McNamara Papers

Travel
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BOLIVIA

PRINCIPALES INDICADORES ECONOMICOS Y SOCIALES DE BOLIVIA

MAIN ECONOMIC AND SOCIAL INDICATORS - BOLIVIA

I. INDICADORES ECONOMICOS / I. ECONOMIC INDICATORS	Valores Constantes de 1970 (1970 Constant Values)		
	1973	1974	1975
1. Producto Interno Bruto Mill. $b. constantes 1970 (Gross Domestic Product (Mill. 1970 constant $b.)	14.086	15.034	16.057
2. Tasa Anual de Crecimiento del PIB (Rate of Growth G.D.P.)	6.9	6.7	6.8
3. Producto Interno Bruto por Habitante ($b.) (Gross Domestic Product per cápita ($b.)	2.642	2.748	2.850
4. Tasa Anual de Crecimiento del PIB/habitante (Rate of Growth G.D.P./per cápita)	4.1	4	3.7
5. Composición Porcentual del PIB (G.D.P. % Composition)			
Agropecuario (Agriculture)	14.8	14.5	14.4
Minas e Hidrocarburos (Mining and Oil)	12.9	12.3	10.5
Industria (Industry)	14.0	14.3	15.0
Construcciones (Construction)	3.8	3.9	4.1
Energía (Energy)	1.8	1.8	1.8
Transporte y Comunicaciones (Transport and Communications)	8.2	8.5	8.7
Comercio y Finanzas (Finance and Commerce)	16.9	17.7	18.4
Gobierno (Goverment)	9.7	9.7	9.6
Propiedad de la Vivienda (Housing)	7.8	7.6	7.6
Servicios (Services)	10.1	9.7	9.9
T o t a l	100.0	100.0	100.0

6. Población Ocupada por Sectores (Labor force by Sectors)	1973 Miles (Thousands)	%	1974 Miles (Thousands)	%	1975 Miles (Thousands)	%
Agropecuario (Agriculture)	1.349	63	1.376	62	1.385	61
Minería e Hidrocarburos (Mining and Oil)	83	4	87	4	89	4
Industria (Industry)	182	8	189	8	196	9
Construcciones (Construction)	68	3	78	4	88	4
Energía (Energy)	6	-	6	-	7	-
Transporte y Comunicaciones (Transport and Communications)	78	4	79	4	82	4
Comercio y Finanzas (Commerce and Finances)	139	6	145	7	150	7
Gobierno y Servicios (Goverment and Services)	238	12	251	11	264	11
T o t a l	2.143	100	2.211	100	2.261	100
Tasa de Crecimiento (Rate of Growth)	4.0		3.2		2.2	
7. Inversión Total (Mill. $b. constantes 1970) (Total Investment (Mill. of 1970 $b.)	2.676		3.488		3.748	

	1973	1974	1975
8. Composición Sectorial de Inversión Pública (% Share in Public Investment)			
Agropecuario (Agriculture)	1.7	3.2	5.8
Minería (Mining)	14.9	24.3	10.5
Hidrocarburos (Oil)	11.6	18.4	33.0
Industria (Industry)	33.3	10.2	8.2
Transporte y Comunicaciones (Transport and Communication)	12.1	21.0	19.3
Servicios Sociales y Administración (Social Services and Administration)	21.4	18.7	20.0
Energía (Energy)	5.0	4.2	3.2
T o t a l	100.0	100.0	100.0
9. Ahorro Interno - Mill. $b. Corrientes (Domestic Saving - Mill. Current $b.)	2.510.0	6.848.0	4.132.0
9.1. Coeficiente de Ahorro Interno (Domestic Saving % G.D.P.)	11.7	18.3	9.4
10. Ahorro Externo - Mill. $b. Corrientes (External Saving - Mill. Current $b.)	390.0	-1.922.0	3.632.0
11. Finanzas Públicas, Gobierno Central - Mill. $b. Corrientes (Public Finances, Central Government - Mill. current $b.)			
11.1. Ingresos (Receipts)	2.425.0	5.070.0	5.544.0
11.2. Gastos Corrientes (Current Expenditures)	2.339.0	4.350.0	4.597.0
11.3. Superávit Corriente (Current Surplus)	86.0	720.0	947.0
11.4. Gastos de Capital (Capital Expeditures)	225.0	606.0	734.0
11.5. Financiamiento Externo Neto (External Financing - Net)	(51.0)	(183.0)	(227.0)
11.6. Financiamiento Interno Neto (Domestic Financing - Net)	190.0	69.0	14.0
12. Sistema Bancario Consolidado (Consolid Banking system)			
12.1 Activo (Assets)	8.035.0	12.376.0	15.321.0
12.1.1. Crédito Sector Público (Credit Public Sector)	3.387.0	3.723.0	5.738.0
12.1.2. Crédito Sector Privado (Credit Private Sector)	2.775.0	4.422.0	5.602.0
12.1.3. Otras Cuentas (Others)	1.873.0	4.231.0	3.981.0
12.2. Pasivo (Liabilities)	7.398.0	11.621.0	14.128.0
12.2.1. Medio Circulante (Money Supply)	2.918.0	4.196.0	4.654.0
12.2.2. Cuasi Dinero (Cuassi Money)	636.0	913.0	1.235.0
12.2.3. Otras Cuentas (Others)	3.842.0	6.512.0	8.239.0
12.3. Capital y Reservas (Capital and Reserves)	637.0	755.0	1.193.0
12.4. Tasa Promedio de Inflación Anual (Annual Average Rate of Inflation)	34%	64%	11%
12.5. Reservas Internacionales Netas (Net International Reserves)	643.0	2.899.0	2.008.0

		1973	1974	1975
13.	Balanza de Pagos (Mill. de $us. 1975) (Balance of Payments 1975 Mill. of $us.)			
A.	Bienes y Servicios (Resource Balance)	- 34.9	- 84.4	- 193.6
	Balanza Comercial (Trade Balance)	35.5	193.9	- 33.1
	Exportación de Bienes FOB (Exports of Goods FOB)	270.8	558.1	451.7
	Importación de Bienes FOB (Imports of Goods FOB)	235.3	364.2	484.8
	Servicios (neto) (Services - Net)	- 70.4	- 109.5	- 160.5
B.	Pagos de Transferencia (Transference Payments)	15.4	11.7	12.0
C.	Balanza en Cuenta Corriente (Balance on Current Account)	- 19.5	96.1	- 181.6
D.	Movimiento Neto de Capital (Capital Movements - Net)	35.5	40.9	141.6
	Sector Privado (Private Sector)	15.3	- 14.0	86.1
	Sector Público (Public Sector)	20.2	54.9	55.5
E.	Errores y Omisiones (Errors and Omissions)	- 29.7	- 25.5	- 4.4
F.	Otros (Others)	- 0.2	-	-
G.	Superávit o Déficit (Surplus or Deficit)	- 13.9	111.5	- 44.4
14.	Composición Porcentual de las Exportaciones (% Export Composition)			
	Minería (Mining)	66.8	60.1	-
	Petróleo y Gas (Oil and Gas)	19.8	30.1	-
	Agropecuario (Agriculture)	13.4	9.8	-
	T o t a l	100.0	100.0	-
15.	Composición Porcentual de las Importaciones (% Import Composition)			
	Construcciones (Construction)	23.8	24.1	-
	Agropecuario (Agriculture)	5.1	6.1	-
	Industria (Industry)	41.5	38.7	-
	Transporte y Comunicaciones (Transport and Communication)	29.6	31.1	-
	T o t a l	100.0	100.0	
16.	Deuda Externa - Mill. de $us. Corrientes (External Debt) - (Current Millon $us.)	708.0	786.0	817.0
17.	Tasa de Servicio de la Deuda % (Debit Service Ratio) %	17.7	13.2	18.0

PRINCIPALES INDICADORES ECONOMICOS Y SOCIALES DE BOLIVIA

MAIN ECONOMIC AND SOCIAL INDICATORS - BOLIVIA

II.	INDICADORES SOCIALES / SOCIAL INDICATORS	1974	América Latina (Latin America)
1.	Población Total (Total Population (000)	5.470.0	-
1.1.	Tasa de Crecimiento (Rate of Growth) %	2.6	2.8
1.2.	Tasa de Natalidad (Birth Rate) %	4.4	3.7
1.3.	Tasa de Mortalidad (Death Rate) %	1.8	0.9
1.4.	Tasa de Mortalidad Infantil (Infant Mortality Rate) %	7.7	-
1.5.	Esperanza de Vida al Nacer (Life Expectancy)	47.0	63.0
2.	Población Urbana (Urban Population)	1.657.0	-
2.1.	Tasa de Crecimiento (Rate of Growth)	3.3	-
3.	Población Rural (Rural Population)	3.813.0	-
3.1.	Tasa de Crecimiento (Rate of Growth)	-	-
4.	Salud (Health)	-	-
4.1.	Número de Médicos por 1.000 habitantes (Physicians per 1.000 in habitants)	0.4	-
	(Requerimientos mínimos - (Minimum Requirements)	-	1.0
4.2.	Número de camas por 1.000 habitantes (Hospital beds per 1.000 in habitants)	1.6	3.2
4.3.	Indice de morbilidad - Tuberculosis, sarampión, otras infecciones Morbility Index - Tuberculosis, Measeles, Other Infectious diseases)	22%	-
5.	Nutricion (Nutrition)	-	-
5.1.	Consumo per cápita calorías día (Per cápita calorie Intake)	1.890.0	2.222.0
5.2.	Consumo per cápita de proteínas animales (grms) (Per cápita animal protein intake - grms)	18.0	22.0
6.	Educación (Education)	-	-
6.1.	Tasa de Analfabetismo (Illiteracy Rate) %	59.0	-
6.1.1.	Urbano (Urban) %	17.0	-
6.1.2.	Rural (Rural) %	83.0	-
7.	Vivienda Urbana (Urban Housing)	-	-
7.1.	Déficit Acumulado (Total Déficit) N°	111.300.0	-
7.2.	Indice Cobertura Agua Potable (Access to Piped Water %)	-	-
7.2.1.	Urbano (Urban)Porcentaje (% of Population)	58.0	82.0
7.2.2.	Rural (Rural) Porcentaje (% of Population)	9.0	17.0
7.3.	Consumo Per cápita de Energía Eléctrica - K.w.h. (Per cápita - K.w.h.)	181.0	700.0

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NOTE:

Since the publication of this document, political conditions in Bolivia have altered as a result of President Banzer's decision to cancel elections originally scheduled for 1975. At present, political party and labor union activity is banned, a wage and price freeze is in effect, and the military institution has announced its intention to continue governing the country until 1980.

background notes

Bolivia

department of state * october 1974

OFFICIAL NAME: Republic of Bolivia

GEOGRAPHY

Often called the "Tibet of South America," landlocked Bolivia is bounded on the north and east by Brazil, on the southeast by Paraguay, on the south by Argentina, and on the west by Chile and Peru.

Bolivia is divided into three distinct topographical regions: the high plateau region known as *altiplano*; an intermediary region comprising semitropical rainforests, which are on the eastern slopes (*yungas*) of the Andes mountain system, and drier valleys; and the *llanos*, or the Amazon-Chaco lowlands. Each of these regions differs from the others not only in climate and vegetation but in the characteristics of its people and in density of population.

Crossing the country in a northwest to southeast direction, the high plateau parallels and splits the Andes into two mountain chains (*cordilleras*), which straddle the *altiplano* along its eastern and western sides. The western mountain chain forms a 16,500-foot-high frontier with Chile. The *altiplano*, about 500 miles long and 80 miles wide, has an average altitude of 12,000 feet above sea level. This area cradles famed Lake Titicaca, at 12,507 feet the world's highest navigable lake. The high altitude gives the plateau a clear atmosphere and cool climate (average temperature 50°F). The hardier cereals make up the major part of the *altiplano's* agricultural production. Principal livestock are sheep, alpacas, llamas, and vicunas. It is here that the mineral deposits—the backbone of Bolivia's national economy—are found, as well as most of the country's inhabitants, principal cities, and industrial centers.

In the Departments of La Paz and Cochabamba, the *yungas*, varying in altitude from 1,600 to 9,000 feet above sea level, and valleys separate

PROFILE

Geography

AREA: 424,162 sq. mi. (approx. the size of Tex. and Calif. combined). CAPITALS: La Paz (administrative, pop. 700,000 est.); Sucre (constitutional, pop. 48,000). OTHER CITIES: Cochabamba (160,000), Santa Cruz (approx. 130,000), Oruro (93,000), Potosi (69,000).

People

POPULATION: 5.3 million (1973 est.). ANNUAL GROWTH RATE: 2.6% (1973). DENSITY: 9 per sq. mi. ETHNIC GROUPS: Aymara 25%, Quechua 30%, Mestizo (Cholo) 25-30%, European 5-15%. RELIGION: Roman Catholic (95%). LANGUAGES: Spanish (official), Aymara, Quechua. LITERACY: 40%. LIFE EXPECTANCY: 47 yrs.

Government

TYPE: Centralized republic. INDEPENDENCE: Aug. 6, 1825. DATE OF CONSTITUTION: Feb. 2, 1967.

BRANCHES: *Executive*—President. *Legislative*—National Assembly, Senate. *Judicial*—Supreme Court.

POLITICAL PARTIES: Nationalist Revolutionary Movement (MNR), Bolivian Socialist Falange (FSB), Christian Democratic Party (PDC), Communist Party (PCB), Revolutionary Barrientist Force (FRB). SUFFRAGE: Universal adult (no national elections since 1966). POLITICAL SUBDIVISIONS: 9 departments.

FLAG: Three horizontal bands (red, yellow, green) from top to bottom. The coat of arms is centered on the yellow band.

Economy

GROSS DOMESTIC PRODUCT (GDP): $1,075 million (1973 est.). ANNUAL GROWTH RATE: 6%. PER CAPITA INCOME: $203. PER CAPITA GROWTH RATE: 3.5%.

AGRICULTURE: *Land* 0.66%. *Labor* 67%. *Products*—potatoes, corn, sugarcane, cassava, cotton, barley, rice, wheat, coffee, bananas.

INDUSTRY: *Labor* 15%. *Products*—textiles, cottage industries, goods processing, beverages.

NATURAL RESOURCES: Petroleum, natural gas, tin, lead, zinc, copper, tungsten, bismuth, antimony, gold, sulfur, silver, iron ore.

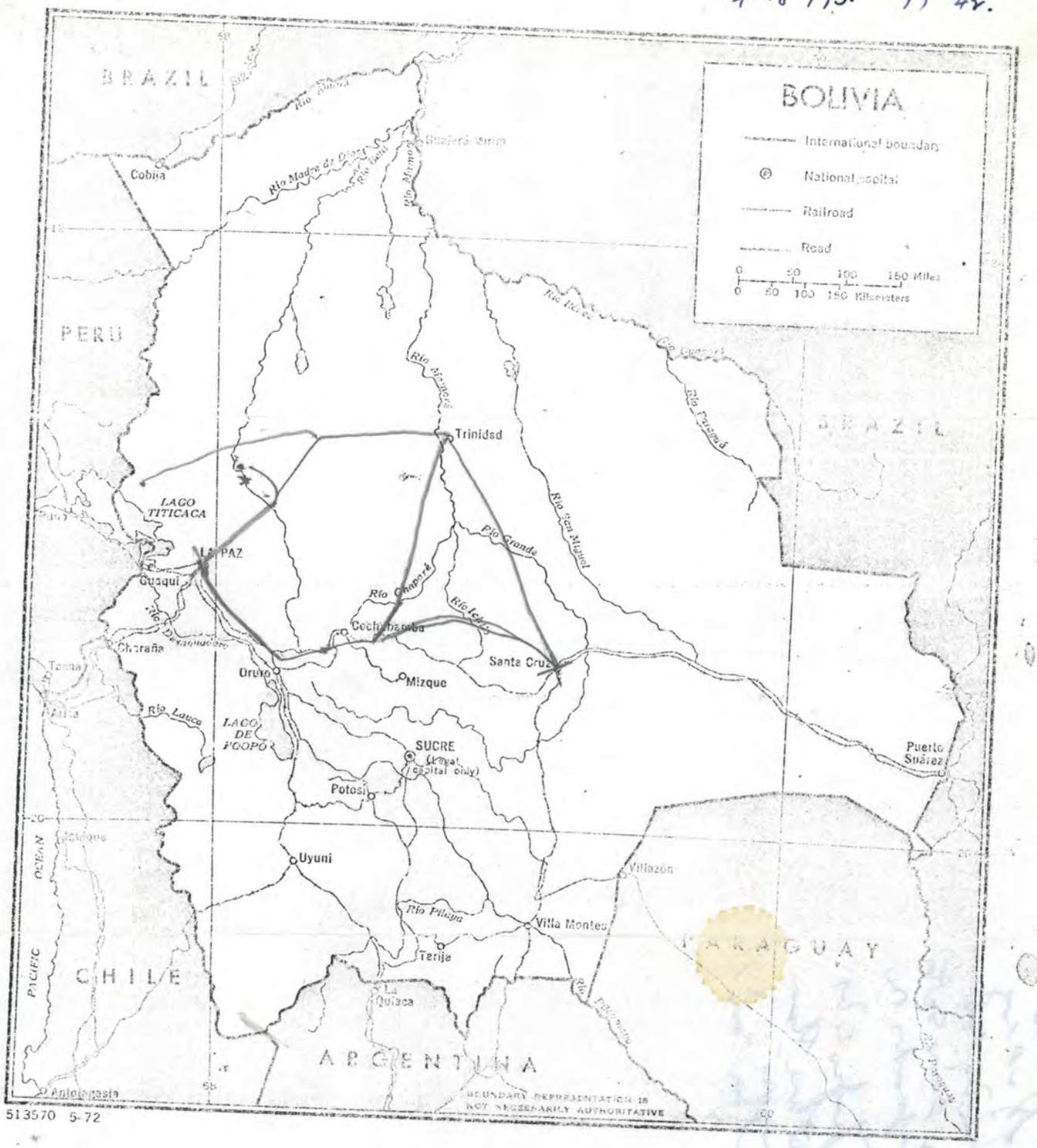
TRADE: *Exports*—$270 million (1973 f.o.b.): tin, other minerals, petroleum, natural gas, cotton, coffee, hides. *Partners*—U.S. (35.6%), U.K. (42.6%), Argentina, West Germany, Japan. *Imports*—$249.5 million (1973 f.o.b.): mechanical and electrical equipment, vehicles, iron, steel, wheat, flour, fats, oils. *Partners*—U.S. (37.5%), Japan (12.9%), West Germany (11.7%), Argentina, Brazil.

OFFICIAL EXCHANGE RATE: $b20=US$1.

ECONOMIC AID RECEIVED: *Total*—approx. $900 million (IDB, IBRD, UNDP, and U.S. loans and grants, 1942-74). *U.S. only*—$661 million (1942-74).

MEMBERSHIP IN INTERNATIONAL ORGANIZATIONS: U.N. and several of its specialized agencies, Organization of American States (OAS), Andean Pact, Latin American Free Trade Association (LAFTA).

64-28 17.- 74 17.
69-73. 47. 75 48.
74-78 173. 77 47.



the high plateau from the lowland plains. The temperature averages about 70° F, and the atmosphere is humid. Further south, in the Departments of Chuquisaca, Tarija, and western Santa Cruz, the *yungas* flatten out into a district of more open and cooler valleys which descend gradually toward the Chaco plains in the southeast. The *yungas* comprise the most highly developed agricultural region in Bolivia.

The lowland plain (*llano*) region of Bolivia covers the Departments of Beni, Pando, and Santa Cruz. In the northeastern area these plains are part of the Amazon River Basin and contain tropical forests and dense vegetation interspersed with more open


BOLIVIA
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READING LIST

These titles are provided as a general indication of the material currently being published on this country. The Department of State does not endorse the specific views in unofficial publications as representing the position of the U.S. Government.

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savanna formations. Further south the plains form part of the La Plata River Basin and constitute a northward extension of the Argentine *pampas.* This part of Bolivia is sparsely populated but is rapidly developing. Large-scale agriculture (cotton, sugarcane) and cattle raising predominate, but interest in industrial development is increasing. In this region are located Bolivia's major known deposits of petroleum, natural gas, and iron ore.

PEOPLE

Population density ranges from less than one person per square mile in the southeastern plains to 25 per square mile in the more heavily populated northern *altiplano, yungas,* and valleys. With one of the highest mortality rates in Latin America, Bolivia's annual population growth rate is still about 2.6 percent. According to 1973 estimates, La Paz, the nation's political and administrative capital, has 700,000 inhabitants. It is the world's loftiest capital, sprawling across the slopes of a river-gouged canyon 11,900 feet above sea level. The fastest growing city is Santz Cruz, which is the commercial and industrial hub of the eastern lowlands.

No reliable figures are available on the ethnic composition of the Bolivian population; however, the 1950 census, together with later revisions, estimated the ethnic distribution approximately as follows: Indian (65 percent); European, primarily Spanish, (5-15 percent); and mixed, or *cholo,* (20-30 percent). Relatively prominent among a limited number of foreign colonists are some 700 Japanese and Okinawan families that immigrated to Bolivia after World War II and settled in the Santz Cruz area.

Almost 95 percent of the Bolivians are Roman Catholic, but most Indians interweave aboriginal symbolisms with the Christian elements of their religious practice. About 36 percent of the people speak Spanish as a mother tongue. It is estimated that about 40 percent of the overall adult population is literate, while close to 20 percent of the rural population is literate.

HISTORY

Between 600 and 900 A.D., Indians of Aymara origin living at the southern end of Lake Titicaca produced a highly advanced native culture known as Tiahuanaco. About 1200 A.D. the Quechua-speaking Incas, who ruled one of the world's greatest imperial dynasties, invaded the area and incorporated most of what is now Bolivia under their control until the Spaniards arrived from Peru and conquered Bolivia in 1535.

During most of the Spanish colonial period the area was a dependency of the Viceroyalty of Lima, and the principal cities were Chuquisaca (now Sucre) and Potosí, for many years the largest city in the Western Hemisphere. The Bolivian silver mines were a major source of the wealth of the Spanish Empire. As Spanish royal authority weakened during the Napoleonic wars, Bolivia swarmed with secret patriotic societies. Although independence was proclaimed in 1809, 16 years of struggle followed before the Republic, named for Simón Bolívar, was established on August 6, 1825.

The 19th century saw one military leader after another succeed to power, frequently by force. This political disorder and instability impeded social and economic progress. A disastrous war with Chile (1879-84) resulted in the loss by Bolivia of its seacoast and the rich nitrate fields and copper mines of the region around Antofagasta, Chile. A major aim of Bolivian foreign policy since then has been to recover a port on the Pacific coast.

Political stability improved somewhat during the first decades of the 20th century. However, another disastrous war, this time with Paraguay (1932-35), exhausted the country economically, discredited the traditional ruling classes, and was followed by a period of political unrest which culminated in the 1952 revolution.

The revolution of April 9, 1952, established the National Revolutionary Movement (MNR)—historically the broadest based of Bolivia's many political parties—in power for 12 years. For

TRAVEL NOTES

Climate and Clothing–Temperatures in La Paz range from cool to cold, so regardless of the season a coat or sweater is useful. The rainy season lasts from December through March.

Health–Due to the altitude, newcomers should rest the first three days and eat lightly and avoid alcohol and cigarettes the first week. Drink plenty of liquids because of low humidity.

Sanitation conditions are poor. Avoid tap water, unwashed fruits and vegetables, and undercooked meats and fish.

Customs–With regular passports, either a visa or a tourist card and a smallpox inoculation certificate are required. Restrictions on entry and exit by car are numerous; the procedures for getting the necessary documentation is time consuming.

Telecommunications–The telephone system in La Paz is not adequate. Long-distance radiotelephone service to the U.S. is available, but reception is often poor. Three companies provide telegraph service from La Paz to foreign points.

Transportation–Through flights from the U.S. to La Paz (via Lima) take 10-15 hours. Overland travel from neighboring countries is possible but complicated and time consuming.

In La Paz taxis (with red license plates) are plentiful and inexpensive but must be hailed from the street. Taxis must usually be shared. Bus service is often slow and overcrowded.

most of that period the MNR's preeminent leader, Victor PAZ Estenssoro, was President of the country (1952-56, 1960-64, and for a brief third term from mid-year to November 1964). The MNR government introduced measures of revolutionary significance, such as universal suffrage, agrarian and educational reforms, and nationalization of the three largest private tin enterprises in the country under the state mining corporation, COMIBOL. Also, particularly during the early years of MNR rule, the regular armed forces were drastically reduced and their influence counterbalanced by the creation of armed worker and *campesino* (independent peasant) militias which had helped to bring about the revolution.

Divisions within the MNR and growing opposition to its rule led in November 1964 to its overthrow by a military junta led by army Gen. Alfredo OVANDO Candia and air force Gen. René BARRIENTOS Ortuno. While repudiating the MNR, the Ovando-Barrientos junta maintained the basic reforms of the 1952 revolution. In August 1966 Gen. Barrientos was constitutionally elected President with law school professor Luis Adolfo SILES Salinas, leader of the small Social Democratic Party (PSD), as his Vice President. The Barrientos government was marked by a return to constitutional processes and increased emphasis on Bolivia's economic development effort.

President Barrientos died in a helicopter accident in May 1969, and Vice President Siles succeeded to the presidency. On September 26, 1969, the armed forces overthrew the Siles government and entrusted Gen. Ovando with the formation of a revolutionary civilian-military government under a nationalistic banner. Notable among developments during Ovando's tenure were the nationalization of the Gulf Oil Company installations in October 1969, the outbreak of guerrilla activity in June 1970, and student and other civil disturbances. Gen. Ovando was compelled to resign by the armed forces high command in early October 1970 but, following a crisis of several days in which some violence and disturbances occurred, a military officer not supported by the high command, Army Gen. Juan J. TORRES, was sworn in as President of a leftist nationalist government on October 7.

The government of Gen. Torres was marked by increased political instability, nationalization of some U.S.-owned and Bolivian properties, land seizures by peasants, other lawless acts, and increasing hostility toward the United States. This hostility culminated in the expulsion of the Peace Corps in May 1971. Around mid-year 1971 the Torres regime tolerated the creation of a so-called "Popular Assembly" organized along the lines of a workers' soviet, which its leftist political organizers hoped would evolve into a fullfledged legislative branch of government.

Alarmed by the extremist and chaotic direction in which the country was moving, the armed forces, two of Bolivia's more important political parties (the MNR and the Bolivian Socialist Falange–FSB), and other middle-class groups forged an alliance and ousted the government of Gen. Torres in a bloody 3-day revolution in August 1971. These groups named Army Col. (now Gen.) Hugo BANZER Suarez as President of the Republic on August 22. Gen. Banzer organized his supporters into the National Popular Front (FPN), which became the political superstructure of the new government. Secondary schools and the universities, which were closed after the August revolt, were reopened in 1972. The universities were reorganized under a new structure as the Bolivian University. Many leaders of Communist and extremist political groups fled the country after the collapse of the Torres regime, and the Banzer government vigorously pursued a campaign against the clandestine "Army of National Liberation" (ELN), an outgrowth of Ernesto "Che" Guevara's unsuccessful 1967 guerrilla insurgency in Bolivia.

GOVERNMENT

The present Constitution, promulgated in February 1967, provides for the traditional executive, legislative, and judicial powers. The armed forces revolutionary mandate of September 26, 1969, resulted in the dissolution of the National Congress, and governments since that time have ruled by decree. In July 1974 a commission was appointed to study the institutional status of the government with a view toward recommending a new constitution to be approved in 1975.

The government of Gen. Banzer draws its support from the armed forces and the tripartite Nationalist Popular Front (FPN), which is now composed of the MNR, the FSB, and followers of late President Barrientos who have organized a political party called the Revolutionary Barrientist Force (FRB). While previous Banzer cabinet seats were divided among the MNR, the FSB, the military, and independents, the present cabinet, appointed in July 1974, is composed entirely of military officers.

The judiciary consists of the Supreme Court at Sucre (the legal and original capital) and departmental and lower courts.

Bolivia is a centralized republic in which the country's nine departments are given limited autonomy. Departmental officials are appointed by the central government.

Principal Government Officials

President—Gen. Hugo BANZER Suarez

CABINET MINISTERS

Foreign Affairs and Worship—Gen. Alberto GUZMAN Soriano
Interior—Col. Juan PEREDA Asbun
Finance—Col. Victor CASTILLO Suarez
National Defense—Gen. Rene BERNAL Escalante
Energy and Hydrocarbons—Col. Guillermo JIMENEZ Gallo
Mining and Metallurgy—Col. Jose Antonio ZELAYA Salinas
Education and Culture—Ltc. Waldo BERNAL Pereira
Industry and Commerce—Col. Miguel AYOROA Montano
Agriculture, Livestock, and Campesino Affairs—Col. Alberto NATUSCH Busch
Health and Social Welfare—Ltc. Jorge TORRES Navarro
Transportation and Communications—Capt. (Navy) Walter NUNEZ Rivero
Labor and Trade Union Affairs—Ltc. Mario VARGAS Salinas
Urban Affairs and Housing—Col. Jose PATINO Ayoroa
Coordination—Gen. Juan LECHIN Suarez

Chargé d'Affaires to the U.S. and OAS—Dr. Juan Jose Loria
Ambassador to the U.N.—Julio ZAVALA Urriolagoitia

Bolivia maintains an Embassy in the United States at 1145 19th Street, NW., Washington, D. C. 20036, and consulates in California, District of Columbia, Florida, Georgia, Louisiana, and New York.

POLITICAL CONDITIONS

Following the August 1971 revolt that brought him to power, Gen. Banzer formed a workable governing coalition from the disparate and not always cooperative elements of the FPN. By 1974, however, internal problems and the political cost of dealing with several intractable economic problems bequeathed to it by the Torres government created rising tensions within the Banzer government. The political parties forming the FPN suffered internal schisms, and the number of influential politicians in exile increased steadily. Similar tensions grew within the armed forces.

In June 1974 an attempted coup d'état led by several younger officers in the armed forces failed. This first overt attempt in almost three years to oust Gen. Banzer forced the President to reassess his position, resulting in sweeping changes in July 1974. The mixed civilian-military cabinet resigned on July 8 and was replaced by a cabinet entirely composed of military officers. At the same time President Banzer promised the "constitutionalization" of the country during 1975, and he named a National Council on Structural Reforms (CONARE).

As the final step in the July changes, on July 23 Gen. Banzer announced a timetable for elections to be held in 1975. CONARE is to prepare constitutional and structural reforms by January 23, 1975. A national referendum will be held March 23, 1975, to consider the CONARE proposals. Presidential elections will be held in late October 1975 either under the old or the new political structures, depending on the outcome of the March referendum, and the new president will be inaugurated in December 1975.

ECONOMY

The Bolivian economy is currently in a relative boom period after suffering several years from lack of direction. The 1971-72 period was marked by attempts to readjust after the chaotic years of the Ovando-Torres regimes. Those attempts culminated in a 40 percent devaluation of the Bolivian peso (from about $b1=US$0.083 to $b1=US$0.05) in October 1972. The gradual recovery begun by this devaluation was converted by mid-1974 into a boom, due largely to continued record prices for Bolivia's mineral, petroleum, and agricultural exports and to strong private sector economic activity.

Agricultural production increased steadily during the 1971-74 period. Changes in crops and production patterns are becoming more evident as farmers, particularly in the lowlands around Santz Cruz, adapt to world demand. Sugar production and refining increased dramatically following unfavorable weather conditions in 1970-71. Cotton production grew from 9,800 metric tons in 1971 to 40,000 metric tons in 1973 and is expected to increase further with the introduction of modern picking and ginning equipment.

Total Bolivian exports in 1973 amounted to approximately $270 million f.o.b. With continued high mineral and petroleum prices, 1974 exports may total as high as $600 million.

The United States, Great Britain, and Japan are Bolivia's major trading partners. Principal exports to the United States are nonferrous metals and coffee. Principal imports from the United States are machinery, durable consumer goods, and wheat. Mining and oil drilling equipment will occupy an increasingly important segment of U.S. exports to Bolivia.

Minerals and petroleum lead the very active export sector. Mineral exports for 1973 were valued at $224 million (c.i.f.), up from $174 million in 1972. Petroleum and natural gas exports in 1973 contributed about $53 million and may go as high as $210 million in 1974 if world petroleum prices remain at current levels. Current and anticipated world shortages of petroleum, gas, and many minerals should encourage continued growth in the export sector.

Foreign financing for Bolivia, encouraged by the political and economic policies of the Banzer government and fueled by rising international demand for the raw materials Bolivia exports, has risen dramatically in recent years. At the same time, rising

revenues from the petroleum and mineral sectors are now permitting the public sector to increase substantially its own investment budget. The Banzer government has promulgated a new general law of investments and a special petroleum investment code, both intended to attract new investors while protecting vital Bolivian interests. By July 1974, 10 international petroleum companies had signed exploration/exploitation contracts with the Bolivia State Petroleum Company. In another move intended to bolster foreign interest in direct investments in Bolivia, the government moved quickly to resolve outstanding investment disputes. By 1973 the major disputes with U.S. investors had been settled satisfactorily.

During 1973 Bolivia began to suffer from a serious inflation, fueled primarily by external price rises but also by internal factors. By the end of that year average prices for goods and services were approximately 31 percent higher than the 1972 average level. The government is formulating policies which should curtail somewhat the inflationary pressure while not affecting the economic boom now being enjoyed.

International organizations, such as the Inter-American Development Bank, the International Bank for Reconstruction and Development, and the United Nations Development Program, have provided more than $225 million to Bolivia in loans and grants between 1946 and 1973. These programs have concentrated on livestock development for export, infrastructure development, and several mining and agricultural loans. AID and the Export-Import Bank have channeled more than $100 million into roads, highways, and bridges. As a result of infrastructure development, Bolivian transportation facilities have improved steadily.

FOREIGN RELATIONS

Bolivia maintains normal relations with the United States and all of its neighbors except Chile, with whom diplomatic relations were broken in 1962 over a dispute involving use of the water of the Rio Lauca. However, the Bolivia-Chile dispute has deeper roots, with many Bolivians resentful of the loss of Bolivian territory on the Pacific Ocean to Chile following the War of the Pacific (1879-84).

Since the advent of the Banzer government, Bolivia has strengthened its ties with Argentina, Brazil, Paraguay, the Republics of China and Korea, the Philippines, Japan, Spain, and Israel. It also has sought to reinforce its relations with the nonaligned group of nations.

In 1970 the Ovando regime reestablished diplomatic relations and trade and assistance ties with the Soviet Union. Relations with various East European nations were reestablished as well.

Bolivia is taking an active role in the 1974 Law of the Sea Conference. Along with other landlocked states, Bolivia is seeking at that conference to insure that the riches of the sea are shared by all countries, not only riparian states.

U.S.-BOLIVIAN RELATIONS

The government of Gen. Banzer has emphasized the friendly ties existing between Bolivia and the United States. The United States continues its commitment to assist Bolivian efforts to improve its economic and social conditions.

In the early 1970's U.S. Government programs of economic cooperation initially concentrated on assisting the Bolivian Government's efforts to stimulate public and private sector investment activity, which had been relatively stagnant between 1969 and 1971. Thus, the U.S. Agency for International Development (AID) extended a grant and two loans in 1971 and 1972 totaling $34 million to assist in financing the government's Emergency Plan and Economic and Social Development Program (PADES) which helped generate labor-intensive public investment activity during the 1971-74 period. In addition, U.S. assistance substantially strengthened Bolivia's balance of payments during the critical period following the October 1972 devaluation of the peso.

Other important U.S. financial assistance to Bolivia in the period 1971-72 included loans totaling $15 million to establish revolving funds in the Central Bank by which credits are channeled through the country's banking system to agricultural and industrial entrepreneurs. These programs also are creating an institutional basis for a cooperative approach between the public and private Bolivian banking sectors. A $3 million AID loan, designed to benefit directly the rural, poorer population, was extended to Bolivia's National Community Development Services (NCDS) in 1972 in support of that organization's program of assisting communities to complete, on a self-help basis, local projects of importance to the area's social and economic development.

In 1973 and 1974 loans were made to help Bolivia establish a municipal finance agency and a savings and loan system, modernize educational administration, open new areas to colonization, and begin a nationwide rural electrification program. Sales of U.S. wheat under PL 480 Title I have insured adequate flour stocks and generated local currency for development projects while food donations have benefited hundreds of thousands of Bolivian school children.

AID's technical assistance program during the first half of the 1970's has focused on the agricultural sector. Utah State University provided contract advisory services to the Ministry of Agriculture's programs to increase wheat production and to promote more efficient sheep wool and meat production on the *altiplano.* AID has financed assistance to the Ministry of Education, through the contract advisory services of the University of California at San Jose, in the development and implementation of the Ministry's administrative reform program. Finally, the AID program also includes advisory assistance to the Ministry of Finance in methods for improving budgeting and accounting systems, in tax administration, and in the establishment of a central computer service.

In the more than 30 years of U.S.-Bolivian economic and technical cooperation, approximately $325 million in grant assistance and $335 million in concessional loans and credits have

been provided by the U. S. Government. In addition to these grants and loans, the United States has guaranteed $32 million worth of investments made in Bolivia by U.S. citizens, including nearly $10 million for construction of housing. Today Bolivia is looking increasingly to multilateral organizations, as well as other bilateral donors, to obtain financing of development projects requiring substantial capital.

The U.S. Information Service (USIS) maintains an active program in Bolivia. In addition to its main office in La Paz, USIS supports Binational Centers in La Paz, Cochabamba, and Santa Cruz. Bolivia participates actively in programs of educational and cultural exchange with the United States.

The United States also maintains a Military Assistance Program to assist the Bolivian Armed Forces in improving their security capability as well as carrying out their civic action responsibilities in the country's development efforts.

Principal U.S. Officials

Ambassador—William P. Stedman, Jr.
Deputy Chief of Mission—James A. Parker
Director, U.S. AID Mission—John R. Oleson
Economic Officer—A. Wendell Whiting
Political Officer—Frank M. Ravndal
Public Affairs Officer—Herwald Morton

The U.S. Embassy in Bolivia is located in the Banco Popular del Peru Building, corner of Calles Mercado y Colon, La Paz. The United States will open a Consular Agency in Santz Cruz in late 1974.

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Bureau of Public Affairs

D

BOLIVIA

Dr. Hugo Banzer	President of the Republic

MEMBERS OF THE CABINET

Gral. Juan Lechin Suarez	Minister of Planning and Coordination
Cnl. Juan Pereda Asbun	Minister of Interior
Gral. Alberto Guzman S.	Minister of Foreign Affairs
Lic. Carlos Calvo	Minister of Finance
Cnl. Waldo Bernal	Minister of Education
Ing. Julio Trigo R.	Minister of Transport and Communication
Tcnl. Mario Vargas Salinas	Minister of
Gral. Victor Gonzales F.	Minister of Industry, Commerce and Tourism
Cnl. Alberto Natusch Busch	Minister of Agriculture
Gral. Antonio Zelaya	Minister of Mining
Gral. Guillermo Jimenez	Minister of Energy and Hydrocarbons
Gral. Rene Bernal E.	Minister of Defense
Rear Admiral Santiago Maese	Minister of Housing and Urbanism
Cnl. Dr. Jorge Torres N.	Minister of Social Welfare and Public Health

PERMANENT MEMBERS OF THE ECONOMIC TEAM

Gral. Juan Lechin Suarez	Minister of Planning and Coordination
Lic. Carlos Calvo-Galindo	Minister of Finance
Lic. Adalberto Violand	General Adviser to the Presidency of the Republic
Lic. David Blanco	Undersecretary of Finance
Lic. Raul Boada	Undersecretary of Finance
Lic. Enrique Garcia	Undersecretary of Planning and Coordination
Ing. Alberto Valdez	Undersecretary of Planning and Coordination
Lic. Hector Ormachea	Executive Director of the National Institute of Finance
Lic. Manuel Mercado	President of the Central Bank
Major Jorge Escobar	Economic Advisor to the Presidency of the Republic

CURRICULA OF CABINET MEMBERS AND SENIOR OFFICIALS

Gen. Hugo Banzer Suarez has been President of the Republic since August 1971. Born in 1916 in the Santa Cruz Department, he is married and has three teen-age daughters and an 8-year old son. Trained in military academies in Bolivia, Argentina, the Panama Canal Zone and the United States, General Banzer commanded various military units, becoming eventually Chief of the General Staff, Head of Army Intelligence and Military Attaché at Bolivia's Washington Embassy. The President is the holder of high decorations of a number of South American countries. He speaks English.

Between 1964 and 1966, the then Colonel Banzer was Minister of Education. He came to power in 1971, leading a revolution against the left-wing regime of General Torres.

Gen. Juan Lechin Suarez, Minister of Planning and Coordination, was born in Cochabamba in 1921. Married, he has three daughters in their twenties and a son of 19 years. General Lechin pursued a military career, becoming the head of the National Military College and, in 1961, a Division Commander.

Between 1965 and 1968, General Lechin was President of COMIBOL, the government's mining corporation. Subsequently, from 1970 to 1974, he held the post of Ambassador to the United Kingdom and the Netherlands. At the same time, he headed the Bolivian Delegations to International Tin, Coffee and Sugar Councils. He was appointed Minister of Planning and Coordination in 1974 and has been responsible for selecting to ranking positions in his Ministry the best possible candidates, like the present Finance Minister Calvo, the former General Manager of Banco Agricola, Alberto Valdes, and the former Operations Manager of Banco Industrial and IDB staff member, Enrique Garcia. General Lechin speaks English.

The 36 year old Minister of Finance, Carlos Calvo Galindo, is one of two civilians in the Cabinet. Raised in Argentina and Bolivia, and educated in England, he has an economics degree from the London School of Economics, where he specialized in corporate accounting.

Mr. Calvo's first job was a research assignment in London with the International Tin Council. Simultaneously, he acted as advisor to the management of Consolidated Tin Smelters. In 1969 he switched to banking, joining First National City Bank in New York and becoming -- two years later -- General Manager of their Bolivian subsidiary. In 1973, he went into export business in Bolivia and a year later was elected Chairman of Banco Mercantil, the largest Bolivian private bank. At the same time, he represented the Confederation of British Industries in Bolivia.

Mr. Calvo's career in the government began in 1975, when he was appointed Under-Secretary in the Ministry of Planning and Coordination. He became Finance Minister on January 11, 1976.

Gen. Alberto Guzman Soriano, Minister of External Affairs, was born in Cochabamba in 1923. His military career has been interspersed with government and diplomatic assignments. After military training in Bolivia, Panama and Argentina, he taught

at military schools and commanded the Bolivian Army College in 1965/66. In the past ten years, he has -- inter alia -- held the positions of Minister of Rural Affairs, Military Attaché in Argentina and Bolivian Ambassador to the Argentine Republic.

Col. Juan Pereda Asbun, Minister of the Interior, Immigration and Justice, was born in La Paz in 1932. After air force training in Bolivia, Italy and Argentina, he became Squadron Commander, Group Commander and, eventually, head of the Air Force College at Santa Cruz. He was Minister of Industry and Trade before taking over his present post.

Julio Trigo Ramirez, Minister of Transportation, Communications and Civil Aviation is a retired military officer who previous to his appointment as Minister, served as an adviser to Gen. Banzer. Trigo spent a number of years working in Washington as a highway engineer for the District of Columbia and speaks excellent English. Mr. Trigo is regarded by Bank staff as a good technician and competent administrator.

Col. Waldo Bernal Pereira, Minister of Education and Culture, was born in Oruro in 1934. After air force training in Bolivia, the United States and Argentina, he had held several line and teaching commands in the Bolivian Air Force.

Minister of Social Welfare and Public Health, Col. Dr. Jorge Torres Navarro, 50, is from Sucre, where he studied to be a surgeon. After medical training in Spain, Britain and the United States, he held the posts of Director of La Paz Military Hospital, Director General of Veterinary Service, and Professor of Pathology at the Sucre University.

Hector Ormachea Penaranda, Director of National Financial Institute (INDEF) at the Ministry of Finance, has maintained close contact with the Bank's staff ever since he was Financial Counselor at the Bolivian Embassy in Washington in the middle sixties. Born in La Paz in 1930, he studied Business and Public Administration, and Political Science, at the Universities of Maryland and Tennessee. After working with AID in Bolivia and completing his assignment in Washington, Mr. Ormachea became Financial Manager of COMIBOL, the government's mining corporation. Between 1971 and 1973, he was Minister of Industry, Trade and Tourism. Subsequently, he assumed his present post in which he is responsible for Bolivia's external financial operations.

Adalberto Violand Alcazar is President Banzer's personal economic advisor. Graduated from the Hamburg Commercial Academy, he is a Director of the Bolivian Chamber of Commerce and the Confederation of Private Businessmen. During his business career, he represented in Bolivia several North American motor car manufacturers.

In his capacity of General Manager of Banco Agricola de Bolivia (BAB), Ing. Alberto Valdes Loma, about 55, negotiated with us in the late sixties and early seventies the three IDA livestock credits to Bolivia. He ran

BAB -- single-handedly -- for several years and, due to his energy and competence, survived numerous changes of government and secured for his institution access to external sources of finance. The rapid decline in the performance of BAB started with Ing. Valdes' resignation, requested by President Banzer in late 1971 when the post of BAB General Manager was earmarked for the Socialist Falange Party, then a partner in the government. Ing. Valdes was recruited by the International Coffee Council in 1972 and spent over three years in London. While there, he established a close relationship with General Lechin and at his invitation returned to Bolivia in 1975 to become advisor on economic affairs to President Banzer. In January 1975, he was appointed Under-Secretary for Coordination in the Ministry of Planning and Coordination. He speaks English fluently.

Enrique Garcia, Under-Secretary for Planning in the Ministry of Planning and Coordination, has many friends at the Bank since the days when he was Loan Officer for Argentina at the IDB in Washington. A well educated and energetic man in his middle thirties, Mr. Garcia returned to Bolivia in 1974 to assume at the Banco Industrial the new post of Operations Manager, created in connection with IDA's Credit for a program of lending to medium-size mining enterprises. In early November 1975, he was appointed to his present post. He speaks English fluently.

February 19, 1976

CURRICULA OF THE REPRESENTATIVES OF THE PRIVATE SECTOR

Fernando Romero, 34, a member of a prominent Santa Cruz family, studied industrial engineering and management in the United States at Lowell Technical Institute, Sloan School of Management and MIT. Between 1967 and 1970, he was associated with W.R. Grace in La Paz and New York. Thereafter, he joined International Machinery Company in La Paz. He is presently Executive Director of this Company and of Bolivian Investments Ltd. He also acts as La Paz representative of the Santa Cruz Cattle Growers Association.

Javier Claros, 46, graduated as an electrical engineer from the Zurich Polytechnic to become Vice President of the leading firm of consulting engineers in Bolivia, Prudencio Claros and Associates. On various occasions, the firm has worked for Empresa Nacional de Electricidad (ENDE), a beneficiary under three IDA Credits.

Carlos Iturralde, 35, educated at the Universities of North Dakota and New York, and trained at W.R. Grace, was a manager of several mining enterprises before becoming Under-Secretary at the Ministry of Industry and Trade in 1971, and Secretary General at the Presidency of the Republic in 1972. Since 1973, he has been President of International Mining Company (a beneficiary under IDA's Credit for medium size mining enterprises) and Estalsa, Ltd.

Jorge Lopez Pacheo, about 40, educated in the United States, has been for the past 12 years Deputy General Manager and, subsequently, General Manager of Banco Industrial, S. A. through which the proceeds of IDA's first mining credit of 1974 are being on-lent to Bolivian medium size mining enterprises.

Ing. Jorge Bartos, born in Budapest in 1915 and educated in Czechoslovakia, is the owner of the leading Bolivian construction firm. His firm built several bridges as sub-contractor for the Santa Cruz-Yacuiba gas pipeline financed by the Bank.

Jorge E. Lonsdale, President of Private Businessmen Confederation, is 50, and has a B.S. in engineering from England and an M.S. in industrial administration from the United States. He is President of the La Paz Distillery, the Coca-Cola Company and holds executive positions in several other enterprises.

February 20, 1976.

Supplemental Curricula of Cabinet Members

The influential Minister of Peasant and Agricultural Affairs, Cnl. Alberto Natusch Busch, was born in 1930 in the Beni and entered Military College in 1947. In 1963, he underwent training at the Mountain Infantry School in Germany. After commanding several infantry regiments and teaching at various military academies, he was appointed to his present post in 1973. He holds the position of President of Banco Agricola and is well acquainted with the problems of that institution.

Brig. Gen. Victor Gonzalez Fuentes, Minister of Industry, Commerce and Tourism, 50, is a military engineer trained in Bolivia, Peru and France. He speaks English and French. Before joining the Cabinet, General Gonzalez was, inter alia, Chief of Civil Works at the Army High Command, member of the Inter-American Defense Board, Commander of the Bolivian Army College and General Manager of "COFADENA", the Armed Forces Development Corporation.

Brig. Gen. Jose Antonio Zelaya Salinas, born 1927, has been Minister of Mining and Metallurgy since 1974. He is a military engineer, geographer, geologist and astronomer, with varied scientific interests and an impressive scientific and teaching background. He speaks English.

Minister of Energy and Hydrocarbons, Brig. Gen. Guillermo Jimenez Gallo, was born in 1929 and studied military engineering in La Paz and at Fort Belvoir. He also attended the Command and General Staff College at Fort Leavenworth. Before being appointed to his present post in 1974, General Jimenez was General Manager and President of the Bolivian Development Corporation (CBF). He has traveled extensively.

Rear Admiral Santiago Maese Roca, Minister of Urban Affairs and Housing, 48, was trained in Bolivia, Brazil, Argentina and the Panama Canal Zone. He has held various naval commands and taught at naval academies in Bolivia. He was Naval Attache at the Bolivian Embassy in Buenos Aires and held ranking administrative positions in the Beni Department before being appointed to the Cabinet.

February 23, 1976.

E

BACKGROUND AND TOPICS FOR DISCUSSION

I. Poltical Setting

1. The military government of Bolivia is almost a special case. It is neither left nor right wing. Mr. Banzer came into power when the country had exhausted itself in politico-economic experiments and most of the population wanted peace and some continuity. The Banzer Government seems to have recognized this. It never used repressive police methods but it did move swiftly and severely when an actual rebellion took place (last time in the fall of 1974) or if a particular segment of the working population tried to obtain a larger share of the pie by violence or the threat of violence (miners strike in late 1974). This government -- although not the emotional dream of its citizens -- may thus be a bonus for Bolivia historically, in the sense that it may gradually lead to a more pragmatic, economic development oriented attitude in that strike-torn country. Our objective is therefore to strengthen those parts of the government that aim at economic development. The visit of the Bank's President can contribute significantly to moving towards that objective.

2. The present government, being a military government, has appointed high ranking officers to almost all ministerial positions. However, these ministers fulfill a more or less symbolic function only. They have neither the expertise nor the managerial capacity to effectively run their ministries. This is usually done by their civilian under-secretaries, who -- on the whole -- are quite good. But the military is also feeling its way -- cautiously -- towards including civilians in its government. The recent replacement of Colonel Suarez as Minister of Finance by Carlos Calvo, a civilian and top banker, is an indication of this trend. Mr. Trigo, Minister of Transport, is another example. Both are technically competent ministers who actually run their ministries.

3. One of the most difficult problems the Government faces is the occasional conflict between vested interests of the rich (combined with regional patriotism) and rational economic and institutional policies for the nation as a whole. While the government does not cater to the interests of the upper classes explicitly, it is doubtlessly dependent on their support, not only because of the political power they wield but also becuase the bulk of investable private savings in the economy comes from that group. This is not an easy position and the effect the Bank may have in supporting the "rational" side should not be underestimated. With the current enthusiasm and respect for "technical" judgements, there is considerable receptiveness to what the Bank may have to say -- objectively -- as long as the advice quietly accepts the basic "facts of life" of politics in Bolivia today. Thus, we believe that it would be useful to emphasize in general the need to

"depoliticize" the government's institutions and make them more "technically" oriented, i.e., more efficient as development institutions. This should be done in full recognition of the progress the government has made, last but not least by its program of conscription of civilians into the government which has brought a large number of capable people from the private sector into the government -- even though it should not be overlooked that these people are normally from the upper classes and therefore exposed to the very pressures described above -- which, however, they may be in a better position to withstand than many an average bureaucrat.

II. Long-Term Development Prospects

4. Bolivia today may well be at the crossroads of its long-term development. More favorable prices for some of its main export commodites combined with good long-term prospects for substantial expansion in the volume of oil, gas and agricultural exports could break two major constraints on the country's development effort: the perennial balance-of-payments problem and the equally perennial fiscal deficits that in the past have prevented the government from mounting a large scale, sustained long-term development program. However, even with these bright prospects, difficult fundamental problems remain to be solved before Bolivia can move on to a continuing high growth path.

5. The long-term development problems and prospects of Bolivia are almost unique. This is due to three basic characteristics which, as a combination, are shared by few other developing countries in the world. They are as follows:

(a) Bolivia, with a population of about 5.5 million, faces the "small country problem", i.e., in many activities economy-of-scale constraints severely limit possibilities of expanding output on the basis of domestic demand alone. This particularly affects policies aiming at industrialization on the basis of import substitution.

(b) Contrary to most other "small countries", Bolivia, with an area of over one million square kilometers -- or double the size of France -- is really quite a large country inhabited by small, relatively dispersed population. The relatively high cost of providing adequate transport, communication and social services due to this situation is further increased by the extremely rugged topography, which ranges from swampy flatlands in the north and east through Chaco and valleys up to mountain plateaus at elevations of some 12,000 feet.

Moreover, Bolivia is landlocked with long and difficult access ways to potential export markets. For a country with a total population of only 5.5 million, these factors create serious obstacles to the development of an adequate modern infrastructure, as investment cost for a comprehensive transport system alone would be prohibitively high on a per capita basis. The difficulties of topography are further compounded by an adverse climate: rainfall varies widely, and both floods and droughts are common. At higher altitudes there are also wide daily fluctuations in temperatures. These climatic conditions have an adverse effect on the transport system (mainly through frequent floods and landslides) and on agricultural activities (through floods, droughts and cold spells).

(c) Bolivia has unusually rich and diversified natural resources most of which, however, require heavy capital investment for their development and efficient exploitation. In the mineral sector, oil, natural gas, ferrous and non-ferrous metal deposits are numerous, but large investments would be required to both up-grade existing operations[1/] or start new ones. In agriculture, due to the availability of arable land at different altitudes, almost any crop could be grown and possibilities for raising livestock of all kinds are excellent, but again large scale activities, particularly for exports, would require substantial investments and the same is true with regard to Bolivia's ample forest resources and its potential for inland fisheries.

6. The factors described above reflect what might be called the immutable parameters for Bolivia's development. This unusual basic situation is further complicated by a number of socio-economic institutional problems which, at least in the short run, will be difficult to solve. They are as follows:

(a) A large proportion of the population (70-80%) live in the traditional sector of the economy with no or little contact with the modern, monetary sector. Of these, the majority live in the Altiplano as small subsistence farmers. Most of them are Indians and many neither speak nor understand Spanish. Their productivity is low and their output has stagnated for decades, if not centuries. Efforts to resettle a significant part of the Altiplano population to the valleys and lowlands have failed. In view of the number of people involved (well over two million), socio-economic progress in Bolivia will depend greatly on success or failure of solving the "Altiplano problem".

(b) The institutional basis for developing and implementing rational economic policies in Bolivia is weak. This is mainly due to the fact that, in the past, economic objectives have usually been subordinated to problems of internal politics. In contrast to many other politically volatile developing countries, there are, as yet,

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1/ See article on tin under F4

no cadres of well-trained non-political technicians who, in spite of frequent political changes, would remain on the job in the relevant institutions and thus provide some continuity to the economic development effort regardless of most political changes. In the past, the major drawbacks of constant changes in Bolivia's economic management have been, first, the almost exclusive concentration of policy making on short-term problems with little attention devoted to long-term problems; and second, the concentration of control over the economy in the Central Government in La Paz.

(c) Compounding the situation described above, there is a serious shortage of qualified manpower on all levels in both the public and the private sectors in almost all fields of economic activity, with the possible exception of the extractive industries. This is due to the fact that only a small fraction of the total population (inspired guesses range from 200,000 to 300,000) can be considered to have adequate education and/or training to function effectively in the modern sector of the economy.

(d) Due to the institutional constraints described above, reliable statistical information on many important social and economic matters is usually lacking. Before a long-term development plan is precise quantitative terms could be prepared, it would be necessary to solve this problem. In the meantime, the basic elements of a long-term development strategy for Bolivia can be determined on a qualitative basis only.

7. Bolivia's long-term development strategy will have to aim at solving the main problems and breaking the constraints listed above. Politically -- and perhaps also economically -- the most important long-term problems are probably in the traditional agricultural sector, and particularly on the Altiplano. A large proportion of Bolivia's population works and lives at subsistence level in this sector. Living standards are very low and there is widespread unemployment or underemployment. Politically, the social pressures generated by this situation are, of course, the major inducement to adopt a comprehensive development program for traditional agriculture. Due to the very low "starting" level of productivity, such a development program, if properly designed, may well produce relatively high economic rates of return. In that case the program would also promote the transfer of population from the subsistence to the monetary sector of the economy, an achievement which would help to expand considerably the domestic market of a country faced with the above mentioned "small country problem". Since at present only a minor proportion of the population is in the modern sector, such a transfer could produce important long-term economic benefits. A program to tackle the problems of the traditional agriculture in Bolivia will have to be both large in size and sustained over a long period if lasting effects are to be achieved. However, in view of failures in the past, such a program should be based on experience gathered by various experimental projects.

8. The second major long-term task facing Bolivia is industrialization. It may seem premature at this point in time to put emphasis on this sector because Bolivia today is an almost purely raw material producing and exporting country and has only a small market for industrial products. However, two observations suggest that such an emphasis on industrialization may well be needed now. First, historical experience shows that even in traditionally non-industrial countries (e.g., the small agriculturally-oriented economies of Denmark and New Zealand) industrialization eventually became a necessity, both to provide employment and to diversify exports as well as to substitute for some industrial imports. Second, historical experience also shows that industrialization is a difficult and slow process, particularly in small countries. Thus, the process should be started -- and carefully monitored -- in Bolivia now, so that an industrial structure will come into being in time to complement exports of basic materials as well as to provide -- directly and indirectly -- employment to those who will be set free in agriculture in ever increasing numbers as productivity and efficiency begin to grow quickly in that sector. Industrial development in Bolivia will of necessity take place in two basically different streams. One will be the development of small to medium size industry in fields where economy-of-scale factors are not too important. These industries would initially be oriented mainly to the domestic and subsequently perhaps also to the export market. The complement to this basic pattern of industrial development would be occasional very large investment in plants processing domestic raw materials, mainly for exports. Such plants will have to be large to obtain substantial economy-of-scale cost savings and therefore will have to be justified by intensive analysis of export prospects and/or conclusion of long-term contracts. Some of these plants will probably be built in the context of Andean Common Market agreements but it is too early to assess the actual long-term effectiveness and benefits of these agreements and thus to judge whether the Andean Market could become a major driving force for the economic development of Bolivia.

9. If Bolivia's efforts in developing the main productive sectors are successful they need to be supported by a commensurate development of infrastructure. This should pose no particularly severe problem with the exception of the transport sector. Due to the geographical difficulties described earlier, development of the transport sector will require huge investments and present intricate problems in determining optimum solutions in a situation where mistakes will tend to be extremely costly. The purely technical problems will be compounded by political factors (mainly regional interests) which, in this sector, accompany and interfere with the investment decision making process to an unusual degree.

10. To achieve rapid development in the productive sectors, and to provide an adequate economic infrastructure will require large capital investments. The savings to support such a rapid capital formation -- in the medium term -- will have to come mainly from the mineral and hydrocarbon export sectors. As more rapid development gets underway and Bolivia's absorptive capacity for productive investments increases, the export sector will need to expand output more quickly and develop the necessary transport capacity to more increasing volumes of metals, minerals, gas and oil. This will also require large investments and in view of the complex technical interrelations of all these investments, effective long-term planning will become increasingly important.

11. In summary, the export sector will be expected to produce the majority of the savings required to finance a large, development oriented investment program. A substantial part of these savings will have to be reinvested in the export sector itself in order to further increase exports, lower costs and generate more savings. Of the remaining savings, a large part should be directed to investment in traditional agriculture -- commercial agriculture generally being able to take care of itself -- and to productive infrastructure investment, mainly in transport. A smaller part of the export sector's savings might be directed to industrial development (small and medium size) and productive investment in forestry and fisheries, which are potential new export sectors.

12. A long-term development effort as outlined above will be possible on a sustained basis only if decisive institutional reforms are undertaken in order to break the constraints described earlier in paragraphs 6 and 7, and institutions are kept free from undue political interference. The reforms should facilitate long-range planning, project identification and preparation on a continuous basis and provide a mechanism for the required feedback of reliable statistical information on socio-economic developments. Several measures in this direction have already been taken. The planning function of the Ministry of Planning and Coordination has been strengthened and an Institute for Preinvestment Studies and Project Preparation has been created under the Ministry. But the overall planning process needs further strengthening through better linkage with sectoral planning efforts in the individual Ministries. Also, the institutional capability to implement investment projects and monitor development policies should be further improved and decentralized through reorganization of existing and/or creation of new specialized agencies with more autonomy, which should be in charge of specific sector and subsector aspects of the country's developmental effort, while only the responsibility for overall policy and fiscal control should remain in the hands of the Central Government.

III. Subjects Mr. McNamara May Wish to Raise

13. As pointed out above we believe it would be useful if Mr. McNamara would generally stress the need for government institutions to be guided as far as possible by rational economic principles and therefore the government authorities would contribute to this objective most effectively by taking measures that would shield institutions from excessive political interference. This could best be done by granting these institutions a certain degree of autonomy, avoiding too frequent changes in management and by paying adequate salaries to at least the top technical employees of these institutions. In the context of our operations in Bolivia, the Bank has a very direct interest in seeing these principles adhered to in several more or less weak institutions with whom we work -- or hope to work -- closely: The Bolivian Agricultural Bank (Banco Agricola de Bolivia -- BAB): The Bolivian Mining Bank (Banco Minero de Bolivia -- BAMIN): and the national railroad enterprise (Empresa Nacional de Ferrocarriles -- ENFE).

14. In the euphoria that inevitably accompanies the energetic Bolivian efforts to accelerate their economic development there appear the usual ideas for what might be called "monster-projects", i.e., projects of a size that by far exceed the financing capability of the country as well as being of doubtful priority. Particularly the army's development corporation (COFADENA) has a number of such multipurpose projects under consideration (usually hydropower, river regulation, irrigation and other components), each costing many hundreds of millons of US dollars. It is possible that some such projects will be presented during Mr. McNamara's visit and we would recommend that the Bolivians be discouraged from engaging too early in the financing and execution of such projects or at least it be made clear that the Bank would not be in a position to consider their financing. But even if they do not present any of these projects an opportunity may arise when it would be appropriate to generally point to the danger of over-extending Bolivia's modest investment resources by including giant projects in their program, with the possible exception of projects with a very short pay-back period like the proposed gas pipeline to Brazil.

IV. Subjects the Bolivians are likely to raise

(i) IDA -- Third Window

15. Bolivia was phased out of IDA in FY75, principally because its creditworthiness had improved sufficiently as a result of increased prices received for the modest volume of oil and natural gas it exports. Yet, the Bolivians feel that the sudden transition from IDA to Bank terms was rather hard, particularly as their GNP p.c. (about $300 in 1974) has stayed well below the IDA cut-off point. Although they appreciate having received the Ingavi loan on Third Window terms they are likely to reiterate their request for lending on softer terms than Bank loans proper. We recommend that their attention be drawn to the facts that (a) there are far poorer countries than Bolivia in other parts of the world and IDA funds are limited; (b) their newly won creditworthiness not only makes them eligible for Bank lending but also improves considerably their chances to obtain credits from other, including commercial, sources.

(ii) Consultative Group

16. The government has informally inquired with the Bank about the possibility of creating a consultative group for Bolivia. We replied that formation of a consultative group would require consent among a majority of potential lenders that such a group would be desirable but it would depend even more on Bolivia's capability to provide adequate documentation for a consultative group meeting, particularly a well conceived project list. The Bolivians have been working on such a list and may well submit a first draft together with a request to the Bank that it would agree to form and head a consultative group for Bolivia. We recommend to reserve our position until we have had an opportunity to study the draft project

list and consult with a sufficient number of Part I countries. Informal discussions with officials of some of these countries so far have shown a generally sympathetic attitude towards the idea.

(iii) Technical Assistance

17. Our last CPP had proposed a technical assistance/preinvestment loan (p.20 of the CPP). Thereafter, we succeeded in reaching a detailed cooperation agreement with UNDP and the proposed loan was dropped from the lending program. However, UNDP's latest financial difficulties have put large parts of the agreed program in question and the Bolivians are likely to ask whether the Bank could reconsider the possibility of a technical assistance loan in view of the importance such assistance would have for speeding up Bolivia's project preparation and implementation capacity.

(iv) Bank Office in La Paz

18. In the context of their attempts to obtain technical assistance and work more closely with the Bank, the Bolivians have informally inquired whether a Bank staff member could be stationed in La Paz in order to facilitate rapid daily working contact between the government and the Bank and they may raise this point during the forthcoming visit. We will shortly submit a proposal for such an office, since we belive that the quickly increasing number of ongoing projects and of new projects to be prepared would well justify the moderate additional expenditure required for stationing a Bank staff member in La Paz (preferably a loan officer with a solid background in agriculture).

(v) Gas Pipeline Bolivia-Brazil

19. Bolivia has large potential natural gas reserves. A gas pipeline from Santa Cruz to Yacuiba on the border with Argentina was completed in April 1972 with IBRD and IDB financing. As soon as substantial probable reserves in new fields have been proven (delineation drilling is to begin soon), construction of a gas pipeline to Brazil would be justified. Preliminary discussions between the Bolivians and the Brazilians indicate that total export receipts by Bolivia may be about $75 million/year (based on a price of $0.85/1000 cf and 240 million cf/day), an increase in overall exports between 10% and 15%, equivalent to Bolivia's present net foreign exchange reserves. The Bolivians have informally requested the Bank's help in putting together the financing package for this project and we have indicated to them -- again informally -- that the Bank would be willing to consider the project as a regional enclave project, a loan for which would have to be guaranteed by both Bolivia and Brazil. We have little doubt that the Brazilians would accept to give the guarantee. Apart from providing part of the financing (about $50 million out of the estimated project cost of some $250 million) the Bank's role would be to help the Bolivians obtain reasonably good terms for the entire financing package. If executed properly, the project should be financially self-liquidating in 7 to 10 years.

(vi) Bolivia's Access to the Sea

20. As far as we could establish, the basic facts as reported in the "Vision" article[1] are correct. The Bolivians -- and possibly already the Peruvians -- are likely to mention the issue. The Bolivans may well request Bank assistance for rehabilitating the railroad from La Paz to Arica[2] and perhaps even for the construction of a new (Bolivian) port close to Arica, where Bolivia has for many years had a free port zone. While the former would be amply justified -- if the political problems can be solved --we have serious doubts about the latter in spite of its politically attractive features. To construct an entirely new port would be an enormous economic burden for Bolivia involving indefinite postponement of many other high priority investments. Having a modern deepwater port at Arica, the overall capacity of which is utilized at only 25%, the incentive for Bolivia to find an acceptable agreement for its use with Chile should be great enough to overcome political considerations, at least in the medium term, i.e., until Arica's capacity if fully used.

(vii) Tin Buffer Stock

21. The Bolivians are aware that the Bank is considering a loan to the International Tin Council for the financing of buffer stock and may ask about the status of the loan and request favorable Bank consideration of it. The Bank is considering a $50 million loan to help finance the expansion of the buffer stock. The developing tin producing countries considered sufficiently creditworthy by the Bank will be asked to guarantee a pro rata share of the Bank loan, based on the country's pledged contributions to the buffer stock. Under this arrangement, Bolivia would be expected to guarantee $9.8 million of the proposed Bank loan. The Bank intends first to hold discussions with the International Tin Council in London in early March, before meeting with individual countries at the end of March. It is anticipated that the proposed loan would be presented to the Board before the end of the fiscal year. Although we have not yet discussed the specific size of the guarantee, we have advised the Government that a guarantee would be required. If the subject is raised, the Government should be reminded that the Bank will be requesting such a guarantee.

1/ See press clipping under F4

2/ See "Arica - La Paz Railway" under F4

F

CONFIDENTIAL
March 31, 1975

Country Program Paper

BOLIVIA

Postscript

77. The Country Program Paper for Bolivia, dated March 12, 1975 was discussed on March 21 at a meeting chaired by Mr. Knapp.

78. Mr. Knapp suggested, and it was agreed, that the lending program proposed in the Country Program Paper be modified as follows:

(a) Lending in FY79 and FY80 would be $60 million and $70 million respectively in current terms.

(b) The proposed technical assistance loan would not be included in the program. Discussions with UNDP would establish whether the required assistance could be provided by that organization. Should UNDP be unable to help, the proposed loan could be reconsidered.

(c) It was noted that the FY76 Agricultural Credit I Project is now ready to go to the Board in FY75 and it was agreed that only IDA funds be used for this operation.

(d) It was also noted that the proposed exploration fund, included in the FY78 Mining Credit III, should be moved forward to FY77 and be included in the Small Mining Credit.

79. A revised Attachment I is appended.

Population: 5.5 million (mid-1974); 2.6% p.a. (1960-74)
Per Cap. Inc.: $307 (mid-1974); 2.3% p.a. (1975-80)
Area: 1,098,000 km²
Literacy: 38% adult population (1970)

BOLIVIA - ACTUAL AND PROPOSED LENDING THROUGH FY1980

(Current $ millions)

		Through FY68	Actual FY1969	Actual FY1970	Actual FY1971	Actual FY1972	Actual FY1973	Actual FY1974	Current FY1975	Program FY1976	Program FY1977	Program FY1978	Program FY1979	Program FY1980	Total FY69-73	Total FY74-78	Total FY75-79	Total FY76-80
Livestock I	IDA	2.0																
Livestock II	IDA			1.4														
Livestock III	IDA				6.8													
Agricultural Credit I	IDA								7.5									
Agricultural Credit II	IBRD												20.0					
Rural Development I	IBRD									~~13.1~~ 9.5								
Rural Development II	IBRD											~~[illegible]~~*						
Agro-Industries I	IBRD										~~[illegible]~~*							
Agro-Industries II	IBRD												25.0*					
Forestry I	IBRD										~~[illegible]~~							
Forestry II	IBRD													25.0				
Fisheries	IBRD												10.0*					
Mining Credit I	IDA							6.2										
Mining Credit II (DFC)	IBRD									~~13.5~~	10.0 (12.0)							
Small Mining Credit	IBRD																	
Mining Credit III	IBRD											~~21.0~~*						
Mining Credit IV	IBRD													40.0				
Mineral Exploration Fund	IBRD											5.0						
BPC I & ENDE I	IDA	15.0																
ENDE II	IDA		7.4															
ENDE III	IDA							6.0										
ENDE IV	IBRD									25.0		~~20.0~~						
Railways I	IDA						8.0		32.0 (~~[illegible]~~)									
Railways II	IBRD											28.1	~~43.9~~					
Railways III	IBRD											~~10.0*~~						
Airports	IBRD										10.0							
Gas Pipeline	IBRD		23.3															
Water Supply I	IBRD									12.0	~~7.5~~							
Water Supply II	IBRD													24.0*				
Education I	IBRD										10.0*							
Education II	IBRD													30.0*				
Operations Program	IDA								7.5	[illegible]	-	-	-	-			7.5	-
	IBRD								29.0 (32.0)	[illegible]	61.5	71.0	100.0	119.0			288.1	378.1
	Total IDA/IBRD								36.5	[illegible]	61.5	71.0	100.0	119.0			295.6	378.1
	No.								2	[illegible]	5 (4)	4	4	4			16	19
In Constant 1974 Prices	IDA								6.6	-	-	-	-	-			6.6	-
	IBRD								25.6	21.5	45.7	49.3	65.2	72.9			207.3	254.6
Lending Program	IDA	17.0	7.4	1.4	6.8	-	8.0	12.2	7.5	-	-	-	-	-	23.6	19.7	7.5	-
	IBRD	-	23.3	-	-	-	-	-	29.0	~~26.6~~ 46.5	~~46.0~~ 2.0	~~57.6~~ 33.1	60.0	70.0	23.3	153.6	231.3	254.6
	Total IDA/IBRD	17.0	30.7	1.4	6.8	-	8.0	12.2	36.5	~~26.6~~	~~46.0~~	~~57.6~~ 33.1	60.0	70.0	46.9	173.3	238.8	262.1
	No.	3	2	1	1	-	1	2	2	3	4	4	3	4	5	12	13	15
In Constant 1974 Prices		-	43.7	2.0	9.1	-	9.1	12.2	32.2	21.5	30.0	40.0	39.1	42.9	63.9	135.9	162.8	173.5
Price Index (FY74=100)			70.2	71.5	74.6	81.1	87.7	100.0	113.2	124.0	134.5	143.9	153.3	163.3	-	-	-	-
Other Agencies (CY)																		
Multilateral		31.7	8.8	6.2	14.1	10.8	7.6	9.4	19.2	28.4	38.0	49.6	60.4	62.7	40.6	144.6	195.6	239.1
Inter-American Development Bank		31.7	8.8	6.2	14.0	10.4	6.5	8.9	16.3	23.5	32.2	41.0	50.0	50.6	39.0	121.9	163.0	197.3
Andean Development Corporation		-	-	-	0.1	0.4	1.1	0.5	2.9	4.9	5.8	8.6	10.4	12.1	1.6	22.7	32.6	41.8
Bilateral		204.2	28.6	38.1	6.3	49.2	9.9	10.3	17.5	26.4	34.6	74.2	71.7	57.4	131.1	163.0	224.4	264.3
U.S.		89.5	25.9	24.8	5.6	40.5	7.0	8.2	9.0	13.2	16.1	18.8	20.2	18.3	104.7	65.3	77.3	86.6
Other		114.7	2.7	13.3	0.7	8.7	2.9	2.1	8.5	13.2	18.5	55.4	51.5	39.1	27.4	97.7	147.1	177.7
Commercial Banks, Other		106.8	12.5	71.7	10.6	30.7	-3.3	30.0	22.6	88.7	78.3	111.5	81.1	64.1	104.5 1/	361.5	382.2	423.7
IBRD o/s 2/ incl. undisb.		-	23.3	-	23.3	23.3	24.9 3/	23.4	51.1	83.8	122.9	179.1	246.3	324.9				
excl. undisb.		-	-	-	-	21.3	24.9 3/	23.4	22.1	24.1	33.8	52.4	79.7	114.4				
IBRD Gross Disbursements		-	-	-	-	21.3	2.0	-	-	3.3	11.1	20.0	29.1	37.8	23.3	34.4	63.5	101.3
Less: Amortizations		-	-	-	-	-	-	-	1.3	1.3	1.4	1.4	1.8	3.1	-	5.4	7.2	9.0
Equals: Net Disbursements		-	-	-	-	21.3	2.0	-	-1.3	2.0	9.7	18.6	27.3	34.7	23.3	29.0	56.3	92.3
Less: Interest and Charges		-	-	-	-	0.5	1.9	1.0	1.5	1.8	2.4	3.7	5.7	8.4	2.4	10.3	15.1	22.0
Equals: Net Transfer		-	-	-	-	20.8	0.1	-1.0	-2.8	0.2	7.3	14.9	21.6	26.3	20.9	18.7	41.2	70.3
IBRD/IDA Gross Disbursements		15.0	1.2	1.8	2.2	25.0	4.1	5.0	5.7	10.0	16.4	22.5	30.5	38.7	34.3	59.6	85.1	118.1
Less: Amortizations		-	-	-	-	-	-	-	1.5	1.5	1.6	1.6	2.0	3.4	-	6.2	8.2	10.1
Equals: Net Disbursements		15.0	1.2	1.8	2.2	25.0	4.1	5.0	4.2	8.5	14.8	20.9	28.5	35.3	34.3	53.4	76.9	108.0
Less: Interest and Charges		-	-	0.2	0.1	0.7	2.2	1.2	1.8	-2.1	2.8	4.1	6.1	8.8	3.2	12.0	16.9	23.9
Equals: Net Transfer		15.0	1.2	1.6	2.1	24.3	1.9	3.8	2.4	6.4	12.0	16.8	22.4	26.5	31.1	41.4	60.0	84.1
Total Net Disbursements		357.0	51.5	117.9	50.1	100.5	15.7	49.7	65.7	155.2	168.8	260.0	245.1	222.2	347.1 1/	699.4	894.8	1,051.3

* New Projects
1/ Including nationalization of Gulf Oil Co. amounting to US$78.6 million.
2/ As of end of fiscal year.
3/ Including exchange adjustment of US$1.9 million as of June 1973

Country Programs Department II
Latin American and Caribbean
Regional Office

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Country Program Paper

BOLIVIA

		IBRD Lending Program (US$ Millions) (Current US$ Million)		
		FY69-73	FY74-78	FY76-80
1974 Population: 5.5 million[1]	IBRD	23.3	162.3	284.0
1974 per capita GNP : US$ 307	IDA	23.6	17.2	5.0
Current Population: 5.5 million	Total	46.9	179.5[2]	289.0
Growth Rate: 2.6% p.a.				
Current Exchange Rate: US$1.00 = $b20.00				
	Operations Program			387.1
		Annual Average Per Capita (US$) (Current US$)		
	IBRD/IDA	1.71	6.56	10.57

Introduction

1. A country program paper on Bolivia was discussed on January 18, 1973. Subsequently, developments in world market prices for Bolivia's major export commodities (oil, gas, non-ferrous metals and minerals) have fundamentally changed the country's overall economic position and the present paper presents a new Operations and Lending Program adapted to this situation. The major repercussion of the changed situation is reflected in the proposal to phase out IDA and make Bolivia a purely Bank country. An economic mission visited Bolivia in September/October 1974 and its report is presently being prepared. This paper includes the main conclusions of that report.

1/ Source: National Statistical Institute of Bolivia

2/ In current terms, the proposed FY74-78 program is $179.5 million as compared with $79.5 million for the same period, approved in January, 1973. In constant (FY74) dollars, the proposed FY74-78 program is $140.3 million representing an 82% increase over the previously approved program of $77 million. Annual average commitments per capita in real terms for FY74-78 would be $5.13 compared with $2.81 during FY69-73.

A. POLITICAL SETTING AND BASIC ASSUMPTION

2. Bolivia's political history has been relatively turbulent, with the army frequently playing the dominant role in combination with one or more of the political parties or factions. The political instability of the country is to a considerable extent a reflection of the intractability of the poverty problem. In groping for solutions which would significantly improve living conditions for the mass of the population, various Governments have tried different development strategies ranging from extreme nationalism, a radical agricultural reform and quasi-socialism to considerable reliance on private initiative and free market forces. The resulting shifts in policies were often violent and disruptive, magnifying the problems caused by a poorly developed resource base, geographic isolation and deep-seated cultural rigidities. The present Government, headed by General Banzer, came into power in August 1971, supported by two political parties, the left-wing Movimiento Nacionalista Revolucionario (MNR) and the right-wing Falange Socialista Boliviana (FSB). Since then the Banzer regime survived a considerable number of attempted coups, the last of which occurred in November 1974. The attempted coup was quickly suppressed and Banzer used the opportunity to suspend the activities of all political parties, postpone the elections scheduled for 1975 to 1980 and made important changes in appointments of Government officials. Various laws and decrees were promulgated to create the basis for an "economic development oriented" military Government. Among these is a law that permits conscription of civilian technical experts for the public service. Some appointments have already been made on the basis of the new law. After some initial opposition, the Bolivian public seems to have accepted the new situation with relative calm. The emerging new Government seems to be moderately nationalistic with a large tolerance for the private sector, including foreign oil and gas exploration.

3. Thus, there could now be a five-year period ahead in which Bolivia might make significant progress in the direction of a well-planned, consistent development effort. As will be pointed out below, largely because of Bolivia's position as a minor exporter of petroleum and natural gas, the economic basis for such progress is likely to exist and the decisive problem therefore is to maintain stability of Government. The probability of such stability being sustained cannot be estimated, but developments since Banzer's takeover in 1971 indicate that the regime may well have a chance to survive, especially if its economic development efforts are reasonably successful. The remainder of this paper and the proposed operations and lending program are based on three principal assumptions: political stability; perseverance by the Government in the pursuit of rational economic policies; and continuation of relatively favorable terms of trade for Bolivia.

B. RECENT ECONOMIC PERFORMANCE

General

4. The relatively stable political situation of the past few years has had a beneficial impact on the economy. A more favorable Government attitude towards the private sector has brought back investors' confidence, leading to a recovery of private investment. More rational economic policies are being pursued and public sector institutions are being strengthened. This has been reflected in an acceleration in the pace of GDP growth from 3.4%, on annual average during 1968-70 to over 6% since 1971. In addition, substantial increases in export prices in 1974, especially for petroleum and minerals, have given the country a step imrpovement in its balance of payments and fiscal performance. Although GDP growth slowed down to about 5% in 1974 -- due to slower agricultural growth, stagnant hydrocarbon output and a fall in mining output -- the substantial income gain associated with the terms of trade improvement allowed a simultaneous and large expansion of both consumption and investment.

5. Despite the significant advances made during the past few years, the level of economic development is still low. Although per-capita GNP in 1974 jumped to nearly US$310 (in 1974 prices), this is one of the lowest in the Hemisphere. The recent growth of the economy did not do much to alleviate unemployment nor has it improved the lot of the impoverished Indian population of the Altiplano. Economic growth has had its strongest impact in the Eastern Lowlands, in particular the Santa Cruz region where hydrocarbon production and modern agriculture are concentrated, thus accentuating regional income disparities. The mass of the population which continues to live on subsistence agriculture in the Altiplano has hardly improved its living standards during the past two decades. Open unemployment has remained at around 16% of the labor force.

6. Bolivia's economic development has traditionally been hampered by low investment and a weak savings effort. While this has been the natural result of the country's poverty, it has been compounded by past Government policies. Investment fell off sharply after 1968 and despite a strong recovery in 1974, its share in GDP still is well below that attained in 1968. The fall in investment has been particularly serious in the private sector which was first affected by unfavorable Government policies during the Torres period and more recently, by the uncertainties surrounding the 1972 devaluation and the build-up in wage pressures. Savings during 1968-73 were adversely affected by the weak performance of Government revenue and persistent Central Government current deficits. Private savings likewise declined during 1971-73. Until very recently there were no fiscal savings incentives and the stimulus to save appears to have been negatively affected by the upsurge in inflation during the last two years. The strong increase in savings in 1974 was primarily brought about by the terms of trade gain; the pace of consumption growth decreased only marginally.

Public Finances

7. In contrast to the chronically weak financial position of the public sector in past years, a substantial improvement in Central Government revenues and in overall public savings took place in 1974. This was primarily due to the terms of trade gain: while Central Government current revenue increased close to 20% (in real terms), over one-half of the increase was directly due to higher export prices. Improvements in administration and stepped-up collection of income and sales taxes contributed the rest. Current expenditures increased much less than revenues, i.e. by some 5%. After current deficits during 1970-73, the Central Government achieved savings equivalent to nearly 50% of its capital expenditures in 1974. However, if taxes paid by export enterprises were excluded, the Central Government would again have experienced a small deficit. The export enterprises, and primarily the State Petroleum Company YPFB, have thus become the most important source of public savings. Savings of the public sector as a whole in 1974 increased to 9.5% of GDP -- compared to less than 4% before 1973 -- covering over 90% of public capital expenditures.

8. The Government is taking steps to broaden its revenue base. A comprehensive tax reform is now being enacted, consisting of a restructuring of income and property taxes, a revision of the customs tariffs (with a view to bringing it into accord with Bolivia's obligations within the Andean Common Market) and modifications to sales and excise taxes. The aim is to make the tax system more responsive to income and price changes while making income and sales taxation somewhat more progressive. Fiscal incentives are being introduced to encourage investment and employment growth. Tax concessions will be given for reinvested profits, generation of additional employment and non-traditional exports. Finally, the reform is to lead to a simplified yet more efficient tax administration.

Balance of Payments

9. The most important element influencing economic performance in 1974 was the sharp increase for Bolivia's principal export commodities. On average, export prices nearly doubled in 1974, following an increase of 25% during the previous year. The average price of crude petroleum was close to $15 per barrel in 1974[1/] compared to $4.13 in 1973. Prices of minerals and sugar have also nearly doubled. Natural gas prices increased rather less. However, a new long-term contract has been negotiated with Argentina, still the sole customer, which will provide substantially higher prices from 1975 onwards. On the other hand, import price rises approached 30-35% with much higher increases for mining and petroleum drilling equipment, items which are becoming an increasingly important component of Bolivia's imports. Nevertheless, the terms of trade gain in 1974 was equivalent to about 9% of GDP.

1/ Although not a member of OPEC, Bolivia has moved its petroleum price in line with prices stipulated by OPEC member countries, normally the Venezuelan price. Due to its high quality and freight cost savings for its recipients -- almost exclusively neighboring countries -- Bolivia's crude generally has been sold above OPEC prices.

10. The strengthening of the terms of trade has been primarily responsible for an unprecedented improvement of the balance of payments. The value of merchandise exports nearly doubled in 1974 despite stagnation of volume for principal export commodities. The increase in petroleum prices produced some 50% of the gain and another 42% was due to higher mineral prices. On the other hand, imports went up by almost 60% in 1974, both as a result of price increases and volume growth in the wake of accelerating investment and higher spending on durable consumer goods. Capital inflows probably approached $65 million, nearly four times their 1973 level. As a result, there was an unprecedented gain in net foreign reserves of US$145 million. This brought total reserves to $176 million, representing over four months of imports.

Inflation and Wages

11. The high growth of the Bolivian economy has been accompanied by continuing wage-price pressures during 1973-74. While due to the openness of the economy, Bolivia in the past had enjoyed relatively low rates of inflation, the substantial devaluation at end-1972 unleased inflationary pressures. These pressures were accentuated by sharply rising international prices during 1973/74 which resulted in accelerating price increases for most imported goods, and were further exacerbated by the spillover of excessive credit expansion of past years, and the acceleration of wage increases following the 1972 devaluation. The retail price index for La Paz (the only price index available in Bolivia) rose 31.5% in 1973 and nearly 30% during the first two months of 1974 alone as prices of basic commodities were sharply increased by the Government in an effort to bring them into line with international prices. Particularly noteworthy is the fact that several public service tariffs, such as those for railways and electricity, were increased. Price rises have now slowed to a monthly average of 1-1.5%.

12. The movement of wages since 1972 reflects a Government policy to grant fixed increases in an attempt to benefit lower income brackets. The index of real wages for the very lowest group of wage earners shows a substantial increase since the devaluation and this level has by and large been sustained despite high inflation in early 1974. Available indexes show that the combination of fixed increases decreed by the Government and collective settlements would have resulted in sharply declining real wages of higher salaried groups. However, there are no indications of this actually having taken place at least in the private sector, because of wage drift, more frequent promotions, and brisker competition for qualified manpower. There has, however, been a substantial decline in real wages of higher paid Government employees. The overall trend in real wages has been upward, although more recently there might have been some deterioration in the real wages of workers other than miners.

C. DEVELOPMENT PROSPECTS

13. One of the major constraints to more rapid economic advance of the country have been in the fiscal area and frequent balance of payments difficulties. The improvement in Bolivia's export prices has reduced, though not removed, the fiscal and balance of payments constraints to growth in the immediate years ahead. The country now is in a position to substantially increase investment and establish the basis for faster growth of production and income in years ahead.

14. Since Bolivia is a very poor country, pressures to use recent income gains to mainly increase consumption will naturally be strong. While such a policy could give certain groups of the population short-term benefits, it would be counterproductive to a longer term solution of Bolivia's development problems. The Government is facing the challenging task to restrain increases in wage costs and in expenditures with little developmental impact. Future revenue gains ought to preserve for development related current expenditures and for raising public savings in line with the required growth of public investment. The Government is aware of the requirement for increased savings and is in the process of enacting further substantial increases in railway and electricity tariffs. In addition to the tax reform (para 8), the Government is also taking steps to enforce a higher degree of taxpayer compliance and to strengthen expenditure control.

Near-term Outlook

15. The recent striking improvement in the balance of payments cannot be expected to continue, since over the next few years most export prices will probably decline from their unusually high 1974 levels and a significant growth of import volumes can be expected. In the short term, it will be impossible to compensate falling export prices by expanding the volume of export and thus, some leveling-off in economic growth is likely to occur over the next few years, principally as a result of slow growth in mining and hydrocarbon output and limits to a further acceleration of export agriculture. GDP growth during the next two years may be expected to be in the 5.5-6% range. There might be some foreign exchange reserve losses if capital inflows do not increase substantially over their present levels. Because of the high foreign exchange reserve levels attained in 1974, balance of payments constraints probably will not limit growth immediately, but they might again become an impediment if the country's export potential is not increased substantially. The lack of managerial and technical skills necessary for developing and implementing investment plans in the export sector over the next few years, rather than shortage of foreign exchange, may therefore emerge as a major limitation on the future rate of growth.

Medium-Term Prospects

16. Bolivia's prospects for accelerated growth over the medium-term will thus depend greatly on the performance of the export sector. The expansion of productive capacity in basic export sectors requires large scale investment in mineral and hydrocarbon exploration, production facilities, transport and other related infrastructure which will have to be undertaken soon if a substantial production increase is to be possible in a few years hence. Due to the capital-intensive structure of the major productive sectors and heavy

infrastructural requirements of the country, the investment required to restore economic growth to its 1972-74 pace will be substantial.

17. An intensified hydrocarbon exploration program is underway. Difficulties in procurement of the needed equipment and scarcity of technical manpower are the most likely constraints on the progress of the exploration program. While it is too early to assess the scope for new discoveries and the possible increase in hydrocarbon production, prospects are good since only a minor proportion of potentially oil and gas rich areas has been explored so far. Output of minerals is likely to grow only moderately throughout the remaining 1970s. Prospects for tin will be limited by slow long-term growth in world demand, although the outlook is brighter for other minerals, notably copper and minor metals. Future growth of agriculture production will have to be achieved more through productivity increases than cultivating new areas since extensive agriculture in the eastern section of the country is beginning to show declining yields due to soil depletion, and is being affected by the limited capacity of the transport system in that region. The development potential of manufacturing is restricted by the small size of the market, the lack of appropriate infrastructure and serious manpower constraints. Of the few manufactures presently produced in Bolivia hardly any are exported. The Andean Pact assigns certain industries, particularly in the field of metal-mechanics exclusively to Bolivia. However, in the light of the country's limited available trained manpower, the best prospects for export-oriented industrialization in the medium term appear to be for processing agricultural raw materials such as food, wood and, possibly hides and skins.

18. While growth is likely to slow down over 1975/76, prospects are good for a substantial acceleration of growth towards the end of the decade. Hydrocarbon output and refining is likely to become the leading growth sector once exploitation of newly discovered petroleum and gas deposits gets underway. Export agriculture could resume its fast growth once the most serious infrastructural bottlenecks are removed and the incipient manufacturing sector can be expected to eventually benefit from exports to the Andean Common Market. If the public sector's savings performance can be sustained through restraint on current expenditures, increased public investment should remove some of the obstacles to faster growth of other productive sectors.

19. Three growth options have been developed, ranging from 6.0% to 7.2% GDP growth on annual average. The key indicators are presented in Table 1. The high growth alternative is the maximum attainable under the most favorable combination of circumstances. A somewhat lower growth alternative -- an increase in GDP averaging 6.8% -- would still require consistent development policies but would allow for investment and savings levels somewhat below those of the high growth alternative. Export growth, as well as import requirements, would also be somewhat lower; there would be a smaller deficit in current account of the balance of payments than embodied in the high-growth alternative and the need for external financing would be smaller. The investment and savings effort required to sustain this reduced growth would, nevertheless, remain substantial. Finally, if an allowance is made for slippage in policy implementation, for a further reduction in the investment and savings

Table 1: MACROECONOMIC OBJECTIVES: ALTERNATIVE GROWTH PATTERNS, 1975-80
(Annual Averages, in Percent)

	1968-74	1975-80		
		High Growth	Intermediate Growth	Medium Growth
PRODUCT AND INCOME (Constant 1973 prices)	ANNUAL CHANGE			
GDP	4.8	7.2	6.8	6.0
Agriculture	(4.4)	(5.3)	(5.2)	(5.0)
Mining	(1.7)	(2.4)	(2.4)	(2.4)
Hydrocarbon Extraction	(6.7)	(19.2)	(17.0)	(13.6)
Hydrocarbon Refining	(6.4)	(9.7)	(8.7)	(7.5)
Other Manufacturing	(3.6)	(5.9)	(5.6)	(5.5)
Construction	(5.9)	(8.0)	(8.2)	(6.3)
Services	(5.7)	(7.2)	(7.0)	(6.3)
GDY	6.2	5.6	5.0	4.4
Consumption	(5.3)	(5.2)	(4.7)	(4.4)
Investment	(4.2)	(17.1)	(16.3)	(13.6)
Imports	4.3	10.5	9.6	7.9
Exports	2.8	9.5	8.8	7.5
Gross National Savings	13.0 1/	4.1	4.2	2.4
POPULATION	2.6	2.6	2.6	2.6
EMPLOYMENT	2.0 2/	2.8	2.5	2.3
PUBLIC FINANCES (Constant 1973 prices)				
Current Revenue 3/	3.6	7.7	7.3	6.5
Current Expenditure 3/	3.0	7.1	6.4	6.2
Capital Expenditure	10.2	17.9	17.3	14.8
(excluding Hydrocarbons)	(5.7)	(14.4)	(14.5)	(11.8)
BALANCE OF PAYMENTS (Current prices)				
Exports of Goods and NFS	20.2	13.9	13.2	11.7
Imports of Goods and NFS	14.9	20.1	19.1	17.3
SELECTED INDICATORS	AVERAGES			
Average National Savings Rate (Percent)	17.0 1/	20.6	20.4	19.6
Marginal National Savings Rate (Percent)	50.4 1/	12.7	13.9	8.4
Import Elasticity	0.9	1.5	1.4	1.3
Net Public Capital Inflow (Terminal year; current US$ million)	24	202	202	140
Debt Service Ratio (Terminal year; Percent)	12.8	17.1	17.8	19.2

1/ This result is distorted by the strong outcome of 1974. For the period 1968-73, annual average growth of gross national savings was 1.9%; the average national savings rate, 15.5%; and the marginal national savings rate, 5.3%.
2/ 1970-74.
3/ Central Government and Municipalities of La Paz and Santa Cruz only.

effort, and for a higher ICORs, GDP growth averaging 6% would still be feasible for 1975-80. For the purposes of this Paper and the proposed lending program, the intermediate growth assumption has been used.

20. The Government is in the process of finalizing its investment plan which is phased over the next five years and covers the major sectors of the economy. Nearly one-half of the public sector's fixed investment is to be allocated to the hydrocarbon sector and to be carried out by YPFB, a company with competent management. As for the rest, the Government is making strong efforts to strengthen public institutions engaged in preparing and implementing investment projects. The institution-building efforts undertaken by the Bank and other multilateral lenders should also augment the investment-implementation capacity of the economy. It seems, therefore, that the institutional requirements to make possible the envisaged investment growth can be met to a substantial degree over the next few years, particularly if Bolivia can secure adequate technical assistance in a number of important sectors.

D. CAPITAL FLOWS AND EXTERNAL AID

21. Due to its very limited savings capacity, Bolivia's external capital requirements traditionally have been large. Net capital inflows during 1968-74, mainly contracted by the public sector, were close to US$350 million. Private capital movements showed a net outflow. Direct investment and other long-term private capital have been relatively unimportant, contributing less than US$15 million for the period.[1/] However, there has been some acceleration of inflow of long-term private capital in recent years. On the other hand, there have been substantial outflows of short-term private capital and the errors and omissions account probably also contains a large element of capital flight.

22. Commitments of medium to long-term loans to the public sector during 1968-74 including publicly guaranteed debt exceeded US$850 million. Bolivia's emergence as a minor oil exporter seems to have vastly improved the international financial community's assessment of its creditworthiness and commitments in 1974 alone were close to US$310 million. Disbursements over the same period have been much lower. They amounted to about US$530 million, leaving an undisbursed balance of nearly US$410 million by end-1974. Bilateral and international lenders provided some 60% of total commitments, mainly on concessionary terms; 7% of commitments are repayable in local currency. The Bank Group during 1968-74, committed US$59 million, or only 7% of the total. Apart from the US$23.2 million gas pipeline loan, our operations have been exclusively through IDA with credits for power, livestock, rail transport and mining. IDB committed US$115 million -- 16% of the total -- of which nearly US$70 million

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1/ The figures on direct investment and loan disbursements to the public sector excluded an item of US$79.3 million for the nationalization of Gulf Oil properties. Compensation payments to the company are included in the amortization payments for external debt.

were Ordinary Capital loans to YPFB for hydrocarbon transport and refining. The remainder, through FSO funds, was for roads, rural electrification, water and sewerage, agriculture and industry, as well as for some preinvestment studies. The Andean Development Corporation (CAF), active in Bolivia since 1971, has provided only about 1% of total commitments. These have been for mining, petrochemicals and, on a small scale, for manufacturing. The United States has traditionally been the largest individual source of capital aid to Bolivia and provided 20% of 1968-74 commitments. Apart from budget support and import financing through AID as well as P.L. 480 funds, loans have been for road and air transport, rural electrification, various aspects of agriculture (marketing, colonization, community development) and most recently education. Financial and suppliers' credits combined accounted for 40% of total commitments.

23. Over the medium term Bolivia will face heavy import requirements of both capital goods for investment and inputs for her major industries. In addition, there will be heavy loan repayment commitments; i.e., some US$340 million between now and 1980 for existing debt. As in the past, foreign exchange requirements cannot nearly be met by export earnings alone despite good export performance expected for 1975-80. Merchandise imports are expected to shift to a substantially higher level by 1976 when heavy hydrocarbon-related investments are likely to get underway and substantial trade deficits could then emerge compounded by increased outflows on service account. At that point, the balance of payments is likely to run into current deficits again for some years.

24. Capital inflows required to cover current account deficits, amortization of existing debt and the build-up of external reserves to an appropriate level, are estimated to approach US$2.3 billion (in current prices) during 1975-80. Part of capital goods imports will carry their own financing through direct investment in hydrocarbons and other sectors; it can also be assumed that a revitalized and growing private sector will be able to attract some long-term loans. However, the public sector, whose share in aggregate investment is likely to grow further, would at least have to mobilize US$1.65 billion or more than 70% of the required capital inflows.

25. In order to produce loan disbursements of this magnitude, commitments of loans to the public sector during 1975-80 would have to be close to US$2.2 billion in current prices. Of this total, the proposed Bank lending would cover some 15%. IDB and USAID plan to provide some soft-term aid to Bolivia. IDB envisages to continue its present commitment level of US$45-50 million. AID intends to initially hold annual commitments at their present level of US$20-30 million although some decline might well occur in future years when Bolivia, presently enjoying the highest AID allocations in Latin America, will start to tap new sources of external capital. Future AID lending is to concentrate on agriculture -- marketing, agricultural credit, import financing as well as rural education -- and, possibly, on social sectors such as health. CAF plans to advance its incipient program in manufacturing and mineral-based industries. Commitments from Brazil for joint projects in roads and natural gas pipelines and from Venezuela for agro-industrial and mining projects are

envisaged but negotiations so far have been inconclusive. Financial and suppliers' credits are expected to remain at least as important as in the past. Their share in total commitments is likely to be about 40%; since they will be mainly utilized for expanding mining and hydrocarbon output, this share might well turn out to be higher.

Debt Service and Creditworthiness

26. Bolivia's external public debt outstanding and disbursed at end-1974 amounted to US$723 million. Service on external public debt amounted to 12.9% of exports of goods and non-factor services net of investment income abroad. This represents a considerable reduction from the debt burden of previous years which usually absorbed 15-20% of net export receipts. Average terms of the external debt outstanding have remained soft, reflecting the high proportion of concessionary aid channelled to Bolivia. Average interest in 1973 was 4.4% and average maturity about 26 years.

27. This position is bound to change, however, as it can be expected that lending terms become harder and the share of loans on conventional terms will increase. Of new loans attracted during 1974, nearly one-half were on hard terms. Average interest by 1980 therefore might go up to 8% and average maturity of outstanding loans shortened to 16 years. With substantial disbursements envisaged during the next six years, external public debt outstanding by 1980 might be as high as US$1.9 billion (in current prices) the service of which would absorb some 19% of net export receipts. In view of these heavy commitments, prudence in choosing external capital sources and insistence on utilizing external capital for purposes with a high productive effect will have to become an essential element of Bolivia's external debt management.

28. Bolivia enjoys a substantial resource base in agriculture, minerals and hydrocarbons which can sustain rapid economic growth and, in particular, rapid expansion of export earnings. If production in the export sectors can be increased as planned and prices for the country's major export products (oil, gas, metals) stay relatively firm, Bolivia can be considered creditworthy for substantially increased amounts of external lending on conventional terms. But even under the best circumstances, the country will require substantial external financing of investment to supplement the domestic savings effort until the early 1980s. Although substantially increased supplier and financial credits will probably become available, they will at best meet 45% of the public capital inflow required during 1975-1980 for meeting projected growth targets. To finance the remaining gap of almost $650 million, Bolivia will also require international agency financing, including an expanded Bank lending program.

29. About 75% of total public investment planned for 1975-1980 will be "projectizable." We have estimated that these projects will have a foreign exchange component of 67%, 70% for hydrocarbon investment and 60% for the remainder. The foreign exchange component for projects in the agricultural, educational and health sectors, which have been given emphasis in the proposed lending program, would be less, since requirements for imported equipment and

materials are relatively limited in these sectors. If external lenders were to finance the foreign exchange component of projects only, external resources transferred to the public sector would be about US$1.5 billion (current), 10% short of the estimated external capital requirements. In order to cover this gap, external lenders therefore would have to be prepared to finance about US$180 million of local cost equivalent.

E. BANK LENDING

30. In the past, Bank Group assistance to Bolivia has been severely restricted by political and economic constraints. It has thus remained at an abnormally low level with the exception of a few larger operations for hydrocarbons and power. As was pointed out in the introduction, the following proposal of a Bank lending program for Bolivia rests on the assumption that some measure of political stability will prevail, policies will be increasingly geared to achieving economic growth and terms of trade will remain favorable for Bolivia even if they decline somewhat from their 1974 record levels. Under these assumptions we propose a purely Bank lending program, and recommend phasing out IDA assistance. However, to soften the impact of transition from "full IDA" to "full Bank" country, we would propose that some extension in the term of Bank loans over the "normal" term for Bolivia be considered for the next few years.1/ Alternatively, should a "third window" be created, we would recommend that Bolivia be considered as a major recipient of such funds.

31. Our basic lending strategy, as described in more detail below for individual sectors, would be to generally support those forces in the Government who strive to introduce and implement more rational economic development policies. Since the large producers of exportable items (oil, gas, large miners, large commercial farmers) can probably obtain financing of their expansion plans on reasonable terms -- except perhaps in very special circumstances -- we intend to focus our lending program on medium and smaller producers and the social sectors.2/

1/ We also propose to still use the $5 million IDA allocation to Bolivia for FY75 for the agricultural credit project. During the 1974 Annual Meeting we informed the delegation that Bolivia would in future receive Bank Group assistance on a hard blend basis. For the sake of country relationships, we believe it justified to once more include some IDA funds in a Bank Group operation before we go to a purely Bank program.

2/ Attachment I is presented in two versions: (A) showing the proposed lending program loan by loan and year by year in constant terms; and (B) showing the program in current terms. The five-year program was actually developed on the basis of estimates in 1974 dollars, i.e. in constant terms. The total program was then inflated and the figures for individual proposed operations adjusted to reach the calculated total in current prices. These adjustments were not made uniformly but modified from operation to operation on the basis of rough estimates of the difference in inflation rates expected for the different sectors.

32. Our efforts may well be complemented by those of other agencies, in particular IDB and AID, which have also substantial programs in Bolivia. We are in constant contact with these agencies through inter-agency meetings and other coordination efforts and the program presented below does not seem, at present, to present any important conflict or overlap with the programs of the other agencies.

Agriculture

33. Agriculture is the mainstay of the majority of Bolivians even though the sector's relative importance as measured by some economic growth indicators has declined. Thus, while GDP growth from 1968-1974 averaged about 4.8% p.a. that of agriculture grew only at 3.9% p.a. and the sector's share of GDP decreased from a high of 30% (1962) to about 21% in 1974. Similarly, exports of agricultural products have constituted only about 7% of Bolivia's total exports with mining and hydrocarbons earning about 80% of that total during 1968-1974.

34. However, the sector still provides some form of productive employment to about 65% of Bolivia's rural population and produces about two-thirds of the food consumed locally. In spite of its relatively insignificant contribution to total exports, its share in that total has nevertheless increased steadily. The increase has come exclusively from the exceptional expansion in agricultural production in Santa Cruz and the Beni regions with a small number of large and medium size farmers receiving the bulk of institutional credit to develop crops for export. By contrast, the majority of the rural population, which is concentrated on the Altiplano, the Valles and the Yungas and consists of Indians with small plots, living by subsistence agriculture and more or less outside the market economy, has received no credit assistance.

35. There is good reason to believe that the lot of the majority of the subsistence farmers and their contribution to economic growth can be improved considerably over what it is now, provided the Government would be prepared to develop a concrete plan of action consisting of the following measures: (a) preparation and execution of a consistent investment program and establishment of the proper institutional framework with responsibility for its execution in the traditional regions; (b) channeling of adequate credit and technical assistance to small farmers in support of such programs; (c) organizing the small landholders into functional cooperatives; and (d) research to develop the appropriate crop varieties for the climatic conditions of the Altiplano, the Valles and the Yungas. While the preparation of such a program gets underway, the production momentum generated by the commercial sector must be sustained in order to keep and develop new markets for Bolivia's agricultural exports.

36. In the past, Bank lending to agriculture has gone almost exclusively to helping ranchers in the Beni region develop a viable livestock industry. The three livestock projects have demonstrated to the Government that, with the proper mix of credits and adequate technical assistance, the Beni region

could be turned into a major beef producing center. Another loan is scheduled for FY76 to finance - among other things - production of livestock in the Beni. The successful implementation of this project will result in the reorganization and improving in the performance of the Agricultural Bank, which thus far has been a less than satisfactory intermediary and development institution. After the Agricultural Bank has been put on sound footing, it should be an effective instrument for dealing with the needs of ranchers and larger commercial producers. A separate institution may still be needed, however, to meet the credit needs of the small farmer.

37. The proposed First Agricultural Credit Project includes an experimental small farmer component. In that and subsequent projects, we intend to place increasingly greater emphasis on helping the small landholders on the Altiplano, the Valles and the Yungas. To that end, we have begun a dialogue with the Government to encourage the formulation of appropriate sector policies and to explore possibilities for creating an institution to deal with small rural farmers. We hope to work out the details of such institutional arrangements during the appraisal of the first Altiplano integrated rural development project tentatively scheduled for Board presentation in FY76. Assuming improved project preparation capability, we have scheduled another rural development project for FY78 and a second agricultural credit project to assist small farmers in FY79.

38. Three subsectors in which Bolivia's potential is good, but development is lagging, are agro-industry, forestry and fisheries. We see the Bank's role in these sectors as that of a catalyst in identifying and helping the Government finance high priority projects which would contribute to diversifying Bolivia's exports and at the same time create additional employment opportunities in rural areas. We are planning to prepare an export oriented forestry project in the Santa Cruz region (FY77) and are exploring possibilities for an inland fisheries and frog project (FY79). We have also started preparation of an agro-industry project (FY77) where financial and technical assistance will complement that of Bolivian public regional development corporations who would have difficulties in carrying out their investment programs without our assistance.

39. On the agricultural policy level, in addition to the dialogue concerning small farmers, we will continue active discussions with the Government to induce further improvement in sector policies with regard to prices, interest rates, marketing arrangements, and would also seek ways to help improve the extension and research services in the sector.

Mining Sector

40. Although the sector's contribution to GDP and export earnings has declined appreciably since the late 1960s, about 50% of Bolivia's export earnings still originate from mineral exports. Nearly 55,000 people are employed directly in mining and several hundreds of thousands depend indirectly on mining for their living. A Bank mission visited Bolivia in 1971 to review the mining sector and to identify a development program which the Bank might consider for financing.

The Bank lending program is based on the recommendations made by that mission.

41. The mining sector in Bolivia can be divided into three components. First, is large scale mining, operated by the State-owned mining company, COMIBOL. COMIBOL's share of national mineral output has diminished since its beginning in 1952, when it was established to operate the expropriated properties of Bolivia's leading private mining groups. At that time COMIBOL was responsible for 80% of Bolivia's mineral output, but this share has now declined to 50%. COMIBOL's basic problems have been and continue to be high production costs in its mining operation, as well as labor problems and Government interference in management. The second area is medium-sized mining, which is composed of about 40 companies who have shown the entrepreneurial spirit and technical competence to expand their production and steadily increase their share of the total market. The principal constraint of these companies from making even further progress has been a shortage of credit. The third area is small mining. It consists of over 5,000 individual private operations, most of which are marginal family activities. This mining subsector has potential insofar as many small mines could be expanded and made more efficient. The development of small mining faces the constraint of a shortage of credit and lack of technical expertise. All three mining subsectors have common institutional constraints arising from a weak Ministry of Mining and Metallurgy, which should provide far more direction and coordination for the sector. The Ministry unfortunately lacks up-to-date information about the sector and sufficient qualified staff to exercise control and carry out an integrated mining policy.

42. Bank Group assistance was first directed toward the expansion of private mines, since this was the area of the mining sector where increases in production could be achieved most rapidly. As a result, the Bank's first project in the sector was a $6.2 million credit made in 1974 which finances credit for medium sized miners, a national survey of small mines, and a program of technical assistance to the Ministry of Mining and Metallurgy. To meet the investment requirements of medium sized miners additional credit will be required in FY76 and we have therefore planned a second mining loan to Bolivia of $13.5 million for 1976. The Bank would continue to make the credit available through the Banco Industrial (BISA) a highly effective private industrial development bank. BISA has received foreign credits for its operations from the Inter American Development Bank and official German and U.S. bilateral sources. To the extent that these sources do not adequately meet BISA's credit needs for industrial lending, the proposed second loan for mining will also include a small component for industrial credits. IFC also has under consideration an equity investment in BISA The specific amount and timing of a second loan for the medium sized miners will depend on the rate of commitment and utilization of the first mining credit and the availability of other financing for BISA.

43. With the survey of small mines being undertaken under the existing mining credit, the Government has taken the first step in preparing a project for small miners. Additional work is now underway for preparing individual subprojects. This work is proceeding well. It will also be necessary for the Government to establish an effective institution for the handling of credit to small miners. The Government proposes to utilize the National Mining Bank for this purpose. A Bank loan of $9 million for the benefit of this institution is planned for FY77 if it can be rehabilitated and made creditworthy.

44. Additional Bank lending to the sector is planned for FY78 and FY80 when we believe that financing will again be required for additional credit and eventually for the establishment of a national mineral exploration fund which would be designed to improve the presently inadequate exploration activities in a country that probably still has many undiscovered and/or unexplored deposits of a large variety of minerals.

Oil and Gas

45. Petroleum and natural gas exports have become an increasingly important source of Bolivian foreign exchange earnings. In 1968, hydrocarbon exports accounted for only 15% of export earnings while in 1974, the proportion had risen to 35%. Gas sales of approximately 55 billion cubic feet with a value of $23 million, were made to Argentina in 1974 through the Bank financed Santa Cruz Yacuiba pipeline. The value of these sales should increase to about $41 million in 1975 as a result of a larger volume and a recently renegotiated sales agreement with the Argentine Government that raised the sale price of natural gas from 42 cents to 65 cents per 1,000 cubic feet. Petroleum production in 1974 was 18 million barrels, 12 million of which were exported. Petroleum exports in 1974 earned $180 million.

46. An intensified hydrocarbon exploration program is now underway. The state-owned company, YPFB, plans to increase exploration investment from the $3-5 million level to nearly $30 million in 1975-76 and to even higher levels in future years. The target is to increase YPFB's known reserves of petroleum from 184 million barrels in 1973 to over 500 million barrels, and of natural gas from 4.5 to 6.5 trillion cubic feet by the end of the decade. In addition to YPFB's program of exploration with its own crews, concession contracts for exploration have been granted to 15 foreign companies. Technical experts consider the geologic conditions of large parts of the country favorable to the existence of further substantial hydrocarbon deposits. On the basis of this situation, the Government plans to increase its annual petroleum production by the end of the decade to 39 million barrels.

47. Bolivia has entered into an agreement of understanding with Brazil on the exportation of natural gas. The agreement calls for a study of Bolivian natural gas reserves and Brazilian financing of a pipeline to Brazil if Bolivian gas reserves prove to be sufficient to export an average of 240 million cubic feet of gas per day to Brazil for a period of twenty years. The agreement also contemplates Brazilian financing of the Mutun industrial complex in Bolivia, which would use natural gas for the production of fertilizer and steel.

48. We have not included additional financing for investment in the oil and gas sector in our lending program, because ample private and bilateral resources appear to be available. The investment requirements for the sector are, however, enormous and should other capital sources prove to be insufficient or difficult to organize without Bank assistance we would propose, on an ad hoc basis, to consider possibilities of Bank involvement in this sector, probably mainly in the role of a catalyst in putting together financing for large scale, international projects.

Transportation Sector

49. The topography and geographic location of Bolivia, with three distinct and separate regions, its rugged mountainous terrain and its distance from the sea, makes the provision of transport facilities a difficult and costly task. The problem is aggravated by the sparse population and large physical size of the country, which requires land transport to cover long distances to serve small volumes of traffic. The existing system is the cumulative result of isolated responses to specific demands over the last 100 years. Privately-owned railway companies built lines from major mining areas of the Altiplano to Pacific ports between 1870 and 1920. The eastern railways were built in the early 1960s as a means of developing the Santa Cruz region and providing it with connections to Atlantic ports. Highway development was prompted and financed by AID in the 1960s, and is now a major segment of Inter-American Development Bank financing in Bolivia. Although the land transport system has been developed with little coordination and planning, the Ministry of Transportation has now established a unit for formulating, directing and executing transport policy. The investment proposals of this unit are reviewed by the National Economic and Planning Council with regard to their relationship to overall national economic priorities.

50. The competition between road and rail transport in Bolivia is limited to internal traffic in the western part of Bolivia. The railway virtually enjoys a monopoly with regard to export-import traffic since the only route available for trucks at present is a very bad road to the port of Matarani in Peru. However, where competing roads connect major Bolivian cities, the railway has been losing traffic to highway transport. This has occurred because of the better quality of service provided by the trucking industry. For example, the 500 kilometer trip from La Paz to Cochabamba is one day by truck and four days by rail. Inadequate and insufficient equipment, substandard track conditions, and poor management practices have affected the railway's performance. The competitive disadvantage of the railways has been heightened by the Government's policy of maintaining low gasoline and diesel fuel prices and other low user charges for the trucking industry.

51. The UNDP began financing a program of technical assistance to the railways administered by the Bank in 1969. Under this program, a team of French consultants prepared a five-year (1973-77) investment and rehabilitation program to modernize the railway. The Bank Group undertook financing the foreign exchange component of the program through an $8 million credit made

in 1972, which was principally meant to cover the purchase of rolling stock, diesel locomotives, spare parts, machine tools and materials for track rehabilitation. Due to the sharp increase in the cost of metal products which occurred in 1972, about $4 million of items had to be dropped from the program. The complete program for the rehabilitation of the railways includes, in addition to the physical works and purchases, the financial rehabilitation of the enterprise and the introduction of modern engineering, commercial and managerial methods. Bank financing is planned for the second phase of the investment program during the current fiscal year. It is estimated that the total cost of the program for this phase will be $41 million. It is expected that the Bank loan would finance the $32 million of foreign exchange costs. Track rehabilitation and related civil works will be the largest item of estimated total project costs and is the largest single item in the project. Other major items will be the purchase of rolling stock and diesel locomotives.

52. Late in 1973, and again early in 1974, the railways raised its tariffs on general cargo and passenger traffic. The resulting increases in revenue (21% in 1973 over 1972, and 31% in 1974 over 1973) were, however, insufficient to counterbalance rapidly increasing costs. Furthermore, the cost of repairing the heavy damage caused by catastrophic floods in January 1974 as well as the loss of revenues resulting from such damage have had an adverse influence on the 1974 financial results. In January 1975, the railway raised general cargo and mineral freight rates by 68% and took a series of steps to decrease personnel costs. Preliminary estimates indicate that foregoing measures should help the railway achieve financial soundness. A third loan to complete the rehabilitation of the railways is planned if policy action by the Government remains satisfactory.

53. In view of the land transport problems noted above, air transport has special importance in Bolivia. There is scheduled air service between 30 of the approximately 300 airports within the country. Many of these airports serve cities and towns with no land connections. Only three of the airports in the country have paved runways. We have included a FY1978 project for financing airport and runway construction in sections of the country not now adequately served.

Power

54. During the last decade, electricity generation grew at an annual rate of 6.5% and investment averaged over $10 million a year. Despite this growth and investment effort, average annual per capita consumption of electricity is about 15.5 kwh, which is one of the lowest consumption rates in South America. There are approximately 170,000 connected electric power consumers in Bolivia. Although 85% of these consumers are residential, they only account for 30% of sales, with the remaining sales divided between mining, industry, commerce and Government.

55. The country's three major producers of electricity are the foreign privately owned Bolivian Power Company (BPC), the state-owned electric utility ENDE, and the state-owned mining company, COMIBOL. The respective share of

national generating capacity of each of these entities is 42%, 27% and 15%. Hydroelectric sources represent approximately two-thirds of generating capacity, with the balance being thermal sources. BPC serves the La Paz and Oruro areas, while ENDE principally serves Cochabamba, Santa Cruz, Potosi and Sucre.

56. It is believed that the country has significant untapped hydroelectric potential and good prospects for discovering additional petroleum and natural gas reserves. The last IDA credit to ENDE provides financing for a study to determine the present and future availability, prices and consumption of energy by sources in Bolivia. The results of this study will aid Bolivia in preparing a long term national electric power development plan.

57. Our lening to the power sector began in 1964. Not only has the Bank Group been instrumental in expanding electricity services but also in modernizing the sector, providing for the regulation of electricity supply and setting up the regulatory agency. The construction of the three hydroelectric plants, which we helped finance, has been carried out satisfactorily. We have also been able to ensure that ENDE, which was established under our auspices, has been operated efficiently and in a financially sound manner.

58. The difficulties which we have encountered in the power sector have primarily been related to tariffs and the financial condition of BPC. BPC's rate of return on its net asset base was 5% in 1972, 2% in 1973 and probably below 1% in 1974. Its customer waiting list has grown to over 6,000 and its system losses have increased from 11% to 15%. In order to obtain its authorized 9% rate of return, an increase of tariffs of at least 90% would be necessary. The Government has probably not permitted such an increase because it feared that a large increase granted to a foreign private company whose service has been deteriorating would provoke an adverse public reaction. The Government has also been negotiating for the purchase of BPC's assets for some time and these negotiations may be completed successfully in the near future.

59. The Government and ENDE have expressed their interest in Bank financing of ENDE's next stage of development, which includes: interconnection of the now-isolated northern (La Paz), central (Cochabamba-Oruro) and southern (Sucre-Potosi) systems, related expansion of generating facilities, and new generating capacity in isolated systems. Feasibility studies for these projects were finished in January 1975. The Bank has advised the Government that it is not prepared to consider further financing of the power sector in Bolivia until the unsatisfactory rate situation is resolved. As a result we have not included any projects for financing in the power sector until 1978. Were the problem of rates to be expeditiously resolved, Bank resumption of lending in the sector could possibly be advanced.

Education

60. The policy objectives of Bolivia's educational system have remained broad and rather vague. Their declared aim is to reach the largest number of Bolivians and help them become better educated citizens. To this end successive administrations have been earmarking increasingly higher percentages of the central budget to finance education programs with 1974 outlays for the sector reaching a record high of about 34% of total Government expenditures. Enroll-

ments in pre-primary, intermediate and secondary schools grew from about 0.8 million to about 1.0 million students between 1970-1973 and the number of teachers increased from 33.000 to 49.000 during the same period. The ratio of students to teachers is comparatively low and is on the decline in the urban schools. It dropped to 28:1 in 1971 from a high of 33:1 in 1967 for primary education. The pupil/teacher ratio in rural areas at the primary levels has also remained low. It was about 26:1 between 1967-1971.1/ Notwithstanding the significant allocation of resources, about 60% of the adult population remains illiterate and dropout rates are high and still on the rise. Moreover, the majority of those graduating at any time find it often difficult to obtain a job requiring the attained level of education and one which is also financially rewarding to compensate for long years of schooling.

61. Most of the subjects being taught and/or teaching methods are often out of touch with the cultural, social and economic needs and the aspirations of the large majority of Bolivians. The fact that 70% of Bolivia's population live in rural areas and are engaged only in subsistence agriculture rather than in commerce and industry, and that the mother tongue of 65% of that segment of the population is either Quechua or Aymara rather than Spanish, has not yet been taken fully into account by the authorities in the formulation of their education policies.

62. The Government's 1974 sector assessment sums up these shortcomings as follows: (a) mismanagement of the resources available to the Ministry which are spent almost exclusively on recurrent expenditure rather than for capital investment; (b) excessive supply of teachers most of whom are inadequately trained; (c) high dropout rates particularly among pupils in rural schools; (d) comparatively low teacher/student ratios; (e) irrelevant curricula; (f) difficulties in overcoming the resistence of indigenous Indians in the rural regions to learning Spanish and; (g) inadequate emphasis on non-formal technical and basic intermediate education in the rural areas. At present, the Government's preliminary new five-year Educational Development Plan appears to recommend a shift in educational priorities from the classical academic urban education toward greater attention to the educational needs in rural areas. Also, the Plan appears to give greater importance to providing Bolivians with non-formal, technical, basic and intermediate training.

63. Over the near future we will attempt to improve our knowledge of the education sector and to initiate preparatory work for a loan scheduled for FY 1977. We would also try to improve the administrative and management capacity of the Ministry of Education while at the same time helping to build

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1/ These are uneconomically low ratios. Brazil, Peru and Venezuela have student/teacher ratios of 31:1, 37:1 and 33:1 respectively, even though these countries have greater financial resources than Bolivia.

up a basic education delivery system which would improve the productivity and living standard of the average Bolivian. Such a system would be based on the needs of the student and his family; the cultural environment, and the activities and possible employment of the student after he completes his schooling. In addition, we hope to discuss with the Government, on the basis of its educational reform plan, various policy changes needed to make education more cost effective, including an increase in the student-teacher ratio, a more equitable distribution of the burden of secondary and higher education costs, and the possible development of intensive short-term training courses for primary and secondary school equivalency, especially for overaged students.

Water Supply and Sewerage

64. The quality of water supply services in Bolivia is inadequate and systems operation and maintenance is deficient, particularly outside urban areas. About 80% of the total population have no easy access to water, and if they have, it is often considered of dubious sanitary quality. The situation is even worse regarding sewerage where about 90% of the Bolivians lack adequate domestic waste disposal facilities. As a result, many Bolivians suffer from diseases associated with the use of contaminated water.

65. Bolivia has about 16 Government agencies, autonomous authorities and municipalities, responsible for the planning and execution of water supply and sanitation activities. As a consequence of this multiplicity of agencies, most of them have overlapping responsibilities, duplicate efforts and generally waste a great deal of financial and manpower resources.

66. The recently completed sector report (IBRD/WHO) identified two major constraints which are likely to hinder the development of an adequate water supply and sewerage system: the institutional and technical weakness of the agencies responsible for this sector, and the limited financial resources available to finance the improvements and expansion of the present system. Through our proposed loan, scheduled for FY77, we intend to provide technical assistance to make the Housing Bank the central executing authority in this sector. We plan to discuss with the Government the need to legislate more adequate tariffs to make the sector more self-sufficient in the long run. We also intend to support technical assistance activities to prepare feasibility studies, technicians and managers to improve overall sector performance as quickly as possible.

Absorptive Capacity and Technical Assistance

67. The present CPP is based on the assumption that, over the medium term, the historical constraints on Bolivia's potential to economic growth will be much reduced. Thus, the most important remaining constraint will be the country's absorptive capacity. To break this constraint, a very substantial input of new, additional technical assistance in most sectors of the economy will be required, but this assistance should be well coordinated and follow a consistent plan. We believe that the best way to achieve such consistency would be a Bank loan for technical assistance. Such a loan would

provide funds mainly for cross-sectoral human resource development through the provision of technical assistance that would identify training needs, develop a training plan, train local supervisory staff and trainers in important areas of economic activity, particularly where Bank operations would be forthcoming. Such a loan would also provide some funds for pre-feasibility and feasibility studies. A portion of it would consist of a pool of resources for surveys, studies, consultant services and miscellaneous specialist services related with pre-appraisal work for Bank operations. Without such a pool, it would be extremely difficult to assure timely implementation or an accelerated development program. Where urgent training needs are identified, the loan would also include some provision for training facilities.

68. A substantial part of the training component would be directed to the agricultural sector and, in particular, rural development. Programs could be included for the promotion of cooperatives, marketing, rural works, water resource management, crafts and health and nutritional programs, but also to other subsectors requiring technical assistance, such as forestry and inland fisheries. Further sectors to be covered would include water supply and education, the latter two mainly in the rural areas. The loan would finance the cost for experienced foreign consultants who would be in charge of training Bolivians to become skilled technicians, promoters of cooperatives, community leaders and managers but some funds might also be needed for construction and equipment of training centers.

69. A smaller component of the loan would be devoted to supporting the activities of the recently created National Preinvestment Institute (INALPRE). This Institute would be in charge of identifying projects and preparing the relevant studies to bring them to appraisal stage. For some time the Institute is likely to need substantial help from competent foreign consultants who would work with their Bolivian counterparts on preparing terms of reference for the studies, reviewing progress reports and, eventually, evaluating the completed studies. As the training component of the project becomes effective, it is hoped that there will be considerable feedback to the Institute in terms of project proposals and requests for studies.

70. The appropriate borrower for such a loan would be the Ministry of Planning and Coordination, which should establish a Project Unit to supervise the program. While the studies would be undertaken by INALPRE, the training component would be under the control of the Instituto Nacional de Formacion de Mano de Obra which would set up sectoral sub-committees in cooperation with the specialist Ministries or Agencies concerned, for purposes of project execution. Each institution would be required to enter into an agreement with the Ministry of Coordination and Planning which would monitor the implementation of the specific program.

71. While the basic purpose of the loan is to provide assistance to breaking the absorptive capacity constraint for Bolivian development, in general, it would have a considerable impact on the Bank's ability to develop and implement a consistent and effective long-term lending program in Bolivia,

instead of continuing to base each Bank operation in Bolivia on the evaluation of prevailing short-term considerations. The proposed loan would be almost exclusively for foreign exchange and would probably be about US$6.2 million.

72. Bolivia is receiving some technical assistance aid from other multilateral and bilateral sources. IDB has made two preinvestment loans to Bolivia (1966 and 1970 for US$2.1 and US$0.5 million). IDB, USAID and other bilateral lenders have previously provided some such assistance in the context of their various project and program loans and continue to do so. Likewise, the UNDP has financed a number of studies and some technical assistance but all these activities are more or less isolated instances and a comprehensive program of technical assistance and project preparation as envisaged for the proposed Bank loan has never been developed. In principle, there seems to be a possibility that the proposed loan could be replaced by a detailed cooperation agreement between the Bank and UNDP, which plans to have a sizeable program in Bolivia over the next few years. However, in view of the importance of technical assistance in breaking the obsorptive capacity constraint, we have retained the loan in the proposed program in case UNDP is unable to assist our efforts to the extent required.

IFC Activities

73. The improvement of Bolivia's economic conditions and Government measures to stimulate private investors have led to a favorable climate for private investments and, consequently, to the possibility of IFC's support. In 1973, in its first investment in the country, IFC helped finance a US$1.3 million expansion of Plasmar S.A., a producer of electrical cables and PVC piping for domestic consumption. During 1974 IFC continued its strong promotional efforts in this country and at present it has several projects in the mining, agricultural, manufacturing and financial sectors under consideration.

74. Priority is being given in IFC's promotional operations to those projects which will strengthen the basis for further industrialization in Bolivia and promote export diversification. In this connection, it should be possible for Bolivia to take advantage of the larger and preferential market opportunities provided under the Andean Code.

F. CONCLUSIONS AND RECOMMENDATIONS

75. The program outlined above can be implemented only if the Bolivian Government continues to pursue rational economic policies, but in spite of recent improvements, some risk of renewed deterioration in the political climate will always remain. Thus, our lending posture would be influenced by the degree to which our dialogue with the Government on such policies is successful and we would gear the proportion of cost sharing we would expect from the Government to the development of these discussions. The policies

we would consider most important are as follows: (a) fiscal policy, including pricing of public services; (b) adequate contributions to and further energetic improvement of the institutional infrastructure of the country; (c) determined and sustained policies to deal with the poverty problem, which we consider essential to the preservation of political stability; (d) rational credit and interest rate policies; (e) sound external debt management. However, in observing policy performance, we should bear in mind that many policy measures we expect the Bolivians to take represent a basic departure from past Bolivian practices and hence, a certain amount of patience will be required in trying to encourage better economic management in Bolivia. Nevertheless, should performance deteriorate substantially, we would propose a graduated response through cutting back our operations as follows: (a) in case policies are unsatisfactory in certain, specific sectors or subsectors, we would reduce or eliminate lending for projects in these sectors; (b) should the overall fiscal savings effort falter and thus prevent adequate government contributions to public investment, we would limit our operations to projects not requiring such contributions. In the event of renewed general political instability in Bolivia, the situation under (b) would almost certainly arise and our reaction would follow the same pattern.

76. The proposed program would require an increase in the input of Bank manpower for operational and economic work in Bolivia, particularly in the early years, i.e., FY76 and FY77. In later years, we expect that our improved knowledge of the country and its institutions, as well as the increase in Bolivian capability to prepare and implement development projects will cause these requirements to level off. In gauging manpower requirements for the program, it should be noted that the proposed increase in the number of projects (from 16 to 21 in the operations programs of FY74-78 and FY76-80 respectively) is less pronounced than the increase in the volume of lending. Should we succeed in implementing our program there could be a substantial increase in manpower requirements for supervision in a few years hence, but again these requirements might be less than expected if Bolivian capabilities for handling development projects improve as quickly as we anticipate.

Attachments

Country Programs Department II
Latin America and Caribbean Regional Office

March 12, 1975

Attachment 1A

BOLIVIA - ACTUAL AND PROPOSED LENDING THROUGH FY1980

		Current $millions					Constant 1974 $millions					
		Through FY1970	Actual FY1971	FY1972	FY1973	FY1974	Current FY1975	Program FY1976	FY1977	FY1978	FY1979	FY1980	Total 1976-80
Livestock I & II	IDA	3.4											
Livestock III	IDA		6.8										
Agricultural Credit I	IDA							5.0					
Agricultural Credit I	IBRD							2.5					
Agricultural Credit II	IBRD							10.0			15.0		
Rural Development I	IBRD								10.0	15.0*			
Rural Development II	IBRD								10.0		15.0		
Agro-Industries I	IBRD										5*	15.0	
Agro-Industries II	IBRD					6.2		10.0					
Forestry I	IBRD								7.0				
Forestry II	IBRD									20.0			
Fisheries	IBRD											20.0	
Mining Credit I	IDA												
Mining Credit II (DPC)	IBRD					6.0							
Small Mining Credit	IBRD									10.0			
Mining Credit III	IBRD				8.0		25.6						
Mining Credit IV	IBRD										30.0		
BPC I & ENDE I & II	IDA	22.4								8.0			
ENDE III	IDA								5.0				
ENDE IV	IBRD					6.0						15.0	
Railways I	IDA								10.0*				
Railways II	IBRD							5.0				20.0*	
Railways III	IBRD												
Airports	IBRD												
Gas Pipeline	IBRD	23.3											
Water Supply I	IBRD												
Water Supply II	IBRD												
Education I	IBRD												
Education II	IBRD												
Technical Assistance	IBRD												
Operations Program	IDA												
	IBRD												
	Total IDA/IBRD						25.6	5.0	-	-	-	-	5.0
In Current Prices	No. IDA/IBRD						25.6	27.5	42.0	53.0	65.0	70.0	257.5
							1	32.5	42.0	53.0	65.0	70.0	262.5
Lending Program	IDA	25.8	6.8	-	-	12.2	29.0	4	5	4	4	4	21
	IBRD	23.3	-	-	8.0	-	-	40.3	56.5	76.3	99.7	114.3	387.1
	Total IDA/IBRD	49.1	6.8	-	8.0	12.2	25.6	5.0	-	-	-	-	5.0
In Current Prices	No. IBRD	6	1	-	1	2	25.6	27.5	30.0	40.0	45.0	50.0	192.5
Price Index (FY74=100)							1	32.5	30.0	40.0	45.0	50.0	197.5
							29.0	4	3	3	3	4	17
							113.2	40.3	40.4	57.6	69.0	81.7	289.0
								124.0	134.5	143.9	153.3	163.3	-

*New Projects

Population: 5.5 million (mid-1974); 2.6% p.a. (1960-74)
Per Cap. Inc.: $307 (mid-1974); 2.3% p.a. (1975-80)
Area: 1,098,000 km^2
Literacy: 38% adult population (1970)

BOLIVIA - ACTUAL AND PROPOSED LENDING THROUGH FY1980

(Current $ millions)

		Through FY68	Actual FY1969	FY1970	FY1971	FY1972	FY1973	FY1974	Current FY1975	Program FY1976	FY1977	FY1978	FY1979	FY1980	Total FY69-73	Total FY74-78	Total FY75-79	Total FY76-80
Livestock I	IDA	2.0																
Livestock II	IDA			1.4														
Livestock III	IDA				6.8													
Agricultural Credit I	IDA									5.0								
Agricultural Credit I	IBRD									2.5								
Agricultural Credit II	IBRD												20.0					
Rural Development I	IBRD									13.1								
Rural Development II	IBRD											20.0*						
Agro-Industries I	IBRD										15.0							
Agro-Industries II	IBRD												25.0					
Forestry I	IBRD										15.0							
Forestry II	IBRD													25.0				
Fisheries	IBRD												10.0					
Mining Credit I	IDA							6.2		13.5								
Mining Credit II (DFC)	IBRD										9.0							
Small Mining Credit	IBRD											26.3						
Mining Credit III	IBRD													40.0				
Mining Credit IV	IBRD																	
BPC I & ENDE I	IDA	15.0																
ENDE II	IDA		7.4															
ENDE III	IDA							6.0										
ENDE IV	IBRD											20.0						
Railways I	IDA						8.0											
Railways II	IBRD								29.0									
Railways III	IBRD												44.7					
Airports	IBRD											10.0*						
Gas Pipeline	IBRD		23.3															
Water Supply I	IBRD										7.5							
Water Supply II	IBRD													24.3				
Education I	IBRD											10.0*						
Education II	IBRD													30.0				
Technical Assistance	IBRD	—	—	—	—	—	—	—	—	6.2	—	—	—	—	—	—	—	—
Operations Program	IDA								-	5.0	-	-	-	-		17.2	5.0	5.0
	IBRD								29.0	35.3	56.5	76.3	99.7	114.3		197.1	296.8	382.1
	Total IDA/IBRD								29.0	40.3	56.5	76.3	99.7	114.3		214.3	301.8	387.1
	No.								1	4	5	4	4	4		16	18	21
	IDA									4.0	-	-	-	-		16.2	4.0	4.0
In Constant 1974 Prices	IBRD								25.6	28.5	42.0	53.0	65.0	70.0		149.1	214.1	258.5
Lending Program	IDA	17.0	7.4	1.4	6.8	-	8.0	12.2	-	5.0	-	-	-	-	23.6	17.2	5.0	5.0
	IBRD	-	23.3	-	-	-	-	-	29.0	35.3	40.4	57.6	69.0	81.7	23.3	162.3	231.3	284.0
	Total IDA/IBRD	17.0	30.7	1.4	6.8	-	8.0	12.2	29.0	40.3	40.4	57.6	69.0	81.7	46.9	179.5	236.3	289.0
	No.	3	2	1	1	-	1	2	1	4	3	3	3	4	5	12	14	17
In Constant 1974 Prices		-	41.3	2.0	9.1	-	9.1	12.2	25.6	32.5	30.0	40.0	45.0	50.0	61.5	140.3	173.1	197.5
Price Index (FY74=100)			74.2	71.5	74.6	81.1	87.7	100.0	113.2	124.0	134.5	143.9	153.3	163.3	-	-	-	-
Other Agencies (CY)																		
Multilateral		31.7	8.8	6.2	14.1	10.8	7.6	9.4	19.2	28.4	38.0	49.6	60.4	62.7	40.6	144.6	195.6	239.1
Inter-American Development Bank		31.7	8.8	6.2	14.0	10.4	6.5	8.9	16.3	23.5	32.2	41.0	50.0	50.6	39.0	121.9	163.0	197.3
Andean Development Corporation		-	-	-	0.1	0.4	1.1	0.5	2.9	4.9	5.8	8.6	10.4	12.1	1.6	22.7	32.6	41.8
Bilateral		204.2	28.6	38.1	6.3	49.2	9.9	10.3	17.5	26.4	34.6	74.2	71.7	57.4	131.1	163.0	224.4	264.3
U.S.		89.5	25.9	24.8	5.6	40.5	7.0	8.2	9.0	13.2	16.1	18.8	20.2	18.3	104.7	65.3	77.3	86.6
Other		114.7	2.7	13.3	0.7	8.7	2.9	2.1	8.5	13.2	18.5	55.4	51.5	39.1	27.4	97.7	147.1	177.7
Commercial Banks, Other		106.8	12.5	71.7	10.6	30.7	-3.3	30.0	22.6	88.7	78.3	111.5	81.1	64.1	104.5[1]	361.5	382.2	423.7
IBRD o/s[2] incl. undisb.		-	23.3	-	23.3	23.3	24.9[3]	23.4	51.1	83.8	122.9	179.1	246.3	324.9				
excl. undisb.		-	-	-	-	21.3	24.9[3]	23.4	22.1	24.1	33.8	52.4	79.7	114.4				
IBRD Gross Disbursements		-	-	-	-	21.3	2.0	-	-	3.3	11.1	20.0	29.1	37.8	23.3	34.4	63.5	101.3
Less: Amortizations		-	-	-	-	-	-	-	1.3	1.3	1.4	1.4	1.8	3.1	-	5.4	7.2	9.0
Equals: Net Disbursements		-	-	-	-	21.3	2.0	-	-1.3	2.0	9.7	18.6	27.3	34.7	23.3	29.0	56.3	92.3
Less: Interest and Charges		-	-	-	-	0.5	1.9	1.0	1.5	1.8	2.4	3.7	5.7	8.4	2.4	10.3	15.1	22.0
Equals: Net Transfer		-	-	-	-	20.8	0.1	-1.0	-2.8	0.2	7.3	14.9	21.6	26.3	20.9	18.7	41.2	70.3
IBRD/IDA Gross Disbursements		15.0	1.2	1.8	2.2	25.0	4.1	5.0	5.7	10.0	16.4	22.5	30.5	38.7	34.3	59.6	85.1	118.1
Less: Amortizations		-	-	-	-	-	-	-	1.5	1.5	1.6	1.6	2.0	3.4	-	6.2	8.2	10.1
Equals: Net Disbursements		15.0	1.2	1.8	2.2	25.0	4.1	5.0	4.2	8.5	14.8	20.9	28.5	35.3	34.3	53.4	76.9	108.0
Less: Interest and Charges		-	-	0.2	0.1	0.7	2.2	1.2	1.8	-2.1	2.8	4.1	6.1	8.8	3.2	12.0	16.9	23.9
Equals: Net Transfer		15.0	1.2	1.6	2.1	24.3	1.9	3.8	2.4	6.4	12.0	16.8	22.4	26.5	31.1	41.4	60.0	84.1
Total Net Disbursements		357.0	51.5	117.9	50.1	100.5	15.7	49.7	65.7	155.2	168.8	260.0	245.1	222.2	347.1[1]	699.4	894.8	1,051.3

* New Projects
1/ Including nationalization of Gulf Oil Co. amounting to US$78.6 million.
2/ As of end of fiscal year.
3/ Including exchange adjustment of US$1.9 million as of June 1973

Country Programs Department II
Latin American and Caribbean
Regional Office
February 21, 1975

BOLIVIA: CUMULATIVE ESTIMATED AND ACTUAL DISBURSEMENTS OF LOANS AND CREDITS

($ millions)

as of December 31, 1974

Project & No.	Amount: - Original - Cancelled - Net	Date: - Approved - Signed - Effective		Closing Date	Forecast Date	FY'73	FY'74 1	FY'74 2	FY'74 3	FY'74 4	FY'75 1	FY'75 2	FY'75 3	FY'75 4	FY'76	FY'77	FY'78	FY'79	FY'80	FY'81	FY'82
Second	7.4	4/22/69	Orig:	6/30/73	9/30/77 (1st)	7.2	7.3	7.4	-	-	-	-	-	-	-	-	-	-	-	-	-
Power	-	4/28/69	Rev:	6/30/75	6/25/74	-	-	-	-	6.9	7.1	7.3	7.4	-	-	-	-	-	-	-	-
IDA 148	7.4	10/14/69	Act:	-	-	6.2	6.3	6.7	6.7	6.9	6.9	7.0									
Third	6.8	6/ 1/71	Orig:	6/30/77	5/11/71	3.1	3.6	4.1	4.5	5.0	5.4	5.8	6.2	6.6	6.8	-	-	-	-	-	-
Livestock	-	6/29/71	Rev:	-	6/18/74	-	-	-	-	-	2.2	2.7	3.5	4.3	6.8	-	-	-	-	-	-
IDA 261	6.8	9/19/72	Act:	-	-	.2	.3	.5	1.4	1.9	2.4	2.4									
Railway	8.0	11/23/72	Orig:	12/31/75	11/15/77	-	.6	1.1	2.1	4.3	6.6	7.2	7.5	8.0	-	-	-	-	-	-	-
Project	-	12/ 1/72	Rev:	-	10/ 1/73	-	-	-	-	.4	3.0	5.3	6.0	6.6	8.0	-	-	-	-	-	-
IDA 346	8.0	2/21/73	Act:	-	-	-	-	-	.3	2.0	4.3	5.2									
Third	6.0	9/11/73	Orig:	12/31/76	8/29/73	-	-	1.2	1.9	4.0	4.6	5.1	5.2	5.4	5.9	6.0	-	-	-	-	-
Power	-	10/17/73	Rev:	-	6/25/74	-	-	-	-	1.8	2.5	3.2	3.6	4.0	5.8	6.0	-	-	-	-	-
IDA 433	6.0	12/11/73	Act:	-	-	-	-	-	-	.5	2.1	2.5									
Mining	6.2	1/15/74	Orig:	6/30/78	12/28/73	-	-	-	-	.1	.5	1.1	1.6	2.1	4.2	6.2	-	-	-	-	-
Credit	-	1/18/74	Rev:	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
IDA 455	6.2	6/18/74	Act:	-	-	-	-	-	-	-	.4	.5									

Controller's
2/1/75

COUNTRY DATA - BOLIVIA

AREA: 1,098,000 km2

POPULATION: 5.19 million (mid-1972)

DENSITY: .. Per km2 of arable land

SOCIAL INDICATORS

	Bolivia 1960	Bolivia 1970	Reference Countries: Cameroon 1970	Honduras 1970	Peru 1970
GNP PER CAPITA US$ (ATLAS BASIS) /1	..	200 /a	200 /a	320 /a	520 /a
DEMOGRAPHIC					
Crude birth rate (per thousand)	..	44 /b,c	43 /b,c	49 /b,c	42 /b,c
Crude death rate (per thousand)	..	19 /b,c	23 /b,c	17 /b,c	11 /b,c
Infant mortality rate (per thousand live births)	..	154	..	..	73 /d
Life expectancy at birth (years)	..	45	41 /b	52	58 /b,c
Gross reproduction rate /2	..	2.8	2.7 /b	3.3	2.9 /b,c
Population growth rate /3	2.4	2.6 /e	2.0 /e	3.2 /e	2.8 /e
Population growth rate - urban	3.5 /f	3.7 /f	6 /f,h	5 /f	5 /f,k
Age structure (percent)					
0-14	42	42 /4	41 /c	47	45 /m
15-64	54	54 /4	56 /c	51	52 /m
65 and over	4	4 /4	3 /c	2	3 /m
Secondancy ratio /4	0.9	1.0 /n	..	1.5 /n	1.5 /n
Urban population as percent of total	27 /f	29 /f	20 /h	32 /a,i	54 /a,k,o
Family planning: No of acceptors cumulative (thous.)	..	..	..	14.6 /p	..
No. of users (% of married women)	..	..	..	..	..
EMPLOYMENT					
Total labor force (thousands)	2,000 /q	2,300	..	800	4,300
Percentage employed in agriculture	67 /q	66	..	65	45
Percentage unemployed	14 /q	16	..	8	5
INCOME DISTRIBUTION					
Percent of national income received by highest 5%	..	36	..	29 /r,s	34 /t,u
Percent of national income received by highest 20%	..	59	..	60 /r,s	60 /t,u
Percent of national income received by lowest 20%	..	4	..	3 /r,s	2 /t,u
Percent of national income received by lowest 40%	..	13	..	8 /r,s	7 /t,u
DISTRIBUTION OF LAND OWNERSHIP					
% owned by top 10% of owners	..	..	..	..	93
% owned by smallest 10% of owners	..	..	..	..	0.1
HEALTH AND NUTRITION					
Population per physician	3,700 /x	2,300	25,960	3,710 /w	1,900 /1
Population per nursing person	..	2,730	2,470	9,120	3,200 /1
Population per hospital bed	580	490 /1	480 /x	570	470
Per capita calorie supply as % of requirements /5	..	70 /x	93 /x	90	88 /x
Per capita protein supply, total (grams per day) /6	..	46 /x	59 /x	55	55 /x
Of which, animal and pulse	..	14 /x	23 /x	25	24 /x
Death rate 1-4 years /7	..	..	..	..	..
EDUCATION					
Adjusted /8 primary school enrollment ratio	67	96 /1	108 /x	91 /1	115 /z,aa
Adjusted /8 secondary school enrollment ratio	11	13 /1	9	10	41 /aa
Years of schooling provided, first and second level	12	13 /1	13/ab - 14 /ac	12	12
Vocational enrollment as % of sec. school enrollment	14	13	22	18	17 /aa
Adult literacy rate %	..	38 /ad	..	52 /a,ad,ae	72 /a,ai,ae
HOUSING					
Average No. of persons per room (urban)	..	..	..	..	..
Percent of occupied units without piped water	89 /v,af,ag	..	..	..	..
Access to electricity (as % of total population)	22 /v,ag	..	..	..	..
Percent of rural population connected to electricity	8 /v,ag	..	..	..	..
CONSUMPTION					
Radio receivers per 1000 population	73 /ah	288 /x	37 /c,i	57	134
Passenger cars per 1000 population	3	4	6	8 /ai	17
Electric power consumption (kwh p.c.)	118 /ah	148	200	120	392
Footprint consumption p.c. kg per year	1.0	0.9	0.02	1.0	3.2 /p

Notes: Figures refer either to the latest periods or to the latest years. Latest periods refer in principle to the years 1956-60 or 1966-70; the latest years in principle to 1960 and 1970.

/1 The Per Capita GNP estimate is at market prices for years other than 1960, calculated by the same conversion technique as the 1972 World Bank Atlas.

/2 Average number of daughters per woman of reproductive age.

/3 Population growth rates are for the decades ending in 1960 and 1970.

/4 Ratio of under 15 and 65 and over age brackets to those in labor force bracket of ages 15 through 64.

/5 FAO reference standards represent physiological requirements for normal activity and health, taking account of environmental temperature, body weights, and distribution by age and sex of national populations.

/6 Protein standards (requirements) for all countries as established by USDA Economic Research Service provide for a minimum allowance of 60 grams of total protein per day, and 20 grams of animal and pulse protein, of which 10 grams should be animal protein. These standards are somewhat lower than those of 75 grams of total protein and 23 grams of animal protein as an average for the world, proposed by FAO in the Third World Food Survey.

/7 Some studies have suggested that crude death rates of children ages 1 through 4 may be used as a first approximation index of malnutrition.

/8 Percentage enrolled of corresponding population of school age as defined for each country.

/a 1972; /b 1965-70; /c Estimate; /d 1967; /e 1960-72; /f Cities of La Paz, Oruro, Potosi, Cochabamba, Sucre, Tarija, Santa Cruz, Trinidad and Cobija; /g 1959-60; /h Urban centers over 5,000 population; /i Localities of 1,000 or more inhabitants having essentially urban characteristics; /j 1961-72; /k Capitals of districts and those populated centers with such urban characteristics as streets, plazas, water supply systems, sewerage systems, electric lights, etc; /l 1969; /m Data exclude adjustment for underenumeration, and Indian jungle population; /n Ratio of population under 15 and 65 and over to total labor force; /o Excluding Indian jungle population; estimated at 100,830 in 1961; /p 1971; /q 1965; /r 1967-68; /s Per capita; /t 1970-71; /u Economically active population; /v 1963; /w Number on the register, not all working in the country; /x 1968; /y 1964-66; /z Estimate which includes overage students; /aa Including evening schools; /ab East Cameroon; /ac West Cameroon; /ad Definition unknown; /ae 25 years and over; /af Inside or outside; /ag Percentage of households; /ah 1961; /ai Including government vehicles.

e Peru has been selected as an objective country because of similar natural conditions and comparable human and resource endowments.

BOLIVIA

SELECTED ECONOMIC DEVELOPMENT DATA
(in constant 1973 US $ millions)

National Accounts	Av 67-69	1972	1973	Est. 1974	1975	1976	Projected 1977	1980	1985	Growth Rates (Annual Averages, Percent) 1970-73	1973-75	1975-1980	1980-85	------Shares of GDY (Percent)-------- 1972	1974	1976	1980	1985
GDP	826	976	1,039	1,091	1,149	1,208	1,294	1,607	2,297	4.9	5.6	6.7	7.2	100.6	87.3	95.0	95.8	92.7
Gains from Terms of Trade	10	-6	-	159	95	64	41	75	181					-0.6	12.7	-5.0	-4.2	7.3
GDY	836	970	1,039	1,250	1,244	1,272	1,335	1,682	2,478	4.4	8.6	5.0	7.8	100.0	100.0	100.0	100.0	100.0
Imports (incl. NFS)	301	319	332	392	395	482	527	673	838	1.3	7.4	9.6	4.6	32.9	31.4	37.9	40.4	33.8
Exports (import capacity)	265	274	310	470	427	457	417	586	962	1.3	15.9	3.8	8.9	28.2	37.6	35.9	34.9	38.8
Consumption	691	830	906	974	984	1,007	1,057	1,283	1,819	6.0	5.8	4.7	7.0	85.6	77.9	79.2	76.5	73.4
Investment	181	185	155	198	228	290	388	486	535	-4.4	7.2	16.1	2.1	19.1	15.8	22.8	29.0	21.6
National Savings	125	130	123	259	244	246	254	331	585	0.2	23.3	4.2	11.3	13.4	20.7	19.4	19.7	23.6
Domestic Savings	145	140	133	275	260	265	278	399	659	-3.5	22.9	6.4	10.4	14.4	22.0	20.8	23.7	26.6
Price Indices (1973 = 100)																		
Domestic Price Index	64.7	76.4	100.0	159.8	191.8	225.3	252.4	317.9	445.9	10.7	35.9	12.1	7.0	.	.	.	.	.
Import Price index	66.5	81.7	100.0	130.0	145.0	159.1	172.6	214.5	300.8	10.0	21.1	8.7	7.0					
Export Price Index	69.1	79.6	100.0	202.6	190.4	192.0	194.0	249.0	377.1	8.4	33.8	3.5	8.7					
Terms of Trade	103.9	97.5	100.0	155.8	131.3	120.7	112.4	116.1	125.4	-1.4	10.4	-3.9	1.5					
Public Finance																		
Current Receipts 1/	105	117	116	123	129	136	146	185	266	0.9	3.3	7.0	7.5	12.1	11.2	9.8	11.0	10.7
Current Expenditures 1/	99	137	139	144	152	160	172	213	298	7.8	3.5	6.7	7.0	14.1	13.4	11.5	12.7	12.0
Budgetary Savings 1/	6	-20	-23	-23	-23	-24	-26	-28	-32	.	.	.	.	-2.1	-2.2	-1.8	-1.7	-1.3
Public Investment	79	101	93	128	152	230	284	332	364 2/	-1.7	14.6	17.2	1.6 2/	10.4	9.0	10.2	19.8	14.7

1/ Central and Local Governments only.
2/ Low growth due to falling-off hydrocarbon investment; capital expenditure net of hydrocarbon investment during 1980-85 is projected to grow at 6.2% p.a.

BOLIVIA

BALANCE OF PAYMENTS

PART I. Import Detail

Imports f.o.b.	1972	1973	1974	1975	1976	1977	1978	1979	1980
A. Constant (1973) US$ millions									
Food	32	33	36	36	37	38	39	41	43
Other Consumer Goods	28	29	41	38	41	40	42	45	47
Fuels	2	2	2	3	3	3	3	3	3
Raw Materials and Intermediate Goods	73	67	76	80	87	91	98	106	114
Capital Goods	101	119	149	150	230	237	287	298	314
Total Goods	240	250	304	306	398	408	469	493	521
Non-factor Services	79	83	88	89	115	119	140	149	157
Total Imports	319	333	392	395	513	527	609	642	678
B. Price Indices (1973=100)									
Food	73.0	100.0	126.8	128.4	118.7	117.2	114.5	111.8	114.7
Other Consumer Goods 1/	92.8	100.0	117.1	141.7	151.0	161.5	172.0	184.8	194.5
Fuels	70.4	100.0	355.6	396.3	425.9	453.7	477.8	501.9	527.8
Raw Materials and Intermediate Goods	67.1	100.0	130.7	141.7	166.3	185.9	205.4	225.0	243.7
Capital Goods	83.9	100.0	131.2	146.8	161.2	174.9	188.9	203.0	217.2
Total Goods	81.7	100.0	130.0	144.9	159.1	172.6	186.4	200.4	214.5
Non-factor Services	82.4	100.0	129.5	145.1	159.1	172.7	186.5	200.8	214.5
Total Imports	81.8	100.0	130.0	145.0	159.1	172.6	186.4	200.5	214.5
C. Current US$ millions									
Food	23	33	45	46	43	44	45	46	49
Other Consumer Goods	26	29	48	53	62	64	72	82	92
Fuels	2	2	8	10	11	13	14	16	18
Raw Materials and Intermediate Goods	49	67	99	114	145	169	200	239	277
Capital Goods	85	119	195	220	372	414	543	606	681
Total Goods	196	250	395	443	633	704	875	989	1,117
Non-factor Services	65	83	114	129	184	205	261	298	337
Total Imports	261	333	509	572	817	909	1,136	1,287	1,454

1/ Index is .8 International Prices and .2 Food Prices.

BOLIVIA

Part II. Exports - Medium Estimate

	1972	1973	1974	1975	1976	1977	1978	1979	1980
A. Constant 1973 U.S. $ millions									
Tin	114	111	111	113	115	118	121	129	135
Antimony	14	16	14	14	15	15	16	17	17
Zinc	7	9	9	10	10	10	11	12	12
Copper	10	10	10	10	10	11	11	12	13
Silver	10	11	10	10	11	11	11	11	11
Tungsten	8	8	7	7	7	7	7	8	8
Lead	3	3	4	4	5	5	5	5	5
Other Minerals	5	5	6	5	5	6	7	7	8
Petroleum	45	49	49	53	53	62	75	111	147
Natural Gas	10	18	18	21	24	34	39	46	49
Refined Petroleum Products	-	-	-	-	-	-	-	2	4
Sugar	1	11	9	12	13	14	14	15	15
Cotton	8	8	5	13	13	14	14	15	15
Other Agricultural Products	12	16	19	20	22	22	25	26	26
Manufactured Goods; Other	7	8	13	12	12	11	13	12	9
Total Goods, f.o.b.	254	284	284	304	315	340	369	428	474
Non-factor Services	26	26	28	29	31	35	38	40	42
Total Exports	280	310	312	333	346	375	407	468	516
B. Price Indices (1973 = 100.0)									
Tin	83.3	100.0	169.1	167.3	157.3	142.4	153.8	164.3	175.9
Antimony	59.1	100.0	185.6	187.5	204.5	208.2	226.2	244.0	264.7
Zinc	59.2	100.0	146.7	122.2	117.4	113.8	114.9	123.5	133.3
Copper	63.8	100.0	140.5	129.8	158.8	172.4	186.2	199.9	213.7
Silver	69.7	100.0	185.5	143.2	156.1	159.0	172.7	186.3	202.2
Tungsten	92.8	100.0	188.3	190.2	207.4	211.2	229.4	247.5	268.6
Lead	73.4	100.0	144.3	133.8	142.8	144.4	150.5	161.6	176.6
Other Minerals	74.1	100.0	226.8	138.4	150.8	153.6	166.8	180.0	195.5
Petroleum	71.1	100.0	366.6	302.7	317.2	331.7	343.8	355.9	368.0
Natural Gas	100.0	100.0	127.3	197.0	242.4	254.5	263.6	272.7	281.8
Refined Petroleum Products	-	100.0	-	-	-	-	-	291.7	302.4
Sugar	75.9	100.0	396.4	380.9	254.1	196.4	161.9	161.9	173.2
Cotton	77.6	100.0	109.7	100.0	108.1	111.4	121.1	129.2	138.9
Other Agricultural Products	67.1	100.0	107.8	111.6	125.8	136.2	147.0	157.7	174.2
Manufactured Goods: Other	85.7	100.0	112.5	129.4	142.1	154.1	166.5	178.9	191.5
Total Goods, f.o.b.	79.6	100.0	202.6	190.4	192.0	194.0	208.6	230.9	249.0
Non-factor Services	88.5	100.0	112.5	129.4	142.1	154.1	166.5	178.9	191.5
Total Exports	80.4	100.0	197.4	185.1	187.6	190.2	204.7	226.5	244.3
C. Current U.S. $ millions									
Tin	95	111	193	188	181	167	186	211	237
Antimony	8	16	26	27	31	32	36	41	46
Zinc	6	9	14	12	12	12	13	14	16
Copper	7	10	14	13	17	19	21	24	27
Silver	7	11	19	15	17	17	19	21	23
Tungsten	8	8	12	13	14	15	17	19	26
Lead	2	3	4	4	4	4	5	5	5
Other Minerals	3	6	15	8	10	12	13	15	15
Petroleum	32	49	180	159	169	204	259	398	506
Natural Gas	10	18	23	41	59	87	104	130	146
Refined Petroleum Products	-	-	-	-	-	-	-	6	13
Sugar	1	11	35	47	33	26	23	24	27
Cotton	7	8	6	13	14	15	17	19	21
Other Agricultural Products	10	16	19	22	27	31	36	41	49
Manufactured Goods: Other	6	8	14	16	17	19	20	21	23
Total Goods, f.o.b.	202	284	575	578	605	660	769	989	1,179
Non-factor Services	23	26	31	37	43	54	62	71	81
Total Exports	225	310	606	615	648	714	831	1,060	1,260

BOLIVIA

SUMMARY: BALANCE OF PAYMENTS
(Current U.S. $ millions)

	1972	1973	1974	1975	1976	1977	1978	1979	1980	1985
1. Imports	261	332	509	572	817	910	1,135	1,287	1,443	2,521
2. Exports	225	310	606	615	648	714	831	1,058	1,259	2,880
3. Balance of Goods & NFS	-36	-22	97	43	-169	-196	-304	-229	-184	359
4. Factor Services	-22	-25	-32	-29	-37	-44	-53	-102	-133	-197
Profits	(-6)	(-6)	(-8)	(-9)	(-11)	(-12)	(-14)	(-50)	(-69)	(-106)
Other (Net)	(-16)	(-19)	(-24)	(-20)	(-26)	(-32)	(-39)	(-52)	(-64)	(-92)
5. Current Transfers	13	15	14	12	10	8	5	3	3	--
6. Current Account Balance	-44	-32	79	26	-196	-232	-352	-328	-314	162
7. Direct Foreign Investment	-13	5	10	18	28	43	64	89	101	30
8. Official Capital Grants	8	10	9	20	25	27	28	26	20	2
9. Public M & LT Loans (Net)	93	5	41	45	130	142	232	219	202	-23
Disbursements	(125)	(38)	(95)	(93)	(192)	(216)	(316)	(329)	(341)	(199)
Repayments	(32)	(33)	(54)	(-48)	(-62)	(-74)	(-84)	(-110)	(-139)	(-222)
10. Other M & LT Loans (Net)	15	17	21	23	32	39	42	48	50	10
11. IMF Drawings	1	12	--	--	--	--	--	--	--	--
12. Other Short Term Errors & Omissions 1/	-42	-20	-15	-20	-10	-5	--	--	--	--
13. Change in Net Reserves (-Increase)	-17	15	-145	-112	-9	-14	-14	-53	-59	-181
14. Total Net Reserves (End of Period)	47	31	176	289	298	312	326	379	438	933
15. Debt Service Ratio	20.9	16.8	12.9	11.4	14.5	16.4	16.5	17.4	17.8	12.2
16. External Public Debt OS 2/	681	698	723	788	953	1,132	1,403	1,648	1,870	2,270
o/w IBRD	(23)	(23)	(21)	(20)	(24)	(34)	(52)	(80)	(118)	(240)
IDA	(26)	(30)	(39)	(41)	(45)	(48)	(51)	(53)	(55)	(3)
17. IBRD-IDA Debt Service as % of Public Debt 2/	0.2	0.4	0.4	0.4	0.3	0.3	0.3	0.4	0.5	0.3
18. Debt Service as % of GDP	4.6	4.9	4.5	4.6	5.4	5.8	5.8	6.5	6.9	5.7

1/ Includes SDR allocation equivalent to US$4.3 million in 1972.
2/ Disbursed only.

Attachment 5

Bolivia - Economic Work Program

An updating economic memorandum, presently under preparation, will be issued in April 1975. This memorandum will primarily address itself to the changes in the productive potential and financial position of the economy as a result of the petroleum price increase, and their impact on the development prospects of the economy.

A basic economic report is to be prepared in FY1976. This report will include an analysis of Bolivia's main productive sectors, including hydrocarbons, and will also address itself to the economic conditions of the rural population. This report will serve as a basis for a cross country study of economic problems and perspectives of the Altiplano, planned to be carried out jointly with LAC Program I. It will also identify areas for additional sector work, and will be followed up by regular economic updatings.

BOLIVIA - PROPOSED PROJECTS PREPARATION AND TECHNICAL ASSISTANCE LOAN

PROPOSED BORROWER -- MINISTRY OF PLANNING AND COORDINATION

SECTOR	Objective in Financing The Specific Item	Executing Agency	Possible Items to be Financed Under the Proposed Loan	
1. AGRICULTURE				
(i) Rural Development	a) Train Bolivians to become instructors in formation of cooperatives, marketing, extension services, health and nutrition programs.	To be determined	Training Experts	
(ii) Irrigation	a) Train Bolivians to become instructors in operation and maintenance of irrigation works.	To be determined	Training Experts	
	b) Help Government identify and prepare irrigation projects in areas of traditional agriculture.	Pre-Investment Institute	Prefeasibility and preparatory studies	Feasibility studies
(iii) Land Management and Ecology	a) Train Bolivians to become instructors in this field.	To be determined	Training Experts	
(iv) Forestry	a) Train Bolivians to become instructors in Forestry management.	The Center for Forestry Development and Ministry of Agriculture.	Training Experts	
	b) Construct and equip training centers.	To be determined	Construction	Equipment
	c) Help Government prepare an investment project to exploit forestry resources both for internal use and for exports as raw material or processed.	Pre-Investment Institute	Prefeasibility and preparatory studies	Feasibility studies
(v) Fisheries and Wildlife	a) Train Bolivians to become instructors in this field.	To be determined	Training Experts	
	b) Construct and equip one training center.	To be determined	Construction	Equipment
	c) Help Government identify and prepare investment projects to protect and develop Bolivia's fisheries and wildlife resources.	Pre-Investment Institute	Prefeasibility and preparatory studies	Feasibility studies
(vi) Agro-Industry	a) Help Government prepare investment projects. Specific items for possible financing will be identified by a mission to follow up on issues raised by identification mission in October 1974.	To be determined	Unidentified	
2. WATER SUPPLY & SEWERAGE	a) Help finance equipment and construction of one training center and employment of management consultants.	Housing Bank	Training Experts	Construction Equipment
	b) Help Government implement the recommendations of the IBRD/WHO sector report.	Pre-Investment Institute	Prefeasibility and preparatory studies	Feasibility studies
3. AIRPORTS	To be decided after preparatory mission returns in February.		Unidentified	
4. EDUCATION	To be decided after preparatory mission scheduled for April returns.		Unidentified	
5. STATISTICAL INFORMATION SYSTEM	a) Help Government to improve statistical information system.	The National Statistic Institute	Training Experts	Equipment
6. INDUSTRY	a) Train Bolivians to become instructors in handicraft technology, marketing and promotion.		Construction	Equipment
	b) Construct and equip model shops for the preparation of crafts.	To be determined	Training Experts	
	c) Help Government prepare projects to finance the establishment and promotion of handicraft industries.	Pre-Investment Institute	Prefeasibility and preparatory studies	Feasibility studies

AUGUST 1971

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BOLIVIA - PROPOSED PROJECTS PREPARATION AND TECHNICAL ASSISTANCE LOAN

PROPOSED BORROWER -- MINISTRY OF PLANNING AND COORDINATION

SECTOR	Objective in Financing The Specific Item	Executing Agency	Possible Items to be Financed Under the Proposed Loan	
1. AGRICULTURE				
(i) Rural Development	a) Train Bolivians to become instructors in formation of cooperatives, marketing, extension services, health and nutrition programs.	To be determined	Training Experts	
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	b) Help Government identify and prepare irrigation projects in areas of traditional agriculture.	Pre-Investment Institute	Prefeasibility and preparatory studies	Feasibility studies
(iii) Land Management and Ecology	a) Train Bolivians to become instructors in this field.	To be determined	Training Experts	
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	b) Construct and equip training centers.	To be determined	Construction	Equipment
	c) Help Government prepare an investment project to exploit forestry resources both for internal use and for exports as raw material or processed.	Pre-Investment Institute	Prefeasibility and preparatory studies	Feasibility studies
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3. AIRPORTS	To be decided after preparatory mission returns in February.		Unidentified	
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	c) Help Government prepare projects to finance the establishment and promotion of handicraft industries.	Pre-Investment Institute	Prefeasibility and preparatory studies	Feasibility studies

Recent Economic Developments

The most important events affecting recent economic performance have been the substantial improvement in the terms of trade in 1974 and the subsequent deterioration last year. The sharp increases in petroleum and mineral prices in 1974 allowed a simultaneous and large expansion of both consumption and investment and brought about an unprecedented improvement in public finances and the balance of payments. After current deficits in 1970-73 the Central Government achieved savings equivalent to one-third of its capital expenditure in 1974. For the public sector as a whole, savings in 1974 exceeded 10% of GDP and covered nearly 90% of capital expenditure. On the balance-of-payments side, the terms of trade gain in 1974 was equivalent to about 11% of GDP and the trade surplus exceeded US$150 million. There was a current account surplus of some US$50 million and net capital inflows approached US$90 million, nearly four times their 1973 level, as a result of substantially higher loan disbursements to the public sector and increased foreign investment associated with hydrocarbon exploration. The net foreign reserve gain in 1974--US$125 million--brought total reserves to US$156 million, equivalent to 3.7 months of imports, a high point in Bolivia's recent economic history.

After the terms-of-trade related financial improvement in 1974, a deterioration took place in 1975 caused by a worsening of the terms-of-trade and the impact of world wide economic recession. Mineral exports fell by well over 20%. There was a decline of mineral prices approximating 13%, on weighted average, and saleable volumes of most minerals fell as a direct result of the recession and unloading of speculative stocks accumulated during the commodity boom of 1973/74. Efforts by the International Tin Council to sustain prices by imposing export quotas did not produce the expected results. Exportable surpluses of crude petroleum were significantly reduced for the second year in a row due to falling production and rapidly rising domestic consumption of hydrocarbon derivatives. A significant price increase for natural gas was obtained from Argentina, but this could not compensate for the overall decline in export earnings because of the contractual limit on the volume of sales. Based on preliminary estimates, merchandise exports in 1975 declined by 20%, while imports rose by nearly one-third in the wake of the start-up of new public investment projects and the liberalization of imports for consumer durables and motor cars earlier in the year. The current account deficit approached US$220 million and despite substantially increased disbursements of medium term loans to the public sector, there was a loss of net foreign exchange reserves of some US$60 million. However, this still leaves reserves at US$100 million, or about two months of imports.

Bolivia's terms of trade are expected to again improve in 1976 and beyond. Mineral prices appear to have bottomed out in 1975 and hydrocarbon prices have resumed their rising trend. Furthermore, with gradual economic recovery in industrialized countries mineral export volumes should increase. Recent Government measures to increase prices of domestically consumed petroleum products, especially of gasoline, should improve exportable surpluses. The outlook for 1976, therefore, is for somewhat accelerated growth and an improved fiscal and balance-of-payments position.

Economic growth prospects over the medium- to longer-term depend on the Government's ability to increase savings and stimulate investments, particularly those for developing the country's hydrocarbon, mineral and agricultural resources. Government measures designed to broaden the revenue base have begun to show results. The firm wage policies that have been applied since 1974 have resulted in a reduction of inflation to an annual rate of about 8%. Investment in mining and hydrocarbons is accelerating. Intensified exploration for hydrocarbons by YPFB and private foreign companies is underway and may lead to significantly increased production and export of crude petroleum and natural gas which would stimulate an acceleration of economic growth towards the end of the decade.

FOREIGN ASSISTANCE AND DEBT

Net capital inflows during 1968-74, mainly contracted by the public sector, were close to US$350 million. Private capital movements showed a net outflow. Direct investment and other long-term private capital have been relatively unimportant, contributing less than US$15 million for the period. 1/ However, there has been some acceleration of inflow of long-term private capital in recent years. On the other hand, there have been substantial outflows of short-term private capital and the errors and omissions account probably also contains a large element of capital flight.

Commitments of medium to long-term loans to the public sector during 1968-74 including publicily guaranteed debt exceeded US$850 million. Bolivia's emergence as a minor oil exporter seems to have vastly improved the international financial community's assessment of its creditworthiness and commitments in 1974 alone were close to US$310 million. Disbursements over the same period have been much lower. They amounted to about US$530 million, leaving an undisbursed balance of nearly US$410 million by end-1974. Bilateral and international lenders provided some 60% of total commitments, mainly on concessionary terms; 7% of commitments, are repayable in local currency. The Bank Group during 1968-74, committed US$59 million, or only 7% of the total. Apart from the US$23.2 million gas pipeline loan, our operations have been exclusively through IDA with credits for power, livestock, rail transport and mining. IDB committed US$115 million -- of the total -- of which nearly US$70 million were Ordinary Capital loans to YPFB for hydrocarbon transport and refining. The remainder, through FSO funds, was for roads, rural electrification, water and sewerage, agriculture and industry, as well as for some preinvestment studies. The Andean Development Corporation (CAF), active in Bolivia since 1971, has provided only about 1% of total commitments. These have been for mining, petrochemicals and, on a small scale, for manufacturing. The United States has traditionally been the largest individual source of capital aid to Bolivia and provided 20% of 1968-74 commitments. Apart from budget support and import financing through AID as well as P.L. 480 funds, loans have been for road and air transport, rural electrification, various aspects of agriculture (marketing, colonization, community development) and most recently education. Financial and suppliers' credits combined accounted for 40% of total commitments.

1/ The figures on direct investment and loan disbursements to the public sector excluded an item of US$79.3 million for the nationalization of Gulf Oil properties. Compensation payments to the company are included in the amortization payments for external debt.

CONTRACTED PUBLIC AND PUBLICLY GUARANTEED EXTERNAL DEBT,[1] 1969-74

(US$ millions)

	1969	1970	1971	1972	1973	1974
INTERNATIONAL ORGANIZATIONS	30.7	1.4	26.8	11.2	7.2	54.4
CAF	-	-	0.1	2.0	1.2	7.2
IBRD	23.3	-	-	-	-	-
IDA	7.4	1.4	6.8	8.0	6.0	6.2
IDB	-	-	19.9	1.2	-	41.0
GOVERNMENTS	30.1	17.2	34.7	65.7	29.9	112.2
Argentina	3.2	14.3	4.3	4.2	3.4	0.2
Czechoslovakia	-	-	3.3	-	-	-
Germany F.R.	1.8	1.4	-	-	-	30.2
United Kingdom	1.4	-	-	7.1	-	-
U.S.A.	22.7	1.5	25.3	40.0	26.5	40.6
U.S.S.R.	-	-	-	11.2	-	1.2
Others	1.0	-	1.7	3.2	-	40.0
SUPPLIERS' CREDITS	11.7	1.6	3.9	36.4	20.2	16.9
Argentina	-	-	1.6	5.1	5.7	11.0
Belgium	-	-	-	-	5.5	-
Canada	-	-	-	-	3.7	-
Denmark	0.7	1.3	-	0.8	-	-
Germany F.R.	4.2	0.3	-	-	-	-
Italy	2.1	-	-	16.6	-	-
Japan	-	-	2.0	6.4	-	0.2
Poland	-	-	-	0.3	4.2	-
Spain	3.3	-	-	-	-	-
U.S.A.	-	-	-	1.1	0.9	-
U.S.S.R.	-	-	-	4.7	-	-
Others	1.4	-	0.3	1.4	0.1	5.7
PRIVATE BANKS	1.3	-	23.3	23.1	9.7	93.4
Brazil	-	-	12.0	7.9	4.7	13.5
U.S.A.	1.3	-	10.0	12.8	1.5	27.0
Others	-	-	1.3	2.4	3.5	52.9
OTHER	14.2	4.1	-	22.8	0.1	-
Nationalization (USA)	-	78.6	-	-	0.7	-
TOTAL[2]	88.0	102.9	88.7	159.2	67.8	276.9

1/ Repayable in foreign currency only.
2/ Net of adjustments and cancellations.

BOLIVIA

An outlet to the sea — at last

Bolivia is about to move out of the unfortunate band of land-locked countries, and become instead the country with the shortest coastline in the world. Bolivia will thus achieve a century-old ambition — but at a price.

The Chilean government has agreed in principle to give Bolivia access to the Pacific Ocean. Although no details have been published, it is known that the Bolivians have been offered a corridor running south of the Chile-Peru frontier, from Charana on the Chile-Bolivia border to a point on the Pacific just north of the Chilean town of Arica.

The Peruvian government, which has residual rights over the territory Chile proposes to cede to Bolivia, has been informed of the proposal but has not yet stated its reaction.

An outlet to the sea has been a Bolivian aspiration since the 1879 war of the Pacific when it lost the Pacific province of Antofagasta and part of Tarapaca to the conquering Chilean army. In that war, Bolivia's ally Peru also lost to Chile a sizeable portion of the province of Tarapaca, including the town of Arica.

Under the terms of the Treaty of Ancon, signed between Chile and Peru in 1929, both countries agreed not to cede disputed territories to third parties without prior consultation and mutual agreement.

In February 1975, the Presidents of Chile and Bolivia met at Charana and agreed to reestablish diplomatic relations, broken off in 1962, and to discuss Bolivia's claim to a Pacific port. Now the Chileans have finally come up with a concrete proposal.

Although the Chilean offer appears to meet Bolivia's request, there are a number of major snags. In the first place Chile is demanding some Bolivian territory in compensation. The piece of land Chile has its eye on is the Cordillera de Lipez, an area in south-west Bolivia rich in minerals. The land would also provide water for Chile's main copper mine at Chuquicamata.

Secondly, Chile is insisting that the corridor to be ceded to Bolivia should be demilitarized. This is designed to ensure that Chile maintains its naval superiority in that part of the Southern Pacific.

Chile's other demands include: payment for the Arica-La Paz railway; Bolivian recognition of Chile's rights over the Lauca River; and formal renunciation by Bolivia of her claim to the province of Antofagasta.

The Chilean proposal is likely to cause considerable confusion in Bolivia — as it was doubtless intended to do. The Bolivian navy, confined to Lake Titicaca and the rivers of the Beni, will not be happy with it. The army, which has recently taken an interest in mining and other aspects of Bolivia's economic development, will probably reject the idea of giving Chile compensation in such a potentially rich area.

The commander-in-chief, General Carlos Alcoreza, on a visit to Buenos Aires in November last year, told his Argentinian colleagues that he disliked the proposal. The former Bolivian President, Louis Adolfo Siles, has disclosed in a La Paz newspaper that the Christian Democrat Foreign Minister, Gabriel Valdes, had in fact made a similar offer to him in 1968, but without demanding territorial compensation.

Extract from Supervision Mission Report of January 7, 1976

ARICA-LA PAZ RAILWAY (FCALP)

Summary

The main obstacle to the rehabilitation of the Arica-La Paz railway is the political problem which exists between Bolivia and Chile. If this problem cannot be resolved rapidly, then an accommodation at the railway operations level such as a joint administration of the line from Arica to El Alto, should be sought in order to remove the constraint to the development of the Bolivian economy represented by FCALP. The UNDP is probably the most qualified Agency to help find a solution acceptable to both parties.

The technical problems are very simple ones; the key problem is without doubt, that of traction: locomotives now in use lack power and adequate truck arrangements to negotiate the line's sharp curves. The second most urgent problem is the need to replace rails where they have deteriorated most, i.e. in the critical section of the mountain; and the third priority is telecommunications, which considering the short distances involved (206 km.), should not require an expensive solution. This would add up, according to FCALP estimates, to about $10 million, of which about half, corresponding to the purchase of locomotives, should be invested immediately and the rest over a period of one to two years. A study of the situation by a competent consultant is necessary to select the proper type of locomotives, establish adequate operating rules, and determine what improvements to the line should be made. The level and extent of these improvements should be coordinated with ENFE's standard of operations. Furthermore, since there is much usable and even new track materials distributed along the line, the first step would be to take a precise inventory of such materials.

Background

Bolivia has access to the Pacific through three main foreign ports:

1) Matarani (Peru) - Access from Bolivia is by rail to Guaqui, by ancient steamboats across Lake Titicaca from Guaqui to Puno, and by rail from Puno to Matarani. A very poor earth road passable only during the dry season, also links Bolivia to Matarani via Desaguadero, Puno, and Arequipa. The port of Matarani is very small, has only three berths, limited storage facilities and is subject to frequent congestions which oblige shippers to reroute their freight through other ports.

2) Arica (Chile) - at the Northern end of Chile, a few miles only from the Peruvian border. Access from Bolivia is by rail through Charaña. There is also a road from Arica to the Bolivian border but no road exists as yet on the Bolivian side. The port of Arica is modern, has five berths, two of which with 17m draft, ample storage space, both covered and uncovered, a capacity of 1,250,000 tons/year. It is now operating at 25% of its capacity and could go to 50% without having to buy any further equipment.

3) Antofagasta (Chile) - Access from Bolivia is by rail through Ollague. The railway from Antofagasta to the border is 441 km. long and is privately owned. Port installations are smaller and older than at Arica.

Bolivia's foreign trade through these three ports has been as follows:

(in 1.000 tons)

	Matarani		Arica		Antofagasta		
	Imports	Exports	Imports	Exports	Imports	Exports	Totals
1966	92.2	51.3	63.9	20.0	134.2	116.5	478.1
1967	100.1	45.3	68.4	32.4	173.7	113.7	533.6
1968	63.8	35.1	77.9	53.9	187.3	94.3	512.3
1969	61.3	36.6	79.9	60.5	148.7	93.3	480.3
1970	56.3	32.7	82.0	61.0	113.5	86.0	431.5
1971	57.7	20.4	66.7	54.1	136.9	83.4	419.2
1972	61.7	24.8	73.4	46.7	117.5	63.9	388.0
1973	68.6	23.5	34.3	51.2	63.5	122.1	363.2
1974	68.7	8.7	80.7	24.4	102.9	96.9	382.3
1975 1/	-	-	86.1	17.8	178.0	119.2	401.1

The distances from the three main centers of Western Bolivia to the above three points are as follows (in kms.):

From/To	Matarani	Arica	Antofagasta
La Paz	846	446	1160
Oruro	1017	618	927
Cochabamba	1223	824	1109

Although Antofagasta will always be the natural port for the exportation of minerals from the Southwest of Bolivia (export of minerals represents about half of Bolivia's trade through Antofagasta), the closeness of Arica to the main consumption centers of western Bolivia, the quality of its port installations, and the size of its unused capacity make it the natural port to handle the foreign trade of this part of Bolivia, which has more than 3 million inhabitants. It is therefore essential to Bolivia's economic welfare that the flow of goods from Arica to Bolivia and of minerals from Bolivia to Arica, can proceed and develop unimpaired and that enroute delays are reduced to a minimum.

1/ Preliminary Data

Communications Between Arica and Bolivia

Existing means of communications between Arica and Bolivia are as follows:

Aviation - Lloyd Aereo Boliviano operates two flights a week in each direction. The equipment used is a 120-passenger jet plane.

Pipelines - A pipeline with a capacity of 35,000 bbs./day of crude oil connects Sicasica (in Bolivia) with Arica.

Road - There is a road from Arica to Tambo Quemado on the border. It is about 206 km. long and about 50% of it is paved. There is no road on the Bolivian side. However, Corporación Andina de Fomento (CAF) is financing final engineering studies for the construction of a road from Patacamayo (on the paved Oruro-La Paz highway) to Tambo Quemado. It is expected that a gravel road will be ready by 1980. For the time being, trucks travel over crude tracks, which are passable only during the dry season.

Railway - The Arica-La Paz Railway (FCALP) was built by Chile as a result of the 1904 Peace Treaty. It is now operated from Arica to the border (206 km.) by the Chilean National Railways, and from the border to La Paz (240 km.) by the Bolivian National Railways (ENFE).

Obstacles to the Flow of Traffic Between Arica and Bolivia

The two main obstacles to the flow of traffic have been the poor service of FCALP and the complexity and slowness of the process for liberating imports at Arica. This latter problem was solved in recent months thanks to the efforts of CEPAL and of both Governments, through the simple device of installing an Agency of the Bolivian Customs in Arica, and of having this Agency liberate all imports with the Port authorities, pay all port fees, and charge the expenses to the owners at the Bolivian customs warehouses in Bolivia.

The poor service offered by FCALP has several causes: first, the difficulties inherent to the crossing of the Andes at 4,200 m; second, the inadequate characteristics of the traction power used; and third, the very poor condition of the communications system. Finally, since the line is not connected to the rest of the Chilean railways (except by a long detour through Bolivia) and since it serves exclusively Bolivian traffic, the Chilean National Railways have been given a very low priority to FCALP's problems and requirements.

The poor service offered by FCALP was compounded this year by a severe accident which destroyed two out of the four locomotives which FCALP was using in the critical 40 km. mountain section. As a result, a backlog of about 45,000 tons of imports to Bolivia piled up in Arica, and many perishable goods (such as chemicals for remedies) deteriorated and had to be destroyed. A fleet of privately owned trucks came from Bolivia, in spite of the lack of a road on the Bolivian side, and took back some 14,000 tons of goods in three months. But this emergency transport is very expensive, and will have to be discontinued as

soon as the first rains arrive. This situation is of course greatly detrimental to Bolivian trade. The diversion of freight to Antofagasta increases substantially transportation costs.

Description of FCALP's Facilities

The Chilean section of the Arica-La Paz railway is 206 km. long. Its 1.0 m. gauge track rises from sea level at Arica to 4.256 m. at General Lagos and reaches the border at 6.067 m. Sustained grade of 3% are common. However, the critical section of the railway is a 40 km. stretch between the stations of Central (km. 69.8) and Puquios (km. 112.5), which has a sustained grade of 6% and was built to be operated with cogwheel steam locomotives. Curves have radii usually greater than 130 m. with a few as low as 97 m. The outside rail of the curves in the cogwheel section are badly worn out by the excessively long CC trucks of the G.E. locomotives now used by the FCALP. The mission was informed that FCALP has to replace US$1.3 million worth of rails yearly, and that locomotive wheels must be reshaped every 15,000-18,000 km. The situation will probably worsen with the ongoing introduction of GM locomotives, whose trucks are even longer than those of the present GE locomotives. Besides the constant substitution of rails, the track needs ballasting, new ties, a few minor realignments wherever the topography permits. The telecommunications system is in very bad shape and must be replaced.

The non-motive rolling stock consists of some 470 freight cars, a few passenger cars, two old railcars used on the Arica-La Paz run. Basic traction fleet consists of seven G.E. diesel electric engines - 1320 HP traction power at sea level - with 2x three axle trucks and a 3.6 m wheel base. These locomotives are equipped with turbo compressors and a speed-limiting device which does not allow the train to go beyond 22 km/hr. on the downhill run. Of the seven locomotives originally purchased, two suffered a severe accident last may and are probably beyond repair. Three are stopped, awaiting spare parts for turbocompressors, and two are operating but are having frequent trouble with their turbocompressors which are of an inadequate type. A proper model could be installed at a cost of about US$14,000 a piece, but no decision by FCALP has been forthcoming. In tandem, they can haul about 300 gross tons up the critical mountain section. To complement the two remaining G.E. locomotives the Chilean National Railways have brought in two G.M. DE locomotives, of 1300 HP, equipped with blowers and speed-limiting devices. In tandem these locomotives can haul 200 gross tons up the critical mountain section.

The Chilean National Railway is planning to remove from FCALP all G.E. locomotives, because of their turbo compressor trouble, and to replace them with G.M. engines that proved to be more reliable. Two more such locomotives were sent to Arica. But the mission could not find out how many G.M. locomotives would be sent to compensate for the seven G.E.s. If the G.M. locomotives can solve the essential requirement of a better reliability, the CC trucks and longer wheel bases will make the problem of inscription in curves even worse than it is today, and their tractive power is 1/3 less than that of the G.E. locomotives.

Estimate of Traffic and of Traction Power Requirements

Past statistics show that yearly in-bound traffic on FCALP averages 80,000 tons/year or about 6,000 tons per month, with peaks that may reach, exceptionally, 17,000 tons/month. Since the GM locomotives now being assigned to the critical mountain section by the Chilean National Railways can only haul 200 gross tons (or about 120 net tons), when operating in tandem, this means that, on the average, FCALP should operate: $6000 \div 120 = 50$ trains/month or 2 trains daily in the critical mountain section. This can be done by two locomotives operating in tandem in 12 hours and there would be time left for the tamdem to haul a train of 240 net tons from the top of the critical sector to the border or from Arica to the foot of the critical section. Some additional motive power (no more than two or three locomotives) would be required as reserve and to haul the trains outside the critical mountain sector. Also some provision should be made for the peak months and for the increase in traffic which should result from improved service.

The problem, in terms of number of locomotives, is therefore not a serious one. The real problem is in the selection of the type of locomotives. The present G.E. and G.M. diesel electric locomotives owned by the Chilean National Railways have CC trucks which, due to their long wheelbases, do not inscribe themselves well in the curves and cause a terrific wear of the rails and of their own wheels.

At the mission's suggestion, ENFE and FCALP have agreed to test one of ENFE's Hitachi DE locomotives on the line, to experiment how its BO-BO-BO truck arrangement will negotiate the mountain curves. The test is to be run in the presence of a Hitachi engineer (whose presence has already been requested by letter), of ENFE and FCALP representatives, and of SOFRERAIL experts. Should the test be successful, then DE locomotives with a similar truck arrangement should be procured. A possible solution could be that ENFE lend FCALP a number of Hitachi DE locomotives to operate in the mountain critical sector while FCALP lends ENFE an equivalent number of G.M. locomotives to operate in the Western region. However, since all these interchanges will have to occur in a very sensitive political climate, great caution must be exercised in making any plans or forecasts.

Passenger traffic from Arica to La Paz, has been assured so far by two railcars belonging to FCALP. At present, only one operates twice a week, and is in poor mechanical shape. ENFE is considering to send a Ferrostal ferrobus to Arica once or twice a week, under a reciprocal operating rights agreement. With this in mind, ENFE has consulted Ferrostal to find out what changes in the ferrobuses braking system would be required to allow this equipment to operate safely on the 6% grade of the critical mountain sector.

Estimated Cost of FCALP's Rehabilitation

At a meeting in Arica, FCALP officials submitted the following estimate for the rehabilitation of FCALP:

Rails - Change rails on 60 km. of line - 4.800t at $470/ton		$2,300,000
Sleepers - Change 80% of sleepers on 90 km. = 130,000 at $7.7		1,000,000
Ballast - 134 km. of line at 1.9m^3/l.m. -		2,600,000
Welding - 23,000 welds at $14 each		300,000
Anchors, tirrefonds, etc.		300,000
Plates		300,000
		$6,800,000
Labor = 30%		2,000,000
Improvement of track		
widening of platform -	132,000 l.m.	
realignments	17,700 l.m.	
	144,700 l.m. a $10.00	1,500,000
		$10,300,000
Telecommunications		500,000
Signalization		500,000
Telex		20,000
Cost escalation on rails - 2 years @ 17%		400,000
		$11,720,000
Locomotives - 4 DE units of 3.400 HP@ , with 2 axle trucks and 13.5t/axle		5,000,000
		$16,720,000
Contingencies = 15%		2,280,000
		$19,000,000

The mission has strong reservations concerning some of the figures advanced by FCALP such as the advisability of using 1700 ties and 1.9m^3 ballast per km. of

track and the costs indicated for some items such as the unit cost of track realignment.

The mission feels that this cost estimate and the whole operation of the line from Arica to La Paz should be reviewed by the Consultants and that whatever the result of this review, the investment should be spread over a number of years. The most critical element is without doubt the traction power.

The second priority is to replace the worn out rails in the critical mountain section.

The third priority is telecommunications.

According to FCALP's estimate, this would require about US$10 million.

Present Situation of the Arica-La Paz Transport Corridor

The experience of recent years has shown how detrimental the low efficiency of the Chilean sector of the railway can be to Bolivia's economy. The rerouting through Matarani and Antofagasta of freight which normally should come through Arica adds many nautical miles to the normal route when Antofagasta is used; for goods demanding La Paz, the use of Matarani adds 407 km. to the overland route, and use of Antofagasta, 721 km.

The port of Arica is modern, well equipped and managed, and is operating at 25% of its capacity. The delays resulting from complicated port clearance procedures have been eliminated with the help of CEPAL. But Arica's efficiency and possibilities of increasing its traffic are hampered by FCALP's inefficiency, an inefficiency which, from the technical standpoint, could be corrected by taking the three simple steps mentioned in the preceding paragraph.

The real problem is, of course, not technical but political. Although such a short line (446 km.) should be operated as a unit, the real problem is that two managements and two nations are involved in its operation.

The UNDP and CEPAL are developing their best efforts toward finding a solution which would assure Bolivia a reliable and efficient line of communications with Arica. As a first step, the UNDP will propose to both Governments the financing, through UN regional funds, of a preliminary study of what could be done to improve FCALP's plant, equipment and operations. This study should cost about US$120,000 and last about eight months. In the meantime, negotiations toward a permanent or at least a long-range agreement could proceed normally between the Governments of both countries. The UNDP intends to ask the Bank to act as Executing Agency if this project materializes, and it is the mission's opinion that the Bank should be ready to cooperate, since a proper and reliable access to the Pacific is a prerequisite to the development of the Bolivian economy, in which the Bank is taking an ever-increasing interest.

There is a possibility that the Bolivan Government may take the position that the joint signature of a Project Document for this UNDP project by Bolivia and Chile may imply a renunciation by Bolivia of its rights to an access to the

sea. In this case, any solution of FCALP's problems involving any party other than the Chilean authorities will depend on a previous diplomatic agreement between both Governments.

On the other side, the Chilean Government is interested in having a study made, to determine what would be required to rehabilitate FCALP. Such a study could eventually be financed by IDB or by IBRD. However, a study of the Chilean half of the line would evidently cover only half of the problem. Furthermore, such a study would be practically useless if there is no perspective of financing for the initial $10 million required to buy locomotives, replace the worn out rails, and install a new telecommunications system, and the mission understands that such a financing by IBRD to Chile is, for the time being, problematic.

A possible solution might be that both Railways agree to turn over the operation (not the ownership) of the line to a joint Authority to which Chile would contribute freight cars (existing or manufactured in Chile) and Bolivia would contribute traction power (which IBRD could finance) and possibly some freight cars. These contributions could be on a rental basis, based on FCALP's income. Such a solution could conceivably be agreed upon at the Railways' level for a fixed period, and be considered free of any international policy implication.

THE AGRICULTURAL BANK OF BOLIVIA (BAB) (Attachment 2)

1. BAB is a Government-owned autonomous entity which was established in 1942 and reorganized in 1963 and 1974. Overall supervision of BAB's operations is shared among the Ministry of Peasant and Agricultural Affairs (MPAA) (technical) the Ministry of Finance (financial) and the Central Bank (cost accounting and legal). BAB has a staff of about 290 and 66 branch offices located throughout the country. Since July 1974, BAB has reduced the number of its operational units from seven to two divisions: Credit and Finance/Administration.

2. By the end of 1973, BAB's total resources amounted to about $b690 million of which $b614 million were in loans and $b76 million in equity. Between 1970 and 1973, BAB's debt equity ratio increased from 1.2 to 6.5 and its overdue loans represented about 30% of the loan volume outstanding as of March 31, 1974. Over the past few years, BAB has been decapitalized mainly because: (i) it carried the foreign exchange risk on external loans and was severly affected by the devaluation of the Bolivian peso in 1972; (ii) it undertook unprofitable rice marketing activities (another specialized agency has since assumed this task); and (iii) it operated on insufficient margins to cover rising administrative expenditures. The Government is determined to strengthen BAB, the only agricultural credit organization in the country, and contributed U.S. $0.5 million for its recapitalization in early 1975 and according to the Development Credit Agreement for 561BO, the Government is committed to contribute U.S. $4.3 million to BAB's equity over a period of two years.

3. Moreover, the Government has taken already a number of important measures to improve BAB's overall performance in the long run. It has appointed a new Board of Directors, a new General Manager, and has dismissed a considerable number of BAB's staff which were found unqualified. In addition, BAB is carrying out a study which is being framed Credit 261BO, to determine the optional organizational, structure, financial and according systems for its operations in agriculture.

West Coast South America Series

South America

Vol. XXI No. 1

Bolivia: The Price of Tin

Part I: Patiño Mines and Enterprises

by Norman Gall

BOLIVIA

The story of the Siglo XX mines carries much of Bolivian history in the twentieth century, including a profound and convulsive social revolution. Guided by the Patiño genius, the exploitation of tin ores led to the creation of an integrated industrial organization based upon modern technology.

[NG-1-'74]

Fieldstaff Reports

American Universities Field Staff

The American Universities Field Staff

THIS FIELDSTAFF REPORT is one of a continuing series on international affairs and major global issues of our time. All Reports in the series are prepared by writers who are full-time Associates of the Field Staff, spending long periods abroad and returning to the United States periodically to lecture on the campuses of the universities and colleges that sponsor the American Universities Field Staff.

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ALAN W. HORTON
Executive Director

About the writer:

NORMAN GALL has been reporting on Latin American affairs for more than a decade. Having studied at Emory University and New York University (A.B. 1956), he traveled extensively in the Caribbean as a reporter for *The San Juan Star* from 1961 to 1964, devoting special attention to events in the Dominican Republic between the fall of the Trujillo dictatorship in 1961 and the 1965 U.S. military intervention. As a freelance journalist since 1964, he has reported in depth on political and economic developments in Mexico, Guatemala, Cuba, Haiti, Venezuela, Colombia, Peru, Bolivia, and Chile. His work has been appearing frequently over the past decade in such publications as *The Economist, Le Monde,* the *Washington Post, The New York Times, The Wall Street Journal, Commentary, The New York Review of Books, Dissent, The Nation, The New Republic,* and *The New Leader*. In 1967 he was awarded a special fellowship to study at Princeton University's Woodrow Wilson School of Public and International Affairs, and in 1968 he received a Guggenheim Fellowship for research and writing in Venezuela. He has also been the recipient of a Houghton Mifflin Literary Fellowship Award. Appointed a Field Staff Associate in 1971, Mr. Gall currently resides in Caracas and reports on significant developments in the Caribbean and Andean areas.

WEST COAST SOUTH AMERICA SERIES
Vol. XXI No. 1
(Bolivia)

BOLIVIA: THE PRICE OF TIN

Part I: Patiño Mines and Enterprises

by Norman Gall

January 1974

> Sentinel without arms, town without spirit, people without grace, land without water, sun without warmth: Each one there—stranger or citizen—should calculate his risks beforehand. An audacious start and a cautious retreat are indispensable. Mines of legendary name—many prosperous and some now empty—climb from slope to slope the length of the cordillera, in constant struggle with the earth. *Adolfo Costa du Rels, "Los Andes No Creen en Dios"* (1973).

The Siglo Veinte ("Twentieth Century") tin mine is cradled among sullen, rusted hills that rise from the *altiplano*—the highland desert of scrub and stone that runs the length of Bolivia—to embrace the swollen hive of penury that the great mine has become.

The road from Cancañiri down to the mine runs past winding, reddish river beds pocked with small excavations that burrow into the alluvial deposits which are, increasingly, the salvation of the dispossessed and the main source of profits for the nationalized Empresa Minera Catavi. The road begins, in switchblade fashion, at abandoned mine shafts such as Dolores, Cerro Azul and Socavón Patiño, dating from the earliest bonanzas of this century, that still scar the mountain at 15,000 feet. It descends past the smaller communities of Calvary and Cancañiri, then through the mining camps themselves: steep, gullied streets threading a mass of decayed adobe warrens with corrugated metal roofs that glisten in the *altiplano* sun and are loaded with stones so the wind won't blow them away. It passes the old concrete movie house that is poised like a Greek temple at the edge of a precipice, overlooking the ramshackle structure of the "Sink-and-Float" preconcentrating plant next to the mountainous gray-green dumps of waste rock that bear witness to 70 years of continuous extraction. The road finally dissolves into the Plaza del Minero, the center of communal life at the mine. All the installations in sight were built before the mines were nationalized in the Bolivian Revolution of 1952, save for the union headquarters, the only permanent building on the plaza. Its three-story concrete façade is painted with a mayhem of political slogans, its walls pocked with bullet holes and some windows still broken from the army's invasions of the mines in 1965 and 1967.[1] The *sindicato* building stands between the crowded, crumbling mining camps of Siglo XX and the newly prospering town of Llallagua. Farther down the mountain, beyond the cemetery and the barren *pampa* of the María Barsola Field, lies the administrative complex of Catavi, with the concentrating mill and the slatternly office buildings of the Empresa.

The Plaza del Minero at Siglo XX is dominated by an heroic statue, commemorating the 1952 Revolution, of a bare-chested, helmeted miner raising a rifle aloft in his right hand and pressing a pneumatic drill into the ground with his left. The bold, angular lines of the miner's face and figure point to the *sindicato* building, which contains a movie theater, a radio station ("Voz del Minero") and a billiard parlor apart from the union offices of the *sindicato*. It is shelter as well for the organizations of marginal workers who mine the low-grade alluvial deposits, abandoned tunnels, and the liquid wastes from the "Sink-and-Float" plant. A recent addition to the plaza, under the same clump of eucalyptus trees as the miner's monument, is a statue of the dead communist leader, Federico

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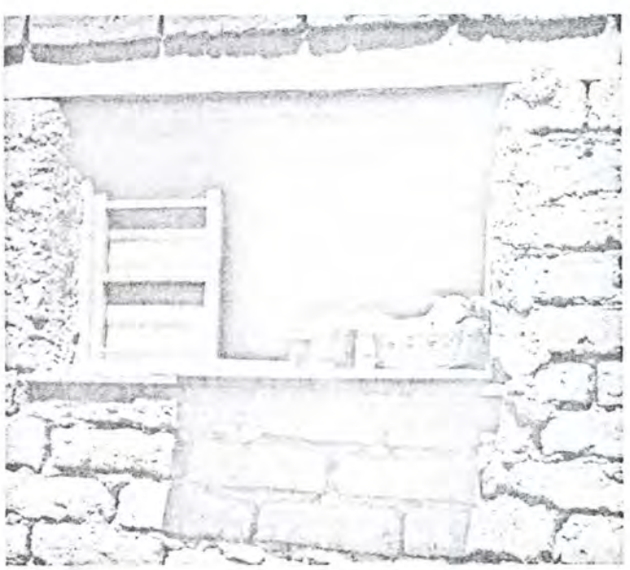
Escobar, who during the revolutionary period (1952-1964) held the powerful post of *Control Obrero* at the nationalized mine: a kind of worker-ombudsman with broad veto powers over management decisions. A small, muscular man with a booming voice, much-beloved for his defense of the workers, Escobar was protrayed by the sculptor in a characteristic pose, with his mouth open and his finger pointing. He died mysteriously in 1967.

The steps of the *sindicato* building are crowded each afternoon with boys and young men who gather round a huge rack of comic books—Spanish translations of Superman, Batman, and Donald Duck—that they rent for a penny a half-hour, while bowler-hatted Indian women sell ice cream, cotton candy, and glasses of *chicha*[2] next to the miner's statue. Near the market stalls across the plaza there is a constant flow of *altiplano* Indians in dusty ponchos and floppy sheepskin hats who bring potatoes and firewood on clusters of llamas to sell at the miners' houses. These Indians gradually melt into the mining community—as porters in the marketplace and peons in the marginal workings—greatly swelling the local population.

The story of the Siglo XX mine carries much of the Bolivian experience in this century, embracing one of Latin America's most profound and convulsive social revolutions. That revolution was carried out largely by a small middle class and mining proletariat created by this backward country's sudden incorporation into the world's industrial economy around the turn of the century. What few signs of modernity that exist on the *altiplano* were installed by exporting enclaves such as the Siglo XX mine, which for most of the century was "the richest tin structure and most productive in the world."[3] "Since mining began in 1903 it has produced about 30 per cent of all Bolivia's tin and 6 per cent of the world's tin, a total in excess of one-half million tons of tin worth about $2 billion at early-1966 prices."[4] In the first three decades of the century this provided the economic base for Latin America's first and only multinational corporation—with interests in the United States, Canada, South America, Europe, Africa, and Southeast Asia--created by Simón I. Patiño, an industrial genius of Indian extraction who has been compared with Rockefeller and Carnegie.[5] Under the impact of the Great Depression and of Bolivia's humiliating loss to Paraguay in the Chaco War (1932-1935), the mine over the next two decades also became a cauldron

Miner's Statue—Plaza del Minero 1966

Glasses of Chicha.



View of Siglo XX from Cancaniri (1973).

of revolutionary politics, while Patiño—forbidden by his doctors to return to Bolivia—tried to run the mine from Europe by remote control through a continuing interchange of detailed reports and instructions with his agents on the scene. By the time the old man died in 1947 in his eighty-seventh year, the mine had become the scene of many uprisings and "massacres" that pushed Bolivia toward its 1952 Revolution, when the major mining groups—Patiño, Hochschild, Aramayo—were nationalized and Indian serfdom was abolished.

Since the Revolution, Siglo XX's production declined by half because of political conflicts and the rapid depletion and decapitalization of the mine. At the same time, even with the exhaustion of its ore, the congestion and human vitality of the great mine has increased dramatically. Although the price of tin has risen in recent months to unprecedented heights (around $3.00 per lb. New York), this accelerated demographic concentration on declining economic resources could only be accommodated, under present organizational capacity and technology, by a gradual regression from industrial toward pre-industrial forms of production. A British geographer wrote recently that,

> the beds of rivers draining the mineralized area are swarming with people—men, women and children frequently working as family groups, sometimes as cooperatives—turning over the surface washings and burrowing into the deeper alluvium. Work begins at dawn and finishes at dusk. The mineral is handpicked and concentrated in makeshift channels cut out of the stream bed. The only direct outlay, the cost of materials, is small compared with the uncosted input of labor; the return is a proportion of the tin price current at the time of working. Thus, unlike tin mined by other means, total production costs are always below the market price.[6]

Parts I and II in this series of Reports will trace the economic transformations at Siglo XX in this century. These transformations have been extremely dynamic, embracing the creation of an integrated

industrial organization and technology from pre-industrial beginnings within the Patiño empire (Part I), and then a regression to pre-industrial systems of labor under increasing demographic pressures on a diminishing resource base (Part II). This focus must exclude some aspects of the social and political history of the mine, which I hope to cover in another Report. Because the last two Bolivian censuses were made in 1900 and 1950, there is today an extreme scarcity of meaningful demographic statistics to objectify the personal observations made in my visits to the mine in 1965, 1966, 1970, and 1973. To compensate in part for this paucity of hard data, I carried out a questionnaire sampling of some families at the mine in August-September 1973 that may provide at least some basis for evaluating fertility, infant mortality, literacy, migratory patterns, and income levels.[7]

The mountain and the mining camp (1973).

-I-

The mountain of Llallagua, which Simón Patiño transformed into the world's richest tin mine, is superficially a brown, barren mass with primeval potato patches scratched into its lower slopes. The gray-green mineralized portion of the mountain "is an intrusive body of quartz porphyry which represents an old volcanic vent."[8] "The ore was formed by hot, ascending solutions circulating upward through channelways in the igneous rock.... Some of the bonanza lodes, among the richest tin veins ever mined, are as much as three meters wide."[9] In the early years of the mine, these bonanza veins were so rich that the ore taken from them—containing 65 per cent tin—was simply placed in sacks by Indian women called *palliris* and exported without going through the concentrating mill. That was at the beginning of this century.[10]

The mountain of Llallagua bears the Quechua name for the benign spirit that brings abundant harvests of potatoes, the staple crop of the Indian peasants of the Andes. The first Spaniard said to have reached the mountain was Juan del Valle, one of the *conquistadores* who accompanied Ñuflo de Chávez on his epic march from Paraguay to Alto Perú (Bolivia). There is little known of Juan del Valle, except the legend that says he went to the top of the mountain and prayed for the power to discover there the silver that his countrymen had found in Porco and Potosí. As part of his invocation he changed the name of the higher of the mountain's twin peaks from the Quechua "Intijaljata" to Espíritu Santo, but this new baptism brought him no luck. In his *Llallagua: Historia de una Montaña,* the Bolivian diplomat-historian Roberto Querejazu

writes that Juan del Valle,

> abandoned the place in disillusionment and was lost forever in the darkness of time and distance. Nobody would have known of his existence or his presence in Llallagua if the region's inhabitants, over many generations, had not kept the name of Juan del Valle for the other peak, where his abandoned mine was located.[11]

Early in the seventeenth century the Spaniards reported a population of 29,621 for the "Provincia y Corregimiento de Chayanta," in which the mountain was located. The population was divided into 5,759 able-bodied men ("tributarios"), 15,417 women, 7,632 children and 813 old men.[12] This imbalanced demographic pyramid can be explained by the *mita*, or forced Indian labor in the mines, which provoked the migratory flight of hundreds of thousands of highland Indians into remote and inaccessible areas. In his classic essay on "The Quechua in the Colonial World," George Kubler wrote that "the entire Colonial epoch in Perú has not incorrectly been designated as a vast religious and political organization for the exploitation of the mines."[13] Between 1628 and 1754 the population of Chayanta was roughly halved to 15,231.[14] According to the Bolivian historian Luis Peñaloza:

> In general, the work in the interior of the mines was uninterrupted. The standard period of continuous work was 36 hours; the shafts were lighted by candles or tallow wicks. The ore was extracted by blows with an iron bar—the use of explosives was very limited—and brought to the surface on the backs of Indian porters ("japiris"), who climbed ladders of rope or leather to the open-air patio ("cancha") of the mine. According to Padre José de Acosta, "each man carries 50 pounds of ore on his back in a cloth tied around his chest; they come to the surface in teams of three. The one in front has a candle tied to his thumb so they can see because, as they say, there is no light in that sky"....Important mines in Upper and Lower Perú, as well as in Mexico, were paralyzed by flooding of the lower levels....The water was extracted in leather pails that were passed from hand to hand until they reached the surface....A more costly and complete way of emptying the mines of water, used only in grave and important cases because of its high cost, was to dig special tunnels at an angle so the water could fall by gravity and exit at the lower levels of the mines.[15]

In his treatise entitled *Arte de los Metales* (1637), Padre Alvaro Alonso Barba, curate of the San Bernardo parish in the Villa Imperial de Potosí, reported that "next to Chayanta, in the Audiencia of Charcas, there is another tin deposit from which for some years the mineral has been extracted in abundance,"[16] adding with greater enthusiasm that the district "is full of seams of gold. It has some old tunnels, and in its Río Grande there are nuggets within the sands."[17] The eighteenth century Spanish travelers Jorge Juan and Antonio de Ulloa described the province as being "very famous for its gold and silver mines. The former are indeed at present discontinued, though the ancient subterraneous passages are still open....The silver mines are still worked to great advantage; but with regard to cattle, this province feeds no more than are barely sufficient for its inhabitants."[18] Peñaloza concludes that tin was found jointly with silver in this region and was "exploited almost by obligation," being used "principally in the lining of tanks or vessels for the distillation and storage of *aguardiente* [a potent sugar-based brew]."[19]

The transition from silver to tin came late in the nineteenth century, and assured Bolivia a role in the industrial expansion of Europe and the United States. The rise of the canning industry in these countries coincided with the exhaustion of the ancient tin mines of Cornwall in England—which since Roman times had been Europe's main source of the metal—and with a depression in the silver mines caused both by their exhaustion and by falling world prices.

In the 1880s Patiño himself had worked in the most famous of these silver mines, Huanchaca, which had been in the vanguard of industrialized mining in Bolivia.[20] After Huanchaca, he worked for 15 years as a clerk in the mineral-buying and supply firm of Germán Fricke in Oruro, then suddenly left his job at age 37 to dig for tin, with the help of some Indian peons and his wife, at a ten-acre concession called "La Salvadora," on the mountain of Llallagua.[21] The mine was near the peak of the mountain, and Patiño worked there for three years with great difficulty and little results. In March 1899 he wrote a friend: "Yesterday I had to

escape from where we grind the ore because I didn't have the money to pay the workers."[22] Nevertheless, on an afternoon in 1900, one of the peons emerged from the mineshaft to say: "Don Simón, come see what we have found!... It looks like pure silver. It is a very wide vein!" As Patiño disappeared into the mine, his wife Albina—who was helping the Indian women sort out pieces of ore and pulverize them in the crusher—knelt before a crucifix and prayed: "Let it not be silver, my God! Let it be tin!"[23] Tin in Bolivia was to be the metal of the Twentieth Century.

Charles Geddes, former general manager of Patiño's Banco Mercantil in La Paz, explains in his biography of Patiño:

> Although he had only lived in mining camps and in small towns, not even in the capital of the republic, in a high and very backward, landlocked country, had never seen the sea or anything but very small factories, Patiño somehow had become convinced that tin was to become one of the great industrial metals of the future. Canning was then only in its infancy and the steadily-growing demand for tin was not yet reflected in its price. But Patiño was sure that demand and price would increase, and for this reason he set his heart on being a tin-miner, not just a miner.[24]

A photograph exists of Patiño at the age of 33, when he still was a clerk with Fricke in Oruro. In that picture he is a lean, balding young man with small, keen eyes and very tense lips. Some 20 years later, on the eve of World War I, after taking up residence in Europe, he was described by his admiring biographer as "a little less than average height but appeared shorter still owing to his stocky build; he walked with quick, short steps, was broad of shoulder and still muscular. His bright eyes sparkled, often mischievously, his look was darting and penetrating, and he knew how to smile."[25] By 1913 Patiño was so important to German interests that he was decorated with the Red Eagle of Prussia and invited to dine with Kaiser Wilhelm. A few years later this half-Indian who was so acutely sensitive about his illegitimate birth would be marrying his children into the European nobility.

Paul Walle, an early chronicler of the Bolivian tin industry, wrote in 1914 that in the face of the surging demand for tinplate the ancient Cornwall mines were so depleted that they could only produce 4,000 or 5,000 tons per year, while those of Saxony and Bohemia were almost completely abandoned. On the other hand, "the Bolivian lodes are of exceptional extent and richness, and their number is so great that it will be long indeed before they can be exhausted."[26] Between 1896 and 1902 the world price of tin doubled, and then doubled again by 1917.[27] Between 1898 and 1912 Bolivia's tin production increased by nearly tenfold, while the value of those exports multiplied eighteenfold.[28] While production costs in Bolivia rose only slightly (from£75 to£90 per ton) between 1910 and the Great Crash of 1929, tin prices spiraled from £154 in 1910 to over £300 during World War I (1917-1920) and again in the late 1920s, giving Patiño an extraordinary profit margin with which to expand and diversify his empire.[29] Llallagua by itself produced roughly 17 per cent of the world's tin supply in 1918, when the average price was a record £329 per ton.[30]

Three ore samples taken from the rich lode discovered by Patiño's peons in 1900 were brought to the laboratory of an English company operating at the nearby mining town of Huanuni. The chemist told Patiño that the samples contained extraordinarily high-grade ore respectively of 56, 58, and 47 per cent tin. However, Patiño's little Salvadora mine was merely one of several operating on the mountain of Llallagua under the pre-industrial technology of the time. According to Geddes,

> the exploitation of the mine began in earnest with an increase in the number of workmen, who with hammer and pickaxe extracted the exposed minerals which continued to be crushed in the primitive mill. This was composed of an indented flat stone on which an enormous round boulder, weighing seven tons or more, was rocked to and fro by means of long poles inserted into holes in its sides to give it leverage. Small pieces of ore were slipped under the boulder when the latter was tilted up by the poles, and the whole constituted a very serviceable mineral crusher [*quimbalete*].[31]

After Patiño's rich strike he had to defend his mine against a plethora of counterclaims, both in the courts and in a famous gunbattle in 1901 between Patiño and his peons and an attacking band led by Armando Artigue, who held a

neighboring concession on the mountain.[32] Claim-jumping was a common practice in those days, and both large and small companies were accustomed to running shafts into their neighbors' concessions. Almost from the first, Patiño hired an engineer to run the mine while he concentrated on his lawsuits and on the rapid industrialization of the operation. By 1901 he had ordered the $1 million Miraflores concentrating mill, containing Bolivia's first diesel engines, enabling him to quadruple the amount of ore processed between 1904 and 1905, the plant's first year of operation. Patiño's voluminous correspondence shows an almost religious zeal for the installation of efficient management and technology, as well as recurrent hectoring of his managers over accounting and costs.[33]

The difficulties of creating an industrial infrastructure on the *altiplano* were dramatized in 1918, when Patiño bought a heavy, 600-horsepower Sulzer generator in Switzerland. After being unloaded in the Chilean port of Antofagasta, the motor was divided into five parts to be brought by railroad to the *altiplano* terminal of Machamarca, from which Patiño was building a spur of track to his mine at Uncía. About 30 miles beyond Machamarca the axle of the engine—nearly nine meters long and weighing eight tons—was loaded on a specially built cart drawn by several mules, with the other heavy pieces loaded on other carts. The generator was an important source of energy for the mill in Uncía and the air compressors in the interior mine.[34]

The struggle to emerge from pre-industrial to industrial forms of production would continue for many years. In 1916 the *Engineering and Mining Journal* published an article by two American geologists who visited the mine at the time a second concentrating mill was being built. Here they describe the coexistence of labor- and capital-intensive modes of production:

> Aerial trams connect the Salvadora and Patiño tunnels with the mills. At the mouth of the tunnels *cholo* [Indian] women sort out some of the richest ore, called *guía*, which is shipped without further concentration.... In the new mill, now in process of construction, the treatment [of ore] will be somewhat modified. The old mill produced about 900 tons of tin *barrilla* a month, while the new mill is expected to produce from 1,200 to 1,500 tons monthly. The *barrilla* is put in bags and transported to the terminus of the railroad by carts or by llamas. Roughly, about two-thirds is carried by llamas at a cost of $10 a ton for the distance of 18 miles. Each llama will carry about 100 lb. and will only make from 10 to 12 miles a day, as the llamas get their entire sustenance from the coarse grass along the route and so must be permitted to stop and graze at frequent intervals....The old mill was making only about 65 percent recovery from three per cent tin ore, but it was hoped to materially improve this in the new mill. At Huanuni the miners in 1915 were paid 75 to 85 cents a day, the boys 45 cents and the women 30 cents. The miners were compelled to furnish the oil for their lamps, at a cost of about six cents a day. These wages are about half what was paid before the European War demoralized the Bolivian tin industry....Ore taken for samples was carried in rawhide bags by Indian boys to the tunnel level. These boys, some of whom were no more than 10 to 12 years of age, would carry 60 pounds of ore at a time.[35]

In 1915 the Argentine writer Jaime Molins visited Uncía, "a municipality of 10,000 inhabitants with an irregular topography" covered by the sudden, chaotic growth of most mining towns. Just before World War I bonanza wages were paid: more than $4 daily for drillers and a general average wage of $2.20 for a 12-hour shift, several times the real value of wages at the nationalized mines a half-century later.[36] These high wages drew an intense migration of workers, mushrooming the town with improvised agglomerations of shacks along twisted alleys on the hillsides near the mine. But by 1915 Molins could write of Uncía: "Today it is a respectable center, dotted with stores in the hands of Syrians, Austrians, Italians, Spaniards, and an occasional Frenchman. It has a subprefect, a city hall, a theater, a public market, schools, hotels and even a weekly newspaper with its own printing press." The general manager of the mine, Máximo Nava, was also president of the Municipal Council.[37] Molins went on to describe the degree of industrialization already achieved in Patiño's operations.

> Before entering the mine, we take a brief tour of the workshops, the electric power station, the railway terminal for the ore-cars and the warehouse for spare parts. At that

> moment a German-made Imperator electric locomotive, drawing 20 ore-cars, emerges from the mine, undulating like a scorpion.... Some recently-arrived machinery, including two large air-compressors and a Borsing water pump, await with suitable dignity their installation in the labyrinth of underground galleries.... At the time of our visit to the mines of Uncía, some 1,500 men worked in the mine and the mill, sometimes reaching 2,500 in peak periods. The workers are distributed in the galleries like bees in a honeycomb. We hear the noise of compressed-air drills, electric drills and the funereal echoes of dynamite explosions. Among the workers are *barreteros, carreros* [ore-car pushers], air-drill and locomotive operators, rail-layers, blacksmiths and other artisans. Outside the mine work the *palliris*: Indian women who select fragments of ore rich in mineral. On this mountain the *palliris* do not break or crush the stone as in other mines....The Uncía mill has the most modern and productive tin-concentrating process in the country, and is even superior to many European mills. The ore enters the mill by cable-car and falls into six crushing mills after its specific gravity is registered on automatic platform scales. After the crushing and pulverizing process it is sent to the cylindrical mills and then to the classifying tables. The low-grade ore goes through a magnetic separation process that is unique to this mill. Llama teams are used to bring the tin concentrates to the end of the railway line, but in the months of November and December this service is interrupted for the lack of pasture grass.[38]

Both the dramatic enlargement of Patiño's plant capacity at Uncia, needing more and more ore to achieve economies of scale, and the lawsuits that challenged his title to the great Salvadora lode, seemed to drive Patiño to consolidate and expand his properties, first on the mountain of Llallagua, and then elsewhere in Bolivia. In 1910 he took his first big step toward complete control of the whole Uncia-Llallagua tin district by buying the neighboring Compañía Minera de Uncía for £600,000 from the British geologist John B. Minchin. In 1911 he paid £450,000 for several British mines at nearby Huanuni. In 1914 he bought several flooded silver-tin mines in the Colquechaca district of Potosí. In addition to building the $5 million, 58-mile Machamarca-Uncía railway, he founded an electric utility company for his hometown, Cochabamba, and, in 1906, the Banco Mercantil, which soon became Bolivia's largest bank, with branches in the major cities and mines.

Patiño's attention was constantly called back to conflicts and rivalries on the mountain. The last of the lawsuits challenging Patiño's ownership of Salvadora was not settled until 1921. Meanwhile, a group of Chilean financiers had bought—in 1907—the other major operation on the mountain, forming the Compañía Estañifera de Llallagua. The two companies were working lodes so close to each other that, in 1911, Llallagua workers accidentally blasted into one of Patiño's galleries. Patiño continued to complain of the Chilean company's "opening up entrances into my workings" until a detailed boundary agreement was reached in 1914 between the two firms. While Patiño's operations continued to be plagued by acute power shortages, however, the Chilean company managed to build an artificial lake and a dam on the Chayanta River, greatly increasing its electricity supply. This enabled the Chileans to double their tin production between 1916 and 1918 and to overtake Patiño as Bolivia's largest producer.[39]

Nevertheless, by the early 1920s Patiño was said to have a greater annual income than the Bolivian government.[40] Increasingly he devoted himself to the buying and selling end of the business, spending more and more of his time in Europe until, in 1924, his doctors forbade him to return to Bolivia because of a heart condition. Explaining Patiño's absorption with business dealings in Europe, Geddes writes that,

> English, German, French and American traders were struggling to capture the European minerals market. It was indispensable for a large-scale producer to learn the intricacies of the mineral trade as it would have been ingenuous to assume that the stiff competition then existing between British and German smelters would automatically secure for him permanently the best prices. A wise seller had to be wide-awake and know all there was to know about the ramifications of the trade where a whole array of agents, assayers, industrial chemists and managers of smelters waged perpetual war

> with the producers about such things as: tariffs for shipping, smelting, railway freight and insurance; amounts of impurities in the minerals; losses of weight through evaporation of moisture in transit; credit facilities, and so on.[41]

This involvement in the European mineral and money markets led to a rapid diversification of Patiño's operations. Unlike the principal nineteenth century silver magnates—Aniceto Arce, Gregorio Pacheco, and Severo Fernandez Alonso, each of whom became President of Bolivia—the tin barons tended to avoid open involvement in politics except to promote and defend their business interests, gravitating instead toward the centers of international trade and finance. The growth of the Patiño interests into an important multinational enterprise began with his first trip to Europe in 1908, when he bought half-ownership of the German smelting firm of Zinnwerke-Wilhelmsburg, which was refining nearly all his ore. The other half-ownership of the German smelter was bought by the United States National Lead Company, the world's second largest consumer of refined tin, which then managed the smelter. Thus began Patiño's long association with National Lead, which gave him much of the power he lacked in his drive to dominate the Bolivian and international tin industry. He and his family resided in Oruro from 1903 to 1912, but then took up residence in Hamburg. In those days Patiño relied heavily on Germany for machinery and financing for his new projects, but he soon began to range farther afield. At the start of World War I in 1914, Patiño shifted his base of operations to England. Diverting all his ores to the Liverpool smelter of Williams, Harvey, he began maneuvering to break the British monopoly in tin smelting. In 1916 Patiño and National Lead, acting together, told the family that owned Williams, Harvey that they would build their own smelter if they could not buy into the firm. Faced with this ultimatum from its largest supplier and its largest customer, the Pearce family sold a one-half interest to National Lead, which in turn sold one-third of its share to Patiño.[42] By 1929 the Patiño interests had taken over whole ownership of Williams, Harvey, and had begun buying large quantities of stock in the principal Malayan tin-mining companies.[43]

Ironically, it was these powerful international connections that enabled Patiño to make his greatest claim to being a Bolivian nationalist: the long, secret process of proxy share-buying that enabled him, in 1924, to displace the Chilean interests that controlled the neighboring Compañía Estañifera de Llallagua. Not only had Chile deprived Bolivia of her seacoast in the War of the Pacific (1879-1884), but also of the world's richest nitrate and copper deposits, which were located in those coastal deserts and mountains. Two decades after the war some of Chile's leading political and financial figures bought the Llallagua mine that was developed by Pastor Sainz, a Bolivian miner-lawyer-politician, and entered promptly into an intense rivalry with the Patiño interests. After the 1914 boundary settlement was signed between the two firms, Patiño secretly went about buying stock in the Chilean company through two intermediaries, the British import-export firm of Duncan Fox in Antofagasta and the Anglo-South American Bank of London, which quietly began accumulating shares on the Santiago stock exchange in behalf of a mysterious "English group."[44] Again Patiño worked in close collaboration with National Lead President Edward J. Cornish, linking the Llallagua stock purchase with the total takeover of Williams, Harvey, under the economic rationale that the world's largest tin smelter would have as its ensured source of supply the world's largest mine. The moment of truth came in April 1924 when Patiño and National Lead together held two-thirds of the Chilean company's stock and Patiño announced his ownership—along with the merger of the two companies on the mountain—at the annual meeting of Llallagua shareholders in Santiago. A Bolivian at the meeting shouted: "Viva Patiño!" Patiño shouted back: "Viva Bolivia!"[45]

By the time of the Great Depression Patiño had laid the foundations of an extraordinary economic empire. According to Herbert Klein,

> his major investments after 1920 came to be greatly diversified, not only in Far Eastern and African tin production and international smelting, but in non-tin related investments as well. Recognizing the declining nature of the high-cost Bolivian tin industry, he carefully diversified his investments into non-tin mining, especially in Canada, and in general business investments in the United States and Europe. Thus by the time of his death in 1947 Patiño had built up a well-integrated fortune which has every appearance of surviving for a long time....Even with the nationalization of his Bolivian tin

properties in 1952, little real difficulty was created for the Patiño family. Forced to give up these increasingly marginal and unproductive resources, they were still able to force an early repayment plan upon the Bolivian government because of U.S. pressure and their control over the crucial Williams, Harvey smelter, the sole Bolivian tin concentrate smelter still operating in the world.[46]

II

The Great Depression had a catastrophic effect on the price of tin. From a high of 71 cents per pound in November 1926 the New York price fell to 19 cents in April 1932.[47] Bolivia's production of tin-in-concentrates fell from a record 46,338 tons in 1929 to 14,725 tons in 1933.[48] According to a United States Congressional report,

> the high tin prices of 1926-27 caused a boom in the development of tin mines that led to an overproduction of tin as early as 1928. Stocks began to rise and prices to fall. During the summer of 1928 the Tin Producers' Association was formed to regulate the output of tin mines, but the general industrial depression caused a decline in consumption that nullified all benefits from controlled production. In 1930 a move was started to effect a legally enforceable curtailment program.[49]

Writing on the tin crisis in the Great Depression, Elizabeth S. May observed that the inspiration for these huge investments in tin production capacity,

> was the remarkably high price of tin in 1926, and the general belief that at the current rate of exploitation, the existing areas would supply the world demand for no more than 10 years. Fabulous was the amount of capital poured into the tin-mining industry in those years. Investors, evidently, had never heard of such a thing as over-capitalization of a productive area.... The falling off of demand in the United

The early shift (1966).

Entering the mine.

> States in 1927 [consuming nearly half the world's tin] soon brought to an end the upward movement of price and by the end of the year those who said there would soon be a tin famine saw stocks accumulating.[50]

This extraordinary flow of investment into tin production capacity in the 1920s produced some major technological advances at Siglo XX, many of them realized by the new American manager, John C. Pickering, hired by Patiño in 1926 at $50,000 a year. By the end of 1928, the mine had roughly 87 miles of tunnels with rails for ore-cars, 43 lodes with 295 branches under exploitation and 1,098 blocks of ore identified and cubed by geologists.[51] Despite record levels of production, reserves of fine tin increased during the late 1920s by about 15 per cent annually.[52] The transport of ore by llamas and carts terminated with the completion of the Uncia-Machamarca railroad in 1921. The ore-treating capacity of the Victoria concentrating mill at Catavi had been expanded by half to replace the old Miraflores mill near Patiño's first workings on the other side of the mountain. To meet the chronic power shortage on the *altiplano*, the mine's two artificial lakes were greatly expanded to raise annual hydroelectric generating capacity to 16 million kWh.[53] Nevertheless, as a 1928 medical report on silicosis showed, working conditions in the mines remained primitive.

> The work consists of blasting rock with dynamite, or with gunpowder if the material is soft. These explosions produce great cave-ins of rock, earth and metallic material that is carried on the backs of peons to the main galleries, where it is loaded on ore-cars. The branch galleries are irregular, narrow and very low, with almost no ventilation, so that only small workers, mainly boys, can make their way through the tortuous caves that cut through the mineralized rock. All these galleries connect more or less directly with a central shaft that serves as a ventilation chimney. Besides this central shaft, there are other ducts that reach the outside and ventilate the deeper galleries. In some mines there are machines that pump in air through hoses. They are used mainly after explosions to reduce the smoke and dust. Lighting is by electricity only in the main galleries, the rest being illuminated by primitive oil lamps.
>
> Two kinds of workers labor in the mines: temporaries and professionals. The first generally are *altiplano* peasants who during the lulls in the farming calendar work for a few months in the mines, while the professional miners see the job as lifetime and even hereditary. The sons of miners begin at an early age, 11 years according to labor legislation, as *aspiris* [porters] who carry the ore on their backs through those strange underground pathways from the dynamite blasts to the main galleries. As they grow up they are promoted to the job of miner, that is if an *ahiza* [cave-in] had not ended their young existences....In such disastrous hygienic conditions—deficiently nourished, intoxicated by alcóhol and coca, living eight hours daily inside the mine in an atmosphere saturated with metallic dust and toxic gases, descending to depths of more than

> 1,500 feet at temperatures of 85F degrees, only to rise suddenly to glacial temperatures at the surface, living in miserable huts in an atmosphere almost as unhealthy as the mine—it is easy to see that the miners' respiratory and circulatory systems cannot withstand such adverse conditions for much time.[54]

In the mid-1920s the managers of Siglo XX began to look toward the time when the mine would have to produce much larger quantities of ore of lower grade. In his history of the mountain, Querejazu writes that "by 1922 the wealth of the famous Salvadora lode discovered by Patiño in 1900 had been exhausted between the peak and the level 411 meters below, but it had generated the economic base needed for the expansion and mechanization of the whole mine."[55] In 1927 the intensive geological probing within the mine was rewarded with the discovery of the rich Contact lode, containing 160,000 tons of ore-bearing 7.7 per cent tin.[56] However, the company continued the systematic inventory of the tin content of old dumps and the rehabilitation of abandoned tunnels that it had begun a few years before to begin exploiting ore-bearing material that was discarded during the bonanza at the beginning of the century, when the ore grade mined averaged between 12 and 15 per cent.[57]

Much of this work of industrialization was stopped by the Great Depression, which by 1932 had reduced the value of Bolivia's tin exports and tax receipts by four-fifths below their 1929 level.[58] Bolivia's tin industry was especially vulnerable to price reductions because of its high production costs when forced to compete with the more accessible alluvial deposits of Southeast Asia. As a United Nations report explained a generation later:

> The costs of tin extraction in Bolivia are higher than in any other producing region. The Bolivian deposits are found in narrow underground veins, and the ore is a complex mixture of oxides and sulfides that is difficult and costly to concentrate and smelt. For this reason, Bolivian concentrates are of a lower grade than those from alluvial deposits and their price is correspondingly lower.... Other factors tending to increase costs are transportation of the concentrates from the *altiplano* to the coast, the relative labor-intensity of underground operations and the pronounced decline of the ore-grade mined. Underground vein deposits also need large investments in fixed installations and in maintenance. They also require large-scale operations for economic results, making it hard to vary production levels for short periods.[59]

In his 1930 annual report to the stockholders, Pickering wrote that the mine,

> because of its magnitude, is of paramount importance to Bolivia. Perhaps a sixth of the revenue of the Republic comes directly or indirectly from the Corporation and, furthermore, between 20,000 and 30,000 people depend on the Corporation for a livelihood. Consequently the Bolivian government requires to be consulted before measures calculated to adequately reduce operating costs may be given effect.... Curtailment of production and reduction in costs was brought about by operating at full capacity during part time only—eventually four days a week.... Unfortunately, men at the mine—influenced by a radical element skilled in the use of communistic catch phrases—misinterpreted the motives of the Corporation and engaged in serious riots in the month of September. Troops were subsequently sent to the district and order reestablished.[60]

During 1930 the payroll was cut by one-third from the 1929 level of 6,688, and by 1933 the work force at the mine had declined to 1,229.[61]

During the second half of 1932, the Catavi concentrating mill operated only seven days a month. Pickering reported that, to reduce costs, not only were operations drastically curtailed, but management reverted to cheaper, pre-industrial forms of labor. "About one-half the mine is completely shut down," he wrote, "the remainder being worked one shift daily, five days per week. Hand drilling, which is cheaper, has where possible replaced air drills—a maneuver not feasible in ordinary times since the necessary number of workmen would not be available. To eliminate pumping charges all workings below the Siglo XX haulage level have been allowed to flood; but precautions were taken to permit their being reclaimed when conditions warranted."[62] The company also leased old dumps and alluvial deposits for primitive workings by unemployed

miners who sold back to the company about 150 tons of tin per month, or one-fourth of its total production.

To prevent his Bolivian operations from being closed down entirely by the Depression, Patiño intensified in Europe the efforts he began in the 1920s to buy into the principal Malayan mines and smelters and to arrange for industry-wide production controls. Geddes explains that Patiño's interest in the Malayan companies was "to get to know exactly why those companies were able to yield much larger returns on capital than was possible in Bolivia; to secure details of their taxes and relations with government;...but, above all, to try to influence those companies to cooperate concerning production and exports."[63] The managers of the Malayan companies began sending out circulars to stockholders urging them to pass resolutions restricting foreign ownership and control, while *The Times of Malaya* observed in 1933:

> ....Mr. Patiño's figures are correct, but what was and is Bolivia's situation as tin producer compared with Malaya? Some very well-informed people believe that without the so-called international tin control project, Bolivia's mining industry would have collapsed and therefore Malaya's chief rival would have suspended production. In other words, we would have obtained an automatic restriction through this suspension of the world's second largest tin producer.... We would add that whilst the mines belonging to the Chinese in Malaya could have continued to produce tin at this very low price [£109 per ton], we doubt very much if Bolivia could have done the same.[64]

An intergovernmental agreement was reached that gave each producing country a quota in 1933 of one-third its 1929 production. By the time world tin prices began to rebound in late 1933, however, Siglo XX found itself with an acute labor shortage. More than 1,600 workers had entered the Bolivian army for the Chaco War with Paraguay in a semi-desert region of the southeast. As a result, Pickering wrote, "experienced drillers are very difficult to obtain and we are forced to accept, and train to that end, such labor as is available. This situation has an obviously adverse effect on the cost of operating the mine."[65] Because of this labor shortage, the first women workers entered the mine in May 1935, and by September 1936 there were 200 women working underground mainly as ore-car pushers.[66] Working conditions in the interior mine were described in a 1937 article by the American mill superintendent and chief geologist, who wrote that "almost all work is on a contract basis. Standard wages are guaranteed, and any bonus is divided among the men participating. Prices are based on the hardness of the rock.... Powder is furnished by the company and charged against the contract. Each miner does his own blasting.... Bolivian workmen do not adapt themselves readily to working with mechanical tools."[67]

Because of the Bolivian government's wartime restriction on profit remittances abroad, mine production was curtailed and development work on new shafts and tunnels intensified. To further reduce costs, the company returned to old workings to extract ore. In his 1938 report to the stockholders, Patiño wrote that,

> for the last two years, due to the change in the exploitation system, large tonnages have been used from the fills and low grade ores which were previously considered without any commercial value and, therefore, excluded from the reserves. The importance of this fact may be appreciated when considering that...44 per cent of the 1938 production came from this new source.... treatment of said ores will considerably increase the life of the mine. It is considered that under the new system of exploiting low grade ores and old fills not included in the official reserves, an appreciable tonnage containing approximately 2.5 per cent tin may be obtained....[68]

Although the work force at the mine rose to 5,500 in 1938 and 7,700 in 1940, management continued to complain of a labor shortage because of the need to mine ever-greater quantities of ore to compensate for the declining tin content of the veins. In the mid-1930s, the Chaco War recruits were replaced by "Indians without experience, who in the best of cases agreed only to work for a few months" and by Peruvians and Chileans whose presence in large numbers in the mining camps led to a series of strikes and deportation of the "agitators." According to Querejazu,

> the system of bringing [Indian] workers into the mines by recruitment proved costly and ineffective. The company had its own *enganchadores* [recruiters], as did other

> mining companies, but it had to spend large sums to pay for transport, food and lodging for the recruits to bring them from their places of origin to Llallagua. Normally, they only accepted contracts for 90 days, using the system for tourism in the mining districts at the companies' expense. In 1938, some 6,800 new workers were recruited by Patiño Mines, but of these only 1,900 remained with the company more than three months for work in the interior-mine.[69]

The rapid increase in the work force since the mid-1930s led to serious congestion in the mining camps, which had only 3,740 housing units—each with one room and an outdoor kitchen—for more than 7,000 workers and their families. Until new housing could be built, two families had to share these tiny dwellings, generating quarrels between husbands and wives and between families and, generally, a high level of tension in the camps. Querejazu notes that, in the voluminous Patiño archives in Paris chronicling a half-century of the mine's operations, "there was not a single document analyzing the political and social situation, even though the growing agitation among the workers and repeated errors of government made the future of the mining industry and the nation's economy increasingly insecure."[70]

The final decade before nationalization of the mines in the 1952 Revolution was one of social convulsions and of desperate efforts by the company to compensate for the declining quality of ore. The pouring of peasant migrants into the mines led to a series of strikes, uprisings and "massacres" while Siglo XX's miners became, under Trotskyite influence, the largest and most militant unit of the Federacion Sindical de Trabajadores Mineros de Bolivia (FSTMB), the national union founded in 1944. These miners' revolts hastened the destruction of the Bolivian army in the streets of Oruro and La Paz in April 1952 as the *coup de grace* of a revolutionary uprising begun by students and factory workers and joined by regular units of the National Police (Carabineros).

At the same time, between 1938 and 1952, the average ore grade taken from the mine declined from 2.45 to 1.11 per cent tin.[71] No major ore body had been found inside the mountain since the discovery of the Contact lode in 1927. In his annual report, the mine manager predicted that the mine might have to be closed by 1955 if new ways were not found for large-scale mining and treatment of low-grade ores.[72] The company's response was two technological innovations: (1) the gradual gutting of what was left of the interior-mine by "block-caving" methods of blasting low-grade masses of mineralized rock, permitting the extraction of much larger volumes of material and requiring much less manpower than conventional vein mining; (2) building a "Sink-and-Float" preconcentrating plant, designed to raise the tin content of ore entering the mill by eliminating large quantities of sterile material before hand. Thanks partly to these new methods, the company managed to produce an average of 10,500 tons annually during the 1947-52 period, a level never again reached after the Revolution.

The town of Llallagua (1973).

On October 31, 1952, MNR President Victor Paz Estenssoro flew to the Maria Barzola Field on the

barren *pampa* between the Catavi mill and the mining camps of Siglo XX where a decade before army troops had killed scores of people when they fired on a mass of advancing demonstrators. There he decreed the nationalization of the mines before a cheering assembly of miners, peasants, and politicians, amid speeches, folk dances, and the brassy music of the *altiplano*. Neither the speeches nor the grandiloquent nationalization decree mentioned the fact that they were nationalizing a dying mine.

NOTES

1. For an account of the first of these battles between the army and the miners, see my "Slow Death in Bolivia," *The New Leader*, June 6, 1966; also my "Bolivia's Mines Yield Tin and Violence," *The Wall Street Journal*, January 12, 1966.

2. The traditional corn brew of the Andean peasantry.

3. Oscar Dávila Michel, "How Empresa Minera Catavi Concentrates Tin Ores," *Engineering and Mining Journal* (EMJ), Vol. 158, No. 11, November 1957, p. 106. The technological history of Siglo XX-Catavi is chronicled in a long series of *EMJ* articles going back to 1914.

4. From David J. Fox, *The Bolivian Tin Mining Industry: Some Geographical and Economic Problems* (London: International Tin Council, 1967), p. 362.

5. The best brief survey in English of Patiño's accomplishments is Herbert S. Klein, "The Creation of the Patiño Tin Empire," *Inter-American Economic Affairs*, Vol. 19, Fall 1965. For a broader history of the times, see Klein's *Parties and Politics in Bolivia, 1880-1952* (Cambridge University Press, 1969). In addition, there are two full-length biographies by former Patiño employees: Manuel Carrasco, *Simon I. Patiño: Un Prôcer Industrial* (Paris: Jean Grassin, 1960), and Charles F. Geddes, *Patiño: The Tin King* (London: Robert Hale, 1972).

6. David J. Fox, "Tin Mining in Bolivia," *Mining Magazine*, Vol. 124, No. 1, (London: January 1971), p. 17.

7. This survey was prepared and tabulated under the guidance of Luis Llano Saavedra, director of population studies at CENAFA (*Centro Nacional de Familia*), La Paz. For an overview of current knowledge of Bolivia's population problems, see Llano, *Aspectos Demográficos de Bolivia*. (CENAFA, 1972), and CENAFA, *Condicionamientos Socioculturales de la Fecundidad en Bolivia*, (1967). Also, Richard W. Patch, *Population Review 1970: Bolivia* [RWP-1-'71], Fieldstaff Reports, West Coast South America Series, Vol. XVIII, No. 1, 1971, as well as the same author's *The La Paz Census of 1970* and *Attitudes toward Sex, Reproduction and Contraception in Bolivia and Peru* [RWP-3,4-'70], Fieldstaff Reports, West Coast South America Series, Vol. XVII, Nos. 11,12, 1970.

8. From F.S. Turneaure, "The Tin Deposits of Llallagua, Bolivia," in W.H. Newhouse, ed., *Ore Deposits as Related to Structural Features* (Princeton University Press, 1942), p. 135. Turneaure continues: "The tin ores are found in narrow veins and stringer lodes, more than a thousand of which have been recognized as mapable units averaging from three to six inches in width. Of these, about 40 can be classed as major veins of perhaps double the average width and traceable along the strike for as much as 2,500 feet. The tin-bearing zone is roughly coincident with the porphyry, but several veins extend beyond the contact and one of major importance is entirely within the sediments."

9. From D.C. Deringer and John Payne Jr., "Patiño: Leading Producer of Tin, Part I: The Ore Deposits of Llallagua," *EMJ*, Vol. 138, No. 4, April 1937, p. 173.

10. See Durward Copeland and Scovill E. Hollister, "Tin-Ore Dressing at Llallagua, Bolivia—I," *EMJ*, Vol. 100, No. 12, September 18, 1915, p. 463. About 5 per cent of the mine's production was exported directly from the bonanza veins without being processed in the mill.

11. I am deeply grateful to Dr. Roberto Querejazu for making his manuscript available to me for research in preparation of this Report. This quote is from Querejazu's manuscript, p. 13.

12. Antonio Vázquez de Espinosa, *Compendio y Descripción de las Indias Occidentales (1628)*. Transcribed from the original manuscript by Charles U. Clark (Washington: Smithsonian Institution, 1948), p. 669.

13. George Kubler's essay is in *Handbook of the South American Indian*, Vol. 2: *The Andean Civilizations* (Washington: Smithsonian Institution, 1946).

14. *Ibid.*, p. 338.

15. Luis Peñaloza, *Historia Económica de Bolivia*, Vol. 1, (La Paz: 1953), pp. 217-18.

16. Alvaro Alonso Barba, *Arte de los Metales*. Prologue by Armando Alba (Potosí, 1967), p. 54.

17. *Ibid.*, p. 46.

18. George Juan and Antonio de Ulloa, *A Voyage to South America*, Vol. II (Fourth Edition, London: 1806), p. 153.

19. Peñaloza, *op. cit.*, p. 194.

20. Querejazu (ms. p. 34) quotes a letter from Patiño describing the advanced industrial infrastructure created at Huanchaca by President Aniceto Arce, the owner of the mine: "I still remember what don Aniceto Arce had at Huanchaca: 12 big crushers, 18 calcination ovens, 10 furnaces for *piñas* [virgin silver coated with mercury], a British-Coorpound motor, four Root boilers, an amalgamation section, a repair shop, 62 carts, hundreds of mules, horses and burros—and even a railroad!" Arce had built the first railroad into the *altiplano* that connected his mine with the Chilean port of Antofagasta. For a vivid portrait of Huanchaca and the neighboring town of Uyuni, see the novel by Adolfo Costa du Rels, *Los Andes No Creen en Diós*, Barcelona: Editorial Planeta, 1973.

21. *Ibid.*, p. 33.

22. *Ibid.*, p. 47.

23. *Ibid.*, p. 49.

24. Geddes, *op. cit.*, p. 64.

25. *Ibid.*, p. 144.

26. Paul Walle, *Bolivia: Its People and its Resources* (New York: Scribner's, 1914), p. 327ff.

27. Peñaloza, *op. cit.*, Vol. II, p. 209.

28. Walle, *op. cit.*, p. 329.

29. Peñaloza, *op. cit.*, Vol. II, pp. 214 and 309.

30. R.R. Beard, "Property and Operation of Patiño Mines and Enterprises at Llallagua, Bolivia," *EMJ*, Vol. 130, No. 3, August 9, 1930, p. 108; Peñaloza, *op. cit.*, Vol. II, pp. 209 and 235.

31. Geddes, *op. cit.*, p. 65.

32. In this skirmish one of the attackers was killed and two (including Artigue) wounded, while Patiño's band had six wounded, including Patiño himself with a bullet wound in his outer ear. In a newspaper interview published in Oruro at the time, Patiño said: "I armed my peons with a few rifles, shotguns and clubs, and I placed them strategically on the Juan del Valle hill. From this height, with a long-range telescope, I observed their movements. At 9 A.M. on May 24 Artigue's men moved up from Llallagua, guerrilla-style. When they saw my people on the heights they began to fire crazily. I ordered my men not to fire back so we could save ammunition. Artigue's men advanced faster, firing again when they got closer. They continued advancing while we remained silent. When they got within range of a Remington, I ordered my men to fire. The combat lasted four hours." Quoted in Querejazu, ms. p. 51. Geddes (pp. 66-7) says Patiño's men unnerved the attackers by rolling boulders down the mountain at the outset, then spread the word through a false deserter that they planned to massacre the attackers on their next assault, telling Artigue's men that Patiño had superior arms and manpower defending the hill.

33. Typical of this is his letter to the manager of his Huanuni mine during Patiño's six-month return to Bolivia in 1916: "The cost of production of minerals in the mines under your charge is disastrous when one considers the fine tin contents of the minerals fed into the mill. As I have personally proved to you numerically the firm is losing money every day, and ...drastic measures must be adopted. The payrolls have increased enormously during your administration and production has not increased in the same proportion.... When I went up to the Harrison Adit [mineshaft] I noticed that many ore wagons were being brought out of the mine only half-full, which is a grave mistake because the equipment is being worn out needlessly. The ore sorters send a lot of waste into the mill thus destroying machinery, without there being anyone to watch over them. In the ore sorting space there are too many employees but no control...." Quoted in Geddes, p. 143.

34. Querejazu ms., p. 86.

35. Benjamin L. Miller and Joseph T. Singewald, Jr., "The Patiño Tin Mines, Bolivia," *EMJ*, Vol. 102, No. 11, September 9, 1916.

36. Copeland and Hollister, "Tin-Ore Dressing at Llallagua, Bolivia—III," *EMJ*, Vol. 100, No. 14, October 2, 1915, p. 557: "The price paid for labor in Bolivia varies greatly according to the place. In the last two years, because of high tin prices and great labor demand, the wages at Llallagua have constantly risen. A drill man received as high as 10 or even 12 bolivianos [$3.45 to $4.15] per 12-hour shift and the average wage at the mine, including a considerable number of women ore-pickers at 1.50 bolivianos and other cheap labor, was 6.30 bolivianos or $2.20. During the first part of 1914 the price of tin declined and with it the wage of the laborer. Then came the European war and practically no price for tin. Many small mines stopped operations. The nitrate fields of Chile curtailed. Railroad projects were stopped. Labor became

plentiful and the average wage at the mine is now three bolivianos or $1, while at the mill it is about 1.98 bolivianos ($0.69) per shift of 12 hours."

37. W. Jaime Molins, *Bolivia* (Buenos Aires: 1916), pp. 128-9. Juan Albarracín Millán, in his *El Poder Minero* (La Paz: 1972), p. 273, gives Uncía's population in 1915 as around 35,000, greater than La Paz, Bolivia's capital. None of these figures can be confirmed in the absence of census data.

38. The *palliris* are Indian women who pick out choice bits of ore from a pile. The term comes from the Quechua *pallar* (meaning pick or select) and was part of the colonial mining lexicon. See Barba, *op. cit.*, p. 66.

39. Querejazu ms., p. 85; Beard, *op. cit.*, p. 108.

40. Alcides Arguedas, *Historia General de Bolivia, 1808-21*, La Paz: 1967, p. 417n.

41. Geddes, *op. cit.*, p. 117.

42. Klein, "The Creation of the Patiño Tin Empire," *op. cit.*, p. 13.

43. Geddes, *op. cit.*, p. 208.

44. *Ibid.*, pp. 181-2.

45. Querejazu ms., p. 135.

46. Herbert S. Klein, "The Creation of the Patiño Tin Empire," *op. cit.*, p. 22. Also see "Patiño of Quebec Discovers a New Metals Deposit: Copper, Zinc Values in Find Are Called Excellent; Gold, Silver Also Encountered," *The Wall Street Journal*, January 3, 1974.

47. Elizabeth S. May, "The International Tin Cartel," in William Y. Elliott et al., *International Control in the Non-Ferrous Metals* (New York: Macmillan, 1937), p. 321.

48. W. Robertson, *Report on the World Tin Position with Projections for 1965-70*, (London: International Tin Council, 1965), p. 110.

49. From the Report of the McReynolds Subcommittee of the House Foreign Affairs Committee, *Tin Investigation* (1934-35), reprinted in May, *op. cit.*, pp. 347-62.

50. May, *op. cit.*, pp. 309 and 315.

51. Querejazu ms., p. 146.

52. D.C. Deringer and John Payne Jr., "Patiño—Leading Producer of Tin, Part II: Mining Practice at Llallagua—Crushing and Sorting the Ore," *EMJ*, Vol. 138, No. 5, May 1937, p. 236.

53. See Annual Reports, 1926 and 1927, of Patiño Mines and Enterprises Consolidated, Inc. (PMECI). In *The Bankers in Bolivia* (Vanguard Press, 1928, p. 39), Margaret A. Marsh writes: "Lack of fuel is another big handicap in exploiting Bolivia's mineral resources....To the insult of depriving Bolivia of coal, nature has added the injury of setting her treasures at such an altitude that locomotives and diesel engines lose a good share of their efficiency, so that fuel imported at so great a cost does considerably less work than it would at a lower level. The mines placed on the eastern side of the Cordillera, like those at Caracoles and Araca, and even the big Patiño mines on the *altiplano* make use of water power by damming the small streams and conserving the rain and the melting snow from the mountains in artificial lakes, but in the dry season even these plants are forced to resort to the costly oil-burning diesel engines or to reduce the scale of their operations and consequently their output."

54. From F. Veintemillas and A. Valle, *El Mal de Mina y su Legislación Social*, (pamphlet) (La Paz: 1928), pp. 2-5.

55. Querejazu ms., p. 122.

56. PMECI Annual Report, 1928.

57. Fox, *The Bolivian Tin Mining Industry*, p. 364.

58. Querejazu ms., p. 169; Peñaloza, *op. cit.*, Vol. II, p. 234.

59. ECLA (United Nations Economic Commission for Latin America), *El Desarollo Económico de Bolivia*, (Mexico: 1958), p. 28.

60. PMECI Annual Report, 1930, p. 12.

61. *Ibid.*, p. 16; Deringer and Payne, *op. cit.*, p. 237.

62. PMECI Annual Report, 1932.

63. Geddes, *op. cit*, p. 226.

64. Quoted in Geddes, *op. cit.*, p. 236.

65. PMECI Annual Report, 1933, p. 15.

66. Deringer and Payne, *op. cit.*, p. 237. This was in violation of an old miners' superstition that forbids women from entering a mine, lest it lead to disaster for the men.

67. *Ibid.*, p. 236.

68. PMECI Annual Report, 1938, p. 5.

69. Querejazu ms., pp. 178-80, 189.

70. *Ibid.*, p. 301-2.

71. Fox, *op. cit.*, p. 364.

72. Quoted in Herbert M. Weisz, "Evolution of Block Caving at Catavi," *EMJ*, Vol. 159, No. 9, September 1958, p. 87.

West Coast South America Series

South America

Vol. XXI No. 2

Bolivia: The Price of Tin

Part II: The Crisis of Nationalization

by Norman Gall

BOLIVIA

The Great Depression, humiliating defeat in the Chaco War, and declining tin production all contributed to the mines' progressive debilitation after 1929. Political and population pressures on the nationalized mines have led to the creation of cooperatives worked entirely by pre-industrial technology.

(NG-2-'74)

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NORMAN GALL has been reporting on Latin American affairs for more than a decade. Having studied at Emory University and New York University (A.B. 1956), he traveled extensively in the Caribbean as a reporter for *The San Juan Star* from 1961 to 1964, devoting special attention to events in the Dominican Republic between the fall of the Trujillo dictatorship in 1961 and the 1965 U.S. military intervention. As a freelance journalist since 1964, he has reported in depth on political and economic developments in Mexico, Guatemala, Cuba, Haiti, Venezuela, Colombia, Peru, Bolivia, and Chile. His work has been appearing frequently over the past decade in such publications as *The Economist*, *Le Monde*, the *Washington Post*, *The New York Times*, *The Wall Street Journal*, *Commentary*, *The New York Review of Books*, *Dissent*, *The Nation*, *The New Republic*, and *The New Leader*. In 1967 he was awarded a special fellowship to study at Princeton University's Woodrow Wilson School of Public and International Affairs, and in 1968 he received a Guggenheim Fellowship for research and writing in Venezuela. He has also been the recipient of a Houghton Mifflin Literary Fellowship Award. Appointed a Field Staff Associate in 1971, Mr. Gall currently resides in Caracas and reports on significant developments in the Caribbean and Andean areas.

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BOLIVIA: THE PRICE OF TIN

Part II: The Crisis of Nationalization

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January 1974

I

At the time the major Bolivian tin mines were nationalized in 1952, the industry had been sustained for more than 20 years by the efforts and investments made in the first three decades of the century. No important mine had been brought into production since the Depression; little geological exploration had taken place and there were few additional investments. Many mines were becoming exhausted and their equipment was becoming obsolete. After World War II the tense political situation and the high price of tin led the major companies to gut their mines so as to maximize their profits before nationalization, which was widely feared by the industry. In 1958 the United Nations Economic Commission for Latin America reported:

> Some of the older and more important mines face adverse conditions of natural origin: the declining grade and increasing complexity of the ore, the narrowing of the veins, the increasing pressure of the rocks as the mines go deeper, and the excessive extension of the underground workings.... Most of these factors cannot be counteracted by new investments in existing mines, and will gradually increase further the costs of ventilation, transport inside the mine, pumping of water from the deepest tunnels, increased maintenance to avoid cave-ins caused by the great pressure of the rocks, etc. In other words, more ore will have to be extracted under worse conditions and transported greater distances to produce the same amount of metal.[1]

These adverse conditions in Bolivia were aggravated by the stagnation in the world demand for tin since the Depression. Between 1930 and 1963 world lead consumption doubled, copper tripled, nickel quadrupled, and aluminum consumption rose 20-fold, while the use of tin increased by only 3 per cent.[2] Except for one year during World War II (1941), the United States was never again to reach its 1929 level of tin consumption (85,000 tons), and world demand was not to recover its 1929 level (171,000 tons) for another 35 years.[3] Because of high production costs and international production controls, the price of tin in recent decades has resembled that of a semiprecious metal, partially because political upheavals in Bolivia, Indonesia, the Congo, Malaya, and Nigeria tended to limit the supply of tin entering the world market. According to one observer, "the shift in supply patterns partly reflects differences in the amounts of reserves and costs of production, but the reduction in total supplies is primarily due to political disturbance in the countries affected or to the policies adopted by their governments as a result of political changes."[4] Uncertainties both of the price and supply of tin thus have prompted major economizing innovations in its use. In the words of a British geographer:

> Tinplate provides an excellent example of the power of modern technology to reduce dependence on the products of the underdeveloped world and their price uncertainties. A rise of£100 a ton in the price of tin is said to increase the cost of producing an average "tin can" by less than one-fiftieth of a new penny. Even so tinplate producers have acted both to economize in tin use and to find alternative materials. Substitutes such as plastic, aluminum or "tinless" tin cans made of steel have made headway, and improved coating techniques have cut down the use of tin even in tinplate, with the replacement of the old "hot dip" tinning by

> the electrolytic process and with the production of "thin tinplate" in which the coating is thicker on one side than the other. As a result of these developments, demand for tin from the British tinplate industry fell from 1947 to 1961 even though consumption of preserved foods doubled. In the USA tinplate production went up between 1960 and 1967 from 5.7 to 6.3 million tons, but tin consumption by the tinplate industry fell by 11 per cent.[5]

All these factors must be taken into account when considering what has been widely described as the economic disaster of nationalization of Bolivia's major mines. The sharp declines in production since 1952, commonly ascribed mainly to politicization and disorganization of current operations, can also be viewed primarily in terms of the precipitous drop in the ore grade. While there were many stories of labor anarchy in the mines after nationalization, a United Nations technical assistance mission reported in 1950 that mine labor already was rebellious and worked effectively for only 40-50 per cent of its shifts.[6] The failure of the three major mining groups to explore and invest in Bolivia, thus allowing their properties to deteriorate, can be understood in view of the uncertain world demand for tin; the Bolivian government's retention of the companies' foreign exchange earnings in the 1930s and 1940s, and the revolutionary effervescence since the Chaco War. All these factors combined to shape the raw and mounting tragedy of the mines and their people.

While the mining industry—including the small- and medium-sized private mines that were not nationalized—employed less than 10 per cent of the nonagricultural labor force in 1950 of what was still a heavily peasant society, it was—and remains—the linchpin to the monetary economy in Bolivia. The industry generated 95 per cent of Bolivia's foreign exchange earnings in 1950, with 70 per cent of this coming from tin, and export taxes on minerals provided two-fifths of government revenues. Like oil in Venezuela and copper in Chile, tin in Bolivia was largely an enclave industry where fluctuations in price and production would spell the difference between prosperity and ruin throughout the economy. Unlike sugar in Cuba and beef and wheat in Argentina, Bolivia's monoproduct was extracted by a tiny but volatile minority of the labor force that could create havoc in the economy at any moment.

In his report on the first two years of nationalization to a miners' congress in Siglo XX-Catavi in late 1954, the Secretary-General of the Federación Sindical de Trabajadores Mineros de Bolivia (FSTMB), Mario Torres, attributed the decline in production since 1952 to "depletion of the ore deposits, a lack of trained technicians, lack of spare parts and *pulpería* [company store] supplies...and, finally, the euphoria in the mining camps that comes from feeling free of oligarchic oppression."[7] When the mines were nationalized, the price of tin was already dropping from the 1951 Korean War high of $1.28 per pound—an all-time record—to reach a trough of 92 cents in 1954 that lasted through most of the 1950s. In the nationalized mines of COMIBOL (Corporación Minera de Bolivia), the state mining corporation formed in 1952, the work force increased by nearly half between 1951 and 1956, while tin production dropped to half the 1951 level (14,800 tons in 1961).

Because of the inflation that racked Bolivia in the 1952-1956 period and the chaos in COMIBOL's accounting caused by sloppy bookkeeping and artificially low exchange rates (14,000 bolivianos to the black market dollar in 1956, against the official rate of 190), it has taken time for economists to determine that COMIBOL actually was making a profit in those years. According to the conservative George Jackson Eder, the American advisor in La Paz in 1956-57 who organized the United States-financed economic stabilization program:

> COMIBOL deficits were not the cause of the precipitate depreciation of the currency, as most people in government and in the Central Bank believed. Quite the contrary; if the nation's accounts had been properly kept, without the confusion produced by multiple rates of exchange, and particularly the absurd official exchange rates, it would have been clear that COMIBOL's excess of cash receipts over cash expenditures was the only thing that enabled Bolivia to survive the cash deficits of the petroleum corporation, the Development Corporation and the railways.[8]

A Price Waterhouse accounting of the first 11 years of COMIBOL's operations showed that in 1953-1956 the Central Bank had received from COMIBOL $138 million more in foreign exchange than it had dispensed to COMIBOL,[9] with much

of this surplus being diverted into agricultural and petroleum developments in the lowlands east of the Andes. These schemes reflected a view attributed to President Paz Estenssoro that the mines were dying anyway, and that Bolivia's economic future lay in the Oriente.[10] While these policies lay the groundwork for the extraordinary economic development in recent years of the Santa Cruz region,[11] it also hastened the decline and decapitalization of the tin industry on which Bolivia still depends.

In his book on the stabilization program, Eder assigns prime importance to miners' wages in fixing the new exchange rate in 1956:

> If COMIBOL employed too many miners, and if the miners produced less than they should, which was the case, there would be less for each miner. If the amount available for wages worked out at say $1 a day per miner, and if the miners demanded a wage of Bs. 6,000 a day, the exchange rate would have to be Bs.6,000 to the dollar; if they demanded Bs. 10,000 a day, the rate would have to Bs. 10,000.... On the other hand, the higher the miners' wages and the higher the rate of exchange, the worse off the rest of the population would be, because of higher domestic prices and because of Bolivia's dependence on imports for many articles of prime necessity.[12]

The stabilization program succeeded not only because of the $25 million initial Stabilization Fund, but it also received $360 in United States' aid in the 1955-1964 period, nearly half of this in USAID grants directly subsidizing one-third of the Bolivian budget.[13] The State Department initially asked that even President Paz's Stabilization Decree have Washington's prior approval.[14]

Despite its strong bias against state ownership of the mines, one of the most important historic documents of the revolutionary period is the nine-volume study of the mining industry produced in 1956 by the American engineering firm, Ford, Bacon & Davis (FBD). According to FBD, some 65 per cent of the technical staff at the mines left their jobs between 1952 and 1956. Nevertheless, some of the most important technical jobs were filled by foreigners who had worked for the Patiño, Aramayo, and Hochschild organizations and had decided to remain in Bolivia. The report described some of the nightmarish management problems they faced:

> ...the frequent lack of materials and supplies, especially the critical ones, at most of the mine operations has been very costly in terms of lost man-hours, strikes, labor disturbances and general decrease in morale. In addition, the general inefficiency of the overall purchasing, handling and distribution of supplies has resulted...in higher costs for such materials.
>
> ...in nearly all the Corporation mines one to three or more important staff positions are not even filled, and this does not give a correct measure of the staff and supervisory force deficiency for the reason that many personnel are filling positions above their real capacity.
>
> Labor is frustrated by its inability to cope with inflation, inability to obtain proper working tools, and in some cases lack of adequate supervision, lack of housing, lack of proper medical and camp facilities and most of all lack of essential food, fuel and clothing.... Mine doctors have quoted that at some mines as much as 50 per cent of the mine force have some sort of respiratory ailment such as tuberculosis and silicosis.
>
> The *pulpería* [company store] problem has been one of the major sources of trouble and frustration.... The *pulpería* grew out of the need of the mining companies to furnish the necessities [food, clothing and fuel] to the miners...at cost, so...the miners and their families had available to them a good diet. [Because of] the increasingly absurd low prices at the *pulpería* in face of the soaring inflation...the mine workers that have the *pulpería* privilege found it lucrative to re-sell items on the black market....It is startling to find that this *pulpería* subsidy in some of the...mines amounts to more than the total direct mining and milling costs at these operations.[15]

While there had been serious labor trouble in the mines in the decade preceding nationalization, the most important structural change after 1952 was the control of the industry assumed by the national miners' union. The mine workers' leader, Juan

Lechín, who had played a key role in the revolt that brought the MNR to power, became the MNR's first Minister of Mines (1952-1954), and he was succeeded in this post by the Secretary-General of the FSTMB. The chief instrument of the FSTMB's influence over mine operations was the *Control Obrero*,[16] which also was the most innovative of the institutions spawned by the Bolivian Revolution.

During some recent taped interviews in Caracas, I asked Lechín, now in exile, just how the idea of a *Control Obrero* in the mines originated. "The idea was resisted by Paz and the rest of the MNR leadership, but they gave in because they were afraid of the armed miners' militias that had just defeated the Bolivian army in the streets of Oruro and La Paz," said the tall, white-haired former soccer star whom the miners have adored since he was briefly subprefect in Uncía-Llallagua in 1944. "You know, in those days after the Revolution, people were calling La Paz 'Lechingrad.' The MNR was really a middle-class party, and Paz had voiced opposition to the nationalization of the mines in Buenos Aires on the eve of his return from exile to head the triumphant Revolution. We at the Ministry of Mines were devising a formula for worker participation in the management of the nationalized mines, but we were dissatisfied with merely having minority representation on the board of directors of COMIBOL. Then we heard over the radio that the Russians had just exercised one of their first vetoes in the United Nations Security Council. We thought what a good idea it would be for the workers to have a veto over COMIBOL management decisions to avoid administrative abuses and dirty business deals, especially in the purchasing department. We never intended the *Control Obreros* at each mine to interfere with daily operations, but they did this on their own because they were elected annually by the workers and thus had to respond aggressively to workers' complaints or lose their jobs. Mario Torres, the FSTMB Secretary-General, was *Control Obrero* at the COMIBOL headquarters in La Paz before he was appointed Minister of Mines. When he became *Control Obrero*, Mario asked me what he should do. 'Veto everything,' I told him, 'especially purchases. Then the losing bidders for each contract will come to you with complaints of how they were cheated, and you will learn a great deal.'"[17]

One of the most coherent accounts I have heard of the years following nationalization came from Emigdio Peñaranda, a softspoken, middle-aged Bolivian engineer with a strong rapport with the workers. Peñaranda came to Siglo XX as a young man, around the time of nationalization, and worked in the interior mine for 14 years. We talked at length during my first visit to Siglo XX in 1965-66, and again in 1973. "Before the Revolution," he told me, "about four-fifths of the mine engineers were highly paid foreigners brought in by Patiño, while Bolivian engineers had very little future. There was a caste system with the gringos on top, the miners at the bottom and we Bolivian engineers and office workers somewhere in between. Most of the miners were Indians from distant valleys, and many of them couldn't speak Spanish. When the Revolution came, we all tried very hard. Nationalization made the Bolivian miners and engineers feel they were the owners of the mines. Everyone worked long hours, often seven days a week, and there was great discipline because we wanted to show the world we could do more than Patiño. Production rose at first, even though we lacked rails, timber, and water pipe—the acidity of water inside the mine corroded the pipes very fast. We had to strip some sections of equipment just to keep other sections running. Then the price of tin collapsed after the Korean War. The inflation in Bolivia was aggravated because food production fell after the agrarian reform. People in the cities, who had to form lines at night to get bread and milk in the morning, cursed the miners because the MNR shipped the best food to the *pulperías* at frozen prices because the government was afraid of the miners' militias.

"The problems with the mine workers began around 1954-55," Peñaranda continued. "The worst period of union dictatorship was in 1956-1958, when my family and I had to leave the mine under COMIBOL's orders for our own safety. The *Control Obrero* was an invention of the Devil. There was no discipline, no responsibility. After nationalization many people wanted to come to work in Siglo XX, which was then the center of political and economic power in Bolivia. The government pressured management to hire more people, but very few of them wanted to work inside the mine. At the same time there were many more fringe benefits, as well as all kinds of special bonuses. Union leaders rode around in company cars with chauffeurs while the nationalized mines were losing $1 million a month. The COMIBOL management gave up and tried to get a foreign

company to run the mines, but nobody wanted to do it. So we were left to fight among ourselves."

Surprisingly, nationalization at Siglo XX-Catavi, the largest and most politicized of the COMIBOL operations, caused less economic upheaval in the early years than at the other nationalized mines. Not only did the payroll increase at Siglo XX much more slowly than at the COMIBOL mines as a whole between 1952 and 1956, but a higher ratio of underground mine workers to the total labor force (40 per cent) prevailed at Siglo XX than at all nationalized mines (32 per cent in 1956). While the rate of industrial accidents at the nationalized mines rose sharply between 1953 and 1955, at Siglo XX they declined to about 40 per cent of their 1950 level. [18]

In 1955 Siglo XX produced one-third of COMIBOL's tin output, and in 1956 its milling capacity was raised from 5,000 to 6,500 tons of ore per day to help offset a one-third decline in the ore grade between 1950 and 1955. Nevertheless, according to FBD,

> the Catavi mine has reached a late stage as regards ore reserves, as the mine is now largely dependent upon "reworking" the previously mined areas to recover some gash veins in the walls, old filling material of economic grade, and sand tailings from the dump.... At present the mine is not quite capable of supplying the full mill load, and it is necessary to supplement the mine output by trucking old sand tailings to the mill.... It is now estimated that the Catavi operation made a profit of $2.26 per ton milled in 1955.... However, the known wage increases subsequent to the above date would make this operation marginal.[19]

At this point the Catavi management embarked on a dramatic expansion of its block- caving program of gutting the interior mine. In a 1959 article in the *Engineering and Mining Journal*, Catavi Manager Herbert M. Weisz wrote:

> Without the application of block-caving methods it would not have been possible to mine 13 million tons of pillars ["solid waste"] which contain more than 91,500 tons of fine tin. Block-caving must also be credited with keeping up production which otherwise would have decreased to a point of preventing continuous operations. It now accounts for about 50 per cent of the ore and 40 per cent of the tin produced and the production program for the Llallagua mine foresees it contributing 80 per cent of the total mine extraction. In addition, by keeping up production while sparing reserves of vein material and by adding new reserves of former sub-grade material, block-caving has permitted raising reserves of mineable ore and prolonging the life of the mine for 10 or 12 years.[20]

While mining operations held together reasonably well at Siglo XX until 1956 under extremely adverse conditions, they began to fall apart under the political stresses of the Stabilization Program that cut deeply into the purchasing power of the miners and led to splintering of the coalition of forces that formed the MNR. The number of strikes recorded by the Labor Ministry jumped from 310 in 1957 to 1,570 in 1958.[21] President Hernán Siles (1956-1960) visited Siglo XX in June 1957 as part of a dramatic tour of the mines to prevent a national strike by the miners called to recover the *pulpería* privileges taken away under the Stabilization Program. Around the same time, as a counterpoise to the feared miners' militias, Siles began with United States aid to rebuild the Bolivian army which had been badly crippled in the 1952 Revolution. This strategy reached its logical conclusion with the November 1964 overthrow of the MNR in a military coup, after President Paz Estenssoro peeled away most of his support in the course of his maneuvers for reelection in 1960 and again in 1964.[22] After seizing power, the rebuilt army proceeded to crush the armed miners' militias with new weapons supplied in the United States military assistance program.

The political disintegration of the MNR, beginning with the 1957 Stabilization Program, precipitated a rapid deterioration of Siglo XX's capacity to survive as an industrial enterprise. After 1956 the Catavi mill's production of tin-in-concentrates declined at an annual average rate of 9 per cent to 2,810 tons in 1963, or one-third of the 1956 output. The proportion of underground mine workers to the total payroll dropped from 40 to 25 per cent between 1956 and 1964, while worker productivity inside the mine—which in terms of ore extracted rose slightly between 1950 and 1955—declined sharply by 1959.[23] Recording a $3 million

loss in his 1959 annual report, the mine manager wrote that "we see that we are very near to collapse."

In August 1961 the young president of COMIBOL, Guillermo Bedgregal, told the Bolivian Congress that,

> ...at this moment COMIBOL's debts add up to $20 million. The major creditors are private manufacturers and state enterprises such as the railroads and the national oil company. The prostration of COMIBOL is one of the causes of the country's economic stagnation; the mines generate between 75 and 80% of Bolivia's foreign exchange earnings, and the failure to mobilize this wealth is causing the bankruptcy of small industries. For example, the Ferrary & Gezzi factory, one of the largest in Oruro, is about to close its doors because COMIBOL owes it $150,000 and cannot pay. All kinds of industries, from sawmills to shoe factories, depend on COMIBOL for survival. This is not an exaggeration; the statistics are eloquent, and for this reason the mining industry has maximum priority in the government's economic program.[24]

Bolivia's tin exports declined from $85 million in 1952 to $36 million in 1958. Between 1959 and 1963 Siglo XX lost an average of $365,000 per month, while COMIBOL as a whole was losing $1 million monthly. The Dutch general manager of COMIBOL, Goosen Broesma, traveled to Europe and the United States to look, unsuccessfully, for a private company to take over management of the nationalized mines. Then the Soviet Union made a dramatic offer to COMIBOL of $150 million in credits for Soviet mine machinery at the time of Nikita Khrushchev's 1960 visit to the United Nations. Paz Estenssoro told me later that "we used the Russians as leverage against the Americans to overcome their taboo against aiding nationalized industries." This pressure led to the formulation of the so-called Plan Triangular to rehabilitate the investment-starved COMIBOL mines, a three-year, $38 million package jointly sponsored by USAID, the Inter-American Development Bank (BID) and the West German government. The major elements of the plan were $4 million for new geological exploration, $18 million for spare parts and new mining equipment, $4 million for laying off 4,800 surplus mine workers and $2 million for metallurgical research and development.[25]

While the Plan Triangular assigned $2 million for new machinery for Siglo XX-Catavi and helped make substantial reductions in the swollen payroll, there occurred around the same time another, more far-reaching response by the growing population of the Llallagua district to the economic crisis of the great mine. This was the large-scale robbery of tin ore by mineral thieves known as *jucos*, a Quechua word meaning "birds of prey that fly at night." The manager of the mine soon found that it was cheaper to have the ore taken from the mine by *jucos*, who would sell it back to the *empresa*, than to have the same amount of ore extracted by miners on the payroll. While *juqueo*, or mineral-stealing, long had been a problem in the Bolivian mining industry, it attained major social and economic significance in the early 1960s. This stolen ore figured on company accounts as mineral obtained from "other sources." While previously an insignificant statistical item, purchased ore rose from 45 tons of tin-in-concentrates in 1957 to 538 tons in 1962 to 1,366 tons in 1964, or nearly half the Catavi mill's 1964 production. Not only did this represent a breakdown of industrial organization, but the growth of *juqueo* was also part of a broader regression toward pre-industrial mining technology.

Hilarion Felipes was one of the Trotskyite organizers of the bands of *jucos* who began entering the mine nightly in the early 1960s. He is a tall, bent man of 31 years with a puffy face and cauliflower ears who lives in a sagging one-room adobe shack on one of the newly settled hills overlooking the town of Llallagua. In the early 1960s Hilarion was "Secretary-General of the Unemployed," an organization of workers fired under the Plan Triangular formed by the Trotskyites—ever-frustrated in their efforts to wrest control of the Siglo XX miners' union from the communists. "I was 19 years old and had just returned from service in the army," he told me. "The Trotskyite leader Cesar Lora found me one night when I was stealing ore and told me I had to organize the *juqueo* on a large scale because there were so many people hungry. It was then that I became a member of the POR [the Trotskyite Revolutionary Workers Party]. Lora and another POR leader, Isaac Camacho, formed a fictitious 'cooperative' at a nearby abandoned mine as a blind for selling stolen ore back to the company. The general manager at Catavi was a young Dutch geologist, Cornelius Bloot, who at first resisted

Hilarion Felipes—former leader of the *jucos* (mineral thieves)—1973).

buying stolen ore. But Bloot was a compassionate man who felt that something must be done to help the unemployed and feared that if the company didn't buy from the *jucos*, they would sell the stolen ore somewhere else.

"At first we entered the mine in groups of ten at a time," Hilarion continued, "including some students who needed money to continue their studies. But soon there were bands of 200 *jucos*, some of them armed, going into the mine at night in different sections, overwhelming the watchmen placed at the tunnel entrances to prevent stealing. When the stealing began on a large scale, peasants came from all the surrounding regions to Llallagua, and the town grew very fast. Most of the ore was stolen from abandoned mineshafts worked long ago by the company, with narrow veinlets that Patiño didn't bother with because the mine was so rich. This was dangerous for inexperienced people because the rock was not solid—the floors and ceilings of these old tunnels were formed by *taqueos* [refills] and abandoned by the company because they were so dangerous. So there were many cave-ins that killed our people. The *jucos* work with iron bars and carbide lamps, and when the lamps flickered out many of our men were trapped forever in these abandoned tunnels because they couldn't find their way out. It's like burying yourself alive in the pyramids of Egypt. You can crawl on your belly and knees, making your own cave, to find some very good ore, only to fall through an old refill into a shaft below and never be seen again.

"When the MNR was overthrown in 1964," he concluded, "the new military government sent the army into the mines, and the army stopped the *juqueo* awhile. In 1965 Cesar Lora was murdered by an army captain[26] and in 1967 Isaac Camacho was arrested and never heard from again. But they have never been able to put an end to the *juqueo*, by both the unemployed and by the miners themselves, because it is the only good business left at Siglo XX and there is so much need."

II

When weighing the heightened population pressure on the depleted economic resources of the Siglo XX mine, one must depend largely on crude statistical and visual evidence that may be no less convincing for its rawness. Because the last two Bolivian censuses were taken in 1900 and 1950 and because vital statistics are mere scratches in the sand, one is left pretty much to one's own devices, which in this case consisted of carrying out a sample demographic survey of 183 families in Siglo XX and the town of Llallagua.[27]

After mining operations on the mountain of Llallagua were consolidated under Patiño's ownership in the 1920s, population growth in the community was limited initially by a number of factors. Until the Depression, the company hired only single men as miners, because the high incidence of disease and death from silicosis would otherwise oblige Patiño to indemnify large numbers of families attached to the company. The mine population actually shrunk during the Depression, with employment cutbacks reinforced by the recruitment of some 1,300 miners to fight in the Chaco War, to the degree that a labor shortage existed when the price of tin began to recover from the world economic crisis. This labor scarcity forced the company to begin to hire married workers, although housing for families was in extremely short supply and some workers were still living in caves at the edge of the mining camps in the late 1930s. The intense crowding of these camps with new migrants in the 1940s hastened both political revolution and the breakdown of industrial organization.

The 1950 census showed that the mining camps and towns perched on the mountain of Llallagua formed the seventh largest urban complex in Bolivia, with a population of 30,053,[28] of which 18,827 lived in the camps of Patiño Mines. While the mine work force increased by 40 per cent between 1950 and 1960, there have been sharp payroll reductions since 1960 that have left the mining camp population in 1973 (20,382) only slightly larger than that reported in 1950. One of the clearer conclusions to be reached from my sample survey is that the mine has ceased to be a melting pot for migrants from other parts of Bolivia as it was earlier in the century. While the community continues to grow from immigration, the newcomers tend to come from the surrounding area and not from the distant Cochabamba Valley, where Patiño was born and which in earlier decades had been the principal supplier of manpower for the mines. This change may be explained simply by the fact that, around the time of nationalization, the company stopped sending recruiters to the Cochabamba Valley. In my 1973 survey about four-fifths of the people interviewed were born on the *altiplano*, with 43 per cent coming from the Province of Bustillos, where Siglo XX is located. Many of the miners now working for the company are the sons of miners. While the death of a miner usually means that his family must move from company housing, causing considerable turnover in the community, it is also true that many an eldest son has inherited his job, by right, from his dead father.

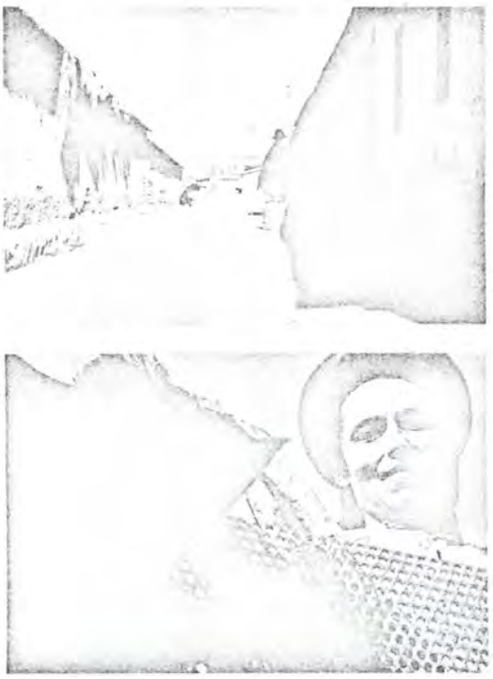
According to company records, the mining camps presently are inhabited by 3,695 workers and 16,687 dependents, yielding the extremely high dependency ratio of 4.5 to one.[29] Of the total camp population, 40.5 per cent were under 13 years old and 57 per cent were under 18. This is even a younger population than that of a very young country like Venezuela, with 52 per cent of its people under 18, and younger still than the CELADE national projection for 1970, estimating 52.8 per cent of the Bolivian population to be under 20.[30] The 183 women who answered my questionnaire had a median age of 38.2 years and reported a total of 1,315 pregnancies (7.19 per woman). Of these, 1,141 yielded live births, giving a crude reproduction rate of 3.0 daughters per mother, exceeded in Bolivia only by a few rural areas.[31] Emerging from the company's statistics of age structure and total population of the mining camps, together with fertility and mortality indicated in responses to my questionnaire, is a typically peasant demographic profile with both high birthrate (50/1,000) and death rate (20/1,000).[32] Of the 1,141 live births reported in my survey, 28.5 per cent of the children born had died before this survey was taken. In other words, counting the abortions and stillbirths reported, only three of every five pregnancies produced a presently surviving child. The 21 women in the 45-49 age group, having virtually completed their childbearing years, averaged 9.5 pregnancies and 8.1 live births each, with only 5.3 of these children surviving at the time of the survey. None of these 21 women reported infertility. All but two reported that at least one of their children had died, while eight of the mothers in this age group averaged 4.5 deaths of their children after live delivery. According to Dr. Fernando Querejazu, the chief pediatrician at the company hospital in Catavi, 40 per cent of the children entering the hospital for treatment are badly undernourished, and 15 per cent of all babies born in the hospital die in their first year of life.

This burden of mortality suffuses the miner's life and repeats itself, like a tale told by an idiot, in the collisions and outbursts of his community. It is ingrained into the rhythm of his work and the dense phalanxes of oblong dwelling compounds in the mining camps. Inside the mine Constantino Apasa's taut, handsome Indian features are distorted at work by a plug of coca leaves in his mouth that smears his lips green and swells his jowls. In the heat of the lower recesses of the mine, his sweating face is powdered by the swarms of dust enveloping the clamor of his pneumatic drill attacking the moist upper reaches of a cavern where he will place an explosive. "The miner doesn't care much about dying," they say again and again. "We face danger daily inside the mine, and will die early of silicosis anyway. This is why we have risked death so readily in revolutions and when the army has invaded the mines."

Nearly all the workers' houses, like everything else at the mine, date from the Patiño era. The yellow cement surfacing of the exterior walls has been peeled away in most places, and the bare adobe remains. The sudden climatic changes within the daily cycle of life in this mineralized desert are as commonplace as the frequent crossings of the

A street in the mining camp (1973).

A miner's wife washing clothes (1966)



A miner's wife before her house (1966).

Chewing coca.

boundaries of human existence, as shown in the birth- and death rates. Constantino Apasa defends his house against the night wind of the *altiplano* with a sheet of discarded boilerplate propped against the door. Behind the door nine persons sleep in two beds in one room. On one of the walls is an old soccer photo of Constantino with his teammates, and a wedding picture with a finely worked silver frame stands on the only table. A bicycle and a baby carriage hang from the ceiling of the room to economize in floor space. A broken window is stuffed with a burlap ore bag. Above that window outside the house two dried fish heads hang from a wire for good luck. As in most of the miners' houses, the kitchen is outdoors on the small porch that is crowded with wash basins and brushwood brought in from the *altiplano*. At night the small herds of llamas that carry the brushwood often are parked in the streets of the mining camps, while their Indian herdsmen sleep behind the boilerplate in front of the houses. Flowers are planted in old wooden dynamite boxes, whitened by the sun, on the steps approaching Constantino Apasa's house. The sun comes and goes with a sudden intensity. On nice afternoons the miners' wives wearing bowlers of the *altiplano* or the white stovepipe hats of the Cochabamba Valley, bring large tin basins into the sunshine to wash clothes with water hauled in old lard cans from the communal faucet.

Shortly after the carnage of the Night of San Juan, when during the drunken festival night of June 24, 1967 the army again seized the mines at the time of Che Guevara's guerrilla uprising in Bolivia, the editor of the Catholic newspaper *Presencia*, Alberto Bailey, made a tour of the principal mining districts to describe the living and working conditions. Bailey wrote that "everything has to fit in one small room: clothing, furniture, beds, utensils... and an average of from six to eight persons. All that usually fit are two normal-size beds and at times a third small one. The cold, rain and wind penetrate the roofs and walls, which are almost always covered with old newspapers to improve their appearance. There is no water in the miners' houses, not even in those considered exceptionally good. There is nothing that even resembles hygienic toilet facilities, only communal latrines built between the houses for 40 persons to squat at a time. The excuse for this that we heard in the mines [was that] these houses were built for young, single men. Now miners with large families are occupying these houses and, of course, are crowded."[33]

By the mid-1960s there were about 500 miles of tunnels inside the Siglo XX mine, but the average grade of ore had declined from 9 per cent in 1924 to 2.45 per cent in 1938 to 1.11 per cent in 1952 to 0.50 per cent in 1970. While quality of tin ore has declined by half since the Revolution, the population of the Siglo XX-Llallagua mining district has roughly doubled. The most dramatic aspect of this growth has been the almost incongruous prosperity of the town of Llallagua, which in 1950 had an urban population of 6,719 that today may number between 20,000 and 30,000.[34] In 1956 Llallagua was separated from Uncia, the provincial capital, and formed its own municipal government. The growing town population has led to serious water shortages because of the competing needs of the municipality and the Empresa Minera Catavi. In the eight years between my first and most recent visit to Llallagua, there has been an impressive proliferation of stores, canteens, tailor shops, and lawyers' offices. Streets have been paved, sewers laid, two new banks opened, a hospital built, and an evening high school for workers created, the Colegio Nocturno 1 de Mayo, which began with the students paying the teachers' salaries. Swirls of people pour into the main street that descends through an old ravine clogged now with appliance stores and outdoor displays of shoes and brightly colored cloth and plastics. The lower mountain slopes beyond the town are being covered rapidly by new settlements of tin-roofed adobe shacks.

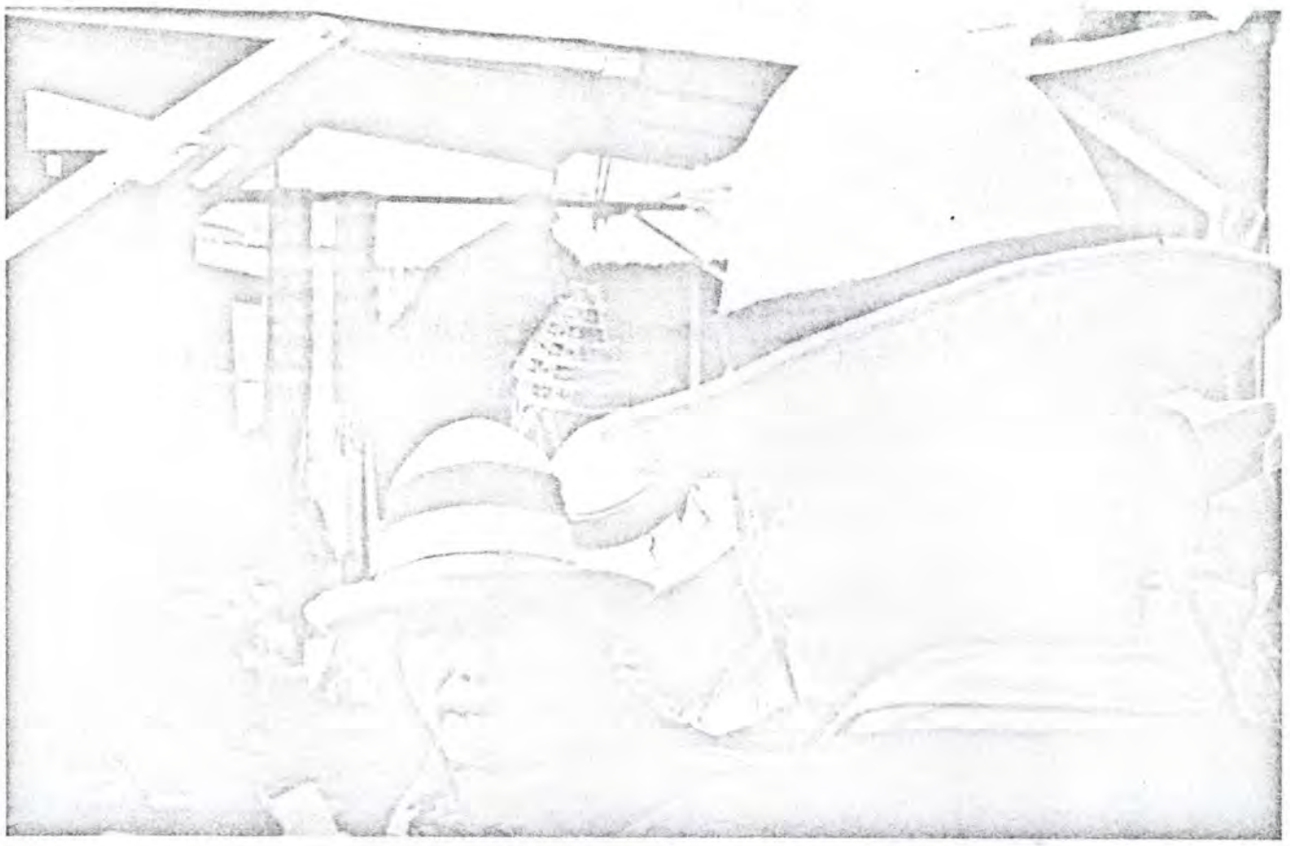
We seem to be seeing in postrevolutionary Bolivia what Clifford Geertz saw in postrevolutionary Indonesia: a movement "from industrialization without urbanization toward urbanization without industrialization."[35] There are two complementary explanations given locally for the sudden manifestations of wealth and growth in Llallagua. The first is that the return to labor-intensive forms of mining has created a new demand for peasant manpower in these primitive workings, which may have been accentuated by the halving of miners' wages in the 1965-1970 period after the army invaded the mines and crippled the *sindicatos*. The 1965-1970 period saw rapid growth of pre-industrial forms of labor at a time when miners' pay cuts imposed by the military government tended to reduce or eliminate the differential in earnings between those working inside and outside the company organization.

The second explanation given for the surge of prosperity of Llallagua is the trade in stolen ore. A

Main Street, Llallagua (1973).

Marxist labor leader, who himself has built a fine house in Llallagua from his profits as a *rescatire* (ore-buyer), told me that "both rich and poor are in the trade. The Llallagua storekeepers give the *jucos* food in exchange for stolen ore. People in town buy ore for five or six pesos that they can resell for 15 pesos these days. One wealthy family has a soda factory and five or six trucks, which are used to carry stolen ore to sell at the government Mining Bank offices in Oruro and Potosi. Everybody is involved in this. Students go into the mine at night to earn extra money. Miners on the company payroll can steal 50 pounds of ore a day. They either sell it to *rescatires* or to the men in the primitive workings outside the mine, who will turn the ore into concentrates and sell it back to the company."

A third reason for the sudden growth of Llallagua may be its expanded importance as a regional peasant market, both in the stores on the



Sunday market at Siglo XX (1973).

town's busy main street and in the open-air Sunday bazaar that is a theater of intense activity beside the *sindicato* building on the Plaza del Minero. Anthropologists report that, in many localities of the Bolivian *altiplano*, "new towns" have arisen around weekly peasant markets thanks to the new social mobility among rural people created with the abolition of Indian serfdom by the 1952 Revolution.[36]

The *juqueo*, or ore-stealing, can be characterized as just one of the pre-industrial forms of mining that have reappeared at Siglo XX in recent years. An examination of company records in Catavi showed just how dependent COMIBOL has become on these pre-industrial forms of labor by persons outside the organization. In the first half of 1972 the mine lost $831,407 with the price of tin averaging $1.67 per pound and marketing and production costs totaling $1.82. The mine payroll of 4,932 workers accounted for 36.5 per cent of the costs incurred in the official production of 2,473 tons of tin-in-concentrates.[37] Nearly two-fifths of this "production," however, came from sources outside the company. Its records show that the company had paid $262,000 for ore and concentrates worth $812,000. After the Bolivian peso was devalued by 60 per cent in late 1972, greatly reducing COMIBOL's labor costs as tin prices climbed rapidly, the company's profit margin on purchased ore was even greater, fully 400 per cent.

The men and women producing tin from these primitive workings bitterly complain that they are being systematically cheated by company assayers on the weight and tin content of the ore and concentrates delivered, enabling the company to make huge profits on purchased minerals and so reduce its inflated overhead burden. During my 1973 visit to the mine, the cooperatives of *locatarios*—working abandoned mineshafts high on the mountain—were on "strike," refusing to deliver their concentrates to the company until management agreed to return small ore samples with the assayer's report. In a sense, the great mine now seems to be subsidized by cheap Indian labor in much the way that the colonial *mita* drafts of Indians subsidized the *cerro rico* of Potosí after the seventeenth century.

Alluvial diggings (*veneros*) in the riverbed.

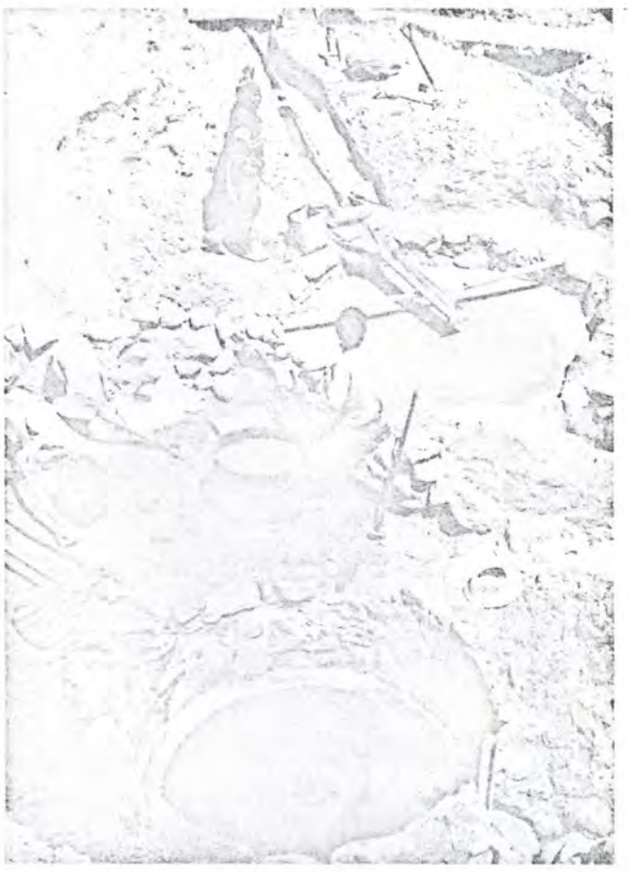
"Without this source of cheap labor the *cerro rico*, with all its rich ores long since exhausted, could not have continued to work minerals," D.A. Brading and Harry E. Cross wrote recently in the *Hispanic American Historical Review*. "At Potosí the *mita* both created the first rapid boom and then subsidized continued production."[38]

Some of the primitive workings at Siglo XX seem almost a revival of ancient mining technology, though there appears to be a tendency to settle at the state of the art that existed around the time gunpowder was introduced into Central European and Spanish colonial silver mining in the seventeenth century. Indeed, some of the mine machinery appearing in German woodcuts of the period are more advanced than much of the apparatus doing the same job at Siglo XX today. The tendency to form cooperatives in the reversion to pre-industrial forms of mining in Bolivia, including COMIBOL's converting its more unprofitable mines into cooperative enterprises to reduce overhead, again resembles an early period in German mining, when "the lords found it to their interests to turn over the mines to the workmen, with the result that there arose everywhere little autonomous associations of co-laborers, each with a mine of its own, which paid tribute to the lord and divided profits among the members."[39]

Apart from the *jucos*, there are four kinds of primitive mining now going on at Siglo XX:

(1). *Veneros*: There are about 2,000 men, including peons, who produce about 75 tons monthly of tin-in-concentrates from low-grade alluvial deposits in the streams descending the mountain of Llallagua and in the floodplain of Uncía immediately below. These workings are just as in the ancient mines of Cornwall, where "the stream works were all of limited depth, it being merely a question of digging down to the bedrock through the substratum, a distance that would vary locally but which could not very well be greater than 50 or 60 feet."[40]

Lameros (1973).



The buddle (*lameros*) 1973.

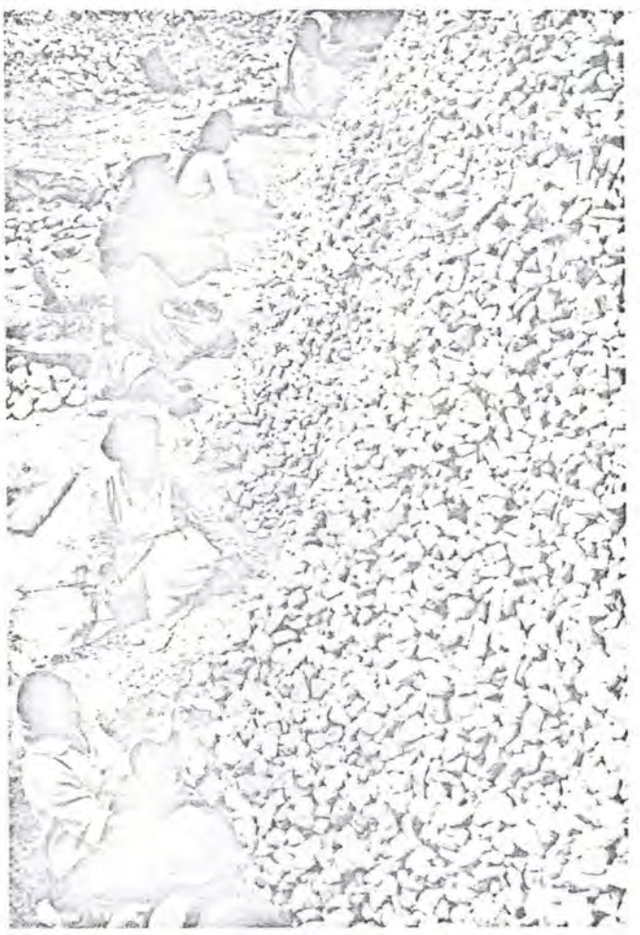
On my last visit to Siglo XX I went down into one of these small alluvial mines, which resembled in design the Stone Age flint mines discovered at Grimes Graves in England, with the difference that the vertical shaft, or *cuardro*, descended 34 meters, while the neolithic workings had a maximum depth of ten meters.[41] The *venerista*, or alluvial concessionaire, in this small mine was Apolinar Alvarez Lopez, 41, a native of nearby Chayanta who retired from his job in the interior mine with handsome severance pay under the Plan Triangular. One descends into his *cuadro* by a hand-operated winch cable, which is also used to lower tools and life ore from more than 400 meters of horizontal galleries extending in three directions from the bottom of the *cuadro*. It took Alvarez and six peons two years to excavate these diggings. "We have to find the mineralized layers ourselves. One of our galleries, 190 meters long, is closed now because of a cave-in. Another 100-meter tunnel ended up in the river-bed. There are many false starts. The company cheats us in the weight and grade of our production, then discounts school tuition for our kids, royalties, truck rental for moving our ore, and a special fee for technical assistance. The engineers who are supposed to give us technical advice come around once in a while, but have never gone inside the mine. All they do is ask me for more production."

(2). *Lameros*: Along the little canal beside the railroad track on which ore is carried from the "Sink-and-Float" preconcentrating plant to the mill, there is a succession of tiny dams and a long line of men waiting their turn to trap the waste that flows in the canal from the noisy machinery that fitfully and inefficiently processes the ore from the mine. The low tin content of ore now coming from the mine is further diminished by inefficient recovery in the concentrating process. Thus one-third of the tin produced by the mine is lost in in the waste that pours from the "Sink-and-Float" plant, and gives the *lameros* their livelihood.

There are about 400 *lameros* who, with their peons and families, work the canal at 215 assigned places beside the track. The slime flowing from the plant is picked up on alternate days to allow a sufficient quantity to accumulate at the dams. Because there are so many *lameros* who want to recover the slime bearing 0.20 per cent tin as close as possible to the plant, a system has been devised for taking turns among groups of ten *lameros* so that each will work closer to the plant each month and occupy a place at the head of the line every two or three years.

About one wheelbarrow-load of slime is carried from the canal daily to a gravitational concentrating bath called a buddle, which has been used in England at least since the days of Henry VIII.[42] The buddle is a cylindrical pool into which water is poured with the tin slime, creating a solution in which the mineral sinks to the center of the pool and the waste material floats to the edges. This laborious process is repeated about 20 times until the grayish material in the center of the buddle turns black. At the end of a good month the *lamero* will produce from six to eight 100-pound bags of concentrates containing 20 per cent tin, receiving for this about $100 to be shared with his family and his peons.

(3) *Palliris*: In the early 1960s the management in Catavi found that large sections of the mountainous gray-green dumps behind the "Sink-and-Float" plant contained a higher grade of tin than the ore being extracted from the mine. After the MNR was overthrown in November 1964, the widows and orphans of dead miners were given work on the dumps as *palliris*, selecting pieces of high-grade rock from the waste pile and lugging them in 40-pound bags to a mechanical crusher several hundred yards away. Previously, hand-selecting of choice ore, or *guia*, by the *palliris* had been eliminated by the company with the completion of the "Sink-and-Float" plant in 1949. In the 1960s the Catavi management said the *palliris* were being used again as a form of charity to the women. Although the company said the women were their own bosses, it employed an engineer and two foremen to supervise their work. The women were not paid for transporting the bags of ore to the crusher, which sometimes resulted in spinal injuries and internal hemorrhages. They were paid five cents per bag delivered, but were not allowed to produce more than eight bags per day.

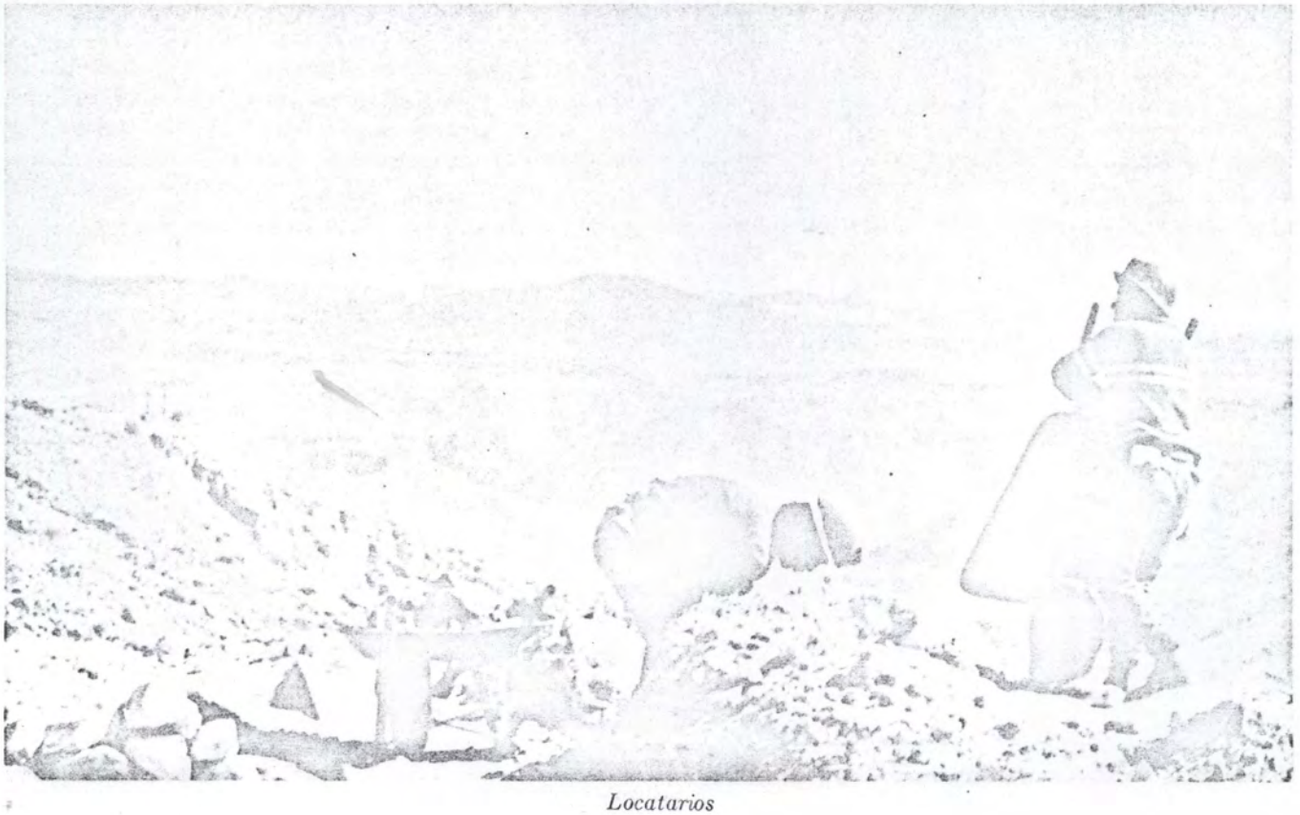


Women (*palliris*) on the rock pile (1966).

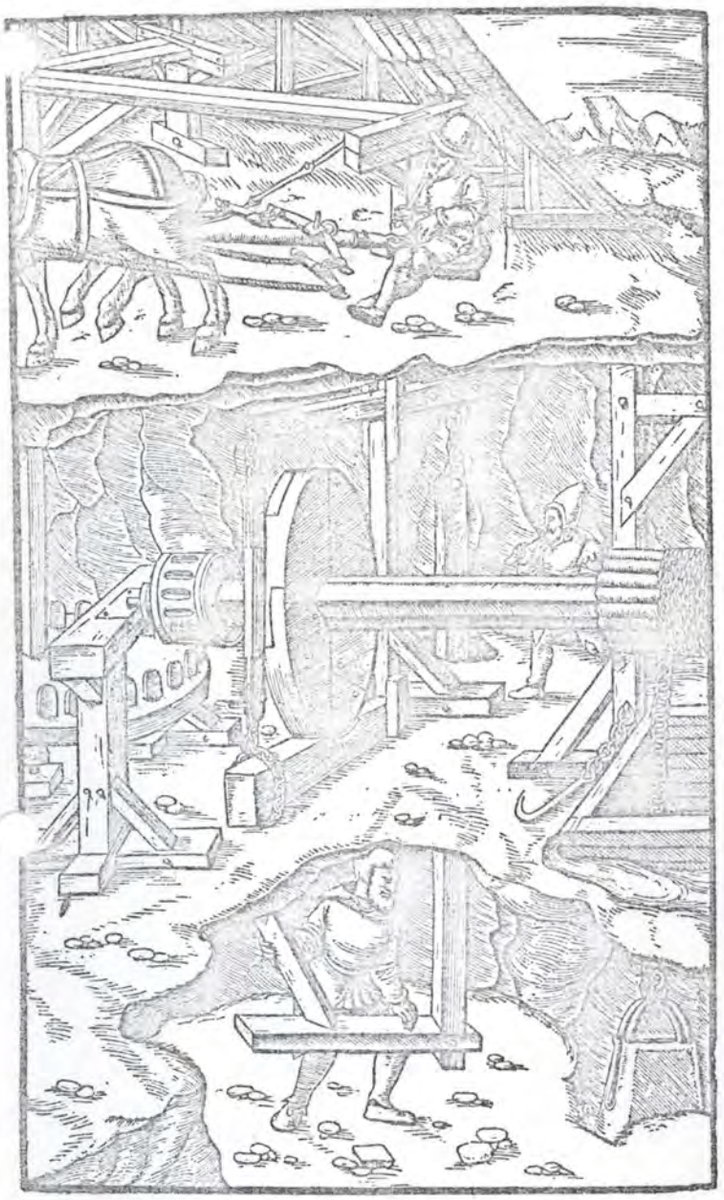
The leader of the women who work among the knolls and dunes of waste rock is Margarita, a gray-haired Indian woman who wears the white stovepipe hat of the Cochabamba Valley. "On November 11, 1964, a week after the MNR was overthrown, the company broadcast a call on the radio to widows and orphans who wanted work. There were more than 600 of us who showed up. We were promised jobs on the company payroll as vacancies occurred, but none of these jobs ever opened up. Both our numbers and our pay have declined as the tin content of the dumps diminished from 2.20 to 0.78 per cent." Soon this work will be eliminated entirely, since the high grade material is nearly exhausted.

(4) *Locatarios*: These are the roughly 2,000 men who work the abandoned mineshafts at the top of the mountain that date from the beginning of the century. These originally lucrative locations were

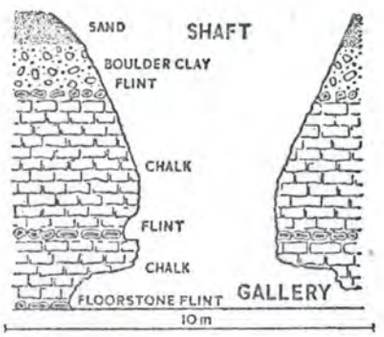
Locatario going to work.



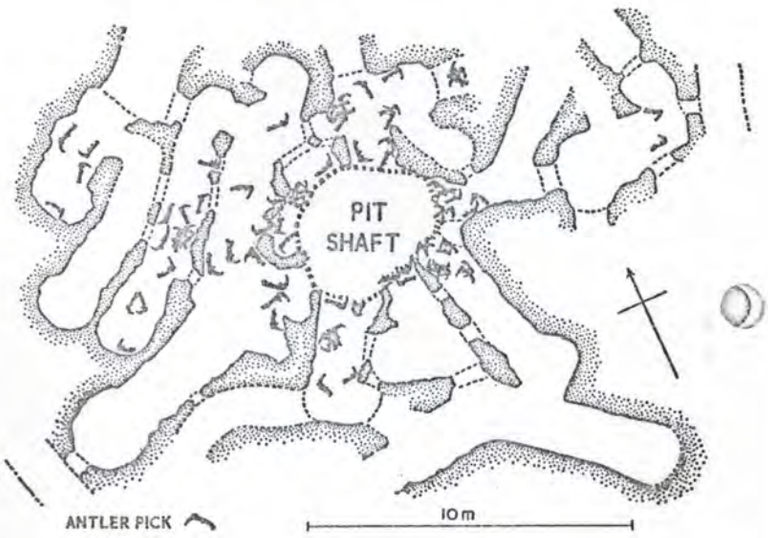
Locatarios



Horse-whim for raising large loads. The man below operates a brake consisting of a beam that can be lifted to bear on a drum fixed to the driving shaft. The load may be held stationary by catching the chain on a suspended hook. 1556. (Charles Singer, et al. A History of Technology, Vol. II, p. 18).



Section through pit no. 1, Grimes Graves flint mines, East Anglia. (Charles Singer, et al., A History of Technology, Vol. I, p. 559).



Galleries radiating from pit no. 2, Grimes Graves. The floor of the shaft is about 9 m. below ground-level. (Charles Singer, et al., A History of Technology, Vol. I, p. 559).

Some of the mine machinery appearing in German woodcuts of the seventeenth century are more advanced than much of the apparatus doing the same job at Siglo XX today.

given out in 1967 to political insiders and friends of the company manager, who were then ousted in a revolt of their peons in October 1969 when a leftist military regime seized power in La Paz. The peons then formed cooperatives to work the locations themselves.

Were it not for their high productivity (97 tons of tin-in-concentrates delivered monthly to the company), the *locatarios* might be described as a composite of the excess population of this swollen community: former company workers, peasants, unemployed army veterans, students and miners' sons. Save for the very rare use of pneumatic drills bought by individual teams of *locatarios*, this work resembles the technology employed in mine extraction in colonial times:

The *locatarios* work in teams of two to eight men, depending on the size of the shaft and the width of the vein, working *a pulso* (by hand) with an iron bar to the light of a carbide lamp, advancing the workfront of the tunnel between 10 and 15 inches daily. They buy timber, helmets, boots, and explosives from the company, which also rents them trucks to transport ore to their concentrating area farther down the mountain.

I have been down to these workings several times. In the warmer parts of the mine the men work in their underwear, or sometimes naked, taking turns at the workface when they have to dig in pockets of gas. They carry away the ore and waste material on their backs along the narrow tunnels to primitive lifts, where it is raised in buckets to the extraction level. They can spend months digging fruitlessly trying to find a new vein, at their own cost and risk. They say much of their luck depends on the Tío, an idol that is a semblance of the Devil. Tío figures are kept in several mineshafts in the mountain of Llallagua, and are worshiped with coca leaves and cigarettes, receiving on special occasions a sacrifice of a baby llama. "The Tío is everywhere," one *locatario* told me. "We had a Tío of our own, but the idol was stolen. The Tío has eaten four men here: two have died from gas-poisoning and two in cave-ins."[43]

The *locatarios* bring their extracted ore further down the mountainside to a riverbed beside one of the mining camps, where it is crushed and concentrated by primitive methods used by Patiño when he was processing ore by hand at the beginning of the century. There is the *quimbalate*, which crushes the ore beneath heavy rocks, and the *maricate*, a kind of straining box with metal screening at the bottom that filters the ore as it is washed. Each afternoon the *locatarios* bring their ore to this "*ingenio*," or mill, and around the twentieth of each month the entire work force is engaged in concentrating the ore for delivery to the company. The quality of this ore, here as elsewhere at Siglo XX, however, is declining and the men feel that the old mineshafts will soon be empty.

In this way the Bolivian tin industry seems to be returning to its earliest beginnings. This probably could have been avoided with adequate geological exploration and investment in development of new methods of recovering low-grade ore. Since the Great Depression, however, these possibilities have been blocked by political and population pressures on the resources already developed, even though much of this wealth already had been transferred out of the country before 1952. Consequently, the exhaustion of ore reserves and the decline of industrial organization has forced COMIBOL to turn several of the nationalized mines into cooperatives worked entirely by pre-industrial technology.

NOTES

1. United Nations Economic Commission for Latin America (ECLA), *El Desarollo Económico de Bolivia* (Mexico: 1958), pp. 44-45.

2. W. Robertson, *Report on the World Tin Position with Projections for 1965-70* (London: International Tin Council, 1965), p. 10.

3. *Ibid.*, p. 115.

4. From Joseph Grunwald and Philip Musgrove, *Natural Resources in Latin American Development* (Johns Hopkins, 1970), p. 232.

5. From Kenneth Warren, *Mineral Resources* (Penguin, 1973), p. 156.

6. George Jackson Eder, *Inflation and Development in Latin America: A Case History of Inflation and Stabilization in Bolivia* (Ann Arbor: Michigan International Business Studies No. 8, 1968), p. 49.

7. Mario Torres Calleja, *A Dos Años de la Nacionalización de las Minas* (La Paz: 1955), p. 34.

8. Eder, *op. cit.*, p. 54.

9. Price Waterhouse Peat & Co., *Corporación Minera de Bolivia: Informe sobre el Estudio Contable de las Operaciones entre la Empresa y el Supremo Gobierno al 31 Diciembre de 1963* (mimeographed).

10. Interviews with Goosen Broesma, former general manager of COMIBOL, and other COMIBOL officials in the MNR period.

11. See my "Go east, young man," *The Economist*, November 13, 1965: "Since 1956, the U.S. has ploughed some $80 million into the Santa Cruz area. This has gone on such things as roads, land clearance, sugar mills, schools and providing the new farms with livestock, machinery and experimental stations. Some of the money has been stolen, much of it wasted or misused. But the overall result has been to give a desolate area some kind of economic foundation. Oil and natural gas were discovered in the area after Gulf Oil obtained a concession in 1956. Rice and sugar production doubled between 1960 and 1964, converting Bolivia from an importer of these products to an anxious searcher for export markets." Since this article was written, the Santa Cruz area has continued to grow so rapidly that secessionist tendencies have developed that would bring the Bolivian Oriente and its prized natural resources into the orbit of Brazil and Argentina.

12. Eder, *op. cit.*, p. 132-3.

13. Richard S. Thorn, "The Economic Transformation," in Thorn and James M. Malloy, ed., *Beyond the Revolution: Bolivia since 1952* (University of Pittsburgh Press, 1971), p. 390; and United Nations, "La Politica Economica de Bolivia en el Periódo 1952-64," *Boletín Económico de América Latina*, Vol. XII, No. 2 (1967), pp. 197-203. See also Richard W. Patch, "Bolivia: U.S. Assistance in a Revolutionary Setting," in Council on Foreign Relations, *Social Change in Latin America Today* (Random House, 1960).

14. Eder, *op. cit.*, p. 89.

15. The following are excerpts from Ford, Bacon & Davis, *The Mining Industry of Bolivia*, Vol. 3, *The Nationalized Mines* (La Paz, December 1956), mimeographed.

16. According to FBD, the *Control Obrero* "has the right of veto over all of management's actions, except—in theory—in technical matters. In practice...he interferes also in technical matters. In case management were to object to the exercise of a particular veto of a *Control Obrero* the matter is referred to the Corporation and the FSTMB. If these two cannot agree, the Minister of Mines is supposed to decide. Based on the actual records in most cases decisions have been in favor of the *Control Obrero*, as the Minister of Mines has always been a leading member of the union." *Ibid.*, p. 74.

17. In his letter of resignation as *Control Obrero* at COMIBOL headquarters in La Paz, Sinforoso Cabrera shrewdly observed in 1960 that "the technical and administrative personnel in the new revolutionary period have not freed themselves of their bourgeois prejudices and continued ties to their mistaken superiority complex. For this reason they have resisted the *Control Obrero* from the beginning, underestimating his value in the corporation management and trying systematically to prevent him from understanding the grave problems of the industry. A grave error, because the *Control Obrero*, feeling himself isolated from participating in management policymaking, and needing to justify the existence of his job and to maintain his prestige, has been obliged to become just another union leader and a competitor of the Secretary-General. From Cabrera, *La Burocracía Estrangula a la COMIBOL* (La Paz, 1960), p. 121.

18. *Ibid.*, pp. 45-6.

19. *Ibid.*, pp. 44-6.

20. Quoted in Herbert M. Weisz, "Evolution of Block Caving at Catavi," *Engineering and Mining Journal* (*EMJ*), Vol. 159, No. 9, September 1958, pp. 86-7.

21. Thorn, *op. cit.*, p. 187.

22. A superb account of this process is given in Patch, *The Last of Bolivia's MNR?* [RWP-4-'64], Fieldstaff Reports, West Coast South America Series, Vol. XI, No. 5, 1964.

23. According to company records examined in Catavi this year, it took 209 *mitas* (man-days) in 1952 to produce a ton of tin-in-concentrates, then rising to an average of 355 *mitas* per ton in the 1954-1958 period and then skyrocketing to 690 *mitas* per ton in 1961, an all-time productivity low.

24. From Guillermo Bedregal, *Recuperación de la Minería Nacionalizada* (La Paz: COMIBOL, 1961), p. 24.

25. According to Thorn (*op. cit.*, p. 195), "the disbursements proceeded more slowly than planned, and the initial effect of Operation Triangular was only to slow down the rise in costs. The plan was saved from disaster only by the precipitous rise in the price of tin from $1.17, the plan price, to $1.70 a pound, which actually permitted some reduction in the operating losses. By far the most important result of Operation Triangular was to stop COMIBOL from absorbing all the available financial resources of the government. Public finances were regularized to an unprecedented extent, both salaries and merchants were paid on time, and COMIBOL's large floating debt was greatly reduced." The collaboration between Bolivian officials and foreign experts was punctuated by mutual recriminations. American officials privately complained to me that USAID money was being used by COMIBOL to pay accumulated social benefits to fired surplus miners, who were then rehired. COMIBOL executives complained that a Canadian consultant to the Inter-American Development Bank, C.C. Huston, was sent to Bolivia to organize the Plan Triangular. He appointed his friends to the Advisory Group that ran the plan and who then gave Huston's company, Prospection Ltd., contracts for a large portion of the $6 million budgeted for geological and metallurgical research.

26. See Alberto Sainz, *Así Asesinaron a César Lora* (Ediciones "Masas," 1966).

27. Because of the suspicions generated by the army invasions and political repression of recent years at Siglo XX, this survey could not have been carried out without the help of the Oblate Fathers who attend the parishes of the mining community, as well as of the schoolteachers, social workers, and leaders of the League of Miners Wives who conducted the interviews. A simple questionnaire was designed that would be easy to administer and would provide an elementary statistical picture in view of the almost total absence of hard demographic data on communities of this type. Needless to say, the theme deserves much more extensive research.

28. The six more populous cities in 1950 were La Paz (267,000), Cochabamba (72,000), Oruro (58,000), Potosí (43,000), Santa Cruz (41,000), and Sucre (38,000). Since then, according to urban censuses taken in these cities in 1966-1972 period, the population of Santa Cruz has tripled and those of La Paz and Cochabamba have more than doubled, while Sucre, Potosí, and Oruro registered much more modest increases. See Llano Saavedra, *Aspectos Demográficos de Bolivia*, (CENAFA, 1972), p. 42. For an account of how one of these urban censuses are taken, see Richard W. Patch, *The La Paz Census of 1970* [RWP-4-'70], Fieldstaff Reports, West Coast South America Series, Vol. XVII, No. 12, 1970.

29. The highest national dependency ratio in Latin America is 2.5-to-one for the Dominican Republic. It is in the workers' overriding interest to fully report all dependents to maximize eligibility for *pulpería* and company medical benefits. Company records would not necessarily show the departure of dependents from the community, nor the presence of non-nuclear relatives living in the miners' homes. The "dependent" category may also include some miners' sons and daughters working in the private sector in the town of Llallagua. However, in a subsample of 85 Siglo XX women included in my survey, only six said they were working outside their homes.

30. See Jorge Somoza and Luis Llano, *Proyección de la Población de Bolivia* (Santiago, Chile: CELADE [*Centro Latinoamericano de Demografía*], 1963), p. 26. I am very grateful to Dr. Julio Paez Celis, statistical director of the Venezuelan Census Bureau, for his help in tabulating demographic data from company records and my questionnaire-survey.

31. According to Llano (*op. cit.*, p. 29), the highest crude reproduction rate recorded in Bolivia is in the *altiplano* outside La Paz (3.08). The highest fertility rate reported by Llano is 6.88 live births per woman in the 45-49 age group in the rural area of Santa Cruz Department, compared with 6.1 live births per woman in my Siglo XX-Llallagua sample.

32. Dr. Paez Celis tells me he tabulated the birth- and death rates for the mining camps by using standard tables provided by CELADE, following the Theory of Standard Populations (Lotka's Law).

33. Bailey's articles, published under the penname "Xavier," appeared in *Presencia*, La Paz, on September 7,10,14,17,21,24 and October 1 and 5, 1967. Another description of these conditions is in Jack Brown, Rafael Baldivieso, and Manuel Sanginés Uriarte, *Informe Cornell: El Minero Boliviano de Colquiri* (La Paz: Universidad de San Andrés, 1968). Since these accounts were written, COMIBOL has tried to alleviate these conditions by painting the miners' houses and converting the porches into enclosed kitchen-dining rooms, but the above description still fits most of mining camps.

34. A national census has been scheduled in Bolivia for 1974.

35. Clifford Geertz, *Agricultural Involution: The Processes of Ecological Change in Indonesia* (California, 1963), p. 146.

36. See, for example, David A. Preston, "New Towns—A Major Change in the Rural Settlement Pattern in Highland Bolivia," in *Journal of Latin American Studies*, Vol. 2, No. 1 (Cambridge, England: 1970). Also Hans C. Buechler, "The Reorganization of Counties in the Bolivian Highlands: An Analysis of Rural-Urban Networks and Hierarchies," in Elizabeth M. Eddy, ed., *Urban Anthropology: Research Perspectives and Strategies* (Athens, Georgia: Southern Anthropological Society Proceedings, No. 2, 1968), pp. 48-56.

37. That is, the tin content of exported concentrates, which currently contain about 50 per cent tin. In other words, the total weight of concentrates containing 2,473 tons of tin would be 4,946 tons.

38. D.A. Brading and Harry E. Cross, "Colonial Silver Mining: Mexico and Peru," *Hispanic-American Historical Review*, November 1972, p. 560.

39. George Randall Lewis, *The Stannaries: A Study of the English Tin Miner* (Harvard, 1924), p. 177.

40. *Ibid.*, p. 9.

41. C.N. Bromehead, "Mining and Quarrying," in Charles Singer et al., ed., *A History of Technology*, Vol. I: *From Early Times to Fall of Ancient Empires*, Oxford, 1954, p. 559.

42. Lewis, *op. cit.*, p. 15n.

43. A marvelous description of the miners' cult of the Tío is given in June Nash, "Devils, Witches and Sudden Death," *Natural History*, March 1972. Nash writes that the Tío is an embodiment of Huari, "the powerful ogre who owns the treasure of the hills" and who "persuaded the simple farmers of the Uru Uru tribe to leave their work in the fields and enter the caves to find the riches he had in store."

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INTERNATIONAL DEVELOPMENT ASSOCIATION

STATEMENT OF DEVELOPMENT CREDITS

EXPRESSED IN MILLIONS OF UNITED STATES DOLLARS
DECEMBER 31, 1975

REGION: LATIN AMERICA & CARIBBEAN
COUNTRY: BOLIVIA

BORROWER / PROJECT DESCRIPTION	NOTES	CREDIT NUMBER	SERVICE CHG. RATE / APPROVAL DATE / EFFECTIVE DATE	PAYMENT DATES / AGREEMENT DATE / CLOSING DATE	MATURITIES	ORIGINAL PRINCIPAL / CANCELLATIONS / CURRENT 5 PRINCIPAL	UNDISBURSED[4] / DISBURSED[3] / PRINCIPAL REPAID	DISBURSED & OUTSTANDING / EXCHANGE[2] ADJUSTMENT / BORROWER'S OBLIGATION	SOLD 3RD PARTY / REPAID 3RD PARTY / DUE 3RDPARTY	TOTAL DUE IDA / IDA COMMITMENT / EFFECTIVE[3] CREDITS HELD	CREDIT NUMBER
REPUBLIC OF BOLIVIA ENDE POWER		61-0	3/4%	M/N-01	74-14	10.0 .0 12.1	.0 12.1 .2	11.9 2.1 11.9	.0 .0 .0	11.9 11.9 11.9	61-0
			21 JUL 64	24 JUL 64							
			25 AUG 64	31 OCT 70							
REPUBLIC OF BOLIVIA BPC POWER		62-0	3/4%	M/N-01	74-14	5.0 .0 6.0	.0 6.0 .1	5.9 1.0 5.9	.0 .0 .0	5.9 5.9 5.9	62-0
			21 JUL 64	24 JUL 64							
			25 AUG 64	31 DEC 67							
REPUBLIC OF BOLIVIA BENI LIVESTOCK DEVELOPMENT		107-0	3/4%	M/N-15	77-16	2.0 .0 2.4	.0 2.4 .0	2.4 .4 2.4	.0 .0 .0	2.4 2.4 2.4	107-0
			18 MAY 67	26 MAY 67							
			12 DEC 67	30 JUN 72							
REPUBLIC OF BOLIVIA SECOND ENDE POWER		148-0	3/4%	J/D-15	79-18	7.4 .0 8.5	.0 8.5 .0	8.5 1.1 8.5	.0 .0 .0	8.5 8.5 8.5	148-0
			22 APR 69	28 APR 69							
			14 OCT 69	30 JUN 75							
REPUBLIC OF BOLIVIA INTERIM SECOND BENI LIVESTOCK		171-0	3/4%	M/N-15	80-19	1.4 .0 1.6	.0 1.6 .0	1.6 .2 1.6	.0 .0 .0	1.6 1.6 1.6	171-0
			16 DEC 69	13 JAN 70							
			18 JUN 70	31 DEC 74							
SUB-TOTAL FOR FULLY DISBURSED CREDITS		*				25.8	.0	30.3	.0	30.3	*
		*				.0	30.6	4.8	.0	30.3	*
		*				30.6	.3	30.3	.0	30.3	*
REPUBLIC OF BOLIVIA THIRD LIVESTOCK DEVELOPMENT		261-0	3/4%	M/N-15	81-21	6.8 .0 6.8	1.7 5.1 .0	5.1 .0 5.1	.0 .0 .0	6.8 6.8 6.8	261-0
			01 JUN 71	25 JUN 71							
			15 SEP 71	30 JUN 77							
REPUBLIC OF BOLIVIA RAILWAY		346-0	3/4%	J/J-01	83-22	8.0 .0 8.0	.7 7.3 .0	7.3 .0 7.3	.0 .0 .0	8.0 8.0 8.0	346-0
			28 NOV 72	01 DEC 72							
			21 FEB 73	31 DEC 75							
REPUBLIC OF BOLIVIA THIRD ENDE POWER		433-0	3/4%	A/O-15	83-23	6.0 .0 6.0	.8 5.2 .0	5.2 .0 5.2	.0 .0 .0	6.0 6.0 6.0	433-0
			11 SEP 73	17 OCT 73							
			11 DEC 73	31 DEC 76							
REPUBLIC OF BOLIVIA MINING CREDIT		455-0	3/4%	M/S-15	84-23	6.2 .0 6.2	4.6 1.6 .0	1.6 .0 1.6	.0 .0 .0	6.2 6.2 6.2	455-0
			15 JAN 74	18 JAN 74							
			18 JUN 74	30 JUN 78							

INTERNATIONAL DEVELOPMENT ASSOCIATION

STATEMENT OF DEVELOPMENT CREDITS

EXPRESSED IN MILLIONS OF UNITED STATES DOLLARS
DECEMBER 31, 1975

REGION: LATIN AMERICA & CARIBBEAN
COUNTRY: BOLIVIA

BORROWER / PROJECT DESCRIPTION	NOTES	CREDIT NUMBER	SERVICE CHG. RATE / APPROVAL DATE / EFFECTIVE DATE	PAYMENT DATES / AGREEMENT DATE / CLOSING DATE	MATURITIES	ORIGINAL PRINCIPAL / CANCELLATIONS / CURRENT 5 PRINCIPAL	UNDISBURSED [4] / DISBURSED [3] / PRINCIPAL REPAID	DISBURSED & OUTSTANDING / EXCHANGE [2] ADJUSTMENT / BORROWER'S OBLIGATION	SOLD 3RD PARTY / REPAID 3RD PARTY / DUE 3RDPARTY	TOTAL DUE IDA / IDA COMMITMENT / EFFECTIVE [3] CREDITS HELD	CREDIT NUMBER
REPUBLIC OF BOLIVIA			3/4%	M/S-01	85-25	7.5	7.5	.0	.0	7.5	
AGRICULTURAL CREDIT		561-0	19 JUN 75	20 JUN 75		.0	.0	.0	.0	7.5	561-0
			15 DEC 75	30 JUN 79		7.5	.0	.0	.0	7.5	
		**				60.3	15.3	49.5	.0	64.8	**
TOTAL FOR BOLIVIA		**				.0	49.8	4.8	.0	64.8	**
		**				65.1	.3	49.5	.0	64.8	**

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

STATEMENT OF LOANS

EXPRESSED IN MILLIONS OF UNITED STATES DOLLARS

DECEMBER 31, 1975

REGION: LATIN AMERICA & CARIBBEAN
COUNTRY: BOLIVIA

BORROWER, PROJECT DESCRIPTION, GUARANTOR	NOTES	LOAN NUMBER	INTEREST RATE / PAYMENT DATES / MATURITIES / APPROVAL DATE / AGREEMENT DATE / EFFECTIVE DATE / CLOSING DATE	ORIGINAL PRINCIPAL / CANCELLATIONS / CURRENT PRINCIPAL	UNDISBURSED[3] / DISBURSED / PRINCIPAL REPAID	DISBURSED & OUTSTANDING / EXCHANGE ADJUSTMENT[9] / BORROWER'S OBLIGATION	SOLD 3RD PARTY / REPAID 3RD PARTY / DUE 3RD PARTY	TOTAL DUE IBRD / IBRD COMMITMENT / EFFECTIVE LOANS HELD	LOAN NUMBER
COMPANIA YACIBOL BOGOC TRANSPORTADORES			6 1/2% J/J-01 73-91	23.3	.0	20.1	.0	20.1	
GAS PIPELINE		635-0	01 JUL 69 22 JUL 69	.0	23.3	.7	.0	20.1	635-0
GUARANTOR - BOLIVIA & ARGENTINA			02 NOV 71 31 DEC 72	23.3	3.1	20.8	.0	20.1	
		*		23.3	.0	20.1	.0	20.1	*
SUB-TOTAL FOR FULLY DISBURSED LOANS		*		.0	23.3	.7	.0	20.1	*
		*		23.3	3.1	20.8	.0	20.1	*
EMPRESA NACIONAL DE FERROCARRILES			8 1/2% J/J-01 80-**	32.0	31.2	.8	.0	32.0	
SECOND RAILWAY		1121-0	03 JUN 75 05 JUN 75	.0	.8	.0	.0	32.0	1121-0
GUARANTOR - BOLIVIA			06 AUG 75 31 DEC 78	32.0	.0	.8	.0	32.0	
		**		55.3	31.2	20.9	.0	52.1	**
TOTAL FOR BOLIVIA		**		.0	24.1	.7	.0	52.1	**
		**		55.3	3.1	21.6	.0	52.1	**

THE STATUS OF BANK GROUP OPERATIONS IN BOLIVIA

A. STATEMENT OF BANK LOANS AND IDA CREDITS (as of December 31, 1975)

Loan or Credit No.	Year	Borrower	Purpose	US$ million Amount (less cancellations) Bank	IDA	Undisbursed
Fully disbursed loans and credits				23.2	30.6	-
261	1971	Bolivia	Livestock	-	6.8	1.7
346	1972	Bolivia	Railways	-	8.0	0.7
433	1973	Bolivia	Power	-	6.0	0.8
455	1974	Bolivia	Mining	-	6.2	4.6
561	1975	Bolivia	Agriculture	-	7.5	7.5
1121	1975	ENFE	Railway	32.0	-	31.2
	TOTAL			55.3	65.1	46.5
	Of which has been repaid			3.1	0.3	
	Total held by Bank and IDA			52.2	64.8	
	Total undisbursed					46.5

B. STATEMENT OF IFC INVESTMENTS (as of December 31, 1975)

Year	Obligor	Type of Business	Amount in US$ million Loan	Equity	Total
1973	Plasmar, S.A.	Cables and Plastic Products	0.3[1/]	0.1	0.4

1/ Of which, US$0.1 million is a standby loan.

BOLIVIA: Ongoing Projects

Agriculture

Credit 261-BO: June 25, 1972 -- U.S. $6.8 million
Closing Date: June 30, 1977

This project provides for the financing of a credit program channeled through the Bolivian Agricultural Bank (BAB) to improve pasture and herd management on about 250 beef ranches in the Departments of Beni and Pando and to subsistence farmers and cooperatives for sheep raising in the Altiplano. In addition the project finances technical services, a study of meat processing and marketing, and construction and renovation of slaughterhouses and cold storage facilities. After implementation slowed down in 1976, the project is now proceeding as scheduled and the credit should be fully dispursed by the closing date of June 30, 1977.

Agriculture

Credit 561-BO: June 20, 1975 -- U.S. $7.5 million
Closing Date: June 30, 1979

This project provides credit for the continuation of the cattle development program in the Beni and Pando by medium and large size ranches and of sheep breeding by subsistence farmers in the Altiplano. Both of these programs were begun under Credit 261-BO. In addition, the project has initiated lending for development of cattle by medium size farmers in Santa Cruz, cultivation of potatoes, wheat and oats by small farmers in Cochabamba and the growing of grapes by small farmers in Tarija. The project also contributes to financing the cost of agricultural research in Saavedra (Santa Cruz). The Agricultural and Livestock Division (ALPD) in BAB, headed by a Bolivian Director and his deputy is responsible for project implementation. ALPD provides technical assistance to project beneficiares and supervises the work of other agencies including commercial banks which participate in the project. Attachment 2 gives a brief description of BAB. The credit was made effective on December 15, 1975 and the project is proceeding as scheduled.

Railways

Credit 346-BO: December 1, 1972 -- U.S. $8 million
Closing Date: June 30, 1976

The purpose of the project has been to rehabilitate physically the Bolivian Railways (ENFE) and to place the Railways on a sound managerial and financial operating basis. The Credit financed the purchase of rolling stock, locomotives, spare parts and materials for track rehabilitation. It also financed technical assistance which is helping to bring modern engineering, commercial and managerial methods to the Railways. Due to sharp increases in costs, about half the items planned for purchase under the Credit had to be eliminated and were deferred for financing to the second Bank Group Financed Railways project. Significant institutional progress has been made in reorganizing the Railways, reducing the number of personnel, hiring better qualified personnel, installing improved warehousing and accounting systems and introducing an improved tariff structure.

Railways

Loan 1121 -BO: June 5, 1975 -- U.S. $32 million
Closing Date: December 31, 1978

The project continues the rehabilitation program begun under the IDA Credit and commitments are being made as scheduled. Bilateral financing was secured for some of the locomotives that were to be financed under loan and this permitted U.S. $3.3 millon of loan funds to be canceled.

Power

Credit 433-BO: October 17, 1973 -- U.S. $6 million
Closing Date: December 31, 1976

The project forms part of the 1973-1977 expansion program of Empresa Nacional de Electricided, S.A. (ENDE), a Government-owned company responsible for the generation and transmission of power in Bolivia, outside the capital city of La Paz. It will supply energy to satisfy rising demand in Santa Cruz, and expand and strengthen transmission systems in the Santa Cruz and Cochabamba-Oruro areas. Funds are available in the Credit for financing the expansion programs and for carrying out studies for future projects, as well as for studies to assist the Government energy regulatory authority, DINE, to improve its procedures and practices and to carry out sector analyses. Because of delays in preparing bid documents and in deliveries, completion of the various transmission lines and substations are expected to be delayed six months to two years beyond original estimates. Recently authorized tariff increases are expected to bring ENDE's rate of return on net revalued assets to a satisfactory 9%.

Mining

Credit 455-BO: January 18, 1974 -- U.S. $6.2 million
Closing Date: June 30, 1978

The project provides financing for the development and expansion of private medium-size mines, a national survey of small mines and a technical assistance program to the mining sector. The Credit portion of the project is administered by the Banco Industrial S.A. (BISA) and will help finance about 25 mining subprojects. BISA is a private development bank and has been effective in providing development capital for industrial, as well as mining development. The project has been proceeding as scheduled and a second loan to BISA and another for the benefit of small mining enterprises is planned.

THE BANK GROUP PROGRAM IN BOLIVIA

1. At present the following four projects are at an advanced stage of processing:

(a) Power - a Bank loan of about U.S $25 million which will finance the expansion of electric generation and transmission capacity of ENDE (national power company). The proposed loan will be the Bank's fourth operation with ENDE.

(b) Mining and Industry - a Bank loan of about U.S. $10 million to provide financing for established private and predominantly Bolivian-owned medium size mining enterprises and private industry through a private development bank. This will be the Bank's second operation with that institute.

(c) Mining - a Bank loan for about U.S. $10 million to provide credit to smaller private mining enterprises that have a good development potential through the public sector Mining Bank.

(d) Water Supply and Sanitation - a Bank loan of about U.S. $12 million to finance a water supply and sanitation system in Sucre and Potosi and in about 70 small rural communities.

2. Total Bank lending for the above operations would be about U.S. $57 million. For further details see Attachment I.

3. Project preparation has begun for agricultural projects which will be designed to increase the productivity of the poorer farmer and an education project which will seek to improve primary rural and non-formal vocational education. Financing of further economic infrastructure is also contemplated in the transportation and power sectors. In transportation, project preparation is underway for a project to provide access to remote areas of the country through a program of airport development. Continued support for the railway rehabilitation program is planned as well.

STATUS OF OPERATIONS

Fy 76/77 Lending Program

(a) Fourth Power Project

Borrower:	Empresa Nacional de Electricided (ENDE)
Guarantor:	Republic of Bolivia
Loan Amount:	U.S. $25.0 million
Project Cost:	U.S. $33.9 million
Project Description:	The project would expand the existing Santa Isabel hydropower plant, raise the height of the existing dam of Corani reservoir to increase the storage capacity from 86 to 135 million cubic meters, install a 12.5 Mw gas turbine peaking unit at Santa Cruz; construct a 135 Km single circuit 115Kv transmission line and expand the Sacaba and Cochabamba substation, construct a substation in Vinto and install thunt capacitors in Oruro.
Project Status:	Negotiations are tentatively scheduled for early March, 1976.

(b) Second Banco Industrial S.A., (BISA)
(Mining and Industrial Project)

Borrower:	Banco Industrial S.A.
Loan Amount:	U.S. $10 million
Project Cost:	About U.S. $16 million
Project Description:	About 70% of the loan would finance mining subprojects, and the rest, industrial subprojects. Up to 10% of the loan is expected to be utilized for BISAS' credit line for small enterprises/artisans.
Project Status:	Distribution of yellow cover appraisal report by mid March, 1976

(c) Development of Small Mining Enterprises

Borrower:	Government of Bolivia
Participating Agencies:	a) Ministry of Mining and Metallurgy b) Banco Minero de Bolivia c) Servicio Geologico de Bolivia
Loan Amount:	U.S. $12 million
Project Cost:	About U.S. $17.5 million
Project Description:	The loan will finance the foreign exchange cost of imported and domestic procurement covering about 70% of the investment cost of subprojects. The proposed project represents the first phase of a gradual transformation of small and/or underdeveloped mining operations with economic potential into efficient mining enterprises. It is expected to improve efficiency and general working conditions in the financed mines, and to increase incomes and employment.
Project Status:	Distribution of yellow cover appraisal report by mid March, 1976.

(d) Urban and Rural Communities Water Supply and Sanitation Project

Borrower:	Government of Bolivia
Loan Amount:	U.S. $12 million
Project Cost:	U.S. $18 million
Project Description:	The project will provide drinking water to about 100,000 people in rural communities mainly in the Altiplano region and to about 31,000 people in Sucre and Potosi.
Project Status:	Distribution of yellow cover appraisal report late February, 1976.

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UNDP

Mr. Henry Meyer - Resident Representative
of the United Nations
Development Programme
in Bolivia (Tel Nos. 585-89
585-95).

UNITED NATIONS
DEVELOPMENT
PROGRAMME

COMPENDIUM OF APPROVED PROJECTS

As of 30 June 1975

UNDP/MIS/Series A/No. 6

LIST OF EXECUTING AGENCIES

United Nations (UN)
International Labour Organisation (ILO)
Food and Agriculture Organization of the United Nations (FAO)
United Nations Educational, Scientific and Cultural Organization (UNESCO)
World Health Organization (WHO)
International Bank for Reconstruction and Development (IBRD)
International Civil Aviation Organization (ICAO)
Universal Postal Union (UPU)
International Telecommunication Union (ITU)
World Meteorological Organization (WMO)
Inter-Governmental Maritime Consultative Organization (IMCO)
International Atomic Energy Agency (IAEA)
United Nations Industrial Development Organization (UNIDO)
United Nations Conference on Trade and Development (UNCTAD)
Inter-American Development Bank (IDB)
African Development Bank (ADB)
Asian Development Bank (ASDB)
United Nations Development Programme (UNDP)

CONTENTS

II. COUNTRY PROJECTS (continued)

III. INTERCOUNTRY PROJECTS
(approved as of 30 June 1975)

II. COUNTRY PROJECTS

AS OF 30 JUNE 1975

Project number and title	Code	Executing agency	Date approved	Estimated completion date	Estimated project cost (US dollar equivalent) UNDP	Estimated project cost (US dollar equivalent) Government counterpart contribution
AGRICULTURE, FORESTRY AND FISHERIES (05000)					2,332,275	1,140,043
BOL-68-521 IMPROVEMENT OF AGRICULTURAL PRODUCTION IN THE ALTIPLANO	50	FAO	06/68	01/75	728,974	291,590
BOL-72-007 ANIMAL HEALTH PROGRAMME, SANTA CRUZ	20	FAO	09/72	01/75	236,378	
BOL-73-012 ANIMAL HEALTH IN THE EASTERN PART OF BOLIVIA	20	FAO	03/74	01/77	1,342,823	834,219
*BOL-74-003 EXPANSION OF PYRETHRUM GROWING	10	FAO	05/74	07/75	9,000	
BOL-74-011 SEMINAR ON AGRICULTURAL PRODUCTION AND FOOD INDUSTRY	10	FAO	11/74	10/74	600	
BOL-74-027 ASSISTANCE TO THE MILK SECTOR	20	FAO	12/74	09/76	74,500	34,250
CULTURE AND SOCIAL AND HUMAN SCIENCES (10000)					80,324	
BOL-68-013 SCIENTIFIC DOCUMENTATION	50	UNESCO	11/68	01/75	80,324	
EDUCATION (15000)					98,550	
BOL-68-015 EDUCATIONAL PLANNING	10	UNESCO	11/68	05/74	98,550	
GENERAL ECONOMIC AND SOCIAL POLICY AND PLANNING (20000)					5,477,624	1,491,793
BOL-69-008 ECONOMIC PLANNING AND ADMINISTRATIVE REFORM	11	UN	02/70	07/74	218,061	
BOL-69-516 FEASIBILITY STUDY AND DEMONSTRATION OF AGRO-INDUSTRIAL DEVELOPMENT IN THE ABAPO-IZOZOG REGION	12	FAO	01/69	01/77	3,915,623	1,364,952
BOL-71-010 REGIONAL PLANNING	11	UN	11/71	01/75	41,800	
BOL-73-001 FOUNDRY STUDIES	11	UN	03/74	03/74	1,450	
BOL-73-007 STUDY AND PROMOTION OF REGIONAL PLANNING	11	UN	11/73	03/77	998,190	
BOL-74-006 PROJECT CONTROL, PLANNING AND SUPPORT OF PROJECTS	11	UNDP	12/74	01/77	81,000	
BOL-74-029 CURSO DE PLANIFICACION INDUSTRIAL & REGIONAL	11	UNDP	06/75	11/75	26,450	19,700
BOL-74-033 MODERNIZATION OF THE ACTIVITIES OF THE PUBLIC SECTOR.	20	UN	01/75	07/77	193,550	57,141
*BOL-75-004 MANAGEMENT ASSISTANCE TO BOLIVIAN DEVELOPMENT CORPORATION	11	UNIDO	04/75	06/75	1,500	
HEALTH (25000)					333,117	
BOL-68-018 NATIONAL PLAN FOR RURAL DEVELOPMENT	10	WHO	12/68	07/74	39,100	
BOL-68-019 EPIDEMIOLOGY	40	WHO	11/68	07/74	109,775	
BOL-73-010 OCCUPATIONAL HEALTH	40	WHO	10/73	05/77	184,235	
INDUSTRY (35000)					2,948,578	1,046,351
*BOL-65-510 CENTRE FOR PETROLEUM DEVELOPMENT	22	UN	06/65	04/77	1,212,412	460,470
BOL-68-520 EXPERIMENTAL PRODUCTION PLANT FOR ASBESTOS PROCESSING COCHABAMBA	21	UNIDO	01/68	10/75	932,485	96,271
BOL-70-014 INDUSTRIAL PLANNING (HANDICRAFT AND ARTISAN INDUSTRIES)	23	UNIDO	01/71	12/73	16,000	
BOL-70-015 SUPPLEMENTARY ASSISTANCE TO THE MINING AND METALLURGICAL RESEARCH INSTITUTE	22	UN	01/71	09/75	108,789	
*BOL-71-803 GEOLOGICAL SURVEY OF THE ASBESTOS AREA	22	UNIDO	02/71	06/73	30,000	
BOL-73-003 DEVELOPMENT OF THE METAL MECHNIC INDUSTRY	21	UNIDO	09/73	01/76	156,664	
*BOL-73-004 EVALUATION OF BIDS FOR A PULP AND PAPER MILL	24	UNIDO	10/73	08/74	5,000	
BOL-73-005 RADIOACTIVE MINERALS PROSPECTION	22	IAEA	10/73	04/76	41,500	89,300
BOL-73-006 CONSULTANT ON STANDARDIZATION, QUALITY CONTROL, AND MEASUREMENTS $$$$	30	UNIDO	10/74	01/77	68,500	
BOL-73-009 CERAMIC INDUSTRY	23	UNIDO	05/74	07/75	35,000	145,250

*PROGRAMME RESERVE PROJECT

II. COUNTRY PROJECTS

AS OF 30 JUNE 1975

Project number and title	Code	Executing agency	Date approved	Estimated completion date	Estimated project cost (US dollar equivalent) UNDP	Estimated project cost (US dollar equivalent) Government counterpart contribution
BOL-73-011 POLICY AND COOPERATIVE DEVELOPMENT	23	ILO	07/74	01/77	74,170	49,200
*BOL-73-013 ASSISTANCE TO THE PESTICIDE INDUSTRY	24	UNIDO	12/73	07/74	11,750	
*BOL-73-014 ERECTION OF A LARGE AMMONIA-UREA FERTILIZER COMPLEX	24	UNIDO	12/73	07/74	15,750	
*BOL-74-002 CONTRACT SPECIFICATION FOR A PULP AND PAPER MILL	24	UNIDO	06/74	09/74	4,500	
BOL-74-010 PRELIMINARY MINING EXPLORATION IN A SELECTED AREA	22	UN	12/74	01/77	100,058	205,660
*BOL-74-020 ASSISTANCE IN THE PRODUCTION OF SPECIALITY GLOVE LEATHER AND GARMENT LEATHER	24	UNIDO	11/74	04/75	9,000	
*BOL-74-021 CENTRAL PILOT WORKSHOP FOR THE PRODUCTION OF SPARE PARTS	24	UNIDO	11/74	01/76	36,000	
BOL-75-003 PROMOTION OF ASBESTOS INDUSTRY AND INDUSTRIES BASED UPON NON-METALLIC MINERAL RESOURCES IN BOLIVIA	10	UNIDO	05/75	10/75	4,000	
*BOL-75-005 ASISTENCIA A LA CORPORATION BOLIVIANA DE FOMENTO EN ASPECTOS ORGANIZATIVOS	10	UNIDO	06/75	01/77	18,000	
*BOL-75-006 ASSISTANCE TO THE CORPORACION BOLIVIANO DE FOMENTO: PROGRAMME OF INDUSTRIAL REHABILITATION	10	UNIDO	06/75	01/76	63,000	
*BOL-75-008 EXPLORATORY MISSION IN INDUSTRIAL FINANCING AND INVESTMENT PROMOTION	30	UNIDO	06/75	08/75	3,000	
*BOL-75-009 MISSION FOR EVALUATION OF INVESTMENT LEGISLATION	10	UNIDO	06/75	08/75	3,000	
					15,000	
LABOUR, MANAGEMENT AND EMPLOYMENT (46001)						
BOL-74-022 TECHNICAL ASSISTANCE TO THE DEPARTMENT OF LABOUR	10	ILO	01/75	09/75	15,000	
					3,664,276	2,525,450
NATURAL RESOURCES (50000)						
BOL-68-514 GROUNDWATER DEVELOPMENT IN THE ALTIPLANO	30	UN	01/68	07/74	1,602,159	696,269
BOL-71-532 ASSESSMENT OF ENERGY RESOURCES	20	UN	11/72	02/77	971,599	
BOL-73-002 EARTH RESOURCES TECHNOLOGY SATELLITE PROGRAMME	10	UN	02/74	12/75	157,000	139,460
BOL-73-008 HYDROLOGY STUDY COCHABAMBA	30	UN	09/73	09/76	933,518	1,689,721
					148,100	
SCIENCE AND TECHNOLOGY (65001)						
BOL-74-003 HYDROLOGY AND METEOROLOGY	50	WMO	09/74	09/76	44,200	
BOL-74-014 TECHNICAL ASSISTANCE TO THE NATIONAL COMPUTER CENTRE	10	UN	10/74	07/76	103,900	
					4,387,097	1,545,026
TRANSPORT AND COMMUNICATIONS (75001)						
BOL-68-020 CIVIL AVIATION	40	ICAO	11/68	01/76	247,993	
BOL-71-518 TELECOMMUNICATIONS TRAINING INSTITUTE, LA PAZ	50	ITU	01/72	02/76	1,096,328	930,580
BOL-71-525 RAILWAY REORGANIZATION STUDY	20	IBRD	01/71	01/75	1,063,698	90,211
BOL-72-002 TECHNICAL ASSISTANCE TO ENFE	20	IBRD	04/72	07/74	1,148,628	67,600
BOL-72-006 TRANSPORT COORDINATION UNIT	10	UN	08/74	01/77	71,000	67,925
BOL-74-009 STRENGTHENING CIVIL AERONAUTICAL ADMINISTRATION AND LLOYD AERED BOLIVIANO	40	ICAO	05/75	01/77	700,450	344,610

*PROGRAMME RESERVE PROJECT

II. COUNTRY PROJECTS

AS OF 30 JUNE 1975

Project number and title	Code	Executing agency	Date approved	Estimated completion date	Estimated project cost (US dollar equivalent)	
					UNDP	Government counterpart contribution
BOL-74-012 IMPROVEMENT OF THE PROGRAMME FOR THE CONSTRUCTION OF RURAL ROADS.	20	UN	02/75	10/76	59,000	44,100
TOTAL					19,544,934	7,713,439
OF WHICH						
IPF PROJECTS					19,335,434	7,713,439
PROGRAMME RESERVE PROJECTS					209,500	

LIST OF IPF AND UNIDO/SIS PROJECTS

Number	Title	P.M.	Co-Director	Agencies	IPF $	Completion date	
69/020	Civil Aviation	-	Director de Aeronaútica Civil	ICAO/Direc. Aeronáutica	178,900	1975	EK
69/016	Abapó-Izozog	Sebald Manger-Cats	Tcnel. Ing. Oscar Flores S.	FAO/CORDEPAI	3,173,618	Subcont.30/6/76 Proj. 30/9/76	JvR
71/518	Telecommunications Inst.	Ulderico Posada Santos	Emilio Kellemberger	UIT/ENTEL	1,072,300	December 76	WvE
71/532	Energy Resources Evaluation	Alexandru Cogalniceanu	Mario Ramírez	OTC/UNDP	976,400	December 1976	MCH
72/006	Transport Coordination Unit	To be decided	Subsec.Transportes	OTC/CEPAL	71,000	To be decided	MCH
72/002	MRTS	Consultants	Carlos Brockman	OTC/GLOBOL	157,000	December 1975	MCH
72/003	Metal-Mechanics	Luis Ramos-Vértiz	Ing. Ergueta	Min.Industry/ UNIDO	143,000	December 1975	EK
72/005	Uranium Prospection	A. Belluco (consultor)	Ing. Doria-Medina	OIEA/COBOMIN	415,000	1976	MCH
72/006	Quality Control	A.K. Gupta (not here yet)	Ing. Orlando Donoso	UNIDO/Min. Industry	68,500	Dec. 1976	EK
72/007	PRODEBDO (Reg.Planning)	Carlos Legna	Ing. Mario Ruiz	OTC/Min. Planning	873,200	March 1977	MCH
72/008	Water Resources	Costantino Faillace	Ing. Mario Valdivia	OTC/GLOBOL	913,018	December 1976	JvR

Number	Title	P.M.	Co-Director	Agencies	UTF $	Completion date	
73/009	Ceramics	Gabriel Morales	Ing. Luis Deheza	CBF/CHUDI	30,000	November 1975	BK
73/010	Occupational Health	Jorge Román	Dr. Jorge Paz Zamora	WHO/Min. Salud (IHSO)	184,235	December 1975	MCH
73/011	Cooperatives	Ruben Raz	Dr. Luis Montaño	ILO/Min. Trabajo	73,920	December 1976	MCH
73/012	Animal Health	Roger M. Arnold	Dr. Luis Palacios	FAO/MACA	1,342,823	December 1976	JvR
73/P01	Mother/Child Health	Not approved	Dr. Luis Kushner	UNFPA/Min. Salud	1,611,074		BK
73/P02	Census	Luis Vicario (not arrived yet)	Lic. Jorge Ballivián	UNFPA/INE	1,213,241	End 1977	BK
74/003	Pyrethrum	expert		UNIDO/CORDEPAZ		May 1975	BK
74/006	Control & Planning	consultant (Ma. Esther Zaccar)		UNDP/CONEPLAN	81,000	Jan. 1977	BK
74/008	Hydrology		Ing. Mario Canedo	Serv. Nal. Hidrología/OMM	42,900	March 1976	MCH
74/009	Civil Aviation	Carlos Geoffroy	Gral. Federico Casanovas	Min. Transp./ ICAO	700,450	Jan. 1977	BK
74/010	Prosp. Minera	H. Magliola (Asesor Principal)	Guillermo Cortez A.	GEOBOL/OTC	100,058	Jan. 1976	MCH
74/012	Const. Caminos	Francisco Bequero	Alfonso Balderrama	SENAC/OTC	59,000	Oct. 1976	MCH

	Number	Title	P.M.	Co-Director	Agencies	IPF $	Completion Date	
	BOL/74/014	CENACO	To be decided	Ing. Basilio Plaza	CENACO/OIC	103,900	July 1976	MCH
	74/015	Salud Chuquisaca/Tarija	Dr. Orlando Aguilar Rep. de OMS	Min. Salud	Min.Salud/OMS	48,000	Oct. 1976	MCH
	74/019	AT a ENFE	SOFRERAIL - Sr. Fety	Mendez Torrico	ENFE/BIRF	160,000	Nov. 1975	BK
IS/	74/020	Leather Ind.	Venkachatalam	Ing. Oscar Zapata Z.	Min. Ind./ UNIDO		Nov. 1975	BK
IS/	74/021	Taller Mantenimiento			Min.Ind./ UNIDO		No started	BK
X	74/022	FOMO	Michael Goldway	Ing. Fernando Gumiel	FOMO/OIT	18,000	Nov. 1975	MCH
	74/025	Enseñanza Tecnológica	Experts	J.Carlos Navajas	CNES/UNESCO	101,900	Oct. 1976	MCH
	74/027	Política Lechera	Karol Adamik (Not arrived)		MACA-CBF/FAO	74,500	Sept.76	JvR
	74/028	Plan. y Fort. Sect. Agrop.	J. Pablo Alvarez		MACA/FAO	317,500	Dec. 1976	JvR
	74/029	Curso ILPES	Profesores	René Ríos	ISAP/CEPAL	26,450	Oct. 1975	MCH

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Number	Title	P.M.	Co-Director	Agencies	IPF $	Completion Date	
74/030	Planificación Salud	Dr. Orlando Aguilar	Min. Salud	Min Salud/ OMS	33,000	Julio 1978	MDH
74/031	Inv. Forestal	Manfred Sachtler	MACA	MACA/FAO	599,150	Dec. 1977	MMR
74/032	Mercado y Mercadeo (not signed)						
74/033	Modernización Gestión Sector Público	Mario Frieiro	Carlos Calvo	CONEPLAN/ OTC	193,550	March1977	MDH
75/001	Natural Resources.		GEOBOL	GEOBOL/OTC	750,000		MDH
75/003	Asbestos	To be decided	GEOBOL	GEOBOL/UNIDO	363,700	not started	BK
75/005	TA to INE (not signed)			INE/BIRF			MDH
75/006	Reconstrucción Emergencia UNMIRI		Min.Defensa	Min.Defensa/ PNUD		Dec. 1975	MME
75/007	Metal Mecánica (In study)			Min.Industria/ UNIDO			BK
IS/75/005	Assistance to CBF	Advisers	Cnl. Antonio Rojas Montalvo	CBF/UNIDO			BK
IS/75/006	Prog. Rehabilitación Industria	Consultant Firm TECHINT		CBF/UNIDO			BK

Number	Title	P.M.	Co-Director	Agencies	
IS/75/007	Asistencia en Riesgos - Villamontes		Cnl. Antonio Rojas Montalvo	UNIDO/CAF	OK
IS/75/008	Ind. Financing & Investment Promotion	Consultant G.Goekjian	Sub-secretario	Ming. Ind./UNIDO	OK
IS/75/005	Evaluation of Investment legislation	Consultant R. O'Farrell	Min. Industria y Comercio	Ming. Ind./UNIDO	OK
IS/75/010	Industrial Information Centre	Consultant to be recruited	Min. Ind. Comercio	Min. Ind./UNIDO	OK
IS/75/011	cancelled				
IS/75/013	Industrialización Caolín (pedido del Gobierno para ser continuación del proyecto BOL/73/009 - Cerámica)(En estudio)				OK
IS/75/014	Seminario Metal Mecánica (En estudio).				OK.

UNITED NATIONS
DEVELOPMENT PROGRAMME

PROGRAMME DES NATIONS UNIES
POUR LE DEVELOPPEMENT

866 UNITED NATIONS PLAZA
NEW YORK, N.Y. 10017

TELEPHONE: 754-1234

CABLE ADDRESS: UNDEVPRO - NEW YORK

REFERENCE: BOL/IBRD

21 November 1975

Dear Mr. Riley, Vincent

BOLIVIA: UNDP/IBRD COOPERATIVE EFFORTS

In the absence of Mr. Valdés, may I refer to your letter of 28 October 1975 in which you enclose a Progress Review of the technical assistance projects which the Bank is proposing for Bolivia, and which have been discussed with Messrs. Henry Meyer and Eduardo Gutierrez from our office in Bolivia.

I wish to thank you and the members of your staff for your open and effective cooperation with the UNDP officials that have visited the Bank, and would now like to reiterate our interest in seeing that most of the investment oriented proposals be accommodated within our financial possibilities.

In this respect, our office in Bolivia has presented some minor corrections on page 1, 2 and 3 of the Progress Review which I enclose, and has indicated that due to our present financial restrictions, future UNDP cooperation will necessarily be concentrated in specific areas. Consequently priority will be given to those projects on which the Bank has already expressed special interest.

It should be noted that these special interest projects are all under consideration for the next Country Programme, with the exception of the water supply and sewerage project which should be discussed later as there are several internal decisions that the Government should adopt concerning the institutional situation.

Following your discussions with Mr. Valdés, I would suggest that a Bank representative participate in the next Country Programme exercise because we feel that this would be a valuable contribution in the design of a coherent programme of assistance for Bolivia. The

Mr. Vincent J. Riley
Chief, Technical Assistance Division
International Relations Department
International Bank for Reconstruction
and Development
1818 H Street N.W.
Washington, D. C. 20433

NOV 24 1975

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Resident Representative has been consulted and is in full agreement with this proposal. For this purpose, we will inform you of the programming schedule as soon as it is finalized.

Thank you again for your cooperation, I remain

Best regards

Yours sincerely,

Joan

Margaret Joan Anstee
Officer-in-Charge
Regional Bureau for Latin America

cc: Messrs.B.Lehbert(C.P.II,LAC)
B.Bostrom(Transptn.& Urb.Proj.)
E.de Alba(Proj.,LAC)
F.Dominguez(Proj.,LAC)
J.Freedman(Proj.,LAC)
R.Kanchuger(C.P.II,LAC)
G.Luhman(Proj.,LAC)
E.Ruderfer(C.P.II,LAC)
L.Wolff(Proj.,LAC)
K.Haasjes(Proj.,LAC)
J.Mirski(Proj.,LAC)
R.Rowe(Agri.& Rural Dev.)
L.Jeurling(Proj.,LAC)
IRD((for BOL.(Gen.)& all BOL.files))

28 October, 1975

Mr. Gabriel Valdes S.
Assistant Administrator & Director
Regional Bureau for Latin America
United Nations Development Programme
866 United Nations Plaza
New York, N.Y. 10017

Dear Mr. Valdes:

During the week of September 15, Bank staff met with Eduardo Gutierrez, Resident Representative, a.i., to discuss coordination of Bank and UNDP pre-investment activities. These discussions followed upon your meeting in the Bank on June 6 and subsequent discussions in the field on this subject. In order to present a clear picture of these coordination activities, attached is a Progress Review indicating the status of each item in the technical assistance package originally proposed by the Bank and sent to you along with my letter of April 23, 1975. The review records the understandings reached with Mr. Gutierrez on each item and expected follow-up action of all concerned parties.

We believe that all the items listed merit UNDP support. We recognize, of course, that UNDP's ability to finance this technical assistance will depend largely on the IPF resources available to Bolivia. We would, therefore, appreciate having as clear an indication as possible of the likelihood of UNDP's financing the technical assistance described in the Progress Review. We hope that those proposed items listed on the chart for which UNDP funds do not now appear to be available, will be considered again for financing by UNDP during the next Country Program Review. All these proposals are investment-oriented and the training components indicated in our original technical assistance proposal are in support of potential investment projects.

We are most grateful to Mr. Gutierrez for his kind cooperation in these matters and trust that the agreements outlined in the Progress Review will be acceptable to UNDP Headquarters. Mr. Gutierrez was instrumental in accommodating many of the Bank's original proposals within on-going or proposed UNDP-financed projects and suggested several additional areas in which the Bank and UNDP could cooperate.

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We look forward to working in close cooperation with you and all other parties concerned with these proposed UNDP-financed investment-oriented projects.

Yours sincerely,

Vincent J. Riley
Chief, Technical Assistance Division
International Relations Department

cc: Mr. Henry Meyer
Resident Representative
United Nations Development Programme
Casilla 686
La Paz, Bolivia

cc: Mr. Eduardo Gutierrez
Deputy Resident Representative
United Nations Development Programme
Casilla 686
La Paz, Bolivia

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A. IBRD's Original Proposal for Technical Assistance Program (March 1975)	B. Modified Technical Assistance Program - UNDP/IBRD (September 1975)			
Objective in Financing the Specific Item	Components Included in the Original Package but for which no UNDP Financing has been Secured for Calendar Year 1976 and 1977	Components Already Financed or to be Financed by UNDP and (Timing of Implementation)	IBRD's Responsibility	Observation
1. AGRICULTURE				
(i) Rural Development				
a) Train Bolivians to become instructors in formation of cooperatives, marketing, extension services, health and nutrition programs.	a) Train Bolivians to become instructors in formation of cooperatives, marketing, extension services, health and nutrition programs.	None	Will need to be defined at the time of preparation.	UNDP should consider helping in the preparation and the financing of this training package sometime in mid-1977 in support of specific capital investment projects.
		Proposed IBRD Ingavi Development Loan Starting in mid-1976 UNDP has agreed to finance long and short term consultants to assist the Project Unit required under the Bank project.	Executing Agency.	This component was identified by IBRD during the appraisal of the Ingavi Project. UNDP has agreed in principle, to finance the cost of a consulting firm if (a) the cost per consultant does not exceed US$65,000 per year; (b) the consultant' team would include Bolivians (or possibly a Bolivian consulting firm in association with a foreign firm); (c) adequate flexibility could be assured and cost per unit maintained at a maximum of US$65,000. We look forward to hearing if this approach is acceptable to UNDP Headquarters.
		Integrated Development of the Altiplano, Phase I (Bol/74/028) A team of experts (originally scheduled to start August 1975).	Special Interest (FAO Executing Agency).	This component was added to the UNDP/IBRD T.A. Program after the UNDP Project Document was reviewed by IBRD. Following IBRD's comments (August 4, 1975) it was agreed that the team leader (Mr. Velasco) for the technical assistance project would visit IBRD for discussions.
		Proposal to Prepare a Project for Consolidation of Existing Colonization Zones in the Yungas and Other Regions (early 1977). A team of experts to identify and prepare specific projects.	Will need to be defined at the time of preparation. FAO Executing Agency for Feasibility Study.	UNDP should consider identifying and preparing projects to consolidate former colonization projects in the Yungas (Carnavi) which would be ready for external financing in late 1977.

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1. AGRICULTURE (cont'd)				
(ii) Irrigation				
a) Train Bolivians to become instructors in operation and maintenance of irrigation works.	a) Train Bolivians to become instructors in operation and maintenance of irrigation works.	None	Will need to be defined at the time of preparation. Probably FAO would act as Executing Agency.	UNDP should consider helping in the preparation and the financing of this training component sometime in late 1977 in support of specific capital investment projects.
b) Help Government identify and prepare irrigation projects in areas of traditional agriculture.		Groundwater Resources in Cochabamba (Bol/73/008) (Final report for First Phase to be ready by late 1976). Experts and equipment.	Possible special interest (UNOTC-Executing Agency). (FAO Executing Agency for water use aspects).	This UNDP project was under execution when IBRD prepared its proposal for a technical assistance program for Bolivia (March 1975). The final UNDP project report should contain all the required technical data needed for the preparation of prefeasibility and feasibility studies for a possible capital investment project to utilize groundwater for irrigation in Cochambaba. UNDP funds or appropriate arrangements with FAO-CP would be required for the preparation of the feasibility studies in early 1977. We would appreciate receiving the latest Project Revision for BOL/73/008 and Progress Reports as they become available.
		Surface Irrigation (Proposed Phase II of above project). Commencement date still to be established. Experts and equipment.	Possible Special Interest (UNOTC-Executing Agency). (FAO Executing Agency for water use aspects).	The proposed project would complement UNDP's efforts begun under the Groundwater Resource Project in Cochabamba. If the project is successful in Cochabamba, it may be extended to other areas.

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1. AGRICULTURE (cont'd)				
(iii) Land Management and Ecology				
a) Train Bolivians to become instructors in this field.	a) Train Bolivians to become instructors in the field of land management and ecology.	None	Will need to be defined at the time of preparation.	UNDP should consider helping in the preparation and the financing of this training package sometime in early 1978 in support of the Integrated Rural Development projects on the Altiplano, the consolidation of colonization projects in the Yungas and the ground and surface water projects.
(iv) Forestry				
a) Help Government prepare an investment project to exploit forestry resources both for internal use and for exports as raw material or processed.		Inventory of Forest Resources, Phase I (Bol/74/031) (early 1976). A team of FAO experts.	Special Interest (FAO Executing Agency).	The El Chore forestry reserve in Santa Cruz appears to be suitable for a rational exploitation of the existing reserves. However, detailed technical data regarding the size and type of the forestry resources need to be evaluated. Following IBRD's comments on UNDP's project report, it was agreed that the Project Manager will visit IBRD for discussions in January 1976 to agree on an outline of the FAO mission's work in El Chore.
b) Train Bolivians to become instructors in forestry management.	b) Train Bolivians to become instructors in forestry management.	None	Will need to be defined at the time of preparation.	It was agreed tentatively that funds for the preparation of this training package in support of forestry projects and for staffing of the center for forestry development would be included in the second phase (Inventory of Forest Resources). The training should commence in late 1977.
c) Construct and equip training centers.	c) Construct and equip training centers.	None	Will need to be defined at the time of preparation.	It was agreed tentatively that funds for the construction of training centers in conjunction with the above mentioned training package would be included in the second phase (Inventory of Forest Resources). Construction of a few centers should begin by mid-1977.
(v) Fisheries and Wildlife				
a) Train Bolivians to become instructors in this field.	a) Train Bolivians to become instructors in fisheries and wildlife exploitation and conservation.	None	Will need to be defined at the time of preparation.	Consideration should be given to helping in the preparation and financing of the training package by late 1977.
b) Construct and equip one training center.	b) Construct and equip one training center.	None		Consideration should be given to helping in the preparation and financing of the construction of the center by late 1977.

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1. AGRICULTURE (cont'd)				
(v) Fisheries and Wildlife (cont'd)				
c) Help Government identify and prepare investment projects to protect and develop Bolivia's fisheries and wildlife resources.		Fisheries: Preparatory Assistance Mission (date of mission's visit needs to be established.	Will need to be defined at the time of preparation.	UNDP will explore the possibility of financing a joint Bolivian/Peruvian program for exploring fisheries resources and potentials of Lake Titicaca. Should these funds be available, a preparatory mission should be financed to formulate a research program to determine ways to explore and develop the resources of Lake Titicaca as well as to prepare the needed prefeasibility and feasibility studies which would lead to ... capital investment.
d) Help Government identify and prepare investment projects to protect and develop Bolivia's fisheries and wildlife resources.		Wildlife: A team of experts. (need to set date).	Will need to be defined at the time of preparation.	An investment-oriented feasibility study could be prepared based on the completed SIS funded "Auquenidos" Project (Llama, Alpacas, Vicunas, etc.). UNDP is willing to finance the preparation of the feasibility study if the Government so requests. We would appreciate receiving a copy of the Project Document and Reports generated by the "Auquenidos" Project.
(vi) Agro-Industry				
a) Help Government prepare investment projects. Specific items for possible financing will be identified by a mission to follow up on issues raised by the identification mission in October 1974 and August 1975.		Agro-Industry: Regional Planning Project (BOL/73/007) Consultants to assist in the preparation of a project identified by IBRD.	Special Interest (UNOTC-Executing Agency - In Cooperation with UNIDO and FAO).	We wish to formally express our "special interest" in BOL/73/007, UNDP indicated that this UNOTC executed Regional Planning Project has funds which could be used for hiring the consultants to assist in the preparation of the IBRD project. A detailed request for the funding of two short term experts was sent to UNDP in early October 1975. Consideration should be given to financing additional consultants as soon as IBRD's project is further developed, and to funding of identification and preparation of new agro-industry projects. The latter activity should commence by early 1977.

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2. WATER SUPPLY & SEWERAGE				
a) Help finance equipment and construction of one training center and employment of management consultants.	a) Help finance equipment and construction of one training center.	None	Will need to be defined at the time of preparation.	UNDP should consider helping in the preparation and financing of the construction of the training center by mid-1977 in order to upgrade the technical standards in the sector.
		Employment of Management Consultants to Help the Government Implement the Recommendations of the IBRD/WHO Sector Report (early 1976).	Special Interest (WHO Proposed Executing Agency).	We are in full agreement with Mr. Hartzog's letter of September 8, 1975 in which he indicated that UNDP could finance a small-scale project to provide expert assistance in this field. However, a Bank appraisal mission to Bolivia in September determined that IBRD funds for water supply and sewerage should be channeled through CORPAGUAS Sucre/ Potosi and Department Development Committees rather than through the Housing Bank. Bank staff are assisting PAHO in drafting the UNDP Project Document. In addition to this assistance, we believe that UNDP should also consider working out a detailed program to implement the recommendations of the IBRD/WHO Sector Report and for the allocation of UNDP funds for its execution thereafter.
3. EDUCATION				
Preliminary estimate of technical assistance needs made by UNESCO mission in April 1975. Detailed technical assistance needs will be determined by subsequent Bank missions which are tentatively scheduled to visit Bolivia in late 1975 and early 1976.		Employment of Consultants to Help the Government in the Preparation of an Education Project for IBRD Financing and Provision of Technical Assistance to the Ministry of Education (mid-1976).	Will need to be determined at the time of preparation.	Although approximately US$1.0 million would be needed to implement the education technical assistance program, in 1976 UNDP could provide up to US$0.3 million of the US$1.0 million required. However, should Bolivia receive an increase in its 1977-81 IPF, the entire cost of the technical assistance program could be financed by the UNDP. UNDP will advise IBRD in January 1976 regarding the availability of the US$1.0 million for the education component. Meanwhile, consideration should be given to reaching an agreement on whether IBRD would be the executing agency or it would express Special Interest.

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4. STATISTICAL INFORMATION SYSTEM				
a) Help Government to improve the statistical information system.	a) Help Government to improve the statistical information system.	Assistance in execution of the population census in Bolivia which should begin in 1976.	Will need to be defined at the time of preparation.	UNDP should consider assisting in the population census and helping in the preparation and the financing of a program to improve Bolivia's statistical information system. The specific statistical elements which need improvement were identified in Mr. Richter's (IBRD economist for Bolivia) memo on Statistical System dated June 1975, copies of which were given to the UNDP and the Government. Consideration should be given to financing three experts for short terms to review the national statistical system (organization, content, consistency, relevancy, etc.) and recommend an action program for improvement. Given the importance of improving the system as soon as possible, UNDP financing should be considered by mid-1977. We would appreciate receiving a copy of the UNICEF Statistics Project Report.
5. INDUSTRY				
a) Train Bolivians to become instructors in handicraft technology, marketing and promotion.	a) Train Bolivians to become instructors in handicraft technology, marketing and promotion.	None	Will need to be defined at the time of preparation.	Consideration should be given to helping in the preparation and financing of the proposed program in late 1976.
b) Construct and equip model shops for the preparation of crafts.	b) Construct and equip model shops for the preparation of crafts.	None	Will need to be defined at the time of preparation.	UNDP should consider helping in the preparation and financing of the construction of model shops in late 1976.
c) Help Government prepare an instutional set-up to finance the establishment, promotion and marketing of handicrafts.		Preparatory assistance for a joint UNDP/IDB handicrafts regional study (early 1976).	None	Project leader will discuss the program with IBRD. In addition to this study, consideration should be given to helping the Government in the preparation and financing of a program to establish and promote handicraft industries. Financing would be required in mid-1977 for this purpose. We would appreciate receiving a copy of the project document.
6. TRANSPORT				
Airports				
To be decided after preparatory mission returns in February.		ICAO - Executed Project (Bol/74/009). Aviation Project.	Special Interest (ICAO Executing Agency).	We wish to formally express our "Special Interest" in this project. An IBRD project identification mission (August 1975) discussed the study with ICAO and UNDP in Bolivia. The ICAO project is providing instutional support which is vital to a possible IBRD Civil Aviation Project. An IBRD project preparation mission is tentatively scheduled for early 1976.
Railways				
This component was not included in the original IBRD proposal.		ARICA/La Paz railway connection. (Possibility and timing of this assistance will be explored by the Bank transport mission to Bolivia in November).	Possibly Executing Agency.	The possibility of using UNDP funds to finance this small-scale project will be explored by the Bank mission in November.