in 1973; since that year, value fell to \$472 million in 1974 and possibly \$345 million in 1975. Products (1971), included: livestock, meat, dehydrated milk and cream, butter, wheat, wheat flour, plantains and bananas, raw sugar, coffee, and tea. Wheat was by far the largest single item, 367,090 tons valued at \$25,860,000 out of total food imports of \$96,611,000 in 1971.

In 1977, imports held near 1976 level at \$320 million because of lower wheat requirements; reduced to 600,000 tons as US gained largest share of Chilean market (despite 47% decline in shipments from 1976), at 388,000 tons.

See also General Imports, section 6.5.

7.5 Agricultural Exports

Annual average value of agricultural exports (1970-71), \$42 million, dropped to \$28 million in 1972-73, reflecting fall in production. Then rose to \$71 million in 1974, due to higher values for vegetables, fruit, grain, and livestock. Agricultural exports in first five months of 1975 exceeded \$65 million; value grew faster than output, as export incentives increased while domestic demand declined.

In 1977, exports up to \$150 million with deciduous fruits and table grapes up 25% to \$40 million. Sales of pulses and onions (along with fruits, largest share of exports) up 85% and 137% respectively. Major markets: US, Colombia, Venezuela.

See also General Exports, section 6.6.

7.6 Current Status (1979)

Good weather favored sowing of the wheat crop for harvest in January-February 1980. Some reduction in area sown is expected in the coastal regions, whereas no change in the central zone is anticipated. Total 1980 wheat area is preliminarily forecast at 550,000 ha., 2 percent less than 1979.

8. Physical Geography

8.1 Climate

Average temperatures are moderate throughout Chile; lowered in tropical north by cold coastal current and/or high altitude and warmed in far south by waters of Atlantic and Pacific Oceans which surround the land. Range of average maximum temperatures from Arica near Peruvian border to Punta Arenas in far south (about 34 degrees of latitude) is only 13°C. Northern provinces (Antofagasta, Tarapaca, Atacama, Coquimbo, and much of Aconcagua) are desert, most of it high (2-3,000') plateau rimmed by narrow coastal plain and by the Cordillera. Temperatures are lower and rainfall higher on coast than in the interior. Arica's annual average temperature is 66°F, rainfall is 0.03". Central valley has Mediterranean climate, with winter rainfall maximum; hot summers are uncommon and freezing temperatures rare. Rainfall averages 10-20" annually. Temperature averages similar south to Bio-Bio River, but rainfall increases (50" at Concepcion). Between Bio-Bio River and Gulf of Reloncavi, average temperatures drop 3-4°F but rainfall remains near 100"/year; temperatures are somewhat lower and gale force winds blow year-round. In Tierra del Fuego rainfall drops to 20"/year, average annual temperature is 43°F, with little seasonal variation, 3-7°F range; high winds continue common.

8.2 Temperatures (Fahrenheit)

<u>Location</u>	Jan		Apr		Jul		Oct		Extreme	
	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min
Ancud	62	51	57	47	50	42	55	45	82	30
Antofagasta	76	63	70	58	63	51	60	55	86	37
Arica	78	64	74	60	66	54	69	58	93	39
Cabo Raper	58	46	54	44	47	38	51	40	72	28
Los Evangelistas	50	44	48	41	43	36	45	39	66	19
Potreriillos	65	49	63	47	57 _Δ	40	61	44	75	20
Puerto Aysen	63	50	55	43	54	37	55	43	93	18
Punta Arenas	58	45	50	39	40	31	51	38	86	11

<u>Location</u>	<u>Jan</u>		<u>Apr</u>		<u>Jul</u>		<u>Oct</u>		<u>Extreme</u>	
	<u>Max</u>	<u>Min</u>	<u>Max</u>	<u>Min</u>	<u>Max</u>	<u>Min</u>	<u>Max</u>	<u>Min</u>	<u>Max</u>	<u>Min</u>
Santiago	85	53	74	45	59	37	72	45	99	24
Valdivia	73	52	62	46	52	41	63	44	97	19
Valparaiso	72	56	67	52	60	47	65	50	94	32

8.3 Precipitation (inches)

<u>Location</u>	<u>J</u>	<u>F</u>	<u>M</u>	<u>A</u>	<u>M</u>	<u>J</u>	<u>J</u>	<u>A</u>	<u>S</u>	<u>O</u>	<u>N</u>	<u>D</u>
Ancud	3.1	3.7	5.3	7.4	9.9	11.0	10.3	9.4	6.5	4.2	4.7	4.6
Antofa- gasta	0.0	0.0	0.0	-	-	0.1	0.2	0.1	-	0.1	-	0.0
Arica	-	0.0	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	-
Cabo Raper	7.8	5.8	7.1	7.7	7.5	7.9	9.5	7.5	5.6	7.0	6.7	7.0
Los Evan- gelistas	11.7	10.0	11.3	11.4	9.6	9.4	9.4	8.6	9.2	8.8	9.9	10.1
Potreriillos	-	-	0.3	-	0.7	-	0.5	0.3	0.2	0.2	0.0	-
Puerto Aysen	7.8	7.8	8.3	7.5	14.7	10.4	11.1	11.1	6.5	7.8	7.0	7.9
Punta Arenas	1.5	0.9	1.3	1.4	1.3	1.6	1.1	1.2	0.9	1.1	1.7	1.4
Santiago	0.1	0.1	0.2	0.5	2.5	3.3	3.0	2.2	1.2	0.6	0.3	0.2
Valdivia	2.6	2.9	5.2	9.2	14.2	17.7	15.5	12.9	8.2	5.0	4.9	4.1
Valparaiso	0.1	-	0.3	0.6	4.1	5.9	3.9	2.9	1.3	0.4	0.2	0.2

8.



8.4 Landforms

292,258 square miles in area, Chile's coastline extends about 2,650 miles north and south along Pacific; country's average width is 100 miles, greatest width 260 miles. Bordered on north by Peru, northeast by Bolivia, east and southeast by Argentina. Central valley rimmed on east by Andean Cordillera, west by coastal range, which falls precipitously to sea. Both mountain systems become lower in south; below Gulf of Reloncavi, central valley disappears, coast is deeply divided with many islands. High altitude desert in north, caused by cold Humboldt current just offshore, is made up of a series of plateau basins which receive numerous streams draining Andes. The central valley between the Aconcagua (Vale of Chile) and Bio-Bio Rivers is a 40-45 mile wide sloping plain formed of deep alluvium washed down from Cordillera by Mapocho, Maule, and Maipo Rivers. Mineral rich soil excellent for farming. South of Santiago, elevations are lower, but coastline still rugged and steep. South of Bio-Bio, relief is similar for 400 miles south to Gulf of Reloncavi; many volcanoes rise west of main spine of Cordillera. Southern 200 miles of central valley is lake district; 12 major lakes filled glacially dammed approaches to Andes. Higher rainfall results in numerous small rivers subdividing plain and coastal range; coastline more irregular with better harbors. At Puerto Montt, central valley is submerged as Gulf of Reloncavi, peaks of coastal range appear as many offshore islands. Shoreline deeply embayed, land surface broken, rugged, with glaciers below mountain peaks. Navigation through channels between mainland and islands possible, though hazardous, except at Taitao Peninsula. In far south low plain of Tierra del Fuego ends continental Chile.

8.5 Land Use

	Million <u>ha.</u>	Percent of <u>agricultural land</u>	Percent of <u>total land</u>
Arable land	4.6	22.5	6.1
Pasture (permanent and temporary)	8.5	41.7	11.2
Productive forest	7.3	35.8	9.6
Subtotal	20.4	100.0	26.9
Unsuitable for agriculture	55.3		73.1
Total	75.7		100.0

8.6 Waterways

Rivers are of little or no importance for transportation. Most northern rivers are absorbed by desert before reaching Pacific; many flow only seasonally. Primary importance is as source of irrigation water. Central and southern rivers are permanent, but often so shallow or, since the destruction of the original forest, so silted up as to be useless for navigation. Central rivers, Mapocho, Maule, and Maipo, important for irrigation. South Central lakes, navigable in theory, do not join any important population centers.

Coast has few good harbors; only 4 provide protection from open sea. In recent past, earthquakes have effected considerable changes in coastal areas: deepened channel of Callecalle River allows passage of ships up to 4,000 tons to Valdivia, 12 miles upstream.

8.7 Mountains

Dominant land features of country are the coastal range and the Andean Cordillera which run length of country, though southern extensions are partially submerged, appearing as island archipelagoes (coastal range) and Cape Horn (final Andean peak).

Coastal range made up of rounded, plateau-like hills, with elevations up to 7,000' in north, where mountains fall steeply to sea, but much lower south of Valparaiso and largely below sea level in far south.

Cordillera gradient very steep in north; all passes above 10,000'; highest peak, Ojas del Salado, over 22,500'. Elevation decreases south of Santiago, where passes are as low as 5,000'. System disappears in far south in lowlands of Chilean Patagonia, then reappears as Cape Horn.

8.8 Seismicity

Most of country vulnerable to earthquakes. Over 100 Andean volcanoes, many active; most in south central and far south.

Recently active (1966 Taltal earthquake) documented faults include: 1) Atacama fault, which extends 180 km. from El Salado to Taltal, where it turns seaward and is offset 10 km. by northwest trending sinistral fault; 2) the Taltal fault; Salar de Carmen fault stretches 450 km. northward from Papos, probably intersects with northwest trending Cifuncho fault near Taltal.

Peru-Chile trench, depths to 8,000 m., parallels coastline of north, central, and south-central Chile; likely to trigger abnormal waves as result of submarine landslides should an earthquake occur.

Edge of Nazca crustal plate roughly coincides with trench/Chilean coast. Nazca, one of most rapidly moving plates, moves toward opposing South American plate along trench.

See also Disaster Types and History, section 3.18.

9. Transportation and Logistics

9.1 Road Network

74,900 km of roads, 9,009 km paved, at end of 1977. Main highway, an extension of the Pan American highway (which extends north and south from Peruvian border at Arica to La Calera, just north of Valparaiso, where it turns eastward, crossing Argentina to Buenos Aires), runs 3,500 km from Arica to Puerto Montt. Relatively few east-west roads, 50,000 km total, even in central region. Present highway system is not heavily used; traffic costs are relatively high.

Growth of the Highway System, 1975-77 (kilometers)

	<u>1975</u>	<u>1976</u>	<u>1977</u>
Concrete	3,614	3,611	3,697
Asphalt	5,415	5,398	5,552
Stabilized gravel	31,590	32,263	32,956
Natural gravel or earth	17,503	19,120	18,521
Subtotal	58,122	60,392	60,726
Track	17,197	15,418	14,174
Total	75,319	75,810	74,900

Source: xWorld Bank, Chile: An Economy in Transition, 1979.

9.2 VehiclesNumber of Transport Vehicles - Highway, Rail and Air, 1974-75

	<u>1974</u>	<u>1975</u>
<u>Highway Vehicles</u>	446,708	472,852
<u>Passengers</u>	251,017	271,280
Private cars & stat. wagons	216,122	237,174
Taxis	19,213	18,543
Buses	15,682	15,563
Cargo vehicles (1)	149,642	153,145
Other motorized vehicles	46,049	48,427
<u>Farm Vehicles</u>	71,173	70,904
Animal traction vehicles	55,641	55,328
Tractors	15,532	15,576
<u>Airplanes (2)</u>	20	17
Boeing 707	3	4
Boeing 727	3	4
HS-748 (Avro)	9	9
Caravelle 6R	3	-
DC-3	2	-
<u>Rail Vehicles</u>	17,953	17,701
<u>Locomotives</u>	776	769
Steam	332	323
Electric	128	131
Diesel	316	315
Self-propelled cars	54	51
Electric	33	32
Diesel	21	19
Passenger coaches	818	815
Cargo cars	16,305	16,066

(1) Includes trucks, panel trucks, and pick-ups. Breakdown available for 1975 includes 73,914 trucks and 79,222 panels and pick-ups.

(2) Carriers belonging to LAN-Chile.

Source: World Bank, Chile: An Economy in Transition, 1979.

9.3 Railroads

Like highways, main rail system is oriented north and south. 5,511 miles of track (80% state owned): 2,086 miles 5'6" gauge, 154 miles 4'8 1/2" gauge, 2,644 miles 3'3 3/8" gauge, 69 miles 2'6" gauge, 22 miles 1'11 5/8" gauge, 536 miles specific gauge not given; 199 miles double track; 711 miles electrified.

Main line runs from Iquique to Puerto Montt, has connecting lines to larger Chilean towns and several Argentinian and Bolivian cities. No railway south of Puerto Montt.

Under Allende, employment in railroads increased but quality of services declined; tariffs were set which favored railways over trucking and prices were set unrealistically low so that public transport sector deficit rose sharply. Apparently as a result of this situation, recent US government and Volag comments on overland transport tend to emphasize trucks rather than rail transport.

Railroad Companies

State:

Empresa de los Ferrocarriles del Estado: Avda Bernardo O'Higgins 924, Casilla 1173, Santiago; 8,218 km of track. The state railways are divided between the Red Norte or northern system, and the Red Sur or southern system and include the former Ferrocarril Transandino por Juncal, Ferrocarril Arica-La Paz (Chilean section) and Ferrocarril Iquique-Pueblo Hundido. Gauges: south of Calera, 1,676 m.; and 0.60 m.; north of Calera, 1 m.; Arica 1 m.; Iquique-Pueblo Hundido 1.435 m. and 1 m.

Private:

Antofagasta (Chile) & Bolivia Railway Co. Ltd: local office in Antofagasta. The Chilean part of the system consists of the international railway from Antofagasta to Bolivia and branches, and the Aguas Blancas railways; total track length is 723 km of 1 m. gauge.

Ferrocarril Potrerillos: Potrerillos; HO: 25 Broadway, New York, NY; 100 km of 1 m. gauge.

Ferrocarril Salitrero de Taltal, SA: Taltal; owned by Senor Julio Rumie; 183 km of 1,067 m. gauge.

Ferrocarril Rancagua-Teniente: Agustinas 1389, Santiago; local offices: Millan 1040, Rancagua; 69 km owned by Sociedad Minera el Teniente SA.

Ferrocarril Tocopilla (TOCO): Teatinos 220, Santiago; owned by Sociedad Quimica y Minera de Chile, SA; 264 km.

9.4 Ports

Despite lengthy coastline, few safe natural harbors; sharply sloping coastal waters render construction of artificial breakwaters difficult, heavy seas and high winds compound problems. 60 coastal settlements, of which 18 listed as ports of call; 10 of these are used mostly for coastal shipping.

Government operates port facilities; state railway board maintains maritime fleet of small passenger and cargo vessels linking ports from Arica to Punta Arenas.

Antofagasta

Coordinates: Lat. 23° 38" S; long. 70° 25" W.

Summary: Largest northern port in Chile. Railway connection to Bolivia and north and south Chile. Port is free for Bolivia; consequently, severe shortage of warehouse and adjacent pier space due to allocation of space for material to be shipped by rail to Bolivia. Approach to harbor (inner) is through narrow opening in breakwater. There is space for 8-9 large merchant ships to be berthed alongside the existing piers. Water is approximately 30 ft. in the most favorable docking area. There are adequate cargo handling facilities, including portable cranes and forklifts. The Chilean Army maintains a base at Antofagasta.

Accommodation: Excellent artificial harbor owned by the state. Roadstead exposed to heavy south and west ocean swell, effects of which may be exaggerated by strong winds. Anchorage in about 15 to 40 fms, uneven and rocky bottom. Cargo no longer handled by lighters. Inside the portworks, vessels go alongside and use one bow anchor and 45 to 75 fms of chain. The entry to the portworks is 150 m. wide and minimum depth at approaches 18 m. Depth inside varies from 30 to 90 ft. There are two quays for ocean vessels of 350 and 370 m. long respectively, served by road and rail, and another of 130 m. suitable for small coastwise vessels only.

New quay 750 m. long provides three more berths for oceangoing vessels. At low tide the depth at the first two is 10 m. and the third 5 m. Two storage sheds of 100 by 20 m., and three at the new quay 100 by 40 m.

- Railways:** Antofagasta-Bolivia Railway. Chilean state railway: railway between Antofagasta and Salta (Argentina) (connection with Buenos Aires). Water available alongside berths only.
- Shiprepairs:** Three slipways for small craft.
- Towage:** Compulsory for docking and undocking. Tug of 970HP owned by Servicios Maritimos SA.
- Pilotage:** Compulsory, in or out.
- Airport:** Cerro Moreno, 16 miles.
- Local Holidays:** Overtime cannot be worked on New Year's Day, Labor Day or National Independence Day.

Arica

- Coordinates:** Lat. 18° 28' 5" S; long. 70° 20' 30" W.
- Summary:** Northernmost port in Chile. Railroad and road connection with La Paz, Bolivia, and Tacna, Peru. Recently completed inner harbor with breakwater. Has capacity for 8 large ships. Limited cargo handling and cargo storage facilities. Ample space for ships to anchor in outer harbor. Chilean Navy maintains small garrison with three harbor patrol craft.
- Accommodation:** Artificial mole and sheltered roadstead for tankers. Five berths for oceangoing vessels available, depth alongside ranges from 20 to 35 ft. Captain of the port and agents should be advised by wireless of ETA and whether carrying explosives. Provisions and water available in small quantities.
- Development:** New quay for two vessels under construction.
- Shiprepairs:** Slipway for small craft.
- Pilotage:** Compulsory.

Traffic: Arrivals for 1974, January to December inclusive, 280 ships.
Airport: Chacalluta, 17 km from port.

Caldera

Coordinates: Lat. 27° 03' S; long. 70° 52' W.

Accommodation: Excellent bay with prevailing winds south-southwest, heavy swells in winter. Anchorage generally in roadstead if not at mechanized mole. Good anchorage in 22 to 25 m., minimal draft, 7 m. Some ships with drafts up to 7 m. can go near the fiscal quay by the stern and work from this quay where they may moor. Good holding ground of sand and shell, one anchor sufficient except in strong northern winds. Best anchorage for vessels waiting to moor at mechanized mole is at 800 m. in line with head of mole in 20 m. of water with sandy bottom. Loading/unloading effected by lighters from mole to ship.

Vessels moor port side to the mole, bow to north, using starboard anchor only. Two concrete posts to assist mooring at 40 m. on each side of the head of the mole in a mooring line from bow to stern and five buoys for larger vessels. Maximum draft at low tides is 40 ft. and vessels of 658 ft. length and 87 ft. breadth have been taken with full load draft of 11.7 m. One fixed loading tower 54 ft. range. Vessels need to be shifted to receive cargo in various holds. Sidings for discharge direct from lighters, to railway cars or motor trucks and direct loading of ores from dump cars to lighters. Also six motor launches for towing lighters and 45 lighters (from 35 to 110 tons each). Loading total 2,600 tons.

Shiprepairs: No workshops - three slipways for launches and lighter repairs, lying to west of passenger mole.
Pilotage: Compulsory for all small vessels moored to mechanized mole; for foreign vessels mooring in roads or close to head of fiscal mole. Pilot awaited at 354 and 1,740 m.
Airport: Lan-Chile (National Airline), maintains a daily service from Copiapo to the north and south of the country, connecting with principal towns.

Chanaral

Coordinates: Lat, 26° 21' S; long. 70° 38' W.

Accommodation: Anchorage, with sand and mud bottom, is in 6 to 8 fms. The Santa Fe Mining Company has a mechanical loading plant in Chanaral. Vessels come alongside and are moored to buoys on which they maneuver fore and aft as the plant has only one loading arm. A vessel of 80,000 tons has been accommodated without difficulty.

Pan American highway runs through both Chanaral and Barquito and is completely paved to Arica in the north and Puerto Montt in the south. Narrow gauge state railway runs from Chanaral to Iquique in the north and southwards to La Calera which is the junction with the Santiago/Valparaiso railway (wide gauge). Provisions and water not available.

Barquito: Anchorage in Chanaral Bay serving the Compania de Cobre Salvador SA. Three buoys in approximately 9 fms for large vessels and two underwater 8" pipelines for receiving fuel and diesel oil from tankers; latter are indicated by marker buoy in about 8 fms. and vessels should not anchor or maneuver to south (landwards) of this buoy. Equipment includes two tugs, motor launches, divers' raft, and diving equipment, 50 wooden and steel lighters (45 to 90 tons). Also lighter wharf railway tracks and two electric and one steam crane (maximum lift 14 tons). Large warehouse and storage facilities, but no refrigerated space.

Development: General wharf repairs at Barquito.

Shiprepairs: Two slipways for small craft only - up to 100 tons in Barquito.

Towage: Available for small craft only.

Pilotage: Available.

Airport: Linea Aerea Nacional (Chilean Airline) with four weekly flights north and south. Chilean Air Force airfield - 3 kms. from Barquito and approximately 1 km. from Chanaral.

Local Holidays: January 1, Easter, May 1 and 21, June 29, August 15, September 18 and 19, October 12, November 1, December 25. Arrangements can usually be made to work on these days.

Coquimbo

Coordinates: Lat, 29° 57' 05" S; long. 71° 21' 18" W.

Accommodation: Well protected bay except for north-northwest winds. No buoys in bay, vessels anchor at roadstead until able to tie up at quay. Bay depths 10 to 15 m. Forbidden zone marked on charts. Quays: mooring mile, quay 375 m. long, for two vessels 180 m. each, draft 30 ft. Mooring buoy at berth 1, no buoys at berth 2; passenger mole, to south of mooring mile; rail mole, extension berth 2 for small vessels; fishing mole. At the mooring pier, lighters have been discharged - none available for working cargo in bay. Explosives are discharged direct to the quay prior to authorization by the maritime authorities and due precautions taken. Cargo handling capacity: all cargo mobilized directly either to or from the mole. Launches available. Freshwater - 25 tons/hr. Provisions available.

Shiprepairs: Minor repairs at private workshops.

Towage: No tugs available. Two boats for mooring.

Pilotage: Compulsory for vessel mooring to quay. Pilot should be awaited at 101; 1,215 m. from lighthouse.

Airport: La Florida, commercial airport. Daily service to north and south of the country from Arica to Punta Arenas with stopovers at the principal towns.

Guayacan

Coordinates: Lat. 29° 58' S; long 71° 22' W. In Herradura Bay just south of Coquimbo Bay.

Accommodation: Wind from south-southwest. Rise of tide 6 ft. Depth at entrance varies between 23 and 36 fms. The entrance is 800 yds. wide; it broadens inside to a mile and extends 1 1/4 miles in southeast direction. Approach to Herradura Bay is a fishing zone and caution must be maintained during navigation. Sheltered anchorage in the bay in 15 fms. on good holding ground. Suitable range lights fixed to diamond shaped range marker boards; red with green in background for a night approach, may be picked up at 5 miles

distance. Agents should be advised of estimated time of arrival and further requirements. LV-SS Kasagisan Maru, 137,000 ton dryweight. Limited supply of provisions available subject to 48 hours notice before arrival. Fresh water not available but can be obtained at Coquimbo.

- Shiprepairs: No facilities except in case of extreme emergency.
- Pilotage: Compulsory. Vessels must not pass anchorage point before pilot boards. Pilot boards will not go outside Herradura Bay.
- Airport: 300 miles to Santiago with connecting daily flights (except Sunday) by National Airline to La Serena, 10 miles.
- Local Holidays: May 1 and 21, September 18 and 19, October 12, and November 1. No loading on Sundays or holidays unless stipulated charter party.

Iquique

- Coordinates: Lat. 20° 27' 15" S.; long. 70° 11' 15" W.
- Accommodation: Depth in bay 20 fms. There is a good anchorage in from 11 to 15 fms. Tides rise 4 ft. 4". Direct loading and discharging are conducted from fiscal wharf, which has six berths with eight cranes; min. depth, 10 m. Berths for six vessels at all tides. LV-Augustus, 17,970 tons net. Railway 396 miles, connects Iquique with nitrate works. Longitudinal state railway links up Iquique with south of Chile. Twelve factories producing fish meal, canned fish, and frozen fish.
- Shiprepairs: One slipway for vessels up to 300 tons owned by port authority and a smaller slip owned by Gibbs-Williamson & Company.
- Airport: Local airport, 1 mile from harbor, with daily service north and south.

Puerto Montt

Coordinates: Lat. 41° 28' 28" S; long. 72° 56' 56" W.

Accommodation: Bay divided into two parts: west side formed by Tenglo Channel and Caleta Angelmo, (really commercial port), and the outer port (Puerto Montt Bay) with mouth two miles, eight cables wide. The outer port is surrounded by a bank of sand which extends 1/4 to 3/4 cables outside the coast. This harbor, depth over 20 m. to 50 m. in center, is suitable for any kind of vessel. In very bad weather refuge found inside Tenglo Channel at Caleta Angelmo, a well protected place, depth 7 to 8 m., site chosen for new commercial port of Puerto Montt. Anchorage inside Tenglo Channel by buoy. Maximum length allowed 160 m., 7 m. draft. Vessels over 170 m. length anchor in bay in 30 m. depth and work by lighters. Extensive damage due to earthquake. Work only suspended during heavy rains (March to August). The Belfi quay is 110 m. long, 10 m. wide, accommodates vessels up to 10 m., 6 m. draft. The fiscal quay, which is rather fragile, is 325 m. long by 18 m.; vessels to 160 m. draft accommodated. Passenger quay completely destroyed. Six warehouses, storage capacity 5,500 sq. m.; total capacity 25,900 sq. m. for cargo depot. Railway lines destroyed; cargo transported by trucks and vans to station, 1,500 m.

Development: Artificial port under construction consisting of a basin, 8.5 m. depth, two harbors - one naval, one small craft. Ample warehouses, railway connections. New mole 600 m. long. The branch line from Puerto Montt railway station to the port of Angelmo to be constructed. 24 silos under construction to store grain. Fiscal quay to be extended to 600 m., depth 9 m., with railway connections.

Ship repairs: Repairs afloat only.

Towage: One 100 hp tug.

Pilotage: Compulsory. To anchor in bay, moor to quays or anchor inside channel; pilot to be awaited one mile out of bay.

Airport: El Tepual, approximately 15 km away. Lan-Chile and Ladetorun regional, national, and international air services.

Punta Arenas

Coordinates: Lat. 53° 10' S; long. 70° 54' 28" W.

Accommodation: No docks. Open roadstead. Good and extensive anchorage in 12 to 15 fms. of water within 3/4 mile of end of fiscal mole. Rise and fall of spring tides is about 6 ft. Weather variable, strong winds and choppy seas in summer; frequent gales, rain, and snow in winter. Fiscal mole 1,227 ft. long and can accommodate at its extremity vessels up to 5,000 tons and 27 ft. draft at north and south sides. The other private moles shown on charts are out of service, and all cargo must be handled over fiscal mole. Ships discharging and loading do so alongside mole, or into or from lighters or hulks anchored in the bay. A well equipped outfit of salvage pumps and diving gear is maintained, placed on board small coasters in case of need and sent to ships in distress. The Chilean Navy maintains two deep-sea tugs for purposes of revision of lights and buoys; they can be chartered for salvage purposes. Provisions available. Fresh water for drinking and for boilers from alongside.

Shiprepairs: Well equipped machine shop and boiler makers' shop; foundry and ship repairers, with a slipway for ships up to 1,000 tons gross. Temporary hull repairs to ships of greater size are undertaken while afloat or with ship beached on nearby shore close to Punta Delgada (first narrows).

Pilotage: Compulsory. Pilots available for piloting ships through straits and Patagonian channels; they join ships at Posselton Bay, entrance Magellan Strait (lat. 52° 17' 5" S; long. 69° 14' W).

Airports: Bahía Catalina and Presidente Carlos Ibanez del Campo, 5 km and 25 km.

San Antonio

Coordinates: Lat. 33° 34' 16" S; long. 71° 38' 23" W.

Highlights: If Valparaiso cannot be used as an evacuation port, San Antonio would be a suitable alternate for Americans in Central Chile and Santiago. The inner harbor is protected

by a breakwater and has sufficient pier space for 8 large ships to moor alongside. There are approximately 8 warehouses for storage. The port can be reached from Santiago by car in two hours.

Accommodation: Anchorage one mile offshore in 18 fms. or inside the port by buoys in 25 fms. The port of San Antonio, the entrance to which is 400 m. wide, is an artificial one, and is protected from southwest winds and swells by a breakwater 1,000 m. long. Bulk of wheat, phosphate, coal, etc. are normally discharged at San Antonio rather than at Valparaiso. Vessels anchor inside the harbor in 2 to 25 fms. of water, bottom of mud and sand, either to special buoys or alongside quays. Under a recent law amplifying customs powers, imports for local industries may be effected through this port instead of Valparaiso as formerly. Good roads to Santiago and Valparaiso, rail to former.

Ship repairs: Cooperativa Astilleros San Antonio, AV. Molo sur S/N San Antonio. Tel. 31614.

Towage: Two tugs available; docking or undocking E 811,534.00.

Pilotage: Compulsory.

Airport: Pudahuel, 120 km.

Working Hours: 8:00 am to 2:00 pm; 2:30 pm to 9:00 pm.

San Vicente

Coordinates: Lat. 36° 43' 25" S; long. 73° 7' 46" W. A bay to southwest of Concepcion Bay.

Accommodation: Little protection from winds and swell, particularly in summer when prevailing winds are south and southwest. The northern part of the bay offers good shelter from north and northwest storms during the winter. Huachipato plant installed by the Compania de Acero del Pacifico S.A. (Pacific Steel Co.) who have built a strong pier out into the bay, 880 ft. long by 69 ft. wide. One ship can berth each side; depths alongside range from 35 ft. 8" at the head (bollard no. 1) down to 23 ft. at bollard no. 8 on the south side, and from 36 ft. down 32 ft. on the north side; but as there is usually a swell running it is

advisable to make allowance for the rise and fall of the vessel while alongside. The distance between bollards nos. 1 to 8 is 154 m. North side of pier used mainly for handling bulk cargoes such as iron ore, limestone, and coal for plant; mechanical grabber and conveyor belts installed.

Development: A new commercial port is under construction in the northern part of the bay. The port will be equipped with all modern port installations at depths of 12 m. more or less along its wharves; one berth for bulk discharge and two berths for ships with an average length of 160 m.

Taltal

Coordinates: Lat. 25° 24' S; long. 70° 29' 00" W.

Accommodation: Entrance lies between Point "Hueso Parado" and Point "Taltal"; heavy swells and sometimes strong winds, prevailing from southwest. Precautions should be taken with regard to Point Taltal and the small island Afvera during October to December. Heavy swells are sometimes experienced, generally preceded by surf on coast, stopping all work. Bay deep, ample anchorage in depth between 18 and 50 m. Bottom of bay is sandy. Three cables from land, depth is moderate. The best anchorage is situated 2 1/2 cables northwest from the fiscal mole at a depth of 26 to 20 m. in sandy bottom. Vessels remaining several days remain in roads. Similar moles from north to south as follows: Railway mole no. 2: 6.15 m. depth; fiscal mole: 100 m. long by 10 m.; 4.8 m. depth at head. Light cargo crane; corfu fishing quay for fishing industry, 75 m. long by 8 m. - only 3.8 m. depth at head; no moles usable in heavy swells. All ships loaded or discharged by lighters. In addition Compania Salitrera y Quimica de Chile Soquimich has 10 lighters with a capacity of 400 tons. Port as a whole has cargo handling capacity of approximately 7,000 tons a day. Limited provisions. Water not available.

Bunkers: Small stocks of coal for local consumption. Fuel and diesel oil available for local consumption only. Two tugs of 50 hp each.

Ship repairs: Some undertaken by railway workshops at Cordero mole; three slips for repairs to tugs and lighters.

Airport: Las Breas, 25 km southeast of town.

Tocopilla

Coordinates: Lat. 22° 05' 47" S.; long. 70° 13' 50" W.

Accommodation: Port of Tocopilla located in south angle of Algodonales Bay between "Punta Blanca" and Algodonales Point. Bay two miles wide at entrance with a bight of 3/4 mile, ample and deep; depths from 15 to 45 m. In south, moderate depths; adequate anchorage in 15 to 30 m. Forbidden to anchor in northeast of bay due to cable lines. The buoy "Anglo No. 3" is used to discharge explosives and inflammables, after application to captain of port. Tankers moor to special buoys in front of petrol tanks (south). Frequent fog and exposed to strong northwest wind. 3 buoys in all belong to Sociedad Quimica y Minera de Chile SA. Under normal conditions and using trimmers, a vessel can be loaded at a rate of 800 tons/hr. and 1,000 to 1,300 tons/hr. without using trimmers. All other cargoes handled by lighters from rail cars. 37 lighters (bagged nitrate), seven for general cargo, five motor launches (property of the Soc. Quimica y Minera de Chile SA and several private ones). Water not available. Provisions available. Good road and rail service. Radio telephone service operates from the building of the captain of the port. Call sign CBT-3.

Pilotage: Compulsory, in and out. For anchoring, mooring/unmooring to buoy or nitrate mole, pilot must be awaited. One pilot available always.

Airport: Los Barriles, 19 km. from town.

Valdivia

Coordinates: Lat. 39° 49' 18" S.; long. 73° 16' 27" W.

Accommodation: All cargo discharged at Port Corral into lighters, and then towed up river to Valdivia, where customs house is situated. About 100 lighters, average capacity 150 tons, available. Provisions and water available.

Ship repairs: Repairs for ships up to 3,000 tons. Slipways for ships up to 700 tons.

Traffic: About 40 ships and 120,000 tons of cargo per annum.

Airport: International Airport "Pichoy", 25 km. from port.

Valparaiso

Coordinates: Lat. 33° 01' 33" S; long. 61° 38' 28" W.

Highlights: Largest seaport. Maximum draft of ships alongside is 35 ft. Inner port area is periodically closed in winter months (July - September) due to heavy seas, usually for a day or two at most. No merchant ship is allowed to enter inner harbor after dark.

Accommodation: Most important commercial center on west coast of South America. Divided into two areas: its natural harbor and its artificial port (as yet unfinished). No complete protection against northern winds. Prevailing winds, south in spring and summer, sometimes interfere with traffic in bay. In winter northern winds prevail. Work stops only for a few days in the year. Fog experienced especially from March to May. Anchorage outside artificial port in 15 to 25 fms. or mooring to four existing buoys. Important to secure good anchorage due to strong winds and heavy swells. In winter, vessels have another anchor ready for emergencies; not convenient to anchor near coast due to risk of dragging but in summer, the nearer the coast, the better. Contact harbor master on arrival for anchorage (24 hours' notice), also buoys inside port by berths and for oil bunkering.

Artificial
Port:

Consists of mole, 1,005 m. long with six berths. Berths 1 to 3 each 210 m. long for high sea vessels. Berths 4 to 6 total 375 m. long for coastal and high sea vessels. Protected by breakwater equipped for mooring small vessels. On far side of passenger pier is a pier 630 m. long, 5 berths A to E. All berths have own warehouses, equipment, etc. Shipping agents have own private sites. Kendrick & Co. Ltd., as general agents of various shipping lines, carry out all sorts of cargo operations for loading and discharge of vessels.

Quays:

(1) passenger mole; known as the Muelle Prat, divided into two sections, west side used principally by the Navy and east side for the general public; (2) coal and nitrate mechanized pier: property of state, 220 m. long, 30 m. wide, depth 8 m. (3) Las Habas mole: lies northwest of Point Duprat, consisting of shipyards and workshops with

private mole 33 m. long, 5 m. wide with crane at head and landing stage; (4) Poblacion Vergara mole: 130 m. long, 10 m. wide, used as promenade. Ships loaded/unloaded moored to berths. A roofed area of 111,640 sq. m. plus area of 41,493 sq. m. for cargo. Three lighthouses. Naval radio station and coastal radio service (call sign CBV-2). Bad weather regulations strictly enforced. Provisions readily available. Freshwater can be delivered by pipeline to mooring sites and breakwater at rate of approximately 20 tons/hr. Also supplied by tugs.

- Towage: 11 tugs plus those belonging to Navy. Some water carrying in addition, 35 launches plus private launches.
- Pilotage: Compulsory. Six official pilots. Pilot must be awaited near Punta de Angeles Lighthouse. Various anchorage sites have been assigned in order to keep port entrance clear and to ensure berthing according to order of arrival.
- Airport: Pudahuel International Airport.

9.5. Shipping Lines

In 1975 Chile's merchant shipping fleet had a gross registered dwt tonnage of 800,000.

Punta Arenas:

Compania Maritima de Punta Arenas, SA. Casilla 337; f. 1949; shipping agents and owners operating in the Magellan Straits.

Santiago:

Compania Naviera Santa Fe: Casilla 974; Compania Minera Santa Fe and Compania Chilean de Navegacion Interoceanica to handle iron ore exports, bulk cargo Chile-Argentina.

Valparaiso:

Compania Chilean de Navegacion Interoceanica SA: Plaza Justicia 59, Casilla 1410; regular sailings from Peruvian and Chilean ports to the River Plate and Brazilian ports via the Magellan Straits; to and from Japan, South Korea, Taiwan, the Philippines, and the north Pacific via Peru; cargo services; office in Santiago; Ahumada 11, Casilla 4246.

Compania de Muelles de la Poblacion Vergara: Calle Blanco 951, Casilla 131-V; service of cargo vessels between Chile, Peru, Argentina, Brazil, Portugal, and Mediterranean ports.

Compania Sud-Americana de Vapores: Blanco 895; office in Santiago: Agustinas 1235, 10; f. 1872; 12 cargo vessels; regular service between Chile and New York, Gulf ports and Mexico and north European ports, intermediate ports included.

Empresa Maritima del Estado: HO: Prat 772, 5, Casilla 105-V; branch offices: Santiago, San Antonio, Puerto Montt, Castro, Antofagasta; 21 vessels; cargo service between Arica and Punta Arenas and overseas; passenger services between Puerto Montt and Puerto Aysen, and between Puerto Montt and Punta Arenas; touring trips through the southern channels and archipelagos during the summer season.

Naviera Chilena del Pacifico, SA: Casilla 370; cargo; associated with Naviera Coronel.

Naviera Coronel. SA: Casilla 370; cargo.

Sociedad Anonima de Navegacion Petrolera (SONAP): Errazuriz 471, 3; f. 1953; tanker services.

There are also several foreign companies with offices in Valparaiso.

9.6 Airports

361 airports, all usable; 43 have permanent surface runways. Five international airports; 11 military airports; six seaplane stations.

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.

ANTOFAGASTA/
Cerro Moreno

Location Coordinates	Eleva- tion M/ Temp C	Runway Characteristics			Aircraft Strength (1,000 kg)	Fuel/ Octane
		NR/Type	Slope %	Aircraft/ Length M		
23°26'23" S	134	18/36	n.a.	2050	A	100
70°26'36" W	24					JA1

Remarks: Alternate aerodromes-Arica/Chacalluta, Jujuy/Jujuy, Lima-Callao/Jorge Chavez Intl, Santiago/Pudahuel. No telex.

Aids: LR, LTX, LB, LO, MD, MC, MT, MTX, MO, H86, L4.

ARICA/Chacalluta

<u>Runway Characteristics</u>							
<u>Location</u> <u>Coordinates</u>	<u>Eleva-</u> <u>tion M/</u> <u>Temp C</u>	<u>NR/Type</u>	<u>Slope</u> <u>%</u>	<u>Aircraft/</u> <u>Length M</u>	<u>CL</u>	<u>Aircraft</u> <u>Strength</u> <u>(1,000 kg)</u>	<u>Fuel/</u> <u>Octane</u>
18°20'45" S 70°20'10" W	55 22	02/20	n.a.	2170	A	AUW	100 JA1

Remarks: Alternate aerodromes-Antofagasta/Cerro Moreno, La Paz/Kennedy Intl. No telex.

Aids: LR, LTX, LB, LO, MD, MC, MT, MFD, MTX, MO, H71, L4.

BALMACEDA/Balmaceda

<u>Runway Characteristics</u>							
<u>Location</u> <u>Coordinates</u>	<u>Eleva-</u> <u>tion M/</u> <u>Temp C</u>	<u>NR/Type</u>	<u>Slope</u> <u>%</u>	<u>Aircraft/</u> <u>Length M</u>	<u>CL</u>	<u>Aircraft</u> <u>Strength</u> <u>(1,000 kg)</u>	<u>Fuel/</u> <u>Octane</u>
45°55' S 71°42' W	521 15	09/27	n.a.	2098	B	AUW	none

Remarks: Alternate aerodromes: Punta Arenas/Pdte. C. Ibanez del Campo

CONCEPCION/Carriel Sur

<u>Runway Characteristics</u>							
<u>Location</u> <u>Coordinates</u>	<u>Eleva-</u> <u>tion M/</u> <u>Temp C</u>	<u>NR/Type</u>	<u>Slope</u> <u>%</u>	<u>Aircraft/</u> <u>Length M</u>	<u>CL</u>	<u>Aircraft</u> <u>Strength</u> <u>(1,000 kg)</u>	<u>Fuel/</u> <u>Octane</u>
36°46'25" S 73°03'36" W	9 20	01/19 PA-1	n.a.	2300	A	AUW	none

Remarks: Alternate aerodrome: Santiago/Pudahuel.

Aids: LR, LTX, LB, LO, MD, MC, MT, MTD, MS, MFD, MTX, MO.

PUERTO MONTT/EI Tepual

<u>Location</u> <u>Coordinates</u>	<u>Eleva-</u> <u>tion M/</u> <u>Temp C</u>	<u>Runway Characteristics</u>				<u>Aircraft</u> <u>Strength</u> <u>(1,000 kg)</u>	<u>Fuel/</u> <u>Octane</u>
		<u>NR/Type</u>	<u>Slope</u> <u>%</u>	<u>Aircraft/</u> <u>Length M</u>	<u>CL</u>		
41°25'54" S 73°05'28" W	84 17	17/35	n.a.	2050	A	AUW	100 JA1

Remarks: Alternate aerodrome: San Carlos de Bariloche/San Carlos de Bariloche. No telex.

Aids: LR, LTX, LB, LO, MD, MC, MT, MFD, MTX, MO, H67, L4.

PUNTA ARENAS/Pdte. C. Ibanez
Pdte. C. Ibanez del Campo

<u>Location</u> <u>Coordinates</u>	<u>Eleva-</u> <u>tion M/</u> <u>Temp C</u>	<u>Runway Characteristics</u>				<u>Aircraft</u> <u>Strength</u> <u>(1,000 kg)</u>	<u>Fuel/</u> <u>Octane</u>
		<u>NR/Type</u>	<u>Slope</u> <u>%</u>	<u>Aircraft/</u> <u>Length M</u>	<u>CL</u>		
53°00'17" S 70°51'02" W	40 12	07/25	n.a.	2245	A	AUW	100 JA1

Remarks: Alternate aerodromes: Balmaceda/Balmaceda, Comodoro Rivadavia/Comodoro Rivadavia, Rio Gallegos/Rio Gallegos. No telex.

Aids: MD, MC, MO, H74, L4.

SANTIAGO/Los Cerrillos

<u>Location</u> <u>Coordinates</u>	<u>Eleva-</u> <u>tion M/</u> <u>Temp C</u>	<u>Runway Characteristics</u>				<u>Aircraft</u> <u>Strength</u> <u>(1,000 kg)</u>	<u>Fuel/</u> <u>Octane</u>
		<u>NR/Type</u>	<u>Slope</u> <u>%</u>	<u>Aircraft/</u> <u>Length M</u>	<u>CL</u>		
33°29'23" S 70°41'43" W	511 24	03/21	0.03	2342	A	AUW	100 JA1

Remarks: No telex.

Aids: LR, LTX, LB, LO, MD, MC, MT, H77, L4.

SANTIAGO/Pudahuel

<u>Location</u> <u>Coordinates</u>	<u>Eleva-</u> <u>tion M/</u> <u>Temp C</u>	<u>Runway Characteristics</u>				<u>Aircraft</u> <u>Strength</u> <u>(1,000 kg)</u>	<u>Fuel/</u> <u>Octane</u>
		<u>NR/Type</u>	<u>Slope</u> <u>%</u>	<u>Aircraft/</u> <u>Length M</u>	<u>CL</u>		
33°23'11" S 70°47'02" W	474 23	17/35	0.06	3200	A	AUW	JA1

Remarks: Alternate aerodromes: Antofagasta/Cerro Moreno, Buenos Aires/Ezeiza, Concepcion/Carriel Sur, Mendoza/El Plumerillo. No telex.

Aids: LR, LTX, LB, LO, MD, MC, MT, MTD, MFD, MTX, MO, H105, L4, L5.

Key

Abbreviations

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

Radio Aids

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

Lighting Aids

LPA Precision Approach Lighting System
 LSA Simple Approach Lighting System
 IVA 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)

Supplementary Aerodrome Data

<u>Airfield</u>	<u>Runway Length</u>	<u>Surface</u>	<u>Maximum Strength</u>	<u>Fuel</u>	<u>Elevation</u>	<u>Remarks</u>
Chacalluta	6,700	Con	SWL 75,000	All	139	Arica Support
Cavanha	5,300	Bitumen	SWL 38,000	80/100 130/Jet	7	Iquique Support
Cerro Moreno	6,700	Con	SWL 50,000	All	442	Antofagasta Support
Chamonte	5,400	Bitumen	AUW 107,000	80/100 130/Jet	955	Caldera Support
El Salvador	8,100	Bitumen	AUW 9,000	None	5630	Potreriillos Support

<u>Airfield.</u>	<u>Runway Length</u>	<u>Surface</u>	<u>Maximum Strength</u>	<u>Fuel</u>	<u>Elevation</u>	<u>Remarks</u>
La Florida	6,400	Macadam	AUW 107,000	All	435	La Serena Support
Quintero	3,900	Con	SWL 32,000	100/130	10	Vina. D/Mar Support
Pudahuel	10,500	Con	350,000	All	1554	Santiago Support
Los Cerrillos	7,700	Con	160,000	All	1675	Santiago Support
El Bòsque	6,400	Con	64,000	100/130	1660	Santiago Support
Carriel Sur	7,500	Asphalt	SWL 16,300	Unknown	26	Concepcion. Support
El Tepual	6,500	Con	AUW 145,000	All	361	Puerto Montt Support
Carlos Ibanez del Campo	6,600	Con	150,000	All	130	Punta Arenas Support

Notes: Complete information is not now available on the new airport at Iquique, two airports at Temuco, and the airport between Puerto Montt and Punta Arenas.

US military aircraft have clearance to land only at Pudahuel and Carlos Ibanez del Campo (Punta Arenas).

For landings of these planes at Los Cerrillos, Iquique and Arica (whose runways are big enough to handle them), the Air Attache must be contacted in order to receive clearance from the Oficina de Direccion de Aeronautica.

9.7 Personal Entry Requirements

Valid passport and smallpox vaccination required. US citizens having a regular passport do not need a visa to enter as tourists for up to three months (can be extended for additional three-months). US citizens holding official diplomatic passports are required to obtain a visa. A tourist card will be issued free of charge to all US citizens with regular passports who apply at any Chilean international police station located at airports, railroad stations, maritime ports, and at border posts on international roads. Transportation companies usually have this form available for their passengers, although it also may be obtained upon arrival in Chile.

Prospective long-term residents, such as professionals under contract, teachers, students, or others seeking gainful employment, must obtain applications for resident visas from a Chilean Consulate prior to entering Chile. These applications must be accompanied by a letter from the applicant in quadruplicate, stating occupation, purpose of the trip, length of stay, and financial resources and liabilities. An individual representing a public or private institution should present a letter from the institution or commercial concern assuming financial responsibility for the employee.

9.8 Aircraft Entry Requirements

Private or sport aircraft: As a general rule, 24 hours advance notification to the Directorate of Aeronautics is required. This notification must include the following: type of aircraft; markings, nationality and registry; names of pilots; names of passengers; airport of entry; proposed route in Chile; length of stay in Chile. If this is to exceed 30 days, a special authorization is required from the Directorate of Aeronautics; object of the trip. Aircraft, their crews and passengers must enter Chile through the nearest airport of entry and comply with the necessary regulations with respect to customs, police, and sanitation.

To guard against possible delays in the event that the required notification message is not received, it is recommended that a copy of the message endorsed by the telegraph company be carried by the pilot to prove that the message was sent. It is further recommended that immediately upon arrival the pilot check with the addressee to ascertain whether the message was received.

In the case of flights having some purpose other than tourism or a technical stop, (i.e. exhibitions or participation in some sporting event), a special authorization from the Directorate of Aeronautics must be obtained. Special authorization is also required for air travel club flights.

In the event the authorization solicited requires an answer from the Chilean Aeronautical Authorities prior to initiating the flight, a prepaid reply must accompany the request, unless the petition is made sufficiently in advance to permit a reply by ordinary air mail.

Flights through Chilean airspace and entry into Chile are strictly forbidden during the hours of curfew.

9.9 Airlines

Chilean:

Linea Aerea Nacional del Chile (Lan-Chile): Aeropuerto de los Cerrillos, Casilla 147-D; government airline; serves 60,000 km of routes; domestic services: Santiago-Arica, Santiago-Punta Arenas, with intermediate stops; Santiago-Easter Island; regional services based at Punta Arenas; international services: Santiago-Lima, Guayaquil, Cali, Panama, Miami, New York; Santiago-Mendoza; Santiago-Buenos Aires, Montevideo, Rio de Janeiro; Antofagasta-Asuncion; Santiago-Bariloche; Santiago-Easter Island-Papeete-Fiji; fleet: 3 Boeing 707, 4 Boeing 727, 9 HS 748.

Linea Aerea del Cobre S.A. (Ladeco): Huerfanos 1363; internal services and cargo flights within Latin America; fleet: 4 Douglas DC-6B, 1 Douglas DC-6A/B, 1 Douglas DC-3, 1 Beechcraft Baron, 1 Boeing 727-100.

Foreign:

Chile is served by the following foreign airlines: Aerolineas Argentinas, Air France, Avianca (Colombia), Braniff, British Caledonia Airways, Canadian Pacific, Ecuatoriana (Ecuador), Iberia, KLM, Lufthansa, Scandinavian Airlines System, Swissair, Varig (Brazil).

9.10 Air Distances

Santiago to:	Statute Miles	Arica to:	Statute Miles
Comodoro Rivadavia	864	Chochabamba	281
Lima	1,538	Iquique	120
Rio de Janeiro	1,820	La Paz	196
Sao Paulo	1,604	Lima	629
Tacna	1,065	Oruro	213
Talara	2,109	Puerto Suarez	818
Tegucigalpa	3,459	Santa Cruz	470
Temuco	386	Santiago	1,028
Vallenar	338	Tacna	30
Antofagasta to:	Statute Miles	Concepcion to:	Statute Miles
Arequipa	494	Corumba	348
Arica	340	La Paz	406
Asuncion	824	Lima	1,048
Buenos Aires	1,053	Oruro	2,351
Comodoro Rivadavia	1,553	Osorno	260
Copiapo	273	Puerto Montt	322
Córdoba	667	Puerto Suarez	339
Guayaquil	1,597	Robore	211
La Paz	506	San Ignacio de Valazco	75
Lima	900	San Jose de Chiquito	141
Panama	2,334	Santa Cruz	129
Potreros Town	409	Santiago	264
Salta	329		
Santiago	696		
Tacna	370		
Talara	1,487		
Tocopilla	92		

10. Power and Communications

10.1 Electric Power

The central zone, which has approximately 90 percent of Chile's population, consumes 95 percent of electrical energy produced for public service and 78 percent of total electricity production. In contrast to the central zone, whose electrical system is interconnected, the north and south zones, with low population densities, are served by isolated generating plants.

At the end of 1973, installed generating capacity was 2,480 MW, 1,114 MW thermal and 1,368 MW hydroelectric (includes installation of additional 300 MW of generating capacity as part of El Toro project). Of the 1973 capacity, 66 percent belonged to public service companies, and 34 percent was captive installations. About two-thirds of capacity in captive generating plants, owned by copper and nitrate companies, is located in the northern zone. Total installed capacity is expected to increase by 36 percent (about 900 MW) in the 1975-80 period, about 95 percent of this in public service installations. 2,775,000 kW capacity in 1977.

Generation of electrical energy was about 8,960 gWh in 1973, almost no increase over 1972. During the first nine months of 1973, energy consumption decreased; only after the change in government in September did the electricity market show signs of recuperation. In 1973 hydro and thermal facilities provided about 60 percent and 40 percent, respectively, of total generation. In the five-year period through 1980, an average annual increase in consumption of 8.2 percent is foreseen.

Installed Capacity and Generation in Chile in 1972

	<u>Hydro</u>	<u>Thermal</u>
Utilities		
Capacity (MW)	957	494
Production (gWh)	4,430	1,714
Auto Producers		
Capacity (MW)	112	620
Production (gWh)	795	1,995
Sub-Total		
Capacity (MW)	1,069	1,114
Production (gWh)	5,225	3,709
Total	12,588	22,234

Almost all facilities for providing electricity to the public belong to the government. The Empresa Nacional de Electricidad S.A. (ENDESA) and the Compañía Chilena de Electricidad (CHILECTRA) provided more than 98 percent of the public-service requirements in 1973. ENDESA is principally a bulk supplier; while it generates 73 percent of the public service electricity requirements, only 10 percent of its energy is sold through its own distributing companies to the ultimate user. CHILECTRA generates 25 percent of total public-service requirements and buys the balance of its electricity requirements from ENDESA.

10.2 Telecommunications

389,609 telephones, 384,618 private, 4,991 government; 87.6% with automatic exchanges (1972). By 1975, extensive radio relay network; modern telephone network of 465,000 instruments; communications satellite ground station, opened in 1968, is 70 miles southwest of Santiago; owned by Empresa Nacional de Telecomunicaciones, S.A.

Distribution of Communications Offices by Key Regions, 1971

<u>Region</u>	<u>Total</u>	<u>Telegraph</u>	<u>Radio-Telegraph</u>	<u>Phone</u>
Total	811	387	20	244
I Tarapaca	9	7	1	1
II Antofagasta	18	16	-	2
III Atacama & Coquimbo	63	38	-	25
IV Valparaiso & Aconcagua	59	35	-	24
Santiago	90	51	-	39
V O'Higgins & Colchagua	58	32	-	26
VI Curico, Talca, Maule & Linares	55	31	-	24
VII Nuble, Concepcion, Arauco, Bio-Bio & Malleco	108	78	-	30
VIII Cautin	34	20	-	14
IX Valdivia & Osorno	32	24	-	8
X Llanquihue, Chiloé & Aysen	81	33	17	31
XI Magallanes	4	2	2	-

10.3 Radio

Asociacion de Radiodifusoras de Chile (ARCHI): Pasaje Matte 956, Oficina 801, Casilla 10476, Santiago de Chile; 45 broadcasting stations.

Radio Difusoras Australes SOC LTDA: Casilla 2871, Santiago; four stations.

There are 31 short wave and 144 medium wave stations, most of which are associated with ADDR.

In 1974 there were about 1,500,000 receiving sets: in 1975, 2.75 million receivers (CIA).

10.4 Television

Major television stations: Television Nacional de Chile: Bellavista 0990, Santiago; 15 stations. Universidad Catolica de Chile-Canal 13: Casilla 146000, Santiago; non-commercial. Universidad Catolica de Valparaiso: Casilla 3021, Valparaiso. Universidad de Chile-Canal 9: Casilla 12985, Santiago; educational. 51 other television stations. Estimates of receivers in 1974-75 vary between 525,000 and 1 million.

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