

UNCLASSIFIED

UNITED STATES INTERNATIONAL DEVELOPMENT COOPERATION AGENCY  
AGENCY FOR INTERNATIONAL DEVELOPMENT  
Washington, D. C. 20523

BOLIVIA

PROJECT PAPER

DISASTER RECOVERY

AID/LAC/P-167

Project Number: 511-0581  
Loan Number: 511-F-069

UNCLASSIFIED

PDHAN/826

**AGENCY FOR INTERNATIONAL DEVELOPMENT**  
**PROJECT DATA SHEET**

**1. TRANSACTION CODE**  
 A = Add  
 C = Change  
 D = Delete  
 Amendment Number \_\_\_\_\_

**DOCUMENT CODE**  
3

**2. COUNTRY/ENTITY**  
Bolivia

**3. PROJECT NUMBER**  
511-0581

**4. BUREAU/OFFICE**  
LAC

**5. PROJECT TITLE (maximum 40 characters)**  
DISASTER RECOVERY

**6. PROJECT ASSISTANCE COMPLETION DATE (PACD)**  
MM DD YY  
10 12 85

**7. ESTIMATED DATE OF OBLIGATION (Under "E" below, enter 1, 2, 3, or 4)**  
 A. Initial FY 84 B. Quarter 1 C. Final FY 84

**8. COSTS (\$000 OR EQUIVALENT \$1 = \$5 200)**

A. FUNDING SOURCE	FIRST FY			LIFE OF PROJECT		
	B. FX	C. L/C	D. Total	E. FX	F. L/C	G. Total
AID Appropriated Total	6,356	10,644	17,000	6,356	10,644	17,000
(Grant)	( 5,752 )	( 3,248 )	( 9,000 )	( 5,752 )	( 3,248 )	( 9,000 )
(Loan)	( 604 )	( 7,396 )	( 8,000 )	( 604 )	( 7,396 )	( 8,000 )
Other	-	-	-	-	-	-
U.S.	-	-	-	-	-	-
Host Country	-	6,318	6,318	-	6,318	6,318
Other Donor(s)	-	-	-	-	-	-
<b>TOTALS</b>	6,356	16,962	23,318	6,356	16,962	23,318

**9. SCHEDULE OF AID FUNDING (\$000)**

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	C. PRIMARY TECH CODE		D. OBLIGATIONS TO DATE		E. AMOUNT APPROVED THIS ACTION		F. LIFE OF PROJECT	
		1. Grant	2. Loan	1. Grant	2. Loan	1. Grant	2. Loan	1. Grant	2. Loan
(1492(B))				-	-	9,000	8,000	9,000	8,000
(2)									
(3)									
(4)									
<b>TOTALS</b>				-	-	9,000	8,000	9,000	8,000

**10. SECONDARY TECHNICAL CODES (maximum 6 codes of 3 positions each)**

**11. SECONDARY PURPOSE CODE**

**12. SPECIAL CONCERNS CODES (maximum 7 codes of 4 positions each)**

A. Code \_\_\_\_\_

B. Amount \_\_\_\_\_

**13. PROJECT PURPOSE (maximum 480 characters)**

To help the GOB implement important elements of its Emergency Plan for recovery from the drought in the highlands and flooding in the southeastern area of the country.

**14. SCHEDULED EVALUATIONS**

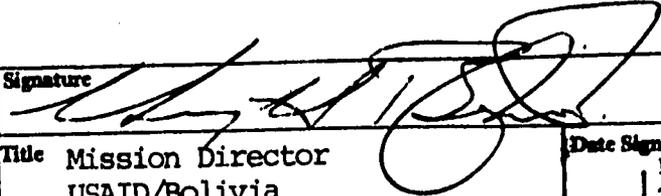
Interim MM YY MM YY Final MM YY  
 06 84 09 85

**15. SOURCE/ORIGIN OF GOODS AND SERVICES**

Grant  000 Loan  941 Local  Grant & Loan Other (Specify) Bolivia

**16. AMENDMENTS/NATURE OF CHANGE PROPOSED (This is page 1 of a \_\_\_\_\_ page PP Amendment.)**

**17. APPROVED BY**

Signature 

Title Mission Director  
USAID/Bolivia

Date Signed MM DD YY  
10 11 83

**18. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION**

MM DD YY

UNITED STATES AID MISSION to BOLIVIA  
c/o American Embassy  
La Paz, Bolivia

USAID - BOLIVIA  
APO MIAMI 34032

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PROJECT AUTHORIZATION

Name of Country: Bolivia  
Name of Project: Bolivia Disaster Recovery Project  
Number of Project: 511-0581  
Number of Loan: 511-F-069

1. Pursuant to Section 492b of the Foreign Assistance Act of 1961, as amended, I hereby authorize the Disaster Recovery Project for Bolivia (the "Cooperating Country") involving planned obligations of not to exceed \$8 million in loan funds and \$9 million in grant funds over a one-year period from date of authorization subject to the availability of funds in accordance with A.I.D. OYB/allotment process, to help in financing foreign exchange and local currency costs for the Project. The planned life of the project is two years from the date of initial obligation.

2. The project consists of helping Bolivia implement important elements of its emergency plan for recovery from the drought in the highlands and flooding in the southeastern area of the country.

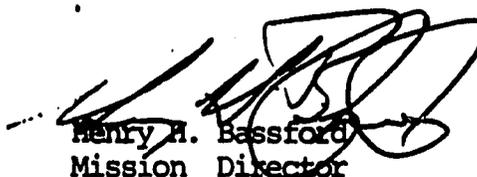
3. The Project Agreements which may be negotiated and executed by the officer to whom such authority is delegated in accordance with A.I.D. regulations and Delegations of Authority shall be subject to the following essential terms and covenants and major conditions, together with such other terms and conditions as A.I.D. may deem appropriate.

4.a. Interest Rate and Terms of Repayment

The Cooperating Country shall repay the Loan to A.I.D. in U.S. Dollars within forty (40) years from the date of first disbursement of the Loan, including a grace period of not to exceed ten (10) years. The Cooperating Country shall pay A.I.D. in U.S. Dollars interest from the date of first disbursement of the Loan at the rate of (a) two percent (2%) per annum during the first ten (10) years, and (b) three percent (3%) per annum thereafter, on the outstanding disbursed balance of the Loan and on any due an unpaid interest accrued thereon.

b. Source and Origin of Commodities, Nationality of Services

Commodities financed by A.I.D. under the loan portion of the Project shall have their source and origin in Bolivia or in countries included in A.I.D. Geographic Code 941, and under the grant portion of the Project in Bolivia or the United States, except as A.I.D. may otherwise agree in writing. Except for ocean shipping, the suppliers of commodities or services under the loan portion of the Project shall have Bolivia or countries included in A.I.D. Geographic Code 941 as their place of nationality and under the grant portion of the Project Bolivia or the United States. Ocean shipping financed by A.I.D. under the loan portion of the Project shall, except as A.I.D. may otherwise agree in writing, be financed only on flag vessels of Bolivia or countries included in A.I.D. Geographic Code 941 and under the grant portion of the Project only on flag vessels of Bolivia or the United States.

  
Henry H. Bassford  
Mission Director

Date: 10/11/83

SRLA:TGeiger

Clearances:

CONT:RZelaya RZ

PD&I:RJAsselin, Jr. RJA

111

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DISASTER RECOVERY PROJECT

I. SUMMARY

The purpose of the Disaster Recovery Project is to help the GOB implement important elements of its emergency plan for recovery from the drought in the highlands and flooding in the southeastern area of the country.

The two-year project has four major components:

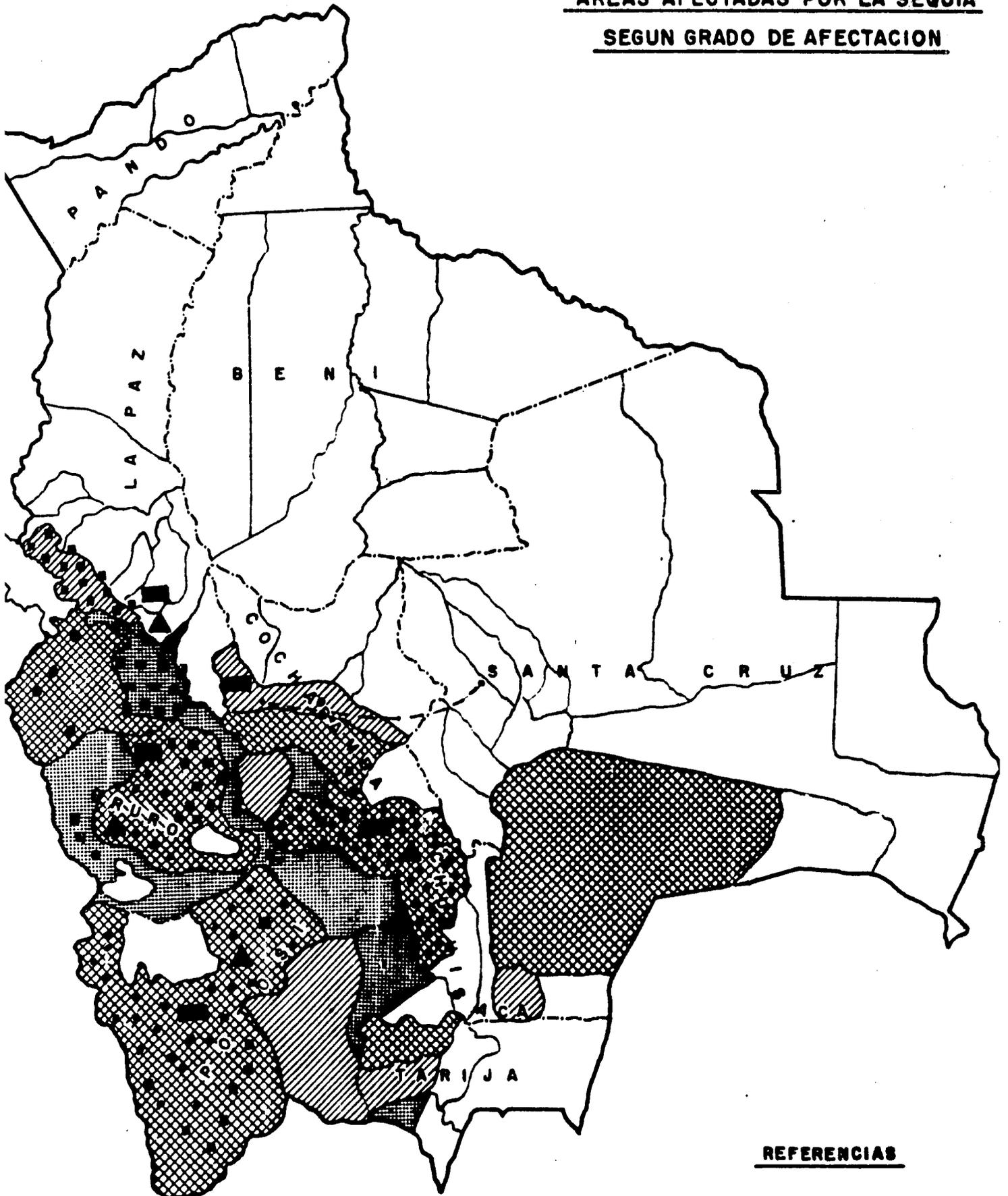
- . Rehabilitation of the Cochabamba-Santa Cruz highway;
- . Potable water and small-scale irrigation activities in the Altiplano;
- . Importation and distribution of fertilizers; and
- . Importation and distribution of medicines to drought-affected rural areas.

Exhibit I shows the location of activities to be carried out under these four project components. The summary budget for the project is shown in Table I.

The Project Development Committee included:

Oscar Antezana, Economist, USAID/DP  
Robert J. Asselin, Jr., Chief, USAID/PD&I  
Robert Burke, Regional Economist, USAID/Peru  
Jorge Calvo, Agronomist, USAID/RD  
Hector Diez de Medina, Assistant Program Officer/DP  
Walter Fiorilo, Engineer, USAID/PD&I  
James Gardner, Chief Engineer, USAID/Haiti  
William Garvelink, Deputy Chief, USAID/DP  
Thomas Geiger, Senior Regional Legal Advisor, USAID/Peru  
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Luis Montero, Financial Analyst, USAID/CON  
Rene Peña y Lillo, Engineer, USAID/PD&I  
Oscar Sarmiento, Project Assistant, USAID/PD&I  
Robert V. Thurston, Chief, USAID/RD  
Rafael Zelaya, Acting Controller, USAID/Bolivia

AREAS AFECTADAS POR LA SEQUIA  
SEGUN GRADO DE AFECTACION



REFERENCIAS

- |     |               |   |                  |
|-----|---------------|---|------------------|
| ■   | AGUA POTABLE  | ▨ | AFECTACION GRAVE |
| ●   | MICRO RIEGO   | ▩ | AFECTACION MEDIA |
| --- | CAMINOS       | ▧ | AFECTACION LEVE  |
| ■   | FERTILIZANTES |   |                  |

TABLE 1  
SUMMARY BUDGET

(\$ 000)

	A.		I.		D.	GOB	COMMUNITY	TOTAL
	GRANT		LOAN		TOTAL			
	FX	LC	FX	LC				
Roads	996		604	7,396	8,996	4,104		13,100
Potable water and Irrigation	1,780	2,696			4,476	757	1,338	6,571
Fertilizers	1,116	127			1,243	19		1,262
Medicines	1,116	69			1,185	100		1,285
Project Support	401	36			437			437
	5,409	2,928	604	7,396	16,337	4,980	1,338	22,655
Contingencies	343	320			663			663
<b>TOTAL</b>	<b>5,752</b>	<b>3,248</b>	<b>604</b>	<b>7,396</b>	<b>17,000</b>	<b>4,980</b>	<b>1,338</b>	<b>23,318</b>

## II. PROJECT RATIONALE AND DESCRIPTION

### A. Background

Since March 1983, Bolivia has been buffeted by floods and unusually heavy rains in the Santa Cruz region and by drought in the highlands (altiplano). These natural disasters have occurred in the midst of the worst economic crisis in the country's history. The impacts of these disasters are widespread human suffering, reduced agricultural and industrial production, major unanticipated outlays of scarce foreign exchange, and growing political discontent due to the government's inability to respond adequately to Bolivia worsening economic situation.

#### 1. The Flood

On March 19, a flash flood of the Río Piraf devastated part of the city of Santa Cruz, destroying surrounding crop lands and washing away the region's major roads and bridges. The flood caused the deaths of more than 100 people and left 16,000 city dwellers homeless. More than 40,000 homes were destroyed or damaged. The replacement cost of these dwellings is estimated to be \$24.0 million. Low-income families (8-10,000 people), who resided in tin or wooden shacks along the Río Piraf and whose homes were destroyed, were moved by the municipality to a refugee settlement known as PLAN 3000, eight miles outside the city of Santa Cruz.

In the rural areas surrounding Santa Cruz, more than 86,000 hectares of the nation's most productive agricultural land were severely affected during the critical harvest period. Fields of corn, rice, soybeans, and sugar cane were flooded and could not be harvested. The flood also destroyed livestock and poultry. The area's agricultural, livestock and poultry losses are estimated at \$ 27.0 million.

Flood waters also caused major infrastructure damage throughout the area. The flash flood destroyed or damaged six bridges, 55 kilometers of the Santa Cruz-Cochabamba trunk road, and 260 kilometers of secondary roads. Since the flood, abnormally heavy rains have continued in the region, causing frequent landslides and further damage to agricultural productivity. Additional roads and bridges have been washed away or damaged. As of the end of August, a total of eight key bridges had been damaged or destroyed, and 123 kilometers of primary and 562 kilometers of secondary roads were no longer passable. Replacing or rehabilitating this infrastructure will cost the Government of Bolivia (GOB) \$41.4 million.

Besides these infrastructure losses, the region has remained immobilized as heavy rains have prevented road and bridge repairs. The principal road in this region, the Santa Cruz-Cochabamba highway, which carries a significant percentage of the nation's food production to market, remains largely out of service. Without these primary and secondary transportation links, farmers in the outlying areas of the Department of Santa Cruz have been unable to get their produce to market, thereby causing more crop losses and

expanding the agricultural land severely affected by the flood five-fold. Moreover, weather conditions have prevented the fertile Santa Cruz agricultural zone from maximizing its traditionally high production potential and helping to offset the country's growing food deficit due to the altiplano drought.

The continued rains in the Santa Cruz region also have caused widespread flooding in the San Julián area east of the city. At least eight communities (40,000 people) continue to be affected. Health and sanitation conditions in these areas are deteriorating. The most affected groups are lactating mothers and young children. Increasing numbers of children are suffering from diarrhea and advanced stages of malnutrition, while many adults are suffering from gastrointestinal diseases. Health posts, clinics, and hospitals in these regions are virtually out of medicines and medical supplies. These items must be imported into Bolivia. Because of Bolivia's economic crisis the GOB has been able to allocate only enough foreign exchange to purchase very minimal amounts of such basic medicines as penicillin, anaesthetics and oral rehydration salts.

## 2. The Drought

The GOB estimates that 380,000 square kilometers, or thirty-five percent of Bolivia's national territory, are currently being affected by severe drought conditions. The drought area encompasses ninety percent of the altiplano, seventy percent of the high valleys, and ten percent of the lowlands. The drought engulfs sections of seven of Bolivia's nine departments - all of the Departments of Potosí and Oruro, and lesser portions of the Departments of La Paz, Cochabamba, Chuquisaca, Tarija, and Santa Cruz. Approximately 1.6 million rural inhabitants of these departments, or 48 percent of the area's total rural population, will face starvation conditions before the end of 1983. The majority of the affected population has incomes of less than \$120 per annum.

The most severely affected urban center to date is the altiplano city of Potosí. Beginning in March of this year, as a result of the prolonged drought, the water supply sources of the city became contaminated or dried up, leaving a population of 100,000 without adequate potable water. Until August, water was hauled forty kilometers each day by railroad tank cars, and potable water was available to city residents for approximately fifteen minutes each day. Since the water situation reached crisis proportions, schools have been partially closed and most businesses have been operating on reduced schedules. Presently, with the GOB's completion of a 17.5 kilometer aqueduct from the tin mining area of La Palca to Potosí, the water situation has improved marginally. At its peak, the aqueduct (value \$800,000) will supply less than thirty percent of the city's water requirements.

Health conditions in the drought areas are deteriorating. Belgian health specialists working in the Department of Potosí note that malnutrition is showing dramatic increases among rural children. Intestinal disorders of all types are increasing among adults as well as children, especially in the area around the city of Potosí and in those rural areas near mines, as people resort to drinking contaminated water. Medical supplies are scarce throughout the drought region.

Water and food shortages have already forced many campesinos to take extreme measures. Ministry of Agriculture and Campesino Affairs (MACA) officials indicate that increasing numbers of campesino families have eaten most of their seed stocks. The meager pasture lands which exist in the altiplano have been virtually destroyed by the drought. Available potable water resources are becoming too scarce to share with animals. Rather than permit their livestock to starve, campesinos are slaughtering them. Campe-sinos in the western part of the Department of Potosí estimate that eighty percent of their herds will soon be gone. Livestock (llamas, sheep, cattle, pigs, and goats) losses in the drought areas are estimated to exceed \$280 million already.

As a result of the drought conditions in the altiplano, many of the affected small farmers are migrating to other parts of Bolivia. One of the regions receiving a large influx of drought refugees is the Chapare in the Department of Cochabamba, the main illegal coca production area in Bolivia. In general, the Chapare and several other key coca production areas have escaped the direct effects of the flood or drought conditions. Migrants have been able to settle on marginal lands and in national forests and begin growing coca. GOB officials expect coca production to increase as long as refugees move into the area.

As the impact of the disasters worsens in rural Bolivia, the nation's urban centers are also being affected. Rural dwellers without water or food are already migrating to the cities and severely taxing overburdened infrastructures. The migration of campesinos into the cities of Oruro, Cochabamba, and La Paz has necessitated the opening of soup kitchens to provide both the migrants and destitute residents with one nutritious meal a day. The cities are encountering major food shortages which will worsen before the end of the year. As more campesinos enter the cities, as infrastructure breaks down, and as food shortages pervade the urban centers, the GOB will be expected to act. Bolivia's economic crisis, however, will make satisfactory solutions unlikely without significant inputs from third countries and international donors. Under these circumstances, the demands of rural and urban residents will challenge the existence of Bolivia's fragile democracy.

### 3. Food Shortages

Current 1983 crop production projections indicate that Bolivia faces an immediate, serious food shortage due to major crop losses caused by

drought conditions in the altiplano and valley regions, as well as by floods and persistent rains in the Santa Cruz agricultural zone. Agricultural production from the last harvest season is estimated at sixty percent below normal. The data of the USAID-sponsored "1983 Crop Production Estimate Study" projects disaster associated deficits in food exceeding 1,000,000 metric tons, half of which is in potatoes, the basic staple for low-income and subsistence farmer groups. The winter planting is not expected to have a significant impact on this projected deficit. Losses in agricultural production are estimated to amount to \$554.6 million.

Current 1983 production deficit estimates for six of Bolivia's major crops are presented below. The deficit is calculated as the difference between the projection of domestic consumption and the 1983 estimated production.

<u>Crop</u>	<u>Deficit in Metric Tons</u>
Rice	52,002
Corn (grain)	89,215
Corn (fresh)	44,721
Potatoes	575,049
Wheat	378,936
Barley	42,365
<b>TOTAL</b>	<b>1,182,288</b>

Seeds and other inputs are required to prepare the altiplano for the 1983 planting from October to December. Large amounts of chemical fertilizer will be required to replenish altiplano fields. Especially among potato farmers, the use of fertilizers to maximize crop yields has become common. Fertilizers and other agricultural inputs are imported items in Bolivia; however, and because of the nation's foreign exchange crisis, the country only has limited resources available for these essential agricultural inputs. GOB officials also expect that fertilizers and other inputs which are imported will be purchased mainly by the nation's wealthier farmers and that the small, poor farmers in the hardest hit areas of the Departments of Potosí, Oruro, La Paz, Cochabamba, and Chuquisaca will not be able to purchase these inputs. Large amounts of credit will also be necessary if the poor farmers in the drought-affected regions are to recondition their farm land for the coming planting season.

Bolivia's losses as a result of the natural disasters are staggering and already exceed \$ 1.0 billion, or almost 15 percent of GDP. The major economic losses include agricultural production (\$554.6 million), livestock (279.0 million), infrastructure (70.5 million), and exports (\$28 million), plus \$190.0 million in unanticipated foreign exchange expenditures for food production inputs and emergency supplies. In its present economic condition, the GOB will not be able to respond in any adequate way to the country's reconstruction and recovery needs without substantial external assistance.

#### 4. GOB Activities in Response to Natural Disasters

Since March, the GOB has taken a series of actions to assist its citizens in the flood and drought areas. A National Emergency Plan for Reconstruction and Rehabilitation has been prepared and is being implemented, and the country's regional civil defense committees have been mobilized. Implementation of the Emergency Plan is being hampered, however, by the nation's economic crisis.

##### a. The GOB Emergency Plan

In April 1983, on the occasion of a donor's conference in La Paz, the GOB presented its National Emergency Plan for Reconstruction and Rehabilitation. The objectives of the Emergency Plan are to avoid widespread starvation and help the country return to food self-sufficiency in traditional food crops. The Emergency Plan has six components: (1) increased agricultural production (\$60.0 million); (2) provision of emergency food supplies (\$219.0 million); (3) potable water projects (\$43.0 million); (4) logistical support for food distribution (\$27.9 million); (5) infrastructure rehabilitation (\$84.0 million); and (6) flood prevention (\$37.0 million). The total cost of the Emergency Plan is estimated to be \$470.0 million.

##### b. The Civil Defense System

The entity within the GOB responsible for the design and implementation of the Emergency Plan is the National Civil Defense Committee. The Committee is chaired by the Minister of Defense and includes the participation of other GOB ministries and the Commander of the Armed Forces. There are parallel civil defense committees at the departmental and provincial levels which are charged with coordinating relief and rehabilitation efforts within their jurisdictions.

##### c. GOB Recovery Activities

As noted earlier, the GOB response to the floods, continued rains, and the drought is limited because of the nation's dire economic situation. Despite its crisis, the GOB has undertaken a number of small-scale efforts to assist its people. In the Santa Cruz area, the GOB has helped establish emergency housing for many of the victims of the March 19 flash flood. Through local and GOB assistance efforts, PLAN 3000 has been transformed into a relatively healthy permanent settlement. The National Roads Service (SNC) has made temporary repairs on some of the region's primary roads, and is attempting to reopen secondary roads into the nearby agricultural zones.

In the drought areas, GOB efforts have focussed on the temporary restoration of the potable water system in the city of Potosí, as well as on the provision of agricultural credit to altiplano farmers. In addition to the Potosí aqueduct, and at the directive of President Siles, the Departmental Development Corporation of Potosí (CORDEPO) and the city's water authority are cleaning the lakes above Potosí which provide the city with water.

The GOB is also planning to assist small farmers in the drought areas by making available approximately \$6.0 million for agricultural inputs as part of the agricultural recovery portion of the Emergency Plan. Because of economic constraints, however, the GOB has been unable to extend its planned activities for the provision of potable water beyond the temporary facility for city of Potosí. Insufficient foreign exchange resources prevent the GOB from supplying anywhere near the required amounts of agricultural inputs such as fertilizer, to the altiplano farmers.

#### 5. Other Donor Assistance

Assistance to Bolivia from other donors has been limited. Donors have provided aid to the flood victims in Santa Cruz, and to a lesser extent to the drought victims in and around the city of Potosí. As a result of an appeal made on August 10 by the United Nations Secretary-General on behalf of Bolivia, Ecuador, and Perú, pledges of assistance are currently being made to the GOB to help alleviate the growing food deficits and to assist in Bolivia's recovery efforts. In general, however, donations are slow in coming and are smaller than anticipated.

The latest United Nations report on emergency contributions to Bolivia indicates that \$ 7.0 million in emergency assistance has been provided to the Santa Cruz flood victims by thirteen nations (excluding the United States), the United Nations, the European Economic Community and private and public voluntary organizations. These donations have included shelter materials, food, boats, health and sanitation facilities, medicines and medical supplies, water pumps and water storage tanks, bridge construction and rehabilitation materials, and some cash. According to UNDR0 figures, some of the largest bilateral donors to the Santa Cruz victims, in addition to the U.S., are Argentina (\$1,580,000), Canada (\$699,186), Italy (\$604,000), France (\$474,000) and the Republic of Korea (\$424,000). The U.S. contribution for flood victims, including additional funds from the proposed Disaster Recovery Project will exceed \$15.6 million.

Assistance to the drought victims in Potosí has also summarized in the United Nations report of emergency contributions to Bolivia. It indicates that \$17.9 million in assistance has been committed by ten nations (excluding the United States), the United Nations, the European Economic Community, and private and public voluntary organizations. According to UNDR0 figures, the largest donations to the drought victims (in addition to those provided by the U.S.) included: wheat and kidney beans and related transportation costs from Canada (\$8,130,000); \$5,829,300 from the United Nations, including the reactivation of an altiplano potable water project which had been suspended for some time; water pumps and storage tanks, medicines and food commodities from Germany (\$1,040,943); technical assistance in irrigation from Sweden in support of an existing United Nations project (\$848,311); wheat flour, medicines and related transportation costs from the European Economic Community (\$726,273); and equipment, powdered milk and water pumps from Switzerland (\$633,385).

U.S. contributions for drought victims, including funds from the Disaster Relief and Rehabilitation project will exceed \$24.5 million.

6. AID Response

USAID/Bolivia's response to the current disaster situation has three components: (1) OFDA emergency assistance for the most immediately affected victims of the floods and drought; (2) additional P.L. 480 Title II and Title III food donations and the financing of recovery activities from funds generated from P.L. 480 food sales; and (3) the proposed Disaster Recovery Project.

a. OFDA Emergency Assistance

OFDA assistance to date amounts to \$76,000. Some of the uses which have been made of these funds in the flood and drought regions are highlighted below. Table 2 contains a more complete listing of the uses of these funds.

In response to the Santa Cruz flood, the United States sent a disaster assessment team to Santa Cruz to assist in evaluating the extent of the flood damage and to advise the municipality regarding assistance to the refugees in PLAN 3000. Six potable water storage tanks were flown to PLAN 3000 to assist with water distribution. Plastic sheeting for 300 shelters was provided. Through a grant of \$20,000 to Seventh Day Adventist World Services (SAWS) in Santa Cruz, USAID provided blankets, water containers, tools, and other needed articles. In addition, USAID contributed funds for latrine construction and distributed iodine and chlorine tablets. To complement these activities, more than 367 metric tons of food were supplied through the transfer of available resources from the Catholic Relief Services' (CRS) P.L. 480 Title II program to PLAN 3000 and to other flooded areas. Lastly, to assist the people of San Julian in the Department of Santa Cruz, USAID/Bolivia provided food, tools, and medicines and medical supplies, as well as \$10,000 for the reconstruction of six small bridges in the San Julian area to enable farmers there to return to full agricultural production as quickly as possible.

In response to the drought in the Department of Potosí, twenty three water storage tanks were sent to the city of Potosí to facilitate its water distribution efforts. SAWS/Potosí was granted \$4,700 to assist drought victims, and the Utah-Bolivia Partners received \$7,000 for the construction of water storage facilities for livestock.

In the city of La Paz, USAID provided \$6,600 for soup kitchens to feed campesino families which have migrated to the city from the drought areas. To complement these activities, USAID has supplied the Department of Potosí and the other drought areas with 1,710 metric tons of P.L. 480 Title II food transferred from available CRS resources.

b. P.L. 480 Food Donations

Because of Bolivia's dramatic food shortages in FY 1983, USAID's regular as well as emergency P.L. 480 Title II and Title III programs have made major contributions to meeting the country's immediate food needs, and will play a central role in supporting the nation in its recovery efforts. From August 1983 through September 1983, USAID food donations totalled 306,253 metric tons worth \$79.9 million. The P.L. 480 Title II regular and emergency programs have supplied Bolivia with 69,253 metric tons of food valued at \$37.5 million. The P.L. 480 Title III regular and emergency programs have contributed 237,000 metric tons of wheat and rice with a value of \$42.4 million.

Within these overall amounts, 15,000 metric tons of Title II rice and 60,000 metric tons of Title III wheat and rice have been monetized to generate peso resources for recovery activities. The Title II monetization is programmed to underwrite the added operating expenses of the voluntary organizations and government agencies implementing emergency programs, and to fund other disaster activities. The peso proceeds from the Title III monetized commodities are programmed for the rehabilitation of secondary roads in the Santa Cruz area, increased credit to small farmers for the purchase of production inputs, expanded storage facilities, seed development activities, efforts to strengthen rural cooperatives, and the expansion of extension activities.

In an initial effort in May 1983 to help the farmers in the flood and drought regions of the country, \$ 3 million in Title III generations were allotted for seeds, fertilizer, mini-irrigation systems, and credit for small farmers in ten severely affected areas of the Departments of the Beni, Santa Cruz, Tarija, Chuquisaca, Cochabamba, Oruro, Potosí, and La Paz. Since May, an additional \$5 million has been provided through these same channels to continue assisting these struggling small farmers.

TABLE 2

NON FOOD ASSISTANCE PROVIDED BY OFDA/WASHINGTON

	<u>Activity</u>	<u>Value</u>
I.	<u>Flood-Related Assistance</u>	
	-Technical Assistance: Disaster Assessment Team.	\$5,100
	Grant to SAWS/Santa Cruz to provide blankets, tools, water containers, medicines and other necessary items to the refugees in PLAN 3000.	20,000
	-Purchase and transportation of bags for food commodities and the transport of other essential items.	1,600
	-Grant to FIDES to reconstruct ten bridges in the San Julian area.	10,000
	-Grant to the Rurrenabaque Municipality to purchase tools for a city potable water project.	2,500
	-Grant to SIM International for building materials to reconstruct homes destroyed in Santa Ana de Yacuma by the flood.	4,000
	-Grant to the Mennonite Central Committee for materials to build latrines in the "18 de marzo" refugee settlement in Santa Cruz.	2,500
		Subtotal \$ <u>45,700</u>
II.	<u>Drought-Related Assistance</u>	
	-Grant to SAWS/Potosi for a potable water project in Potosi.	4,700
	-Transportation of water tanks and pumps to Potosi from Santa Cruz and the United States.	3,300
	-Technical Assistance: Disaster Assistance Coordinator	4,800
	-Purchase of tools for the construction of potable water systems.	900

-Grant to the Utah-Bolivia Partners for the construction of water facilities for livestock.	\$ 7,000
Grant to the American Women's Club to support soup kitchens in La Paz.	6,600
-Donation of water analysis and testing equipment to the city of Potosi.	<u>3,000</u>
	Subtotal \$ 30,300
	GRAND TOTAL \$ 76,000

TABLE 3

Food Assistance to Bolivia

(Aug. 1982 - Sept. 1983)

	<u>Metric Tons</u>	<u>Value US\$</u>
<b>I. P.L. 480 Title II Regular and Emergency Programs</b>		
<b>A. Regular Program</b>		
- Catholic Relief Services (CRS)/Caritas	22,955	12,449,116
- National Community Development Services (NCDS)	1,208	622,830
- Seventh Day Adventist World Services (SAWS)	1,270	588,606
Regular Program Subtotal	25,433	13,660,552
<b>B. Emergency Program</b>		
- CRS (Food-for-Work)	8,820	4,124,820
- NCDS (Food-for-Work)	10,000	5,523,680
- Food for the Hungry International (FHI)	10,000	5,523,680
- National Rice Enterprise (ENA) (monetized rice)	15,000	8,694,000
Emergency Program Subtotal	43,820	23,866,180
Total Title II Assistance	69,253	37,526,732
<b>II. P.L. 480 Title III Regular and Emergency Programs</b>		
<b>A. Regular Program</b>		
- Wheat	177,000	28,600,000
Regular Program Subtotal	177,000	28,600,000
<b>B. Emergency Program</b>		
- Rice (monetized)	29,000	8,800,000
- Wheat (monetized)	31,000	5,000,000
Emergency Program Subtotal	60,000	13,800,000
Total Title III Assistance	237,000	42,400,000
<b>GRAND TOTAL FOOD ASSISTANCE</b>	306,253	79,926,732

B. Project Strategy

The \$17 million in Development Assistance (DA) funding for the proposed Disaster Recovery Project will complement the Mission's P.L. 480 emergency supplemental food programs and the activities financed from P.L.480 food sales. The project described in this PP will support key elements of the GOB Emergency Plan, and it fully conforms with USAID/Bolivia's development strategy described in the FY 1985 CDSS.

Assisting Bolivia to respond to the combined natural disaster of drought in the Altiplano and flooding in the southeast is a major element of USAID/Bolivia's assistance strategy. In accordance with this strategy, USAID is providing significant additional assistance to respond to the current economic crisis and natural disasters in the short-run while focusing longer-term assistance efforts in the La Paz-Cochabamba-Santa Cruz development corridor, especially through the private sector.

As indicated above, the U.S. has provided the bulk of the disaster relief and rehabilitation assistance extended to Bolivia to date. USAID has focused on Bolivia's most immediate needs, beginning with the emergency assistance provided for the homeless in the PLAN 3000 camp, and including additional donations of P.L. 480 Title II and Title III food commodities to help make up for crop losses and to feed the hungry. Proceeds from the sale of additional Title II and Title III donations are being used for various relief and recovery activities aimed at preventing a collapse of the country's agricultural production systems, such as farmer credit, storage facilities, seed development, and support for cooperatives and extension activities.

The proposed project will complement these activities by financing vitally needed infrastructure activities and key imports required to respond to the disaster and help with the recovery. A.I.D. assistance under the proposed project will be focused in the geographic areas most affected by flooding and the drought; i.e., the Santa Cruz-Cochabamba road area, the southern portion of the Department of La Paz, all of the Departments of Oruro and Potosí, southern Cochabamba and northern Chuquisaca.

Special efforts will be made to ensure that the project is fast disbursing. Existing programs and delivery channels will purposely be used. A.I.D. will finance certain operating costs normally funded by implementing agencies (e.g. inland transportation and per diems) to avoid bottlenecks previously encountered in other projects. Lastly, key technical experts will be provided to assist implementing agencies with project administration.

C. Project Description

1. Goal, Purpose, Outputs, Inputs

The Goal of the project is to assist Bolivia to respond to recent natural disasters and return to a self-sufficient status in the food commodities it traditionally produces. The purpose of the project is to help the GOB implement important elements of its emergency plan for recovery from the drought in the highlands and flooding in the southwestern area of the country.

The two-year project has four major components:

- . Rehabilitation of the Cochabamba-Santa Cruz highway;
- . Potable water and small-scale irrigation activities in the altiplano;
- . Importation and distribution of fertilizers; and
- . Importation and distribution of medicines to drought-affected rural areas.

The project's major outputs will be as follows:

Highway Rehabilitation:

- . Reconstruction of 55 kms. of the Santa Cruz-Cochabamba Highway.
- . Reconstruction of the 90-meter Taruma Bridge.
- . Reconstruction of five small bridges.
- . Completion of extensive slide stabilization and river protection works.

Water Projects:

- . Repair and improvement of the municipal water systems in Potosi and Sucre.
- . Eighty new rural potable water systems.
- . Up to 45 new or expanded irrigation systems.
- . Augmented capacity for construction of potable water and irrigation systems by Departmental Development Corporations (DDCs) and CARE.

Fertilizer Imports:

- . 3000 M.T. of fertilizer distributed.
- . System for distributing fertilizers through cooperatives improved.
- . Revolving fund for purchase of agricultural inputs increased.

Medicine Imports:

- . US\$ 1 million in medicines imported and distributed.
- . Ministry of Health's revolving drug fund augmented.

- . Ministry of Health's drug distribution system improved.
- . System for provision of foreign exchange for drug imports strengthened.

The inputs to the project are as follows:

- . AID
  - . Equipment (construction equipment, spare parts, water pumps, vehicles, etc.)
  - . Construction materials.
  - . Construction costs (Taruma Bridge and small civil works).
  - . Imported fertilizers and medicines.
  - . Operating expenses (CARE, DDCs, Ministry of Health, FENACRE).
  - . Technical assistance (road construction, equipment maintenance, landslide and river stabilization experts, environmental assessment (water), agronomy, irrigation engineering, drug procurement and distribution, project administration).
  - . Training (water system maintenance, fertilizer and drug distribution).
- . GOB
  - . Construction materials (water systems).
  - . Construction services (road, Sucre water system).
  - . Personnel and operating expenses (SNC, AAPOS, ELAPAS, DDCs, Ministry of Health).
- . Other Counterpart
  - . Community contributions to water projects (labor and materials).
  - . FENACRE/Cooperative personnel and operating costs.

## 2. Project Components

### a. Rehabilitation of the Santa Cruz-Cochabamba Highway

#### (1) The Problem and AID's Response

During a seven-month period (November 1982 - May 1983), the watershed for the Santa Cruz-Samaipata was subjected to abnormally heavy rainfall. As a result, the river Pirai and its tributaries, which course the watershed, experienced extraordinary high water flows and flooding. For example, normal highwater flows at the Taruma bridge point of the Pirai are 464 cubic centimeters (cms.) per second. On January 31, 1983 the water flow was recorded at 1300 cms. per second while on March 18 the water flow rose to 3500 cms. per second. The resultant flooding completely destroyed the bridge at Taruma and two smaller river crossing, severely damaged the Cochabamba-Santa Cruz highway between Santa Cruz and Samaipata, and caused considerable loss of life and property damage in the city of Santa Cruz. Damage to the road was compounded by land slides on both sides of the Pirai river, below and above the Taruma bridge, caused by additional rains in the watershed falling on already saturated soils. The road is the primary link between the agricultural production zone in the southeast and the Bolivian population living in the highlands. Without full use of the road, food production in the southeast will continue to be adversely affected due to input storages, and internal food marketing channels will be severely disrupted. The National Road Service (SNC) has re-opened the road, but only minimal traffic can use it at great difficulty.

The solution to the problem consists of a two-phased strategy for completely rehabilitating the highway, including replacement of six bridges that link sections of the road. Phase I, to be financed by A.I.D. under this project, will be a two-year effort to reopen the road and make it passable year-around. Phase II, to be financed by the Inter-American Development Bank (IDB), will include the final work (i.e., placement of an all-weather black top surface) to restore the road to its pre-disaster condition. It is anticipated that Phase II could begin as early as 6 months after the initiation of Phase I. The implementation strategy for Phase II will be to complete those sections of the road as they are reopened under Phase I to avoid unnecessary deterioration due to both heavy traffic and inclement weather. All of the roadbed preparation required for final paving will be concluded under Phase I.

## (2) Project Subcomponents

The first phase of the road rehabilitation effort to be financed by A.I.D. will consist of four distinct yet related sub-components.

(a) River Protection River protection activity will consist of construction of stone, wire-encased gabion walls at strategic points along the river where the currents are directed against the river banks and threaten the stability of the road.

(b) Slide Stabilization Slide stabilization work will concentrate on minimizing the buildup of water in slide materials on slopes above the highway through the installation of cross drainage systems (4,200 lineal meters of french drain and benching) and the reinforcement of slide toes with concrete and stone retaining walls.

(c) Roadbed Reconstruction and Rehabilitation This subcomponent will entail removal of slide debris material and reestablishment of the roadbed on the existing alignment, and the construction of short relocations as appropriate. The road surface will be of gravel and crushed rock. It will be made to all weather standards and will be suitable for placement of a permanent black top surface that will be carried out under Phase II.

(d) Bridge Rehabilitation and Construction The principal activity under this subcomponent will be the reconstruction of the Taruma bridge. The new structure will be 90 meters long and consist of two 45 meter spans. The substructure will consist of a center pier and two side abutments. The center pier will be completely rebuilt and will be protected against overturn by sinking steel reinforced concrete foundations 8 meters below the river bed. Concerning the side abutments, one of the two structures was unaffected by the flood and will be used in building the new bridge. However, the second abutment was severely damaged and will be completely rebuilt. The superstructure will be composed of post tensioned I-beams, concrete deck slabs and guard rails.

In addition to the Taruma bridge, 5 other river crossing structures, none of which will exceed 20 meters in length, will be included in the project. Three of these bridges will be new structures. In all cases, the substructure will consist of post-tensioned I-beams and concrete deck slabs.

## (3) Construction Strategy

Road rehabilitation work will follow the project's overall implementation strategy, which calls for marshalling resources to carry out activities in the shortest period of time. Accordingly, to the

extent possible, all four subcomponents of the road project will be carried out simultaneously, so as to minimize construction delays.

All activities, related specifically to roadbed rehabilitation (e.g. clearance of slide debris, slide stabilization, road realignment, installation of river defense works, centerline realignment, and roadbed preparation) will be carried out directly by SNC and begin immediately after the Project Agreement is signed. Because the equipment and spare parts financed by the project will not arrive until the second quarter of 1984, SNC will supplement its heavy machinery fleet with rented equipment. In addition, SNC will augment its current staff with contracted laborers to execute the components of the project that require considerable manual labor (e.g. installation of river defense works and construction of slide stabilization retention walls).

Simultaneous to the initiation of roadbed rehabilitation activities, SNC will prepare and issue invitations bids locally for construction of the bridges which link sections of the road. To speed up construction, two contracts will be awarded; one for reconstruction of the Taruma bridge, and one for repair and construction of the five smaller bridges. SNC will also contract for all minor drainage structure installation (e.g. roadside culverts) associated with repair of the highway. Concerning the minor drainage work, SNC will carry out the topographic work and will provide the project-financed materials (e.g. cement pipe, re-bar) while the contractors will furnish skilled labor. With respect to the bridges, the contractors will be responsible for executing every facet of their jobs.

Given its size and the work-time it will require, construction of the Taruma bridge will be given special priority. However, even supplementing SNC's capability with contract assistance, institutional limitations will preclude addressing all of the road project's subcomponents in their entirety at the same time. Therefore, a rank ordering system will be developed for attending to subcomponents (e.g. road sections, minor bridges, and river protection works points) based on the severity of damage suffered and logistical considerations of moving machinery from one location to another.

#### (4) Component Administration

As noted above, the principal counterpart organization for road rehabilitation activity will be SNC. At the national level, SNC's Department of Operations will be responsible for overall coordination of the project -- including the preparation of documentation for international procurement (with AID assistance), contracting local road construction firms, coordination of project accounting, and implementation of the pari passu project disbursement

system as used by USAID/Bolivia.

Below the national level, implementation responsibility will devolve to SNC's District Highway Office in Santa Cruz. This Office will develop work schedules for reopening the highway, supervise contracts for bridge construction and drainage work installation, and furnish personnel to carry out topographic work relative to road realignment.

The Highway Residence at Samaipata will carry out the actual rehabilitation work on the road. The Residence will assign one basic equipment group and one support group to the project. In terms of machinery, the equipment group will consist of 2 D7 tractors, a water truck, 2 dump trucks, one road grader, one agricultural type tractor, one vibrator roller, and one compressor. The support group will be made up of one fuel tank truck, one rock-crushing machine, one equipment repair truck with soldering capacity, two generators, and two pick-up trucks. The machinery for both the equipment and the support groups will be drawn from the pool available at the Samaipata Highway Residence. This pool will be supplemented by machinery and spare parts procured under the project.

(5) Technical Assistance

A combination of long-term and short-term expertise will be financed with grant funds to assist SNC in rehabilitating the highway. The long-term technical assistance will consist of two individuals - a construction supervisor and a heavy equipment maintenance specialist - each for a period of 18 months. The construction supervisor will work directly with the Chief Engineer of the Santa Cruz District Office, and with the engineer in charge of the Samaipata Residence, on the planning and implementation of project activities, including the scheduling of construction, deployment of field teams, and supervision of contractors. The equipment advisor, as the title suggests, will assist SNC to improve maintenance of heavy equipment with particular emphasis on promoting preventive maintenance practices.

Two short-term advisors will be provided -- a slide expert and a river stabilization specialist. Both will arrive early during project implementation. The former, during a three week consultancy, will advise SNC on slide stabilization techniques. The latter will be in country for approximately eight weeks to assist in the selection of points along the Pirai river to erect river defense works and advise on their construction.

(6) Component Budget

The budget for reconstruction of the road is shown in Table 4.

TABLE 4

Estimated Budget for Road Rehabilitation

(\$000)

	A.I.D.		GOB	Total
	FX	Local Currency		
Construction Materials *	604	3491	-	4095
gabion walls	(339)	(3174)		(3513)
culverts in place	(247)	(105)		(352)
french drains	(18)	(191)		(209)
box culverts	( - )	(21)		(21)
Earth Movement *	-	2616	4104	6720
Bridge Construction *	-	1289	-	1289
Spare Parts/Excess Property	575	-	-	575
Technical Assistance	421	-	-	421
Contingencies **	40	-	-	40
Totals	1640	7396	4104	13140

\* Includes 30% contingency factor as part of construction cost estimate.

\*\* See explanation on assumptions made regarding inflation in Section III.

b. Potable Water and Small-Scale Irrigation

(1) The Problem and A.I.D.'s Response

The broad effects of the drought in the highland and valley regions of Bolivia have been described earlier in this project paper. Even under normal conditions, water is the most limiting factor to achieving realizable crop and livestock production and reasonable living conditions in the altiplano. Tens of thousands of small farm families border on disaster most years, but usually manage to grow at least enough to eat and for seed. A major dry spell such as that experienced this year pushes the majority below even this level of survival. Annual rainfall levels in the farming areas of the altiplano generally are from 15 to 25 inches per year, but there are agricultural areas in the Potosí and Oruro Departments, and some of the higher valleys, where annual rainfall is less than 15 inches. Under these conditions even slight variations in the rainfall distribution during the cropping season decreases yields considerably.

At the same time, potable water supply to cities and villages is affected by the seasonal differences in rainfall. Water shortages and rationing during the dry season is an accepted way of life, despite the inconveniences and health hazards this creates. Those urban areas having water systems, such as Oruro, Potosí and Sucre, live with the daily problems and inefficiencies created by the excessive demand on water sources and delivery systems used since colonial times. Outside of these cities and some larger towns, few rural potable water systems exist. The time lost in hauling water and the health problems associated with non-existent or inadequate water supply systems have been aggravated by the drought. The altiplano and high valley areas most affected by the drought are the southern portion of the Department of La Paz, all of the Departments of Potosí and Oruro, southern Cochabamba and northern Chuquisaca.

In order to provide for increased water supply and food production in drought-affected areas, and simultaneously decrease the impact and risk of future rainfall variations, A.I.D. will finance the construction, rehabilitation or expansion of potable water/sanitation systems and irrigation facilities in a three-pronged program.

(2) Project Subcomponents

This component of the Disaster Recovery Project includes over \$4.5 million from AID for (i) the financing of the rehabilitation and repair of the urban water supply systems in Potosí and Sucre, (ii) potable water and small-scale irrigation projects carried out by CARE, and (iii) small to medium-scale irrigation projects to be undertaken by selected Departmental Development Corporations.

(a) Urban Potable Water Supply Systems

The purpose of the two urban water system rehabilitation activities is to improve the provision of water to two of Bolivia's primary highland cities. A.I.D. will provide the municipal water authorities of each city with the support required for them to carry out repair and renovation activities which have been planned but not begun due to lack of funding.

(i) Potosí Water System

The most severely affected urban center is the Altiplano city of Potosí. The existing water system for the city consists of 17 snow and spring-fed lakes. Each of the 17 lakes is dammed and feeds the city thorough a complicated series of distribution lines. Some of the lakes are man-made, and the earliest date back to the Spanish Conquest. The dams are of masonry construction, and all are leaking quite badly - the worst about 120 gallons per minute. Leakage in these dams is a serious problem not only in terms of water lost, but more importantly because the failure of one or more of the dams would result in loss of life.

The drought and leakage in the dams has caused the lakes to dry up almost completely. As an emergency measure, the city has constructed an eight-inch water supply line to a privately owned dam at a mine about 20 kilometers away. The mine owner allowed the city to install this line because the city was completely without water and inhabitants were being forced to transport water by railroad tank cars from a point forty kilometers away. This line is a temporary solution, however, as the source is not only private but inadequate for the needs of both the mining company and city. Since the water situation reached the crisis proportion, schools have been partially closed and businesses which rely heavily on water have been operating at a greatly reduced pace.

Potosí has a long range plan to construct a water supply pipeline to a river source which is about sixty kilometers away. This source will be adequate for the foreseeable future, but it is unlikely that funding for the project will be available very soon. In the interim, repair of the existing dams and water supply system is the least costly alternative for keeping the city supplied with water. The last major repairs to these dams were made in 1936 when Bolivia experienced a drought similar to the one now plaguing the country.

To prevent the loss of water once the rains start and later when snow melts, repairs to the dams should begin as soon as possible. This action, plus the existing temporary pipeline, will meet the city's needs until a new system can be constructed in a few years. The city of Potosí will supply all the materials and manpower required, but requires

a small amount of heavy equipment in addition to its own equipment fleet to undertake the job. The A.I.D. - financed equipment will continue to be used after repairs are completed for dredging of the lakes, system maintenance and, eventually, for construction of the new water system. Utilizing U.S.G. excess property to the maximum extent possible, the project will supply a tractor with dozer blade, a rubber tired front-end loader, a hydraulic excavator, and six trucks. Because spare parts are always in short supply an extensive supply of spare parts will also be ordered. The CIF cost of the equipment and spare parts is estimated at \$410,000. The estimated time of delivery once the order is placed is four months. The estimated repair time is six months. The municipal water authority in Potosí (AAPOS) will purchase all necessary materials for the activity, undertake construction by force account, and handle all future maintenance.

(ii) Sucre Water System

The second Altiplano city most severely affected by the drought is the legal capital of Bolivia, Sucre - a city of 80,000 inhabitants. The present water supply system consists of a thirty-kilometer, open concrete and stone masonry aqueduct which has its source at the Rio Ravelo, empties into a sedimentation tank, and from there into a concrete and ductile iron pipe distribution system into the city. The entire system from the Rio Ravelo to Sucre is gravity fed. The flow of the Rio Ravelo is not adequate to meet the requirements of the city, and this year it is even below the level of the aqueduct intake structure.

The Rio Cachi Mayu, which collects the flow from the Rio Ravelo, the Rio Maragua and many small tributaries, runs within one kilometer from the location of the current water system's sedimentation tank. Since the flow of the Rio Cachi Mayo far exceeds the present and future requirements of Sucre, it has been decided that a pumping station will be built to pump water from the Rio Cachi Mayu to the sedimentation tank. Due to a difference in elevation, a booster station will be required. The pumping station on the Rio Cachi Mayu will have a high pressure 150 liters/second (3,500 gallon/minute) pump which will feed water into a booster pump station at a higher elevation. The booster station will have an equal capacity, but low pressure, pump. Both stations will have parallel mounted pumps of the same type and capacity which will be operated on alternate days, both to reduce wear and to allow repairs and maintenance. Three kilometers of concrete distribution pipe which has settled unevenly and cracked will also be replaced, since this section of the distribution line is leaking badly.

AID will finance the full cost of the four pumps, gauges and metering instruments, and pipe and accessories, plus part of the cost of electrical and civil works for a total of about \$325,000. The city of Sucre will supply all sand, gravel, local labor and other funds (estimated total of \$30,000) needed to complete the system. All off-shore commodities will be purchased by A.I.D. The length of procurement and

delivery is estimated at six months, and time of construction at six months. The activity will be carried out by the Sucre Potable Water and Sewage Company (ELAPAS) by force account. ELAPAS will also be responsible for system maintenance.

(b) CARE Potable Water and Irrigation Activities

The purpose of this sub-component is to provide for the construction or extension of rural potable water and small-scale irrigation systems to help alleviate the problems resulting from periodic rainfall variations in the altiplano. CARE currently works directly with the Water Resource Divisions of the Chuquisaca, Potosí and Oruro DDCs in selecting, planning and constructing small rural community potable water and irrigation systems. Using this existing organizational framework, CARE will oversee the construction of approximately 80 potable water systems serving more than 5,000 farm families. In addition, approximately 30 small irrigation systems will be constructed supplying water to some 3,000 hectares of land farmed by about 2,500 farmers. The communities served will be less than 2,000 in population and the land irrigated will, in most cases, be less than 200 hectares. USAID has determined that channelling funds through CARE for this component of the project will help ensure that subprojects are constructed quickly and with a minimum of additional administrative burden on the Mission.

The potable water and irrigation systems to be constructed will be selected from a list of over 300 potential projects according to the selection criteria shown below. A list of potential projects is included in Annex A.

The selection criteria are:

(i) Subprojects will be located in the more severely drought-affected areas of the country.

(ii) Subprojects can be designed and constructed within the two-year life-of-project.

(iii) Engineering and implementation demands do not exceed the existing or augmented technical, organizational and financial capacity of the responsible implementing agencies.

(iv) Strong community interest and commitment exist, such as a willingness to provide voluntary labor and materials, a willingness to pay for maintenance and operation costs, and the formation of a local group or organization to oversee and ensure continued community support.

(v) Subprojects are demonstrably feasible based on technical, financial, social and administrative evaluation criteria to be jointly agreed to by A.I.D. and the implementing agency.

(vi) Subprojects are located in populated areas, which have a justifiable need for the investment, even under normal rainfall conditions.

(vii) Irrigation subprojects, in particular, will be selected which best conform with the following criteria:

- . involve the improvement/expansion of an existing infrastructure;
- . require minimum (less sophisticated) engineering and operation requirements;
- . require less continual attention to operation, management and maintenance;
- . present minimal need for elaborate environmental analyses; and
- . where other inputs necessary to increase agricultural production, such as credit, are available.

Both the potable water systems and the small-scale irrigation systems will be gravity systems wherever possible, due to maintenance and operational cost considerations. Pumps require periodic maintenance and a continual outlay for diesel fuel or electricity.

As in ongoing CARE activities, professional assistance for community organization, planning, topographical surveys, designs, and construction supervision will be provided by collaborating DDCs. In the Department of La Paz, CARE will work alone because of prior difficulties encountered in trying to work with the La Paz DDC. Due to the limited resources of the DDC's and the emergency nature of this project, CARE will use project resources to finance about 80 percent of the DDCs' normal contribution to such activities (i.e. operating expenses for personnel). The DDCs will continue to pay the salaries of its personnel working with CARE. Participating communities will provide labor and local materials, such as sand and gravel. In addition to DDC operating costs, CARE will finance, with A.I.D. funds, all the purchased construction materials needed for the systems and a proportion of its own administrative costs.

CARE will need to hire six additional technical personnel for overall construction monitoring and planning, two

community development promoters, and, possibly, one engineer. Since this project will build upon a successful existing one, the new personnel for both CARE and the DDCs will be integrated with existing staff, and established working procedures will be followed, thus facilitating project expansion.

Through existing and previous activities of this nature, CARE already has set up procedures for ensuring subproject maintenance. As part of the water system agreement with CARE, the DDC and the local community water committees must agree to collect funds from water users and set a certain amount aside for systems maintenance. These funds are used to pay for repair materials and a maintenance employee. It is further stipulated that two persons from the committee who are directly responsible for operation and maintenance attend a 21-day training course which is given by FOMO in each Bolivian department twice a year.

During the life of the project (2 years), DDC and CARE technicians will continue their practice of visiting system sites to check on operations and maintenance. It has been CARE's experience that water committees have had virtually no maintenance problems with gravity systems. In pump systems, whenever a pump or other mechanical part has malfunctioned, the water committee has purchased a replacement in the local market and the committee technician has repaired the system.

USAID intends to sign a cooperative agreement for US\$ 1.75 million directly with CARE for the implementation of this subcomponent of the project. CARE will revise its operating agreements with the DDCs in Chuquisaca, Oruro and Potosí to take account of the additional workload. USAID will monitor CARE's performance directly, and CARE will keep the Civil Defense Committee and the Ministry of Planning and Coordination informed of the progress it is making.

(c) DDC Irrigation Activities

In addition to the activities they will carry out with CARE, the DDCs in Chuquisaca and Oruro, along with the DDC in Cochabamba, will implement small to medium-scale irrigation subprojects independently. The projects to be implemented will be expansions of existing systems or new systems for which feasibility studies and engineering designs have already been undertaken or are about to be completed. Only projects to increase irrigated hectorage in drought affected areas which are ready to implement quickly will be selected for construction. The objective of this subcomponent of the project will be to increase irrigated land in selected regions of the altiplano as quickly as possible.

The DDCs in Oruro, Chuquisaca and Cochabamba have presented twelve subprojects for funding under this subcomponent. These irrigation projects have been initially selected from a larger list given their conformance with the selection criteria set forth earlier. Further analyses of these subprojects and others are proceeding, and a final selection of

subprojects which will actually be carried out remains to be made. The identified systems will allow some 2,580 farmers to irrigate about 6,566 hectares of land for both crop and forage production. In addition, over 5,000 other village dwellers will obtain potable water from the activities. Four of the subprojects are in the Department of Oruro, five in northern Chuquisaca, and three others in western Cochabamba. The projects are listed in Annex A. The twelve projects initially selected range in size from simple micro systems of 12 to 100 hectares (below US\$100,000 in cost) to larger 150 to 600 hectare projects costing up to US\$ 600,000. Practically all of the systems will utilize surface water and gravity flow through diversion canals.

The participating DDCs will handle community promotion and all technical backstopping (surveys, design, construction supervision, and agronomic assistance). Communities will provide labor and local materials. The DDCs will purchase most construction materials not provided by local communities. They will also carry out follow-on activities with participating communities to ensure that systems are maintained and used correctly. In Chuquisaca and Oruro, where CARE already works closely with the DDCs, the same pattern of community water committee formation used by CARE will be employed by the DDCs. In fact, CARE has offered to assist DDC personnel in organizing water user groups in communities where the DDCs will be working alone. This assistance will be complemented by the short-term technical assistance and training financed by the project aimed specifically at user organization and systems management. It is worth noting that all of the DDCs involved have previously organized and implemented water subprojects.

A.I.D. will finance the purchase of about 90% of the construction materials not provided by participating communities (\$1,714,000), with the DDCs purchasing the remainder (\$212,000). The DDCs will also finance all of their personnel and operating costs (Est. \$340,000).

(d) Other Related Support

To support DDC participation in this component of the project, AID will also finance technical assistance, training and limited equipment purchases.

(i) Technical Assistance

Funds will be reserved to provide both the Cochabamba and Oruro DDCs with the services of a qualified Bolivian irrigation engineer and an on-farm water management specialist (96 person/months total). In addition, up to 10 person/months of specialized short-term technical assistance will be made available to all participating DDCs. Of this, up to three person months of technical assistance will be earmarked for

a specialist to review the environmental implications and requirements of the irrigation subprojects selected or under final review by the DDCs and CARE.

(ii) Training

Two in-service training courses for DDC field technicians will be given during the life of the project. The first will focus on irrigation system organization and management and the second on on-farm water management.

(iii) Equipment

The procurement of a significant amount of equipment is not necessary since the DDCs either have most of the equipment needed or can rent it for short-term needs. However, given the additional wear on existing DDC equipment that an expanded program of activities implies, AID will fund, for replacement purposes, the procurement of three backhoes and two dump trucks, plus a small stock of spare parts.

(3) Component Administration

USAID will disburse funds for the implementation of the activities described above directly to AAPOS, ELAPAS, CARE and the DDCs. The Mission will directly purchase imported equipment and construction materials to be used in the Potosí and Sucre projects and in DDC-managed irrigation activities. CARE will manage all funds granted under the cooperative agreement itself. Each implementing authority will report directly to A.I.D. and the Ministry of Planning and Coordination on project progress.

(4) Component Budget

The cost estimate for the potable water and irrigation component of the Project is based upon (a) definitive cost estimates for the two municipal water system rehabilitation subprojects, (b) projected costs for CARE subprojects based upon actual costs of just completed CARE subprojects (See Annex A for illustrative budget examples of a typical gravity potable water system, a typical pumped potable water system, and a typical CARE-DDC micro-irrigation system), and (c) adjusted figures supplied by the DDCs for their subprojects.

Table 5 shows the estimated budget for the water and irrigation component of the project.

TABLE 5

Estimated Budget for Water Component

(\$000)

	<u>AID</u>	<u>GOB</u>	<u>Community</u>	<u>Total</u>
<u>Potosí Water System</u>				
Excess Property and Spare Parts	400	-	-	400
Inland Transportation	10	-	-	10
Construction Materials	-	61	-	61
Operating Expenses	-	19	-	19
Maintenance	-	15	-	15
Subtotals	410	95	-	505
<u>Sucre Water System</u>				
Pumps, Instruments, Pipe	265	-	-	265
Inland Transportation	25	-	-	25
Construction Costs	35	30	-	65
Subtotals	325	30	-	355
<u>CARE Subprojects</u>				
Construction Materials, Labor	1,027	-	410	1,437
Design and Supervision	300	80	-	380
CARE Administration	250	-	-	250
Subtotals	1,577	80	410	2,067
<u>DDC Irrigation</u>				
Construction Materials, Labor	1,714	212	928	2,854
Design and Supervision	-	240	-	240
DDC Operating Costs	-	100	-	100
Subtotals	1,714	552	928	3,194
<u>Support Costs</u>				
Technical Assistance	166	-	-	166
Equipment, Spare Parts	254	-	-	254
Training	30	-	-	30
Subtotals	450	-	-	450
Contingencies *	368	-	-	368
<b>TOTALS</b>	<b>4,844</b>	<b>757</b>	<b>1,338</b>	<b>6,939</b>

\* See explanation on inflation assumptions in Section III.

c. Fertilizer Distribution

(1) The problem and AID's Response

The use of fertilizers is common in the drought-affected areas of Bolivia for the production of potatoes, corn and other vegetables. While good statistics are lacking on the use of fertilizers, demand for fertilizers can be estimated from data on the number of hectares employed for crop production. Per hectare application rates of the most commonly used fertilizers (18-46-0 DAP and Urea 46 percent) by crop are well known. Taking into account the hectares of production of the principal crops on which fertilizer is applied and the most common per hectare application rates, 1/ an estimate of effective demand 2/ can be made. Table 6 shows the demand estimates in the affected areas in which fertilizer need is greatest. It indicates an estimated total demand for DAP of 16,085 metric tons and for Urea 8,023 metric tons.

TABLE 6

Effective Demand for 18-46-0 DAP and Urea 46 percent (Metric Tons)

<u>Department</u>		<u>Potatoes</u>	<u>Corn</u>	<u>Tomatoes</u>	<u>Onions</u>	<u>Carrots</u>	<u>Total</u>
Cochabamba	DAP	3,825	267	57	115	116	4,380
	Urea	1,912	134	19	58	58	2,181
Potosí	DAP	4,616	90	13	4	9	4,732
	Urea	2,308	45	4	2	5	2,364
Oruro	DAP	1,442	N/A	N/A	N/A	N/A	1,442
	Urea	721	N/A	N/A	N/A	N/A	721
La Paz	DAP	3,003	68	22	67	17	3,177
	Urea	1,502	34	7	33	8	1,584
Chuquisaca	DAP	2,204	86	22	20	22	2,354
	Urea	1,102	43	7	10	11	1,173
Totals	DAP	15,090	511	114	206	164	16,085
	Urea	7,545	256	37	103	82	8,023

1/ Crop Requirements (100 Kgs./ha.)

<u>Fertilizer</u>	<u>Potatoes</u>	<u>Corn</u>	<u>Tomatoes</u>	<u>Onions</u>	<u>Carrots</u>
18-46-0 DAP	4	2	3	2	2
46 percent Urea	2	1	1	1	1

2/ Effective demand as used here is calculated assuming that 70 percent of the potato crop, 50 percent of the corn crop and 100 percent of the vegetable crop receive the normal fertilizer application rates.

In the face of extreme foreign exchange scarcity in Bolivia, the normal importation of fertilizers through commercial channels has been greatly restricted. Only limited fertilizer imports are foreseen and these will be used almost exclusively in the commercial cropping areas in the Department of Santa Cruz. The remaining areas of the country will be entirely dependent upon foreign donations which, for the upcoming cropping season, currently consist solely of 8,680 metric tons of DAP and 3,720 metric tons of Urea to be furnished by the Dutch and Japanese Governments. Taking into consideration the effective demand estimates presented above, the resultant fertilizer deficits are in the range of 7,405 metric tons of DAP and 4,303 metric tons of Urea.

The principal reason for anticipating a continued demand for fertilizers is the increase farmers have experienced in crop yields and per hectare income through fertilizer use. Table 7 compares typical yields and returns per hectare for the most commonly fertilized crops under dry land growing conditions.

TABLE 7

Yields and Returns per Hectare With and Without Fertilizer

<u>Crop</u>	<u>Yields/ha.</u> MT	<u>Income/ha.</u> \$b. 000	<u>Yields/ha.</u> MT	<u>Income/ha.</u>	<u>Yields/ha.</u> MT	<u>Income/ha.</u> \$b. 000
Potatoes	6.4	3,060	10.2	5,350	+ 3.8	+ 2,290
Corn	1.5	925	2.8	1,805	+ 1.3	+ 880
Tomatoes	5	2,600	9	5,705	+ 4	+ 3,105
Onions	5.8	2,480	8	3,705	+ 2.2	+ 1,225
Carrots	6.0	2,050	9	3,455	+ 3.0	+ 1,405

Source: Various Ministry of Agriculture and GOB official publications, average current product prices (farm-gate).

Given the serious shortfall in fertilizer supply projected for the upcoming crop year, during which Bolivia will have to try to make up for crop losses this past year, and the severe shortage of foreign exchange for fertilizer imports, AID will finance slightly over \$ 1 million in fertilizer imports for distribution to needy farmers in drought - affected regions.

(2) Fertilizer Distribution Strategy and Mechanism

The distribution and sale of the fertilizers will take place through the country's strongest and largest cooperative system, the National Federation of Savings and Loan Cooperatives (FENACRE). While most of FENACRE's 200 cooperative affiliates are urban-based, a number of others are located in rural areas and are capable of reaching a significant number of needy farmers directly. Specifically, in the most severely drought-impacted areas, twelve rural cooperatives belonging to FENACRE, with a total of 6,300 farmer members and an outreach capacity in adjacent agricultural areas, will be used as channels for fertilizer sales. FENACRE cooperatives will be used as a channel for fertilizer distribution because they can sell the fertilizer on credit to their members, thus ensuring that the fertilizer reaches intended beneficiaries.

The FENACRE affiliated cooperatives shown in Table 8 have been selected to participate in the distribution of fertilizers. The selection criteria by which they were chosen included geographic proximity to the drought area, administrative capacity, outreach capability, the cropping patterns of farmers in the areas of influence of the cooperatives, hectareage to be affected, and fertilizer demand. In addition to listing the cooperatives' names and service areas, Table 8 shows the number of farmers associated with each program (i.e. the numbers of potential beneficiaries) and the corresponding projected amounts of fertilizer to be distributed.

TABLE 8

Participating Cooperatives

<u>Department/ Cooperative</u>	<u>Farmer Beneficiaries</u>		<u>Total Beneficiaries</u>	<u>Total Fertilizer Distribution Metric Tons</u>
	<u>Members</u>	<u>Non - Members</u>		
A. <u>Cochabamba</u> .....	<u>2,560</u>	<u>1,300</u>	<u>3,860</u>	<u>1,010</u>
1. Cochabamba, Ltda.*      Punata Pampas de Lequezana of Potosí	1,400	2,000	3,400	600
2. San Pedro de Aiquile, Ltda.            S.W. Cochabamba and N. Chuquisaca	800	500	1,300	260
3. N. Señor de Burgos, Ltda.            S.W. Cochabamba	200	600	800	100
4. Cantera, Ltda.            W. Cochabamba	160	200	360	50
B. <u>Potosí</u> .....	<u>1,600</u>	<u>1,100</u>	<u>2,700</u>	<u>500</u>
5. Asunción Ltda.            N.W. Potosí	1,000	500	1,500	300
6. Chorolque, Ltda.        S.E. Potosí	600	600	1,200	200
(Cochabamba, Ltda.)    (Central Potosí)	(-)	(2,000)	(2,000)	(400)
C. <u>Chuquisaca</u> .....	<u>950</u>	<u>700</u>	<u>1,650</u>	<u>340</u>
7. San Miguel, Ltda.        N. Central Chuquisaca	650	400	1,050	220
8. Serrano, Ltda.            N.W. Chuquisaca	300	300	600	120
D. <u>Oruro</u> .....	<u>820</u>	<u>800</u>	<u>1,620</u>	<u>350</u>
9. Rosario de Huari, Ltda.            S.E. Oruro	400	200	600	125
10. Sta. Elena de Huanuni, Ltda.        E. Central Oruro	300	100	400	100
11. Paulo VI, Ltda.        N.E. Oruro	120	500	620	125
E. <u>La Paz</u> .....	<u>400</u>	<u>1,200</u>	<u>1,600</u>	<u>300</u>
12. El Alto, Ltda.	400	1,200	1,600	300
F. FENACRE Reserve for Alternative Distribution	<u>0</u>	<u>2,750</u>	<u>2,750</u>	<u>500</u>
<b>TOTAL</b>	<b>6,330</b>	<b>9,850</b>	<b>16,180</b>	<b>3,000</b>

\*/ The Cochabamba, Ltd. Cooperative has, during the past three years, sold fertilizer directly to potato farmers in north central Potosí by establishing a temporary warehouse and sales post. The number of benefited farmers attributed to this Cooperative's activities therefore includes 2,000 customary clients in Potosí who are not members of the Cooperative. For illustrative purposes, the Potosí farmers reached and the quantity of fertilizer distributed in Potosí are included in parentheses (non-additive) under the Department of Potosí. (Exhibit 1 displays the drought area targeted for fertilizer assistance and the locations and areas of influence of the twelve participating FENACRE co-ops.)

Of the 3,000 m.t. of fertilizer to be distributed (shown in Table 8), 2,500 m.t. will be distributed for sale through the twelve participating cooperatives, and FENACRE will reserve the remaining 500 metric tons for distribution through channels such as the DDCs in Cochabamba, Chuquisaca, Potosí, Oruro and La Paz; area development projects such as the IICA-supported integrated agricultural development projects in Cochabamba, Potosí, and Chuquisaca; and cooperative organizations not officially affiliated with FENACRE. This ancillary distribution network will reach approximately 2,750 additional farmers in the drought-affected areas which do not have access to FENACRE cooperatives. Distribution of fertilizers through these channels will be made on a cash basis to beneficiaries, depending on the nature of the sponsoring program.

(3) Fertilizer Procurement and Sale Arrangements

(a) Procurement

The fertilizers (approximately 2,100 MT of di-amonium phosphate and 900 MT of urea) will be procured directly by A.I.D. Given the emergency nature of the situation, an advertising waiver will be requested from A.I.D./W so that solicitation of bids from potential suppliers can be expedited.

(b) Sale Prices of Fertilizers

The fertilizers will be sold to cooperative members and non-members at prices which cover the actual cost of purchase, transportation, storage and handling, and provide for the capitalization, with sales proceeds, of a revolving credit fund within FENACRE. FENACRE will manage the logistics and payment of in-country transportation, placing the fertilizer in all distributing cooperatives at a uniform price per bag. The additional costs to the distributing cooperatives for handling, local storage and final sales will be calculated and added to FENACRE's standard per unit cost to the cooperative. FENACRE will coordinate with other Bolivian entities selling donated fertilizer (e.g. the Bolivian Agricultural Bank (BAB)) to ensure that the prices charged to farmers for all donated fertilizers are consistent with each other. This practice was established last year between the BAB and the Cochabamba Ltda. Cooperative which imported A.I.D. - financed fertilizer under project 511-T-055. In setting the prices it charges to participating cooperatives, FENACRE will provide for a mark-up above the CIF cost of importation which, taking account of farmers' ability to pay and the prices being charged for fertilizers provided by other donors, will allow recuperations to capitalize its revolving fund at as close to the dollar value of the imported fertilizer as possible.

(c) Sales Mechanisms for Cooperative Members and Non-members

The twelve participating cooperatives will offer fertilizer to qualifying members on a credit basis. Credit approval criteria and procedures will, in general, be those customarily employed by the cooperatives in reviewing and granting agricultural loans. However, given the need for the timely distribution of the fertilizers, applications will be gathered, reviewed and approved by special sessions of cooperative credit committees prior to the arrival of the fertilizers. The prevalent terms and interest rates applied by the participating cooperatives for agricultural input loans will be charged for the fertilizer transactions.

Fertilizers will be made available to members of cooperatives and other associations not affiliated with FENACRE on a cash basis. The distributing FENACRE cooperatives will work closely with local agricultural groups and service organizations (e.g. producer associations, sindicatos, extension service) in advertising the fertilizer availability to the target audience, coordinating distribution and sales arrangements, and ensuring that the fertilizer is directed exclusively toward needy farmers. It is anticipated that in a limited number of instances, local agricultural cooperatives or development organizations may purchase larger lots of fertilizer for redistribution to their farmer clients on a credit basis.

It should be noted that, while most sales (credit or cash) will be made directly from the FENACRE cooperatives' warehouses, special sales points will be established as needed to reach target audiences. For instance, the El Alto Ltda. Cooperative in La Paz will establish a permanent sales and storage operation in Patacamaya, which is more convenient for farmers in the southern extremes of La Paz Department. Mobile sales points will be used by many co-ops for sales directly at major farmer markets and at other strategic places within the cooperatives' zones of influence.

(4) Recuperation and Use of Sales Generations

The fertilizer will be provided to the distributing cooperatives by FENACRE on an in-kind loan basis. Upon selling the fertilizers in cash or collecting on in-kind loans to members, each cooperative will retain that portion of the sales proceeds which was added to the standard cost to the cooperative in order to cover local handling and distribution costs and its proportion of the interest charge (according to FENACRE practice, see below). The balance of the funds generated from the sales (the delivered cost of the fertilizers plus FENACRE's share of the interest-charged for capitalization and administrative costs) will be paid to FENACRE on a monthly basis during the sales and loan collection periods.

FENACRE will deposit its proceeds into a revolving credit fund which has already been established. These funds will be used specifically for relending to cooperatives with high farmer membership. The financing from FENACRE to such cooperatives will be made for agricultural and livestock production and farm improvements. The eligibility of cooperatives for participating in the relending program will also be tied to improvements on their part regarding interest rate structures, lending practices and procedures, and savings mobilization efforts. To facilitate and assist savings mobilization efforts, FENACRE will be able to use up to the equivalent of \$60,000 from the sales generations to implement a national savings mobilization campaign. The use of these funds for the savings mobilization program will require prior written approval by USAID/Bolivia.

Interest rates at least two points below the rate established by the Central Bank for fixed time deposits will continue to be required on loans made for fertilizer purchases (in-kind) and from the reflows to the revolving fund. Currently, this implies a 43 percent interest rate on agricultural loans. This scheme allows for a 6 percent margin for FENACRE, 10 to 12 percent for the participating cooperative, and 25 to 27 percent for capitalization.

The Project Agreement will require that FENACRE exchange a letter of understanding with USAID detailing procedures for fertilizer marketing and use of sales proceeds.

(5) Component Inputs and Budget

(a) Fertilizer Purchase

A.I.D. will finance the procurement and shipment to Bolivia of 3,000 metric tons of fertilizer (2,100 metric tons of 15-46-0 DAP and 900 metric tons of Urea 46 percent). The estimated cost of this procurement CIF Oruro is \$1,080,000.

(b) Internal Distribution, Storage and Handling

The transportation of the fertilizers from Oruro to the participating cooperatives and start-up funding to the cooperatives for initial handling costs, which will be recovered and deposited in the rotating fund once sales begin, will cost \$88,000. The project will finance \$86,000 of this.

(c) Personnel

FENACRE will contract four full-time persons to manage the fertilizer distribution activity. A coordinator, responsible to FENACRE for the day-to-day management of the project, will work out of FENACRE's headquarters in Cochabamba. The incumbent will also have field supervisory responsibilities for the project components run by the Cochabamba, Ltda. and El Alto, Ltda. Cooperatives. A field supervisor will

be placed in Sucre to oversee activities and help identify and correct problems arising in the western Cochabamba and northern Chuquisaca distribution points. A second supervisor will work in the same manner with the participating cooperatives in Potosí and Oruro. Lastly, a full-time accountant will be contracted to administer the rotating fund, as well as other FENACRE funds related to the activity. The incumbent will also review procedures and help resolve any accounting problems arising at the level of participating cooperatives. The total project cost of this component input is \$30,000, of which A.I.D. will finance \$29,000.

(d) Vehicles

To facilitate the work of the two field supervisors, the project will finance two four-wheel-drive vehicles. The vehicles will be used by FENACRE after the fertilizer distribution program is completed to support savings mobilization and credit activities. The estimated cost of these vehicle is \$36,000. A third vehicle will be provided by FENACRE for the coordinator. FENACRE will finance a small amount of office equipment, supplies and other related support items (printing, gas and oil, secretarial services, communications, etc). The cost of these items is \$16,000.

(e) Evaluations and Audit

Two joint FENACRE-USAID evaluations of the fertilizer distribution activities will be performed one for the 1983-1984 summer crop campaign, and another for the 1984 winter crop campaign. A final audit of the activity will also be conducted. The estimated cost of the evaluations and audit is \$12,000.

Table 9 shows the budget for this project component.

TABLE 9

Estimated Budget for Fertilizer Component

(US\$ 000)

	<u>A.I.D.</u>	<u>FENACRE</u>	<u>TOTAL</u>
Fertilizer Imports	1,080	-	1,080
In-country Distribution	86	2	88
Personnel	29	1	30
Vehicles	36	-	36
Operating Expenses	-	16	16
Evaluation, Audit	12	-	12
Contingencies	240	-	240
Totals	<u>1,483</u>	<u>19</u>	<u>1,502</u>

d. Distribution of Medicines

(1) The Problem and A.I.D.'s Response

Even before the full magnitude of the drought was known to GOB authorities, that is prior to March 1983, the deterioration of the Bolivian economy had already had a negative effect on the health status of the Bolivian population, especially in lower income groups. Repeated devaluations and a rapidly growing inflation rate had caused the purchasing power of the Bolivian peso to drop significantly and the price of medicines to increase in some cases over 1500 percent within a period of eighteen months. The poor economic situation also prompted the closing of the offices of several foreign pharmaceutical representatives and local manufacturing companies which used imported raw materials for local drug production.

The cost of medicines, similar to the cost of other imported items in Bolivia, closely follows the parallel market value of the dollar; which was approximately four times more than the official exchange rate in October 1983. Since salaries and wages have not kept up with the high rates of inflation and the de facto devaluation of the peso on the parallel market, medicines are currently beyond the reach of the vast majority of the population. At the same time, health care provider organizations which had low-cost pharmaceutical supplies available have decapitalized their stocks.

The floods in the lowlands and unusual drought conditions in the highlands arrived in the midst of the current economic crisis and aggravated human suffering by reducing agricultural and industrial production, increasing unemployment, and expanding the incidence of malnutrition.

Although the Ministry of Social Welfare and Public Health (MSW/PH) is the major provider of health services in Bolivia, it has traditionally been unable to supply its establishments with sufficient medicines, personnel and equipment to carry out an efficient health delivery program. Procurement of medical supplies and medicines is limited to those needed for the Ministry's vertical disease control programs (i.e. malaria and TB control). Other than sporadic communicable disease vaccination programs, little is done to supply medicines for patient use. Persons who routinely use MSW/PH ambulatory or hospital services must buy their medications from private pharmacies since neither the Bolivian social security system nor public health facilities can maintain adequate stocks of medicines.

In an effort to help the lower income groups meet their medical needs, most of the MSW/PH hospital facilities and many private voluntary organizations, such as Project Concern International, Radio San Gabriel and Cooperativa La Merced, have set up pharmacies which offer reasonably low cost medicines to their beneficiaries. The operation of these pharmacies

is usually based on local wholesale purchases, which are retailed at a cost that covers administrative expenses. Hospital-based pharmacies which operate under this modality usually break even and are able to undersell the usual source of medications, private pharmacies, slightly.

In view of the decapitalization of the hospital-based pharmacies, as well as the scarcity of medicines available through commercial channels, four months ago, the MSW/PH set up a small revolving fund for medicine imports with an initial allocation of US\$250,000 from the Central Bank. The Pan American Health Organization (PAHO) acts as a procurement agent on behalf of the Ministry, purchasing drugs from low-cost suppliers. The revolving fund will be augmented by an additional GOB contribution of US\$500,000 in late October 1983. Because of the backlog in demand for medicines in urban-based institutions and the relatively small amount of funds available to date, the first lots of medicines procured with the fund's resources have been distributed only to MSW/PH facilities in urban and semi-urban areas.

The MSW/PH efforts to establish a revolving fund and improve its medicine distribution system offer an opportunity, in the short run, to help set up a viable mechanism for getting needed medicines to the rural poor suffering the effects of the drought, and in the long run, a means of ensuring the supply of at least some medicines to deserving Bolivians at affordable prices. A.I.D. will therefore contribute \$1 million to the MSW/PH's rotating fund to purchase medicines for distribution in rural, drought-affected areas and assist the Ministry to improve its distribution system.

The primary objective of this component of the project is to provide the MSW/PH with medicines targeted for distribution to the rural population living in drought-stricken areas of Bolivia. The improved health status to be attained by the beneficiaries of this program is expected to lead to increased agricultural and industrial production as a result of the reduction in work days lost due to illness. A secondary objective is to help the MSW/PH establish an efficient drug distribution system through its rotating fund that will ensure continuity beyond the life of the project.

Special drug pricing policies will be established in order to offer low priced medicines to rural families. Because drugs will be imported directly from bulk suppliers by PAHO on behalf of the MSW/PH at the official rate of exchange, prices will be lower than those offered by commercial pharmacies, yet they will have a reasonable mark-up which will avoid decapitalization of the revolving fund and ensure replenishment.

The geographic areas for the distribution of AID-financed medicines will be those delineated by the GOB's National Civil Defense Committee containing the largest affected populations, where approximately 60 percent of agricultural production has been lost. Based

on these criteria, the Departments of Oruro, Potosí, Chuquisaca and La Paz have been selected to participate in the project. Medicines will be supplied to health facilities at Levels I through V of the Bolivian public health system (village level through urban hospital level) with emphasis on Levels I through III. Approximately 20 percent of the medicines to be procured by A.I.D. will be used in Levels IV and V of the Ministry's system, which provide hospital-based services, and approximately 80 percent at Levels I-III, which provide ambulatory services most appropriate for meeting the needs of the rural population affected by the drought.

At Levels IV and V, regional and national hospitals usually concentrate on service delivery and specialized hospital services and work in a considerably independent fashion. At Levels I through III, ambulatory and basic health services are concentrated on preliminary diagnosis and treatment, promotion and health education. Distribution systems will be installed in rural and semi-urban health care delivery centers in at least two districts in each of the four participating Departments. These health centers will be provided with adequate supplies of essential medicines for such common conditions as dehydration, pneumonia and gastro-intestinal diseases. Special attention will be given to children under the age of five. Also, each of the regional distribution centers will be encouraged to distribute medicines to private voluntary organizations which serve specific rural areas within their department.

## (2) Procurement and Distribution

### (a) Identification of Medicines to be Provided

The MSW/PH has developed a drug formulary which contains over 256 items, including vaccines. The formulary, which uses the generic names of the drugs, was developed to meet the need for medication to treat the most common causes of illness in Bolivia and is broken down into sets of drugs to be used at the different levels of the MSW/PH delivery system, recognizing the pathology seen at each level and the degree of professional training the staff has at each level.

The actual list of drugs to be purchased (including utilization instructions and counter-indications) will be completed in consultation with PAHO with the help of a technical expert to be provided by the project. All drugs will be related to malnutrition, rehydration, diarrhea and other illnesses caused by the drought.

### (b) Procurement Mechanism

The initial purchase of medicines to be financed by the project will be carried out in the following steps:

- Definition jointly by the MSW/PH and USAID/Bolivia of list of medicines to be procured (35-40 items).

- Submission of list to PAHO/La Paz for transmission to PAHO/Washington for price quotations and acceptability for procurement under A.I.D. guidelines (copy to SER/COM).

- Approval of final list by PAHO/Wash. and SER/COM (copy sent to USAID/Bolivia).

- Preparation and processing of PIO/C by USAID/Bolivia.

- Procurement of medicines and shipment by PAHO/Wash., consigned to MSW/PH in Bolivia.

During the above described process, all participating parties will be in permanent contact.

Procurement of replacement stocks will be financed from funds generated by the sale of the medicines in Bolivia. It will be the MSW/PH's responsibility to collect sales revenues from each establishment through its regional offices and forward the funds to the Pharmacology Division. The Pharmacology Division will use collected funds to purchase foreign exchange from the BCB at the official rate for replenishment purchases through PAHO.

#### (c) Distribution System

Drug shipments will be made by air to La Paz to the greatest extent possible and cleared through GOB Customs by the MSW/PH. In accordance with the GOB's current policy regarding disaster assistance to Bolivia, the medicines will be tax exempt. The MSW/PH Pharmacology Division and Department of Purchasing and Supplies will be responsible for completing a thorough inspection of the medicines in order to ensure conformity to original specifications and desired expiration dates. Inspection findings will be reported to PAHO/La Paz.

Upon completion of the inspection process, the MSW/PH Department of Purchasing and Supplies will divide the shipment into lots for distribution to the centers in the four departments participating in the project and make arrangements for transportation to the departmental offices by secure train or airlift. Project funds will be used to cover the cost of local transportation for the first shipment of medicines. All internal shipping documentation will be the responsibility of the MSW/PH.

Upon arrival of the medicines at the regional offices, the regional pharmacist will inspect the shipment and report any losses to La Paz. The shipment will be then subdivided for reshipment to the establishments participating in the project. The exact amount of drugs to be shipped to each outlying establishment will depend on stock inventories and medicine utilization rates.

Selection of recipients will be based mainly on economic factors, with emphasis on peri-urban dwellers residing in marginal neighborhoods serviced by the MSW/PH delivery system and rural families seriously affected by the drought.

Annex B contains a flow chart summarizing the procurement and distribution system to be used for the project.

### (3) Drug Pricing

The nature of the revolving fund requires the establishment of a sound drug pricing system in order to ensure replenishment. In establishing this system, several aspects must be taken into consideration such as the price of replacement drugs at the expected official exchange rate, the costs of transportation, handling and packaging, administrative costs, the PAHO purchasing fee, inventory maintenance costs, losses and, finally, compensation for the free provision of medicines to destitute families (estimated to amount to approximately 20 percent of the total quantity of medicines to be provided by the project).

To accomplish this, the MSW/PH will be responsible for (a) ensuring the continued provision of foreign exchange by the BCB for international procurement of medicines, and (b) periodically updating its pricing system for the drug distribution program, considering the above mentioned factors and the need to make drugs accessible to low-income semi-urban and rural populations. The established price lists will be published, and local surcharges will not be allowed.

With regard to point (a) above, it should be understood that the \$1,000,000 worth of medicines financed by A.I.D. provided by this project will not be allowed to replace, nor in any way impede, the GOB's additional programmed donation of US\$500,000 for the purchase of medicines. With regard to point (b) above, the Ministry and USAID will agree on a pricing system to be applied initially to A.I.D. - financed stocks and consult periodically to revise the pricing system as necessary. Covenants covering the above points will be included in the Project Agreement.

(4) Project Management

Management of the project will be the responsibility of the Pharmacology Division of the MSW/PH whose headquarters is in La Paz. Assistance will be provided by the MSW/PH's National Administrative Office which, together with the Pharmacology Division, will create a unit devoted to the execution of the project.

At the regional level, the project will be implemented by the Ministry's regional pharmacists in conjunction with their respective regional administrative offices. At the hospital level, project activities will be managed by hospital pharmacists. At Levels I-III, the program will be managed by properly trained auxiliary nurses.

The Ministry does not contemplate hiring new staff nor providing salary incentives to existing staff. Furthermore, office space, per diem and travel expenses for routine project support activities will be covered by MSW/PH.

Complementary activities planned under the PL 480 Program include the implementation of a food distribution program. Cooperative working relations will be reached by the MSW/PH with voluntary agencies participating in the food distribution program to ensure the provision of Title II food rations and medicines to the most needy families.

(5) Other Program Support

(a) Technical Assistance

The project contemplates the provision of three months' technical assistance by a person specialized in the management of drug distribution systems. The advisor's assistance will be provided in two periods of approximately six weeks each, with the first period concentrating on the initial drug procurement and design of the distribution system, and the second period devoted to assessment of the effectiveness of the system.

(b) Training

In-service training programs will be held by the MSW/PH in La Paz for pharmacists and administrative staff responsible for implementing project activities. Training will concentrate on the use of medicines, drug distribution (ordering, reception, storage, transportation and dispensing), control of funds, reporting systems, and project supervision.

(c) Logistical Support

Because of the severe budget constraints faced by the MSW/PH, A.I.D. will finance a limited amount of

vehicles, and spare parts, rehabilitation of facilities, and operating expenses.

Repackaging equipment will be provided for dividing bulk shipments of medicines into smaller lots. The provision of four vehicles will ensure that adequate supervision is carried out in each of the four departments participating in the project. Very limited funding will be provided to modify existing facilities so that they can securely store all medicines assigned to them. Lastly, \$3,000 will be reserved for the compilation and publication of program guidelines, as well as the printing of reporting forms and records necessary to strengthen and expand the existing drug delivery system.

Table 10 shows the estimated budget for this project component.

Table 10

Estimated Budget for Medicine Distribution

(US\$000)

	<u>A.I.D.</u>	<u>GOB</u>	<u>TOTAL</u>
Medicine Imports	1,000	-	1,000
Vehicles and Equipment	80	-	80
Technical Assistance	44	-	44
Facility Rehabilitation	26	-	26
Training	22	-	22
Internal Transportation	10	-	10
Operating Costs	3	100	103
Contingencies	15	-	15
<b>TOTAL</b>	<b>1,200</b>	<b>100</b>	<b>1,300</b>

e. Overall Project Administration and Support

The objective of this project component is to ensure the efficient implementation of the project through the provision of long-term assistance in project administration, short-term assistance from technical experts, and funds for other contingency expenditures.

(1) Subcomponents

(a) Long-Term Technical Assistance (US\$276,000)

A project coordinator and two assistant coordinators (engineers) will be hired by USAID to coordinate project activities among the Ministry of Planning and Coordination (MPC), the Civil Defense Committee, GOB project implementing agencies, CARE, FENACRE and USAID. The individuals hired will form a unit responsible directly to USAID for overall coordination of project implementation activities. They will maintain continual contact with the agencies directly implementing project activities and report as necessary to the Civil Defense Committee, the MPC, and USAID regarding progress achieved and problems encountered under the project's main components.

(b) Short-Term Technical Assistance (US\$81,000)

Funds will be reserved for the hiring of experts on a short-term basis whom the MPC and USAID agree are needed to facilitate project implementation.

(c) Project Contingency Funds (US\$80,000)

In addition to the limited contingency funds built into the budgets for each project component, additional funds will be reserved under this subcomponent for unanticipated expenditures USAID and the MPC agree are necessary to meet the project's overall objectives.

### III. COST ESTIMATE AND FINANCIAL PLAN

#### A. Project Budget

Table II shows the composite budget for the entire project divided into A.I.D.'s grant and loan foreign exchange and local currency contributions, and estimated GOB and participating community contributions. The project's peso costs have been calculated at the official exchange rate of 200 to 1.

#### B. Disbursement Procedures

Dollar disbursements will be made directly by USAID to suppliers of commodities and services on behalf of the agencies implementing the project, except in the case of CARE. Under the terms of the Cooperative Agreement to be signed by USAID and CARE, CARE will be able to request either dollar advances or the establishment of direct letters of commitment by USAID to pay suppliers of imported commodities it purchases.

A.I.D. local currency contributions will be disbursed by USAID directly to the implementing agencies which, as indicated, are CARE, SNC, the DDCs, ELAPAS, AAPOS, FENACRE and the MSW/PH. The disbursement will be made as advances based on quarterly requirement budgets prepared by these agencies and submitted for approval to the Project Coordination Unit and the USAID Controller's Office. A.I.D. funds as well as agency counterpart cash contribution will be advanced to separate special bank accounts as required by the Mission's pari passu disbursement and reporting system being applied to all USAID/Bolivia projects. Quarterly reports of expenditures will be prepared by the implementing agencies to be remitted to the USAID Controller's Office through the Project Coordination Unit. Supporting documentation for all expenditures will be maintained by the implementing agencies for periodic examination by the USAID Controller's Office.

Table 11  
FINANCIAL PLAN

(US\$ 000)

	A I D				TOTAL	GOB	COMMUNITY	TOTAL
	GRANT		LOAN					
	FX	LC	FX	LC				
<u>Roads</u>								
Construction Materials			604	3,491	4,095			4,095
Earth Movement				2,616	2,616	4,104		6,720
Bridge Construction				1,289	1,289			1,289
Spare Parts and Excess Property	575				575			575
Technical Assistance	421				421			421
<u>Potable Water and Irrigation</u>								
<u>Potable Water</u>								
<u>Potosí</u>								
Materials						61		61
Spare Parts and Excess Property	400				400			400
Operating Expenses						19		19
Maintenance						15		15
Transportation	10				10			10
<u>Sucre</u>								
Pumps, Instruments, etc.	160	5			165			165
Pump Houses		25			25	30		55
Pipes	100				100			100
Installations		10			10			10
Transportation		25			25			25
<u>Care</u>								
Materials	500	220			720			720
Design and Supervision		200			200	50		250
Labor and Local Materials							250	250
Administration - Care		150			150			150
<u>Irrigation</u>								
<u>Care</u>								
Materials	242	65			307			307
Design and Supervision		100			100	30		130
Labor and Local Materials							160	160
Administration - Care		100			100			100
<u>DDCs</u>								
Construction Materials and Labor		1,714			1,714	212	928	2,854
Design and Supervision						240		240
Equipment and Spare Parts	254				254			254
Technical Assistance	90	76			166			166
Training	24	6			30			30
Operating Expenses						100		100
<u>Fertilizers</u>								
Fertilizers	1,080				1,080			1,080
In Country-Distribution		86			86	2		88
Personnel		29			29	1		30
Vehicles (2)	36				36			36
Evaluation and Operating Expenses		12			12	16		28
<u>Medicines</u>								
Medicines	1,000				1,000			1,000
Vehicles and Equipment	72	8			80			80
Technical Assistance	44				44			44
Rehabilitation Facilities		26			26			26
Operating Expenses		3			3	100		103
Transportation		10			10			10
Training		22			22			22
<u>Project Support</u>								
<u>Technical Assistance</u>								
Long Term	240	36			276			276
Short Term	80				80			80
Other	81				81			81
Contingencies	5,409	2,928	604	7,396	16,337	4,980	1,338	22,655
	343	320			663			663
<b>T O T A L</b>	<b>5,752</b>	<b>3,248</b>	<b>604</b>	<b>7,396</b>	<b>17,000</b>	<b>4,980</b>	<b>1,338</b>	<b>23,318</b>

#### IV. IMPLEMENTATION PLAN

##### A. Implementation Responsibilities

The project will include the participation of a number of government and private sector organizations. At the policy level, the National Civil Defense Committee is charged with establishing priorities for the GOB's Emergency Disaster Relief Program and has been fully consulted during the development of this project. The Ministry of Planning and Coordination (MPC) will be the central GOB counterpart for this project. Through its Subsecretariat for Coordination, the MPC will monitor the implementation of the project's components by the agencies directly responsible for them.

Direct implementation responsibility for the project's components will belong to the entities previously noted; i.e., SNC, AAPOS, ELAPAS, CARE, the DDCs, FENACRE and the MSW/PH. The Servicio Nacional de Caminos (SNC) will supervise the rehabilitation of the Santa Cruz-Cochabamba highway. Concerning the water component, the Water Authorities of Potosí (AAPOS) and Sucre (ELAPAS) will carry out the restoration of the water systems in their respective cities. Selected Departmental Development Corporation (DDCs) (Oruro, Potosí, Chusquisaca), in cooperation with CARE, will undertake rural potable water systems and small-scale irrigation projects under a complementary agreement. The DDCs in Oruro, Potosí, Chuquisaca and Cochabamba will be responsible for the expansion of existing, and construction of new micro-irrigation systems in the drought affected areas. Responsibility for managing the fertilizer distribution component will be assumed by the National Federation of Agriculture Cooperatives (FENACRE). The Federation will establish a distribution network for the fertilizers through its existing network of affiliated cooperatives and develop and monitor procedures for selling the commodity to eligible farmers. Finally, the Ministry of Health and Social Welfare will take the lead in improving its system for distributing medicines procured under the project to the sectors of the population most affected by the drought.

The three long-term advisors to be hired with project support funds will form the Project Coordination Unit. This Unit will be responsible for day-to-day coordination among all of the agencies involved in the project and for taking whatever actions are necessary to expedite its implementation. The Unit will keep both USAID and the MPC informed of the progress being achieved.

##### B. USAID Monitoring Responsibilities

The Project will be managed by a designated project manager in the Office of Rural Development (RD) who will be responsible for

monitoring the progress of all project components. The Project Manager will work closely with the Civil Defense Committee, the MPC, and the implementing agencies named above to ensure compliance with the terms of the Project Agreement, verify that proper procedures are followed for all procurement, contracting and management and help resolve any implementation problems or project issues that arise. He will be assisted by the Project Coordination Unit.

A USAID Project Committee composed of the Project Manager, representatives of Mission staff offices and the Office of Health and Human Resources will review project status bi-weekly, discuss potential problems in implementation and develop appropriate solutions to them.

The Project Development and Implementation Office (PD&I) will be responsible for backstopping the project in the areas of contracting, commodity procurement, engineering and project documentation. The Office of the Controller will review all disbursement requests for conformity with A.I.D. regulations and ensure that appropriate accounting practices are followed by the GOB and private sector organizations participating in the project. The Office of Development Planning and Evaluation will coordinate all evaluations in conjunction with the Project Manager.

### C. Implementation Schedule

The project is scheduled to be completed within two years. Activities have been prioritized, and the most critical matters (e.g., reconstruction of the Taruma bridge, ordering and shipment of fertilizers, medicines and equipment) will begin immediately. Equipment and other commodity procurements should be completed within six months (See Procurement Plan in Annex E.). The members of the Project Coordination Unit will be hired immediately. The schedules of main events for each of the project's components are shown below.

#### 1. Road Rehabilitation Implementation Schedule

1983

October

- Local IFB publication, award and signing of the contracts for the reconstruction of the Taruma bridge.
- International procurement of spare parts for heavy and light equipment initiated.
- Procurement of Excess Property equipment and spare parts initiated.
- Procurement of corrugated metal pipe, gabion wire baskets and linings for french drains initiated.

- International procurement of Technical Assistance Earth Slide Expert, River Stabilization Expert, Construction Supervision Advisor, and Equipment Maintenance Specialist) initiated.
- Field work initiated on earth slide removal and earth work on road bed line changes.
- Field surveys on damaged portions of the highway continue.

November

- Reconstruction of the Taruma bridge initiated.
- Local IFB publication, award and signing of the contracts for reconstruction of two small bridges and three new smaller bridges.
- Local IFB publication, award and signing of the contract for the construction of four reinforced concrete box culverts.

December

- Reconstruction of two small bridges initiated.
- Construction of four reinforced concrete box culverts initiated.
- All field surveys completed, actual work requirements computed, and reprogramming of work completed.

1984

January

- Arrival of all technical assistance specialists.
- Work completed by the Earth Slide Expert.

February

- Work completed by the River Stabilization Expert.

March

- Excess Property equipment and spare parts arrive Santa Cruz.
- Start work on the rehabilitation of the roadbed.
- Construction of three smaller bridges initiated.

April

- Reconstruction of two small bridges completed.
- Construction of four reinforced concrete box culverts completed.
- Spare parts for heavy and light equipment arrive Santa Cruz and rehabilitation of SNC equipment initiated.

May

- Procured corrugated metal pipe, gabion wire baskets and linings for french drains arrive Santa Cruz and field work initiated.

June

- Stabilization and compaction of subgrade initiated.

July

- Construction of three smaller bridges completed.
- Reconstruction of Taruma bridge completed.

August

- Installation of corrugated metal pipe culverts completed.

September

- Clearing and stabilization of slides completed.
- Earth work on line changes completed.

October

- Installation of gabion walls completed.
- Installation and construction of french drains completed.

November

- Compaction and reshaping of subgrade completed.
- Work completed by the Construction Supervisor Advisor.
- Work completed by the Equipment Maintenance Specialist.

2. Potable Water and Irrigation Subproject Implementation Schedule

1983

October

- ELAPAS submits to the Mission the equipment and material specifications for technical review.
- Mission cables Excess Property Division (New Cumberland, Pa.) fund citation and specifications for the equipment and spare parts required by AAPOS.
- Recruitment of long-term DDC advisors and short-term environmental analyst begins.
- Mission begins procurement for the purchase of the pumps, gauges, meters and ductile iron water supply piping for the ELAPAS (Sucre) water supply system.

November

- DDCs submit final designs and disbursement requests for subprojects one through three.
- Long-term advisors for DDCs and environmental analyst contracted.

December

- CARE begins construction of first group of potable water systems (10) and micro-irrigation systems (5).
- ELAPAS begins construction of pump houses and other civil works.
- Mission approves disbursement for first three DDC irrigation subprojects.

1984

January

- USG excess property equipment for AAPOS arrives.
- ELAPAS and Electrical Cooperative of Sucre begin installing power line and transformer to pump houses.
- DDCs begin construction of subprojects one through three.
- ELAPAS completes construction of pump houses. Power line complete and transformers energized.

- DDCs submit final designs and disbursement request for subprojects four through six.

### February

- Water pumps, gauges, meters and main supply piping arrive in Sucre for ELAPAS.
- CARE begins construction of second group potable water (15) and micro-irrigation (5) systems.
- ELAPAS initiates installation of pipeline, pumps, gauges and meters.
- Mission approves disbursement for DDC subprojects four through six.
- CARE completes the first group of water systems and irrigation systems.
- ELAPAS completes installation and testing of pumps, meters and gauges.
- DDCs initiate construction of subprojects four through six.

### March

- DDCs submit final designs and disbursement request for subprojects seven through ten.
- ELAPAS completes installation of pipeline.
- Mission approves disbursement for DDC subprojects seven through ten.
- ELAPAS flushes and tests pipe line, repairs leaks where necessary and chlorinates pipeline.
- ELAPAS inaugurates pump stations and pipeline. Water supply system in full operation.
- First short-term training course on irrigation system organization and administration starts.
- CARE begins construction of third group potable water (15) and micro-irrigation (5) systems.
- DDCs initiate construction of subprojects seven through ten.

April

- CARE completes construction of second group of potable water micro-irrigation systems.
- DDCs submit final designs and disbursement request for subprojects eleven and twelve.
- DDC equipment arrives and is distributed.

May

- Mission approves disbursement for DDC subprojects eleven and twelve.

June

- DDCs initiate construction of subprojects eleven and twelve.
- CARE completes construction of third group of potable water and micro-irrigation systems.

July

- AAPOS completes repair of all Potosí water supply dams.
- CARE initiates construction of fourth group of potable water (10) and micro-irrigation (5) systems.

August

- DDCs initiate construction of subprojects eleven and twelve.

September

- CARE begins construction of fifth group potable water (10) and micro-irrigation (5) systems.
- Second short-term training course on on-farm water management starts.
- DDC subprojects one through three completed.
- CARE completes construction of fourth group of potable water and micro-irrigation systems.

October

- DDC subprojects four through six completed.
- CARE begins construction of sixth group of potable water (10) and micro-irrigation (5) systems.

December

- CARE completes construction of fifth group potable water micro-irrigation systems.

1985

February

- CARE begins construction of seventh group of potable water (10) and micro-irrigation (5) systems.
- DDC subprojects seven through ten completed.

May

- DDC subprojects eleven and twelve completed.

July

- CARE completes construction of sixth group of potable water system and the irrigation systems.

August

- CARE completes construction of seventh group of potable water and irrigation systems.

September

- Contract let to evaluate the CARE and DDC subprojects.

October

- CARE potable water and CARE and DDC irrigation subproject evaluation completed.

3. Fertilizer Distribution Implementation Schedule

1983

October

- A.I.D./W emergency procurement of fertilizers initiated.
- Support personnel contracted.
- Vehicle procurement initiated.
- Handling, distribution, pricing, and control details established for each cooperative, and letter of understanding with USAID signed.
- Sales promotion and accelerated credit approval activities initiated in each cooperative.
- FENACRE fertilizer distribution arrangements made with cooperatives, railroad, and storage/handling agents.

November

- Fertilizer shipments arrive Oruro.
- Implementation and monitoring of distribution to co-ops.
- Co-ops initiate sales.

1984

January

- Final sales for spring/summer planting season effected.
- Vehicles arrive.
- December cash sale proceeds submitted to FENACRE revolving fund.
- Savings mobilization plans prepared.

February

- Summer sales and distribution activities evaluated in each cooperative.
- January cash sale proceeds submitted to FENACRE revolving fund.
- Savings mobilization program begins.

March

- FENACRE/USAID joint evaluation of summer distribution activity and production impact.
- Fertilizer allocation adjustments made based on winter cropping requirement projections.
- Rotating fund credit distribution plan made for winter crop.

April

- Fertilizer distribution and sales arrangements made with cooperatives for winter crops.
- Sales promotion and credit approval activities initiated in each cooperative.
- Summer fertilizer credit recuperation.

May

- Fertilizer sales and credit allocation activities begin for winter crop.

- Sales and distribution oversight initiated.
- Summer crop fertilizer credit recuperations.
- Summer crop credit sale proceeds submitted to FENACRE revolving fund.

June

- Fertilizer sales and credit allocation activities continue.
- Sales and distribution oversight continues.
- Summer crop fertilizer credit recuperation finalized, and proceeds submitted to FENACRE revolving fund.
- May cash sales proceeds submitted to FENACRE revolving fund.

July

- Final winter crop sales and credit allocations made.
- Sales and distribution oversight continue.
- June cash sales proceeds submitted to FENACRE revolving fund.
- Final summer crop credit sale proceeds submitted to FENACRE revolving fund.

August

- July cash sales proceeds submitted to FENACRE rotating fund.
- Winter crop sales and distribution activities evaluated in each cooperative.

September

- Winter crop fertilizer and revolving fund credit recuperation effected.
- FENACRE/USAID joint evaluation of winter crop distribution activity and production impact carried out.
- Revolving fund credit distribution plan made for summer crop.

October

- Winter crop fertilizer and revolving fund credit recuperation
- Approval and disbursement of revolving fund credit for summer crop.

November

- Final winter crop fertilizer and revolving fund credit recuperation carried out.
- Audit of previous summer and winter crop fertilizer distribution activities.

4. Implementation Schedule for Medicine Distribution

Phase I: Procurement of Medicines and Organizational Activities

1983

October

- Initiation of the contracting of Technical Advisor and purchase of vehicles by USAID in consultation with the MSW/PH.
- MSW/PH presents the following items to USAID:
  - . description of the drug distribution system, including list of institutions to participate within each region;
  - . description of the pricing policies to be adopted;
  - . description of program implementation schedule, the new staff required, and the date by which the MSW/PH will obtain the required new staff;
  - . description of the ancillary equipment to be purchased.

November

- Arrival of the Technical Assistance Advisor for first six weeks.
- MSW/PH to present to USAID the following items:
  - . list of drugs to be procured by region;
  - . description of the training program to be offered at the national and regional levels including dates.
- Initiation of the first drug procurement through PAHO.
- Initiation of the procurement of ancillary equipment by USAID.

December

- MSW/PH to begin upgrading of facilities (i.e., build storage space,) to store and dispense drugs at participating institutions.

- MSW/PH selects and places all remaining required staff.
- Pharmacy Division completes design of delivery systems and training programs including publication of all materials.

1984

January

- MSW/PH to train all project staff.
- Drugs to arrive in La Paz.
- Vehicles and equipment to arrive and are distributed.

Phase II: Medicine Distribution

February

- Population informed of program initiation.
- Medicines apportioned to regional outlets and repackaged for final distribution.

March

- Technical Advisor returns to assess distribution system.

June

- Replenishment order placed with PAHO.

V. PROJECT ANALYSES

A. Technical Analysis

1. Road Rehabilitation Component

a. Choice of Technology

(1) Labor/Capital Mix

In selecting the technology to be employed for this component of the project, a range of alternatives were considered. While an approach which emphasized manual labor would have lowered building costs, the estimated construction time (5 to 6 years) was unacceptable given the emergency situation. Similarly, a completely capital intensive approach was considered but the very nature of some tasks (e.g. construction of river defense works) require a considerable manual labor input. Accordingly, the technology chosen, a predominantly capital intensive approach, complemented by hand labor, is the most appropriate mix given both the nature of the work to be done and the schedule for completing it.

(2) Labor/Capital Task Allocations

The road repair and maintenance aspects of this project focus on those sections (a 42 kilometer stretch between Angostura and Samai - pata) which were severely damaged by the February and March 1983 flooding and suffer from poor alignment and deficient cross drainage. The program to rehabilitate this road to allow for the year-round passage of vehicles will require installation of river defense works (gabions), removal of rock and landslide debris, excavation for realignment of a number of road sections, and placement of culverts and stabilized subgrade to establish an all-weather base that will lend itself to permanent surfacing and the construction of bridges. The tasks that will be executed with hand labor will be installation of river defense gabions, and the construction of culverts, headwalls and sidewalls. Works that will be carried out predominantly by machinery are bridge construction, debris removal and roadbed realignment, slide stabilization and subbed preparation.

b. Design Standards

When Phase I is completed, the road will have an all-weather earthen surface. Sufficient quantities of gravel and crushed rock will be used to form a sub-base and base suitable for the black top surfacing to be undertaken by the BID in Phase II. In keeping with its current structure, the road will be a two-lane highway. The road bed will be ten meters wide including a one and one-half meter shoulder on each side. The maximum weight capacity designed for the road will be related to the anticipated loads, including heavy agricultural produce-laden trucks, to be carried thereon. Finally, major cross-drainage structures along the road

will include reconstruction of the bridge at Taruma, two smaller bridges, and three medium sized bridges (all 20 meters or less).

c. Engineering and Construction

(1) Surveys

Surveying will be held to a minimum. For most sections of the road, the existing centerline alignment and profile determination of culvert locations will provide sufficient data for the required repair work. For those sections of the road that will require realignment, such as where the existing road is too close to the river bed, SNC will conduct the necessary surveys for determining the proper relocation points.

(2) Soils Studies

For each section of the road requiring realignment, studies of plasticity will be carried out. Samples will be obtained in the field and tested at the SNC soils laboratories at district offices in Cochabamba and Santa Cruz.

(3) Construction

Through direct execution using its own staff and equipment, renting equipment and supervising contractors, SNC will be responsible for all construction activity. All bridge construction, as well as the installation of other drainage works, will be accomplished through contracting with local firms. In letting the contracts SNC will follow the guidelines relative to competition in local procurement established by A.I.D. Road bed rehabilitation and slide stabilization activities will be executed directly by SNC using its own machinery and additional rented units.

2. Potable Water and Irrigation System Component

a. Potable Water/Sanitation Subprojects

CARE and cooperating DDCs have been constructing rural potable water systems since 1976. Design standards and engineering and construction practices are well established, and were reviewed and accepted by USAID when A.I.D. financed CARE potable water activities under a prior OPG.

The potable water systems will, for the most part, be unsophisticated gravity systems. The piping will either be PVC or galvanized iron which, together with the standard fittings, are available on the local market. A typical gravity potable water system will consist either of the sanitary encasing of a spring or infiltration gallery with concrete and masonry, or a concrete and masonry intake from a small stream or river which will be tested for water quality by a DDC technician. The water will then

flow by PVC pipe to a ground level concrete and masonry storage tank which will provide for balanced distribution taking into account the daily fluctuations in demand, and provide pressure (a minimum of 10 pounds per square inch) for the system. From the water storage tank, the water will flow by gravity through a PVC main pipeline to the village served.

The distances to villages will vary, and could be as much as two kilometers. In the villages, there will be a distribution network designed according to the number of families expected to be served. Preferably there will be a house connection for each family; however, where the houses are widely dispersed and this is not economically feasible, communal fountains will be located so that no house is more than 100 meters away. For durability, house connections will be made of 1/2 inch galvanized pipe with a brass faucet. In those instances where any part of the main line distribution network, or house connections must be exposed due to rock or other conditions, that part will also be made of galvanized iron pipe.

Communal fountains will be constructed of concrete and masonry with a concrete floor slab which drains into a lined seepage pit. Each house connection will have a concrete splash block under the faucet which leads either into a lined seepage pit or a family garden plot. All necessary precautions will be taken to preclude standing water.

Each system will be designed optimally to provide 50 liters of water per capita, per day (LPCD). However, in cases where this standard would exclude a village which is without an adequate supply of safe water, the standard will be lowered to 20 LPCD. In such cases, all piping will be sized for 50 LPCD to allow for future new sources of water.

Upon completion of construction of gravity systems, chlorination for sanitization purposes will be effected. Efforts will be made to minimize contamination hazards and continual reliance on water treatment measures.

In those areas where a spring or stream source is not economically viable, a well will be drilled and cased with a minimum of either six-inch PVC or steel pipe (the size will depend upon well production) with either a prefabricated PVC or stainless steel screen. The well will be developed effecting a natural gravel pack or, where the geology does not permit, gravel packing using selected graduated material will be carried out beforehand. Each well will be properly backfilled with impervious material and cement-grouted to prevent contamination of the aquifer. A sloped concrete slab, 8 feet by 4 inches thick, will be cast around the casing and the surrounding ground sloped away from the well. A pump house will be erected on the slab to house the pump and accessories so that the well and pump are protected from the elements and vandalism.

Wherever feasible, the deep well turbine or submersible pump will be driven by an electric motor to reduce maintenance. Where this is impossible, the pump will usually be diesel engine driven. In some cases where the demand is low, or the pumping level is less than 50 feet and the wind speed exceeds seven knots per hour, windmill driven pumps will be considered. If a windmill-driven pump is used, a storage tank double the normal size will be constructed to provide extra reserve capacity. Hand pumps will not be considered

because of their limited production, high per capita cost and heavy maintenance requirements.

DDC and CARE personnel will continue to organize communities for force account construction. The DDCs will carry out all surveys, complete designs and undertake construction supervision.

b. CARE and DDC Small-Scale Irrigation Subprojects

As in the case of potable water activities, both CARE and the DDCs have already established design and construction practices which will continue to be employed for this project. For all practical purposes, the systems to be constructed by CARE with DDC assistance and those to be constructed by the DDCs without CARE are identical, except that the relatively larger systems will be undertaken by the DDCs alone.

Over forty small scale irrigation systems will be constructed, expanded or improved. The subprojects will range in size and complexity from simple micro systems of 12 to 100 hectares (\$25,000 - \$100,000 total cost) to relatively larger and slightly more complex systems of 150-600 hectares (\$150,000 - \$600,000 total cost). Practically all of the subprojects will utilize surface water and gravity flow. The rare exception may be a potable water system which doubles for small plot irrigation or, conceivably, a deeply excavated filtration gallery. The major engineering feature involved in most projects will be a system of canals since most will rely on simple diversion devices and settling tanks. The intakes will be of concrete and masonry, and the main distribution canals will be lined with masonry (whenever possible) or compacted impervious material to prevent water loss. Sluices, gates, valves, weirs, diversions, and the like will all be of wood or iron and designed for ease of operation and maintenance. On-farm irrigation will be by PVC syphon or sluice gates, depending on the amount of irrigation needed. Irrigation design and construction will be such as to minimize water logging of the soil, stagnant ponding, and salinization of the soil.

In general, the major cost components for such subprojects will be local community labor and building materials (cement, gates, valves, weirs) not locally available. The trained manpower required (engineers, topographers, draftsmen and agronomists) is available from each DDC.

In order to provide a clearer understanding of the nature and requirements of such subprojects, two illustrative activities, one micro system and one relatively larger system, are described below.

(1) Coilolo Micro System (Chuguisaca)

This system will irrigate 16 hectares, benefitting thirty farmers at a total subproject cost of \$25,500. Of the total cost, the A.I.D. project will finance \$14,024 (55%), the DDC \$5,100 (20%), and the

community \$6,376 (25%). Construction inputs consist of local labor and materials, domestically produced materials, tools, labor, and small equipment (surveying and engineering instruments).

The Coilolo area is characterized by inadequate rainfall for good crop production. January and February are the only months in which rainfall is adequate to meet crop requirements. In an average year, farmers manage to produce enough food for their own consumption and a slight margin for sale. The area's soils are suited to crop production with irrigation, having about 1.2 meters of loam to fine loam with an available water holding capacity of about 17 centimeters. Temperatures during the summer are suitable for crop production, but some freezing temperatures can be expected in the winter months of June to September. Hail and strong winds have not been experienced.

Water for the system will be diverted from the Soyencocha River, which has a summer flow of 60 liters per second. Given local irrigation efficiencies and the hectareage to be irrigated, this flow is more than adequate. In fact, the farmers have already been drawing on this water source for a limited amount of irrigation. The subproject will repair the existing diversion structure and build 1,600 meters of canal through the area, thus increasing the irrigable area to 16 hectares. The subproject's thirty farmers plan to allocate the water equally allowing each to irrigate about one-half hectare.

The diversion structure and canal will be constructed by community hand labor. No construction equipment is required. DDC surveying and engineering personnel will design and lay out the system, and check on the construction. The A.I.D. contribution will allow for the purchase of materials not available locally and other local currency costs.

Assuming that the farmers choose to plant their irrigated half-hectare plots with potatoes, which is the common practice, and using current market prices, the impact on farmer income with and without irrigation is illustrated below.

	<u>Production 1/</u> <u>(Metric Tons)</u>	<u>Current 2/</u> <u>Price</u>	<u>Gross</u> <u>= Income</u>	<u>Cost of</u> <u>Production</u>	<u>Net</u> <u>Income</u>
Without Irrigation	2.5	\$ 516	1,290	441	\$ 849
With Irrigation	6	\$ 516	3,096	651	\$2,445

1/ This is assuming adequate moisture at crucial plant development periods.

2/ Foreign exchange conversion at a shadow price of \$b 420=\$1.

Even after considering the drought-induced high current price for potatoes, the relationship between returns to the irrigated crop and the non-irrigated crop is extremely favorable. This uniformity holds true for other commercially marketed crops as well.

The Coilolo farmers will organize for irrigation construction, operation, and maintenance tasks using the traditional community shared labor or "headman", system. Such traditional mechanisms for community works remain strong in rural areas and suffice for the management of systems of this size.

In terms of agronomic and credit assistance to the irrigating farmers, the DDC operates a small farmer lending program aimed especially at those with access to irrigation. Preference in the allocation of these funds goes to communities which have cooperated with the DDC in constructing their systems.

To carry out this and other subprojects, the DDC Water Resources Unit has an in-house team of three civil engineers, two agronomists, three economists and one sociologist, plus other professionals from the DDC Rural Development Projects Unit. In addition, the DDC has surveyors and draftsmen. The DDC's support budget for small irrigation activities is ample enough to allow for the hiring of additional technical staff on a short-term basis if necessary. In cases where machinery is needed, the DDC will use its own and rent as required.

In these types of projects, the DDC personnel will work with community leaders in defining the respective organizational and other tasks to be carried out during construction, and later in operations and maintenance. The DDC technicians, as a matter of course, prepare the respective soil, hydrology, climatic, engineering, topographic and economic and social analyses, resulting in a feasibility study. A time-phased implementation plan is prepared covering all principal phases including study, design, procurement, logistics, engineering, testing, and operation. In the case of the Coilolo subproject, the implementation plan calls for a total of twelve months for all activities to be completed, including the construction of erosion control devices.

## (2) Caracollo Larger Project (Oruro)

This subproject involves the expansion of an existing 50 hectare system which, combined with new areas, will provide for the irrigation of a total of 500 hectares for 80 crop and dairy farmers. Under this subproject, irrigation water will be taken from the Huayna Jahuira river (300 liter/second flow) and made available to adjacent farm lands for crop (potato, barley and fruit), forage (alfalfa), and pasture production.

The subproject consists of four subsystems. Subsystem I involves the repairing of 2,200 meters of existing canal and adding another 2400 meters of new canals and corresponding small irrigation ditches. Sub systems II, III and IV involve the construction of 650 meters, 775 meters and 2,000 meters, respectively, of new canals. The existing stream diversion structure will be improved, and another added, to bring the water to the nearby fields. The plans and final designs for this subproject have already been completed. Provided with a small amount of additional support, the implementation schedule indicates the DDC can complete all four subsystems in a twelve month period.

Of the total \$63,842 cost of this subproject, A.I.D. will contribute \$24,048 (39%) for materials and other local costs, the DDC will finance \$6,703 (11%), mainly in professional services, and the community will provide labor and local materials with \$33,091 (50%). Almost all of the construction work will be done with local labor. No large equipment will be required. The DDC will provide a site engineer to survey and mark the canals and oversee construction.

Given the anticipated cropping and production patterns, farmers can expect almost to triple their per hectare net returns over those currently obtained, once irrigation is provided. After observing the income and production increases of the farmers involved in the initial irrigation phase already completed, it is anticipated that a multiplication effect will take place and will organize and approach the DDC for a limited amount of technical and financial assistance. The farmers in each discrete subsystem will provide the labor to construct, maintain and operate their subsystems, and will join together for any major repair activities.

The DDC operates the Altiplano Agricultural Production Program in the immediate area of the subproject. Therefore, technical assistance is guaranteed, as is some credit from a \$1,200,000 farm credit fund managed by the DDC.

### (3) System Representatives

Of the projects presented by the DDCs during the intensive review, twelve have been selected initially for funding under this project. Of these, the Coilolo system is similar in size, nature and complexity to four others. The Caracollo system is representative of the other seven. CARE irrigation subprojects will be similar to the Coilolo project.

Two of the DDC systems, however, have characteristics which make them somewhat different. One, in Aiquile, will irrigate 150 hectares while at the same time provide potable water to the community of Aiquile (5,000 inhabitants). The DDC will work with the National Rural Town Water Authority (CORPAGUAS) in the installation of the potable water component. CORPAGUAS has implemented numerous other systems in communities of this size and has the technical and organizational capacity for directing this activity.

The other project, Atahuallpa-Sajama-Litoral-Totora (Oruro), will provide irrigation and stock water in a 3,961 hectare area. While appearing to be much larger than the others, in reality this is a multi-system program directed at thirty different communities. It will be implemented in a phased fashion, community by community. The individual subsystems are similar in characteristics to the Caracollo subsystem described above.

## B. Social Soundness Analysis

### 1. Introduction

With the exception of the impact in the piedmont area associated with the rehabilitation of the Santa Cruz-Cochabamba highway, the target zone of the project is the Altiplano, the highland valleys of Cochabamba, and the lower elevation valleys of Chuquisaca. The residents of these areas can be grouped into two types of small farming communities: (1) indigenous ex-hacienda locales, and (2) Spanish speaking mestizo peasant settlements. Although there are many similarities between the two, there are also relevant socio-cultural differences which dictate specific treatments with respect to achieving community participation. Indigenous ex-hacienda locales are concentrated in the Departments of Potosí, Oruro, Cochabamba and La Paz, while mestizo producer communities predominate in Chuquisaca.

It must be pointed out that there is a second peasant community type in the Altiplano—the freehold village which was never attached directly to a hacienda. Although some of these settlements exist in the target area, their incidence is not high enough to be a meaningful factor in this project.

### 2. Beneficiary Community Types

#### a. Indigenous Ex-hacienda Communities

Of the two types of communities in the target area, indigenous ex-hacienda settlements are the least assimilated in the national mainstream. They are communities formed among peones on the hacienda which existed prior to the 1952 revolution below the canton administrative level. They consist of only one ethnic group, either native Quechua or Aymara speakers, although there is some facility with Spanish, especially among the men.

#### (1) Social Organization

Within such communities, there are a number of cohesive factors, at both the family and village level. At the family level, the primary social unit is the extended domestic household. Generally, it is composed of parents, children (and their spouses if married), and grandchildren. The determining factor in its composition is the amount and quality of land belonging to the holding. Commonly, the individual households are linked to each other by ties of marriage and compadrazgo (ritual co-parenthood). These links in turn are the basis of the ayni practice - mutual work exchanges among related households during periods of peak activity (planting and harvesting), as well as loans of food and other essentials when circumstances so dictate.

At the community level, unifying factors include language (Quechua or Aymara) and ethnicity (Indian) which assume greater importance because of the minority status of each and the history of subservience under the latifundio system. In addition, although not universal, there are communal work groups (minka) and ayni to which all households are expected to contribute manpower (the threat of criticism in small face-to-face communities inhibits malingering) and, depending upon local circumstances, communal pasture land (59 percent in Potosí) to which all households have use rights.\*

The system of community leadership exhibits considerable variation. In some cases, it consists of the traditional socio-political fiesta system. In others, the agrarian reform sponsored sindicato prevails, while in still others the leadership system is a combination of the two, the determining factors in any particular settlement being the degree to which the particular landlord permitted the development of the fiesta system and the level of impact of the land reform.

According to the fiesta mechanism, adult men of the community pass through a ranked series of minor and major public offices. Attached to each office is an increased level of status and a local fiesta, the scale and cost of which are commensurable to the office, which must be financed by the incumbent. All offices are voluntary (again the pressure of public opinion in a small society discourages refusal to accept office), held for one year, with no right of succession. A man with sufficient ambition and resources (cash outlays for fiestas can become significant) continues through the system until he reaches the office of chief (caraca) after which he becomes a respected elder and is consulted on every important community level activity.

Within this system, the decision-making process is collegial. All major office holders, the respected elders, and in some cases all of adult males, participate in the determination of important matters. Even though the caraca is the local leader for his term of office, he is, in effect, a first among equals. He does not make unilateral decisions, and his performance is subject to the scrutiny of fellow villagers.

The sindicato is a product of the agrarian reform. Although formed as a political cadre, it has, in some cases, evolved into an efficient community leadership body. In other instances, it either never became an effective unit or it dissolved as its primary function - lobbying for land expropriation - became obsolete. Sindicato officials are either selected by community members (adaptation of the cargo system) or appointed by national level representatives, according to local

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\* See Riordan - Assessment of the Target Region for USAID/Bolivia's Agricultural Sector Loan II, 1977.

circumstances. The number of officers varies with the size of the community, but there is one office holder for every major community function. The leader holds the office of Secretary General and he, like the caraca, has overall responsibility for social control within the community and for dealing with representatives from the national government.

The cooperative is an institutional structure which has come on the scene more recently in the highland villages. Like the sindicatos, cooperatives are enacted institutions - i.e. generated from beyond the boundaries of the village. While their acceptance has not been universal, there are instances where they have gained acceptance and there are indications that the interest in cooperatives by highland farmers is growing. The key factor in acceptance of cooperatives is their ability to provide members with recognized services on a sustained basis.

## (2) Economic Activity

For all families, agriculture is a major economic activity, and the conditions under which it is carried out give a clear indication of the poverty level. The individual household, in addition to being the primary social segment, is also the basic economic unit, reciprocal exchanges and communal work groups notwithstanding. Division of labor occurs along both sex and age lines. In general, men perform the more physically demanding agricultural tasks (land preparation, harvesting) and a considerable share of the marketing. Women undertake the lighter field activities, generally tend the animals and perform some marketing and cottage industry activities, in addition to a full complement of domestic chores. Children contribute in accordance with their sex, age, and physical capabilities.

The size of farms is universally small. A recent survey revealed that the average size of a peasant holding in Potosi is 2.5 hectares. Moreover, the same study pointed out that more than two thirds of the farms have less than two hectares.\* Further, not all of the available hectarage is utilized. Land left fallow (an average of .31 hectares) plus that which is not usable because of natural impediments reduces considerably the amount of land under cultivation at any one time.

Farms are not only small, but are divided into a number of scattered parcels. Inheritance practices (even division among heirs who remain in the community) is the principal cause of this pattern. Although the arrangement serves a social (inheritance) function, it is prejudicial to long-term production capabilities.

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\* Riordan 1977

Production techniques are extremely rudimentary. The primary orientation of produce is toward meeting subsistence requirements. In Potosí, an average of 57 percent of farm production is consumed directly by the household, and an additional 20 percent is reserved for seeds and animal feed. Nevertheless, there is significant production for market (23 percent). The level of commercial participation is related inversely to the time from market. For example, those farmers living within one hour of the market sell 36 percent of their production, while those one to three hours distance sell 25 percent, those three to six hours, 19 percent, and those more than six hours away, only 13 percent.

In general, the crop mix consist of grains (barley, wheat and quinoa) and potatoes. Animal raising compliments crop production. It consists of both large herd animals (cows, oxen goats, llamas, sheep) and the smaller barn-yard types (chickens, pigs). The produce of herd animals (wool from llamas and sheep) is marketed while that of the smaller animals is directed toward subsistence ends.

Like the crop mix, the work cycle is in large part determined by the environment. There are two periods of peak activity. First are the months of September through November, which are devoted to land preparation and planting in coincidence with the onset of the rainy season. The second consists of the months of April and May, which are dedicated to harvesting. The intervening period between planting and harvest is spent in cultivation, animal care, household maintenance, and cottage industry chores. The same applies for the segment June through August.

#### b. Mestizo Agricultural Producer Communities

As noted above, this type of beneficiary community is predominant in the Chuquisaca region of the project zone. Residents of these communities are Spanish speaking and identify more closely with the national mainstream than the Indians of the highland communities.

##### (1) Social Organization

In general, the cohesive factors present in indigenous communities are less evident in the mestizo settlements. The basic social unit is the nuclear family. This is the group within which social exchanges take place, psychological support is given and standards for prescribed and prohibited behavior are established. Compared with highland communities, inter-familial kinship and compadrazgo links are far less influential, reciprocal work exchanges are rare, and all additional field requirements are met by hired labor.

Beyond the family, there is an extremely limited sense of community. Social and economic relationships are characterized by

flexible networks of individuals who temporarily coalesce to achieve a given objective. The coalitions tend to occur among people from a specific geographic settlement (e.g. a given settlement) and hence have a certain local identity. Examples of such groupings include: (1) committees to find support to carry out civic tasks such as the construction of a school or health post; (2) alliances among neighboring farmers to seek technical assistance for a particular problem; and (3) arrangements between a particular grower and a middleman for the sale of produce. In all cases, the relationship is temporary, terminating when the purpose has been accomplished and entails no continuing obligations for the parties involved.

As with the Altiplano communities, cooperatives are a relatively recent introduction into mestizo village social structure. Again, similar to indigenous villages, cooperatives to date have enjoyed mixed success dependent upon their ability to furnish an acceptable quality of service to their membership.

Responsibility for social control is assumed by a corregidor - an administrative official appointed by the national government. In almost all cases the corregidores are not members of the settlements over which they have jurisdiction and the degree of effective influence they have is conditioned by their personal qualities.

## (2) Economic Activity

The economic activity of mestizo farmers in the target area is similar to that of their indigenous counterparts. They combine crop production and animal keeping with off-farm (day laboring) and non-farm (cottage industry) pursuits to gain a livelihood. In general, farms of mestizos are larger than those of Indians, and their levels of market participation and use of modern inputs tend to be higher - all of which suggest closer assimilation to the market economy of contemporary society. However, advances are slight, and most mestizo farmers are extremely poor.

Although larger than indigenous holdings, the mestizo farms are small (6.34 hectares average in Chuquisaca) and normally divided into a number of dispersed parcels. A considerable portion (.31 hectares) of land is kept out of production annually, attributable to field rotation practices.

Among mestizos, there is greater commercialization of produce, although the portion directed toward subsistence ends is still

substantial. In Chuquisaca, over 50 percent of small farmer produce is sold. Time-from-market is inversely related to the proportion of produce which is marketed. Farmers located within one hour of the market sell almost 75 percent. In contrast, those situated more than six hours away from market sell only 25 percent of their produce.

### 3. Social Feasibility

Given the emergency situation, an extremely high level of enthusiasm to participate exists among the target group members. Nevertheless, cultural factors exist that could inhibit progress, and the project has been designed to include strategies to overcome such potential constraints.

#### a. Cultural Distance/Beneficiary Access

While enthusiasm among beneficiaries is high, considerable social distance exists between the rural recipients, especially those living in indigenous areas, and the implementing agencies. Campeños have relatively little contact with the urban sector and are unfamiliar with the workings of bureaucracies. Moreover, the campesino is essentially "now oriented". Compared to urban dwellers, his time horizons are extremely limited, often spanning only the current crop cycle. Given the sense of urgency brought about by the disasters, the initial enthusiasm can be replaced by skepticism and a reluctance to participate, unless there is demonstrable, rapid implementation progress. This is particularly critical with respect to the indigenous population. Past abuses at the hand of representatives from other sectors of the society have created a certain level of suspicion regarding the motives of outsiders.

The use of promoters by implementing agencies will effectively deal with this potential constraint. With respect to the rural potable water and irrigation interventions, the DDC's and CARE will have promoters on their staffs, whose principal task will be to establish and maintain positive working relationships with the target communities. The promoters will explain the critical details of the interventions to the participants, as well as describe responsibilities concerning beneficiary contribution.

With regard to the distribution of fertilizers, the participating cooperatives will employ members of their staffs to alert the campesinos of fertilizer availability, describe the terms of its acquisition and advise of its proper application. Similarly, auxiliary nurses will be in contact with community workers regarding sale of medicines.

Timing will be a critical factor in the promotional work. Initial contact with the community must take place within a short period

prior to starting the activity. While it is difficult to judge the exact permissible time lapse, any delay beyond two or three weeks could be detrimental to sustaining beneficiary involvement.

b. Structure of Beneficiary Participation

The various components of the project will require differing types and degrees of participation from the beneficiaries. To the extent that the conditions of participation are tailored to the social fabric of the beneficiary groups, recipient involvement will be enhanced.

(1) Urban Water Systems

Residents of Potosí and Sucre will have no direct involvement in the rehabilitation of the water systems which service these two cities. Their participation will be limited to paying for the water, once the systems have been upgraded. Requiring a cash contribution for such a service could be a constraint in a rural area; however, it will not be the case in urban zones where the practice is ongoing and people are accustomed to it. Moreover, while there probably will be an increase in rates to cover the costs of improving the systems, the increases will be minimal.

(2) Medicines

A similar problem, namely predicating beneficiary involvement on a cash contribution (purchase of medicines) presents a potential constraint to the pharmaceutical distribution component of the project. The magnitude of the problem is increased given the emergency situation and the fact that the sector of the population to which the medicines are directed is the group that has been most seriously affected, in economic terms, by the current crisis.

Research related to the development of the Self Financing Primary Health Care Project (A.I.D./Bolivia Grant 511-0569) indicated that rural dwellers in Santa Cruz area, which forms part of the target area of this project, spent as much US\$ 50.00 per person on health services of all types including the over-the-counter purchase of medicines. Moreover, an A.I.D. financed primary health care effort in the highlands with Radio San Gabriel likewise requires payment by campesinos for health services. Project managers report that even in the current crisis period, the services are being sought and the corresponding payments are being made.

While these data indicate a beneficiary disposition to pay for pharmaceuticals, there is no avoiding the fact that such payment will represent an economic hardship under the current circumstances;

however, such a hardship is judged to be acceptable given the alternative of decapitalizing the medicine supply fund which would aggravate the scarcity of pharmaceuticals in the future. Moreover, the project foresees the possibility of free distribution to the absolutely destitute.

(3) Fertilizer Distribution

Fertilizer distribution suffers from the same potential drawback that could effect the urban water and medicine apportionment components: the beneficiaries will be required to pay for the commodity. Can campesinos afford this agricultural input in a time of economic crisis?

This component is designed in such a way so as to mitigate the financial burden to the campesino. For FENACRE affiliated cooperative members, favorable financing arrangements, including in-kind credit and accelerated loan application and approval processes, will be instituted. For non co-op members, the fertilizer will be sold on a cash basis, but the establishment of mobile sales points at local markets will bring the commodity closer to the farmer, thereby, reducing producer transportation costs.

(4) Rural Water Systems and Irrigation Works

Beneficiary contribution to this component includes local building material and labor. The former presents no problem as the materials (e.g. stone and sand) are readily available and require no cash outlay by the campesinos. Organization of work crews, scheduling of labor days, etc. require sensitivity to local conditions to ensure efficient functioning. Labor crew organization will be the responsibility of the DDC and CARE promoters. In carrying out this task, they will use the local leadership system (the jilakata, sindicato, or corregidor community improvement committee depending upon the local situation) to form labor cadres. Details concerning number of work days required per participating family and fines for unwarranted absences will devolve to the community leadership. Development of work schedules will be carried out by the DDC resident engineer in conjunction with village authorities. The critical matter to address is the scheduling of work days so as to avoid conflict with periods of peak agricultural activity.

(5) Santa Cruz-Cochabamba Highway

The rehabilitation of the Santa Cruz-Cochabamba highway will require a significant amount of unskilled labor over a two-year period to undertake certain labor intensive tasks (e.g., construction of river defense works and slide stabilization structures).

As this cadre will be contracted by SNC on a daily wage basis, no problem is anticipated in assuring the availability of an adequate supply of laborers.

C. Institutional Analysis

1. National Road Service (SNC)

a. General Organization - Servicio Nacional de Caminos (SNC)

The Servicio Nacional de Caminos (SNC) is a dependency of the Ministry of Transport, Communications and Civil Aeronautics (MTCAC) with autonomous technical and administrative operations. The functions delegated to SNC through Supreme Decree No. 6684 of February 1964 and Law No. 7390 of February 1965 include the planning, construction, upgrading, maintenance, supervision and administration of the Bolivian road system. SNC is headed by a Director who is assisted by a board of directors, a Deputy Director, and an advisory group, composed of a legal counselor and an Auditor. At the national level, SNC is organized into five main divisions - Finance, Administration, Research-Design and Planning, Road Planning and Policy, and Operations. The Operations Division is the Unit that will be most directly involved in the project. It includes the Maintenance, Construction, Bridge and Equipment Departments. Below the national level, SNC is organized into ten district highway offices, which are further subdivided into highway residences and temporary camps established at work sites to reduce the cost of transporting men and equipment.

Since its creation, SNC has built a reputation of being among the better organizations in the Bolivian public sector. Over the past twenty years, SNC has constructed over 900 kilometers of paved roads and almost 1600 kilometers of secondary dirt and gravel roads throughout the country. In large part, SNC's success is the result of sound personnel policies. Entrance, particularly at the professional level, is based on competition among candidates with relevant formal training, and promotions are tied directly to job performance. Moreover, the management and the labor union within SNC have, throughout the Service's existence, resisted placement of political appointees. The result is a cadre of well trained, experienced individuals with a professional approach to job performance.

b. Operations Division

The Operations Division will be in charge of: (a) execution of road rehabilitation; (b) supervision of contracts for bridge construction and drainage works installation; (c) procurement of local commodities; (d) installation of river defense works; and (e) construction

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of slide stabilization structures. From a personnel perspective, the Operations Division is capable of carrying out the road rehabilitation component of the project. At the national level, the Division is managed by a division chief (a civil engineer), who supervises the five departments in his jurisdiction. The Departments in turn are each staffed by a chief (in each case either a civil or mechanical engineer) and the professional and support staff needed to carry out their assigned responsibilities. Over the course of the project, the Operations Division Chief will call on the appropriate resources available in each of the departments to address specific implementation tasks.

The staff capability of SNC at the national level will be complemented by two long-term consultants to be financed with project grant funds. The first, a general engineering advisor to the project, will work directly with the chiefs of the national-level Operations Department concerned with the programming and implementation of project activities, including scheduling of construction, deployment of field teams and supervision of contractors. The second consultant, a heavy equipment advisor, will assist SNC with the maintenance program for road-building machinery with the goal of installing sound preventive maintenance practices and improving the efficiency of equipment repair shops. Each advisor will serve for a period of 18 months beginning as soon as possible after signing the Project Agreement.

c. District Highway Office

The "District" consists of the central office in the city of Santa Cruz and four highway residences, one of which is located at Samaipata along the Santa Cruz-Cochabamba highway. The District is managed by the district chief (a civil engineer), who is assisted by a deputy district chief (also a civil engineer) and department chiefs for maintenance (mechanical engineer), heavy equipment (a civil engineer) and administration (an accountant). Management of the Highway Residence is the responsibility of the Residence Chief assisted by a deputy. In all cases, these positions are filled by civil engineers. Throughout the District, this managerial staff is supported by a complement of professionals (topographers, draftsmen, laboratory specialists), skilled laborers (mechanics, welders, operators, electricians, equipment operators), semi-skilled laborers (heavy equipment operator helpers, etc.) and administrative support staff (secretaries, accountants, bookkeepers, etc.).

In the execution of road rehabilitation component of this project, the Santa Cruz District Office will be accountable for (a) direction, supervision and overall management of project activities within the

District, (b) repair and maintenance of project equipment at the district workshop, (c) monitoring bridge and drainage work construction activities, and (d) supervising the basic equipment and support units working in the District's area. Analysis of the District Highway Office's organizational structure shows that it is capable of fulfilling its responsibilities. The staff, in terms of both quantity and quality of job performance, is more than adequate for the tasks at hand. Procurement and warehousing systems are adequate (construction of an additional warehouse is in process), and there is sufficient space and machinery to carry out repair of heavy road equipment. SNC has prepared simple accounting and administrative manuals which have been distributed and are in use in all district offices. The accounting system highlights the presentation of project costs and the consolidation of financial statements. This manual, together with training in the pari passu disbursement system, which has been provided to SNC by USAID/Bolivia, is sufficient to meet the accounting needs of the project. Control of fixed assets is acceptable, and inventory reviews and reconciliations are carried out periodically by a team of specialists from SNC's national office.

d. Highway Residence - Samaipata

As noted above, highway residences are administratively responsible to the district offices. The highway residence that will be most directly involved in rehabilitation of the highway will be the residence at Samaipata. It will oversee the road upgrading activity of SNC's equipment and support units, carry out moderate repair work on equipment, and monitor the progress of contractors. Moreover, the Residence will provide transportation for SNC's labor groups working on slide stabilization and river defense activities. From a personnel perspective, the Residence is sufficiently staffed to discharge its responsibilities. In addition to the two civil engineers (Residence Director and Deputy Residence Director) mentioned above, Residence personnel include one mechanic, one mechanic's assistant, eleven heavy equipment operators, two drill operators, one topographer with eight assistants, one welder, one administrative assistant, two compressor operators, and assorted support staff. With the initiation of the project, SNC will contract a cadre of unskilled workers to initiate activity on the manual labor (river defense works, slide stabilization) project subcomponents.

## 2. Potable Water and Irrigation System Entities

### a. Municipal Water Authority - Potosí (AAPOS)

#### (1) Legal Status and Objectives

AAPOS was created from a predecessor organization by Supreme Decree No. 1022 of April 21, 1973. The main objectives of AAPOS are to (1) provide the administration and maintenance of the water supply and sewerage system in the jurisdiction of the city of Potosí, (2) study, review and establish adequate tariffs for water supply service subject to approval by the Ministry of Urbanism and Housing, (3) propose, review, undertake or contract projects required to enlarge, improve or replace the water and sewerage system.

#### (2) General Organization, Financial and Human Resources

The President of AAPOS is nominated by the Ministry of Urban Affairs and Housing to serve as the director of the organization. He, in turn, responds to a board of directors composed of representatives from the municipality and the Ministry of Finance.

AAPOS has three major branches; the Marketing Division, the Engineering Division, and the Operation and Maintenance Division. The total staff consists of 93 employees, of which two are full-time engineers, thirteen are administrative, and the remainder specialized and manual laborers.

AAPOS derives its operating budget from the collection of fees paid by the water and sewerage service users. Since the drought, AAPOS has also been receiving funding from the National Civil Defense Committee. Fees normally cover AAPOS costs. However, the drought has required extraordinary outlays in order to bring water to the city.

#### (3) Capacity to Carry Out Functions

AAPOS has the finances and personnel to manage the normal requirements of the water supply system in Potosí. The present staff could probably assume a twenty percent increase in activities. However, to carry out the work associated with the rehabilitation project, AAPOS will have to hire, on a short-term basis, two engineers, three equipment operators and three drivers. These increased personnel costs will be borne by AAPOS.

Currently, AAPOS has one two-and-a-half ton truck, three pickup trucks (2 ton, 1/2 ton) and four water pumps. Additional equipment (one tractor with dozer blade, one front end loader, one hydraulic excavator and six dump trucks) provided under the project will supplement this capacity sufficiently to allow for the rehabilitation work and subsequent system maintenance.

(4) Participation in the Project

AAPOS will carry out the rehabilitation of the Potosi's water reservoirs, lakes dams and feeder aqueducts. Additional material will be placed on dam embankments, reservoir leaks will be repaired, and some reservoir and aqueduct cleaning and clearing undertaken. The work will be planned and supervised by the AAPOS engineering and technical staff. The additional equipment provided under the project will be used for the immediate renovation and serve to provide continued maintenance to the system.

b. Municipal Water Authority for Sucre (ELAPAS)

(1) Legal Status and Objectives

ELAPAS was created by Supreme Decree No. 7309 of September 2, 1965. The Decree sets out the operational norms, regulations and mandate of the organization. The principal objectives of ELAPAS are to (1) administer and maintain the water supply and sewerage systems for the city of Sucre, (2) finance and carry out directly or through contracts the maintenance of the systems, and (3) program and channel financing from other entities for enlarging, improving or replacing the existing systems.

(2) General Organization, Human, Material and Financial Resources

The Mayor of Sucre serves as ELAPAS President and responds to a local board of directors. This Board is composed of representatives of the Ministries of Urban Affairs and Housing, Planning, Finance, as well as the Departmental Development Corporation of Sucre (CORDECH). The Board meets quarterly, and its principal function is to provide general policy guidance to and review implementation plans of ELAPAS.

ELAPAS is made up of two main branches; the Technical Division and the Administrative Division. The Technical Division is responsible for the maintenance of the city's present water system, as well as for

the design and implementation of new components of the system. The Administrative Division is the entity responsible for overseeing the administrative aspects (e.g. accounting, personnel, project records) of ELAPAS operations. The combined personnel of ELAPAS totals 102 individuals. This includes four civil engineers and 72 skilled and unskilled laborers in the Technical Division, and 26 employees in the Administrative Division. Its machinery pool consists of two dump trucks, two pickup trucks, one jeep, two 4" diameter pumps and one compressor with two hammers.

ELAPAS derives its operating budget from the collection of fees paid by the water and sewerage service users. These monies are supplemented by central government support for specific construction activities.

(3) Capacity to Carry Out Functions

As currently staffed and budgeted, ELAPAS has the capacity to manage and maintain the existing water system with a margin to undertake some additional work.

The project will provide two high pressure pumps and two low pressure pumps of the same capacity. Also 3,000 meters of pipe, gauges, instruments and civil works (pump house, footings, etc.) will be funded. Labor and engineering requirements will be met by ELAPAS. CORDECH will provide ELAPAS with supplementary funding for additional personnel and some construction costs. It is not anticipated that ELAPAS will need to contract additional manual labor.

(4) Participation in the Project

ELAPAS will install a pumping station and booster pump station, each with back-up pumping capacity, to lift water from the Cachi Mayu river to the city system 400 meters above. To maximize utilization, 3,000 meters of existing concrete distribution pipe will be replaced. The corresponding local material and labor costs will be borne by ELAPAS. Continued operation and maintenance of the pumping system will be executed with CORDECH financial contributions to ELAPAS.

Given ELAPAS present resources, complemented by the inputs provided under the project, it will be capable of carrying out its assigned project tasks.

c. CARE/Bolivia

(1) Legal Status and Objectives

CARE is a non-profit, private voluntary organization

which has been operating in Bolivia since 1976 under a basic cooperative agreement with the GOB. Under the umbrella of this agreement, CARE enters into sub-agreements directly to carry out specific programs. These sub-agreements are signed annually and cover program-related expenses for fiscal year periods. To date, CARE has placed special emphasis on potable water supply systems, environmental sanitation installations, and micro-irrigation networks. Under fiscal year 1984 agreements, CARE, in conjunction with the DDC's, is implementing 70 potable water and micro-irrigation projects in the Departments of La Paz, Oruro, Chuquisaca, Potosí and Tarija.

(2) General Organization, Financial and Human Resources

CARE/Bolivia's central office is located in La Paz and is managed by the Country Director who is a career CARE International employee. Additionally, divisions are maintained in La Paz (for La Paz and Oruro), Sucre (for Chuquisaca and Potosí), and Tarija (for Tarija). Each division is guided by local-hire directors, all of whom are engineers. In addition, to managing administrative matters at the regional level, the division directors coordinate closely with DDC personnel in effecting site selection, topographic studies and engineering designs related to project interventions. Each division director is assisted by a field staff consisting of promoters, warehouse managers and field supervisors. The promoters are responsible for organizing beneficiaries to participate in the discrete water projects. The warehouse managers handle local procurement and distribution of building materials. Finally, the field supervisors assist in construction activities.

CARE/Bolivia's budget for materials and equipment for water supply programs is approximately US\$ 500,000 for FY 84. Its staff presently consists of 26 employees, of whom 14 are technical/promotional and the remainder administrative / support employees.

(3) Capacity to Carry Out Projects

With seven years' experience in executing potable water and micro-irrigation projects in concert with the DDCs, both CARE and the DDCs have developed administrative and organizational expertise in the execution of rural water supply projects. Expansion of the program, given the necessary financial inputs needed, should prove no problem to either the DDCs or CARE.

(4) Participation in the Project

Site selection will be done mutually by CARE and the Water Resources Departments of the DDCs. The latter will be responsible for topographic studies, design preparation and community organization. CARE will be responsible for procurement of materials and overall management. DDC and CARE personnel will jointly oversee project execution. CARE, participating DDCs and Servicio Nacional de Formación de Mano de Obra (FMO) will jointly organize training courses for selected members of each community in operation and maintenance of the systems, and community financial controls and organization.

d. Departmental Development Corporations (DDCs)

The DDCs in Cochabamba, Chuquisaca, Potosí and Oruro will be involved in carrying out irrigation activities directly and, in the cases of the Chuquisaca, Potosí and Oruro DDCs will carry out activities in conjunction with CARE. The basic organization, purpose, outreach and project implementing capacity of all of the DDCs is similar. Their sources and amount of funding vary. The Chuquisaca and Potosí DDCs are more affluent since they receive oil and mineral royalties, respectively. The Oruro DDC has some mineral royalties but depends more on national treasury resources. Cochabamba receives taxes from some agricultural products but is largely dependent on treasury monies. As a group, the DDCs are the most dynamic and effective public development entities in Bolivia. Given the similarities in organization and capacity, a single corporation, the DDC of Oruro (CORDEOR), will be analyzed for illustrative purposes.

(1) Legal Status and Objectives

CORDEOR operates under the same legal base which established all nine of the country's DDCs; the Law of Development Corporations. The broad purpose of the Corporation is to promote economic and social development within its region. This is accomplished through: (a) the development of a regional plan and strategy; (b) identification and establishment of development investment priorities; (c) the planning, preparation and promotion of programs and projects consistent with national and regional objectives; (d) participation in project execution directly, jointly or indirectly with public and private groups; and (e) coordination of development activities within the region.

(2) General Organization, Financial and Human Resources

The President of CODEOR is the political spokesman and top decision-maker for the Corporation. He, in turn, responds to a board of directors made up of key public and private representatives of the department. Below the President is a general manager charged with the day-to-day management of the Corporation. Aside from support and advisory staff offices, CORDEOR has five line departments which are the Engineering Department, Planning and Programming Department, Water Resource Department, Agricultural Department and the Administration, Finance and Accounting Department.

CORDEOR derives its operating budget from mineral royalties and national treasury funding. The investment budget comes from these same sources and from other internal and external sources, including the PL 480 Title III program. The main financial limitation is for investments as the operating requirements are adequately covered with available resources.

Referring specifically to the Water Resources Department, which is involved exclusively in irrigation and potable water projects, the operating budget is normally about \$60,000 and the investment budget is nearly \$500,000. Its staff consists of 36 employees, of which there are twelve professionals, including eight engineers and one specialist, each in Agronomy, Economics, Geology and Hydrology. Among the other specialized personnel are topographers (3), draftsmen (2), field personnel (1), and a community promotor/organizer. The Department has one bulldozer, a 10-ton truck, 3 pickups and a limited amount of field instruments and minor equipment.

### (3) Capacity to Carry Out Project

Currently, the Water Resources Department is implementing four small irrigation projects, preparing studies and plans for four other projects, and helping five communities to form water committees. In the planning and execution of activities, the Department draws on specialists from the Engineering, Agricultural and Planning Departments to form multi-disciplinary work groups. Given its on-going commitments and the increased demand for irrigation projects due to the drought, the relatively new (one-and-a-half years old) and unexperienced Water Resources Department will receive project support in the form of two locally contracted specialists (irrigation and on-farm water technicians) and a modest amount of equipment (back hoe and dump-truck). This, coupled with the financial, organizational, administrative and technical contributions from the CARE activity, will allow the Department to expand its coverage sufficiently to undertake new subprojects.

### (4) Participation in the Project

The Water Resources Department of CORDEOR will undertake all phases of subproject study, planning, design, implementation and supervision for the DDC irrigation subprojects in its region (four planned), while continuing to collaborate with the expanded CARE activities. The DDC will provide the specialized manpower needed, as well as contribute to equipment, logistics and local material costs for its own activities. CORDEOR has the capacity to carry out all of the required tasks. The DDC has shown a high degree of interest and initiative throughout the intensive review. This can be expected to carry over into project implementation.

3. National Federation of Savings and Loan Cooperatives  
(FENACRE)

a. Legal Status and Objectives

FENACRE is the country's largest cooperative organization. This private institution was legally constituted on February 16, 1962 by Resolution No. 001 of the National Directorate for Cooperatives and is subject to legal supervision by the National Institute of Cooperatives. By Supreme Decree No. 19331 signed December 1982, FENACRE was recognized as an intermediate credit institution and authorized as a channel for Central Bank of Bolivia (BCB) credit resources.

FENACRE's principal function is to serve as a conduit for financial resources and assistance to its cooperative affiliates to accelerate their development and the improvement of the socio-economic condition of their members through urban and rural productive activities. The specific objectives of FENACRE are the following: (1) to promote the organization of savings and loan cooperatives; (2) to provide technical assistance to cooperatives; (3) to develop uniform administrative and accounting systems for cooperatives; (4) to promote educational programs; (5) to publish educational materials; (6) to supervise member cooperative compliance with cooperative laws and regulations; (7) to obtain life and fidelity bond insurance for cooperative members and officials; and (8) to represent and assist cooperatives in their dealings with government entities.

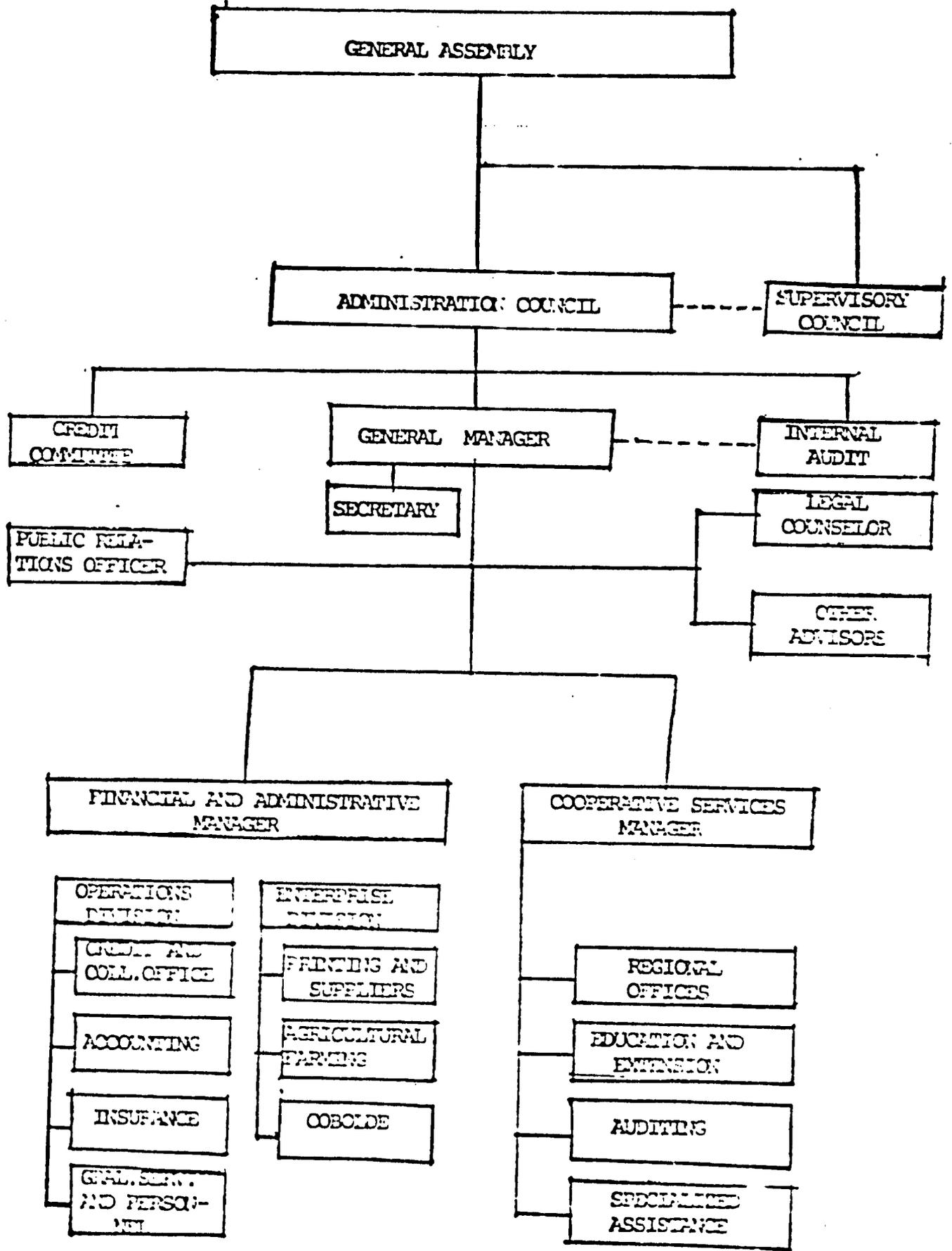
b. Membership and Financial Soundness

The FENACRE 1982 Annual Report indicates that it has 165 affiliated cooperatives with a total of 227,770 members. Of this membership, some 58,000 members are rural dwellers. As of December 31, 1982, savings of cooperative members totalled \$7.06 million, and the cooperative loan portfolio was \$24.7 million. The reserves and capital of FENACRE total \$19.85 million, and the institution is completely solvent. Over the past years, FENACRE has borrowed external resources of some \$141,000 from the Latin American Confederation of Savings and Loan Cooperatives (COLAC) and other international and national sources, and repayments have been made on schedule.

c. General Organization and Personnel

FENACRE has a General Manager who is governed and supervised by an Administration Council similar in function to a board of directors. The General Manager is assisted by auditing and legal offices. Under the General Manager are two major management units, the Administration-Financial Management Unit and the Cooperative Services Management Unit. Within the former, are the Enterprise Division and Operations Division. (See Exhibit 2).

ORGANIZATION CHART



(1) Approved by the Administration Council on February 19, 1983

The main office of FENACRE is located in Cochabamba, where 38 employees work. There are regional offices in La Paz (seven employees), Santa Cruz (five employees), Sucre, Trinidad and Oruro (one employee in each). FENACRE affiliates employ more than six hundred professional managers, accountants and other administrative personnel.

(d) Capacity to Implement Rural Programs

FENACRE has utilized loan and grant funds from several A.I.D. and COLAC sources to expand agricultural, agro-industry and artisanry lending through its cooperatives. In addition, FENACRE, over the past three years, has, with P.L. 480 Title III financial support and A.I.D. project-funded technical assistance, established a specialized unit to provide managerial, administrative, marketing, financial and planning assistance to agricultural cooperatives. This unit is being expanded as a permanent self-financing consulting operation within the Enterprise Division of the Federation.

(e) Participation in Project

FENACRE will work with and through the twelve cooperatives participating in the emergency fertilizer distribution activity, and its regional offices in Oruro and Sucre, to ensure the timely and well managed delivery of 3,000 metric tons of fertilizers to over 6,000 farmer members and more than 9,000 other farmers.

The Federation will assume full responsibility for the logistics and payment involved in moving the fertilizers from the point of entry (Oruro) to the participating cooperatives. FENACRE will work with each cooperative in preparing the local storage, handling and sales arrangements, in determining the local per bag surcharge to cover the cooperatives' storage, administrative and sales costs, and in developing a distribution, promotion and sales plan. The Federation will also establish and monitor the accounting system and procedures for the start-up cost advances made to affiliated cooperatives and for the revenues generated from the fertilizer sales or credits. Similarly, FENACRE will set up the overall activity accounting system and the revolving fund into which the sales generations will be deposited.

The Federation will also manage the storage and distribution of the 500 metric ton reserve of fertilizers, entering into sales contracts with DDCs, local development organizations, and other cooperative groups which are in a position to reach farmers in drought areas where FENACRE lacks its own cooperative infrastructure.

The programming, disbursement and administration of the revolving fund will also be a FENACRE responsibility. The Federation will prepare and submit a disbursement plan to USAID/B, based on borrowing cooperative requests, for approval prior to each planting season. In a similar fashion, FENACRE will plan and submit a disbursement request against rotating funds for the savings mobilization activity.

The analysis of FENACRE's institution capacity to support and carry out the various activities described above indicates that FENACRE can effectively assume these responsibilities with the relatively modest support budgeted for this purpose from project funds.

#### 4. Ministry of Health and Social Welfare (MSW/PH)

##### (a) Organization

The Ministry of Health is one of 18 line ministries of the national government. As the title suggests, the Ministry is responsible for tending to the health needs of the country. Presided over by a minister appointed by the President, the MSW/PH attempts to discharge its responsibility through a multi-tiered health service system which encompasses, with varying degrees of effectiveness, both the urban and the rural sectors.

##### (b) Distribution System

Prior to this last year, the MSW/PH did not manage a pharmaceutical distribution system. In response to the economic and natural disasters, and the critical need for medicines, the GOB has allotted US\$250,000 to the Ministry to procure needed pharmaceuticals and establish a distribution system. The system will be managed by the National Director of Pharmacology assisted by the National Director of Administration, and the combined staffs of both offices will manage the money furnished by the national government as well as the A.I.D. funds provided to establish a revolving fund to effect future procurements.

To ensure minimal time delays, the MSE/PH, with A.I.D. assistance, will contract with the Pan American Health Organization (PAHO) to act as the purchasing agent for the medicines. Once in country, the pharmaceuticals will be made available in rural areas through Ministry distribution points. These points will be existing hospitals, clinics and health posts managed by the MSW/PH. It is anticipated that at least two distribution sub-systems will be established within each of the four departments participating in the project.

Personnel to manage the distribution system, at all levels, will be secured from other branches of the MSW/PH. To complement these GOB resources, the Project will provide funds for the procurement of equipment, vehicles and technical assistance. The technical advisor will focus on establishing viable procedures for managing logistical components of the system - e.g. flow of pharmaceuticals, pricing, security and inventory of stocks.

In its present stage, the MSW/PH has limited experience in drug distribution in urban areas. The resources to be provided under this project will help cover the gaps in the current system and extend distribution to key rural areas affected by the drought.

## 5. Civil Defense Committee

### (a) Legal Status and Objectives

The Civil Defense Committee was established by Supreme Decree No. 19386 on January 26, 1983. Among the principal objectives of the Committee are: (1) to reduce the vulnerability of Bolivian citizens to the harm of natural catastrophes; (2) to establish Government policies with respect to disaster preparedness and rehabilitation; and (3) to help coordinate the assistance of international donors for recovery from natural disasters.

### (b) Organization

The Committee is presided over by the Minister of Defense. He is assisted in his responsibilities by an executive working group made up of the Ministers of Interior, Planning, Health, Transportation, Housing, Industry and Agriculture, and the Commander-in-Chief of the Armed Forces.

The Secretary for this Working Group is the National Director for Civil Defense who is responsible for implementing the Group's policy decisions. The National Director has an administrative, technical and support staff of sufficient size to carry out the office's assigned functions. In addition, he has the authority to call on the material and human resources of all state-affiliated organizations in responding to disaster-related emergencies.

Below the national level, Departmental Civil Defense Committees operate. These Committees are made up of state dependencies at the regional level and are mandated to respond both to local calamities and country-wide disasters at the local level.

(c) Role in Project

At the national level, the Civil Defense Committee's role is to establish the priorities for the GOB's Emergency Recovery Plan. At the departmental level, the Civil Defense Committees are responsible for coordinating rehabilitation inputs from various donors to address local problems. With the use of other USAID resources, mainly funds from monetization of Title II commodities for disaster assistance, the Civil Defense Committee has the human and material resources to effectively carry out its role.

The Ministry of Planning and Coordination will monitor the activities under this project's main components, and keep the Civil Defense Committee informed as the project progresses.

#### D. Environmental Statement

The objective of the project is to assist the GOB to implement important elements of its Emergency Plan for recovery from the twin disasters of drought in the highlands and flooding in the southeastern part of the country. The project components include rehabilitation of the Santa Cruz-Cochabamba highway, construction of potable water systems on the altiplano, expansion of micro-irrigation systems on the altiplano, distribution of fertilizers and apportionment of medicines. Of the five components, only the last (apportionment of medicines) will have no direct effect on the environment.

##### 1. Santa Cruz-Cochabamba Highway

Activity under this component of the project will consist entirely of rehabilitating the existing highway. There will be no new construction and the overall impact of this activity on the environment will be positive.

##### (i) Changes in Land Character

Some earth moving activities (e.g. debris clearance, limited realignment of road and elevation of the roadbed) related to rehabilitating the highway could have a negative impact on the environment. Eliminating all solid cover in the construction of road shoulders could contribute to erosion. Careless construction of field camps and use of vehicle parking areas could result in a general fouling of the landscape.

In the design of this component, precautions have been taken to eliminate any such negative effects. First, earth movement will be limited to clearance of debris from previous land slides, and a relatively minor amount of roadbed realignment. Accordingly, minimal amounts of "virgin" terrain will be disturbed. Moreover, SNC in collaboration with CORDECRUZ, will re-seed the shoulders of the repaired and re-aligned sections to reduce run-off and erosion.

Second, SNC already has field camps along the highway, hence there will be no need to construct new ones. Furthermore, no "off-track" or cross-country travel of road building equipment will occur. In addition, SNC will return burrow pits to natural contours and avoid upsetting the river course through the removal of gravel for the roadbed. Taken in conjunction, these precautions will limit spoilage of the environment through activities ancillary to actual highway reconstruction.

Third, stone and cement slide stabilization structures and wire encased stone river defense works will be constructed. These installations will affect the natural contour of the terrain and natural river defense system; however, their impact will be positive. These

structures are needed because the natural system has broken down, resulting in severe damage and loss of life, through flooding and erosion along the river's course. The man-made slide stabilization and river defense systems will prevent such occurrences in the future, thereby contributing to the overall improvement of the environment. Finally, this project component will include some excavation work related to the installation of road drainage systems; however, the excavation strips will be extremely narrow, and the benefit, in terms of water run-off and erosion control, provided by the drainage will more than offset any disturbance to natural contours caused by the excavation.

(ii) Water Quality

The construction activity has the potential to alter the physical quality of the Piraf River's water. While this might appear prejudicial to the health of people along the river course below the construction area, only a temporary soiling will occur limited to the actual construction period. To limit any fouling of the water and erosion, provisional berms (earthen shoulders) will be installed while bridge abutments are being built.

A second potential problem is the threat of obstructing or changing the course of water flow, thereby disturbing the natural habitat of marine life. To avoid this danger, the Taruma bridge will be rebuilt with one center pier instead of two, as was previously the case, and the smaller bridges will be constructed using such principles, so as to allow the free passage of water and maintain the balance of existing aquatic plant and animal ecosystems.

(iii) Change in Atmosphere

Potential negative changes in air quality resulting from reconstruction of the highway are much less critical than those related to land character and water quality. Nevertheless, there are two potential adverse effects on people living along the road - fugitive dust and exhaust emissions. Road dust is more a nuisance than a serious health hazard. Rather than abet this problem, the rehabilitation effort will alleviate it through roadbed stabilization, gravel resurfacing of the substructures and eventual paving under Phase II. As for exhaust emission, the population density along the road and the projected volumes of traffic are at a sufficiently acceptable ratio so as not to present a problem.

2. Water/Sanitation Systems on the Altiplano

The water/sanitation systems on the altiplano will be of two types: (1) distribution networks for urban settings - the cities of Potosí and Sucre, and (2) rural water systems. Concerning the urban sector, the water initiatives will consist of repairing the existing systems. In Potosí, work will focus on repair of 17 reservoirs from which water is drawn for the city's residents. Specific activities

will include patching cracks in dam walls, and the cleaning of reservoirs to remove accumulated sediment. There will be no new reservoir construction and accordingly no land clearing and earth moving activities to disturb the surrounding land area and its plant and animal life. Moreover, the patching of cracks in the dam walls will eliminate extra seepage, thereby decreasing downstream channel erosion. Finally, water release channels will be installed to assure more uniform downstream flow and avoid erosion of reservoir embankments and shorelines in case of overloading.

Work in the city of Sucre will consist of installing primary and back-up pumps. This effort will have no negative impact of the environment.

The rural potable water projects will be primarily gravity fed from surface sources of water. Where this is not possible, shallow aquifers located up to a maximum of 30 meters below the surface will be used. The Project contains funds for three person-months of expertise in the environmental aspects of potable water and irrigation systems. This expert will design environmental examination procedures to be used by CARE in selecting and designing the systems. These procedures will include a description of water source properties (in the case of aquifers, depth beneath the land surface, transmissibility and permeability, piezometric head and its seasonal variability, recharge areas and rates, materials in the aquifer and the position of the aquifer relative to other aquifers). This will be used to estimate water yield, pumping and well construction requirements, interference between wells, and potential routes of contamination. The procedures will also give consideration to the type and location of waste disposal facilities in relation to the water supply systems to avoid seepage of human waste into groundwater aquifers and surface streams.

### 3. Micro-Irrigation Systems

This component of the Project will entail the construction and expansion of micro-irrigation systems on the altiplano. Care will be taken to introduce systems (e.g. sprinkler and drip systems), especially in steep slope areas, that will avoid soil erosion. In addition, prior to installing canals to increase the capacity of existing systems, the DDCs will undertake soil studies to consider pore space and depth for determining correct water application frequencies. Finally, while little land clearing is anticipated, in those instances in which it does occur, protective measures (e.g. cover cropping and terracing) to counteract the effects of wind and soil erosion will be taken.

The environmental expert will also develop procedures for the examination of these subprojects.

4. Fertilizer Distribution

The fertilizers to be distributed under the project are diamonium phosphate and urea. Neither of the two are on A.I.D.'s list of prohibited chemical substances. Moreover, both have been used for some time in Bolivia and proper application procedures are generally well known. Finally, given the economic circumstances of Bolivian small-scale farmers, it is probable that the fertilizers will be under-utilized rather than over-utilized. In combination, these factors suggest strongly that fertilizer use will not impact negatively on the environment.

VI. CONDITIONS AND COVENANTS, REPORTS AND EVALUATION

A. Conditions and Covenants

Given the emergency nature of the project, conditions precedent have purposely been kept to the absolute minimum; i.e. a legal opinion as to the Project Agreement's validity and the provision of the signatures of the GOB's authorized representatives.

The Project Agreement will contain four covenants, in addition to the standard covenant regarding project evaluations. These covenants will commit the GOB: (a) to make its best effort to expedite IDB financing for Phase II of the Santa Cruz-Cochabamba Highway's rehabilitation; (b) to establish a pricing system for imported medicines satisfactory to A.I.D. which provides for free distribution to the destitute and the maintenance of value of the revolving fund; (c) to proceed with the additional \$500,000 donation to the revolving drug fund it has programmed and to make foreign exchange available to the MSW/PH at the lowest official exchange rate for replenishment of drugs during the life of the project; and (d) to reprogram any dollar funds which, because of future official devaluations of the peso, may exceed the funding requirements of the project for mutually agreed activities in line with the project's purpose (see Section III).

In addition to the above, the Project Agreement will require FENACRE to sign a letter of understanding with USAID which details all aspects of its fertilizer marketing program and the procedures for the use of the revolving fund established with fertilizer sales revenues (see Section II.C.2c).

USAID's Cooperative Agreement with CARE will contain a covenant requiring CARE to update the agreements under which it carries out its potable water and irrigation program with the DDCs in Potosí, Oruro, and Chuquisaca.

B. Reports and Evaluations

Each implementing agency, will report quarterly to the Project Coordination Unit, with a copy to the MPC and the Civil Defense Committee. The quarterly reports will review progress achieved against implementation schedules and highlight any particularly important implementation problems. These reports will be tied into the agencies' quarterly pari-passu budget requests.

Two evaluations will be undertaken; one in June 1984 to assess the implementation progress being achieved, and a second in September 1985 to do the same and to evaluate the project's socio-economic impact, to the extent possible.

TABLE 1  
CARE POTABLE WATER AND MICRO-IRRIGATION PROJECTS

LA PAZ COMMUNITIES

I. PACAJES PROVINCE

1. Villa General Juan Manuel Pando
2. Cakingora

II. AROMA PROVINCE

3. Esteban Arce
4. K'onani
5. Huanacollo
6. Belen
7. Jaruma

III. OMASIJYOS PROVINCE

8. Villa Lipe
9. Chinchaya
10. Chejelaya Alta
11. Sotalaya
12. Chejepampa
13. Pcohata
14. Cacahuaji
15. Calaque
16. Pahana

IV. INQUISIVI PROVINCE

17. Sira-rani
18. Luruta
19. Cavari

V. INGAVI PROVINCE

20. Nazacara
21. San Salvador de Machaca
22. Cuipa España de Machaca

VI. LOS ANDES PROVINCE

23. Cantapa
24. Esquivel
25. Vilaque (Los Andes)

VII. CAMACHO PROVINCE

26. Puerto Parajachi
27. San José de Pacollo

VIII. MUÑECAS PROVINCE

28. Timusi

ORURO COMMUNITIES

POTABLE WATER

I. LITORAL PROVINCE

1. Belen
2. Huachacalla

II. CERCADO PROVINCE

3. Lajma
4. Jatita
5. Vinto
6. Sepulturas

III. PANTALEON DALENCE PROVINCE

7. Catarikahua
8. Negro Pabellón

IV. POOPO PROVINCE

9. Antequera
10. Bolivar
11. Totoral

V. ABAROA PROVINCE

12. Santiago de Quillacas

VI. ATAHUALLPA PROVINCE

13. Villa Vitalina

VII. LADISLAO CABRERA PROVINCE

14. Puqui

VIII. ATHAHUALLPA PROVINCE

15. Coipasa

IX. CARANGAS PROVINCE

16. Corque-Machacamarca

ORURO / MICRO-IRRIGATION SYSTEMS

- |              |                |                     |
|--------------|----------------|---------------------|
| 1. Banderani | 3. Cala-Garita | 5. Guardafia        |
| 2. Huaylla   | 4. Molle-Pongo | 6. Huayllas Florida |
|              |                | 7. Central Chacoma  |

CHUQUISACA COMMUNITIES

\* POTABLE WATER

\*\* MICRO-IRRIGATION

I.  
NOR CINTI PROVINCE

1. Ocuri - D \*\*
2. Camargo \*\*

II.  
YAMPARAEZ PROVINCE

1. Tarabuco \*\*
2. Yamparaez \*\*
3. Presto \*\* (improvement)
4. Icla \*\*
5. Escana (\*) (\*\*)
6. Chuñu Pampa \*
7. Concepción \*
8. Cororo \*
9. Pampa Yampara \*
10. Era Pampa (\*) (\*\*)
11. Carama (\*) (\*\*)
12. San José de Molles \*
13. Ckochis \*
14. Sirichaca \*
15. Catana \*
16. San Juan \*

III.  
ZUDANEZ PROVINCE

1. Redención Pampa \*\*
2. Pasopaya \*

IV.  
OROPEZA PROVINCE

1. Tuero Chico \*
2. Puente Sucre \*
3. Santa Rosalia \*
4. Ckatala Baja \*
5. Miscka (\*) (\*\*)
6. Tipaca \*
7. Pulqui \*
8. Siguayo \*
9. Tinteros \*
10. Maragua \*
11. Pampa Aguila Khasu \*
12. Higueras \*

V.  
SILES PROVINCE

1. Ñancorainza \*

CHUQUISACA COMMUNITIES (cont.)

VI.

B. BOETO PROVINCE

1. El Villar \*\*
2. Segura \*\*
3. Pampas del Tigre \*\*
4. Zamora \*\*

VII.

LUIS CALVO PROVINCE

1. Caraparireuda (\*) (\*\*)
2. Uruguay \*
3. Añimbo \*

VIII.

AZURDUY PROVINCE

1. San Isidro de Marcavi \*
2. Pampa Huasi \*

SD/iiy

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POTOSI COMMUNITIES

\* POTABLE WATER

\*\* MICRO-IRRIGATION

I. CORNELIO SAAVEDRA PROVINCE

1. San Miguel (\*) (\*\*)
2. Quivi - Quivi \*
3. Tacobamba \*

II. NOR CHICHAS PROVINCE

1. Luri \*\*
2. Chosco \*
3. Calla \*
4. Turuyuca \*
5. Basualdo \*
6. Totoca Vasquez \*
7. Achuma \*\*
8. Pecapi \*
9. Ara \*
10. Cruce de Calcha \*

III. SUR LIPEZ PROVINCE

1. Polulos (\*) (\*\*)
2. San Pedro de Lipez \*
3. Ajencha (\*) (\*\*)

IV. DANIEL CAMPOS PROVINCE

1. Cokeza \*
2. Canquilla \*
3. Huanacoma \*

V. LINARES PROVINCE

1. Chajnakaya \*
2. Oroncota \*
3. Pudjani (\*) (\*\*)
4. Belen (\*) (\*\*)
5. Yascapi \*\*
6. Tomacunca \*\*

VI. NOR LIPEZ PROVINCE

1. Mañica \*

VII. QUIJARRO PROVINCE

1. Tacora \*\*
2. Rio Taro \*\*
3. Calasaya (\*) (\*\*)

VIII. TOMAS FRIAS PROVINCE

1. Iscu - Iscu \*
2. Huaylla Marca \*\*
3. Cieneguillas \*\*
4. Yocalla \*\*

TABLE 2  
CARE-DDC WATER PROJECTS  
SAMPLE BUDGET BREAKDOWN

I. POTABLE WATER; GRAVITY FLOW SYSTEM

Site: Tunapa, Atahualpa Province, Oruro / 45 house connections,  
246 beneficiaries

A. Materials Supplied by CARE

<u>1. Imported</u>	<u>US \$</u>	<u>\$b.</u>
a) PVC pipe, 2" dia, 4,122 mts.	4,190	
b) Ocean Freight	480	
Sub Total	<u>4,670</u>	

<u>2. Local Purchase</u>		
a) Cement, 80 bags		84,080
b) Wood (forms, etc)		80,000
c) G.I. pipe, 2" dia		69,000
d) Reinforcing rod, 43 bars, 1/4"dia		40,000
e) Accessories (valves, elbows, wire, nails)		<u>140,290</u>
Sub Total		<u>413,370</u>

B. Community Inputs

a) Local materials, labor		96,000
b) G.I. pipe & fittings for domestic connections		<u>360,000</u>
Sub Total		<u>456,000</u>

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C. CORDEOR Inputs

a) Technical Design, supervision	240,000
b) Transport of materials	60,000
c) CARE Administration	471,000
	<hr/>
Sub Total	771,000

TOTALS ..... US \$ 4,670 \$b.1,640,370  
 =====

II. POTABLE WATER; DIESEL PUMP SYSTEM

Site: Pillapi, Ingavi Province, La Paz / 67 house connections,  
416 beneficiaries

A. Materials Supplied by CARE

1. Imported

	<u>US \$</u>	<u>\$b.</u>
a) Pump, 14 hp. diesel	2,400	
b) PVC Pipe, 2 1/2" dia, 700 mts.	1,032	
c) PVC Pipe, 2" dia, 3,000 mts.	3,050	
d) Ocean Freight	450	
	<hr/>	

Sub Total 6,932

2. Local Purchase

a) Cement, 150 bags	157,600
b) Wood	320,000
c) G.I. Pipe	37,350
d) Reinforcing rod	517,000
e) Accessories	158,300
	<hr/>

Sub Total 1,190,250

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B. Community Inputs

a) Labor, local materials	200,000
b) G.I. pipe and fittings for domestic connections	536,000
c) Inland transport	80,000
d) CARE Administration	620,000
	<hr/>
Sub Total	1,436,000

TOTALS .....	US \$ 6,932	\$b. 2,626,250
	=====	=====

III. MICRO-IRRIGATION SYSTEM; GRAVITY FLOW

Site: Condorchinoca; Cercado Province, Oruro / 45 hectares, 270 beneficiaries

A. Materials Supplied by CARE

1. Cement, 1000 bags	1,150,000
2. Reinforcing rod, 3/8" dia, 12 mts	1,843
3. Reinforcing rod, 1/2" dia, 20 mts	4,340
4. PVC Pipe, 2 1/2", 30 mts.	25,000
	<hr/>
Sub Total	1,181,183

B. Community Inputs

1. Labor and local materials	490,000
------------------------------	---------

C. CORDEOR Inputs

1. Technical design and supervision	360,000
2. Inland transport	60,000
3. CARE Administration	300,000
	<hr/>
Sub Total	720,000

TOTAL .....	\$b. 2,391,183
	=====

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TABLE 3

PROJECT NAME	TYPE OF PROJECT	Hectares Irrigated	Families Beneficiary	Total Cost US\$	AID Contribution	DDC Contri.	Community Contri.
<u>O R U R O</u>							
A. CARACOLLO	Irrigation 4 Sub-Systems 2 Superficial water intake 2 Infiltration galleries	500	80	63,842	24,048	6,703	33,091
B. SAJAMA	Irrigation 5 Sub-Systems 4 Superficial water intake Infiltration gallery	319	247	620,007	22,104	29,025	568,878
C. TURCO	Irrigation 6 Sub-Systems 5 Superficial water intake 1 Diversion Dam	500	65	150,597	77,252	50,405	22,940
D. ATAHUALLPA LITORAL TOTORA SAJAMA	Irrigation 30 Sub-Systems All superficial intake	3,961	1,126	911,547	589,410	114,514	207,623
<u>CHUQUISACA</u>							
A. COILOLO	Irrigation Diversion Dam & Gabions	16	30	25,502	14,026	5,100	6,376
B. MOJOTORILLO	Irrigation Diversion Dam, Gabions & Sedimentation Tank	36	12	36,616	20,139	7,323	9,154
C. SOPACHUY SAN ANTONIO	Irrigation Cutwater, dam or jetty Superficial water intake	37	48	92,840	51,062	18,568	23,210
D. SUPACHUY	Irrigation Cutwater dam or jetty Superficial water intake	23	12	46,560	25,608	9,312	11,640

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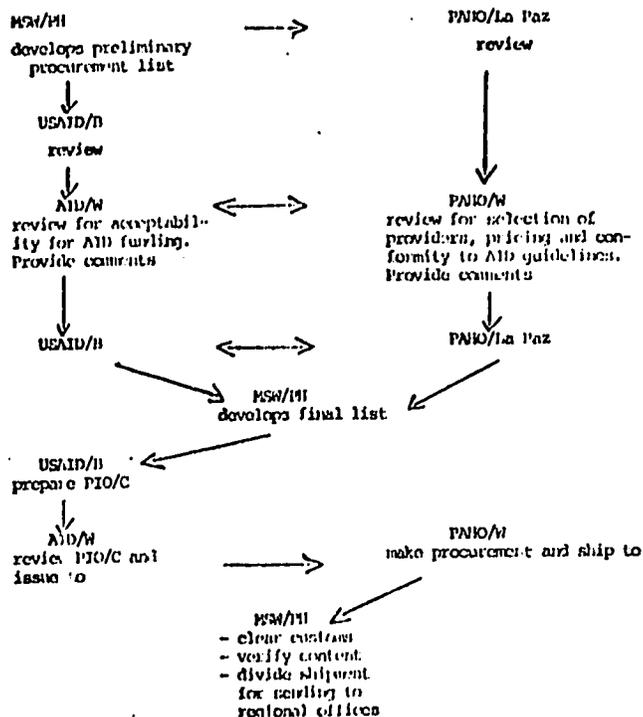
PROJECT NAME	TYPE OF PROJECT	Hectares Irrigated	Families Beneficiary	Total Cost US\$	AID Contribution	DDC Contrib.	Community Contrib.
E. RANCHO NARANJOS	Irrigation Diversion Dam Gabions & Sedimentation Tank	24	10	31,531	17,342	6,306	7,883
<u>COCHABAMBA</u>							
A. CAPINOTA	Irrigation Diversion dam	600	400	310,000	170,500	62,000	77,500
B. OMEREQUE	Irrigation Two Diversion Dams	400	500	162,250	89,238	32,450	40,562
C. AIQUILE	Dam & Drainage Gate Irrigation Potable Water	150 ---	50) 1,000)	1,100,000	330,000	220,000	550,000
T O T A L		6,566	3,580	3,551,292	1,430,729	561,706	1,558,857

FLOW OF DIAGRAM OF MEDICINES, FUNDS AND INFORMATION

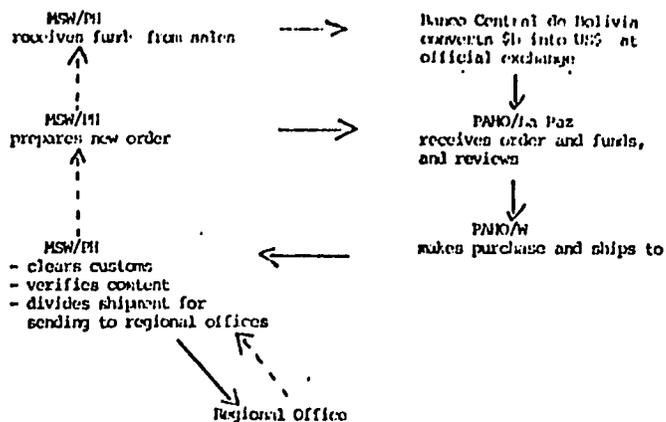
( —————> = flow of medicines; - - - - -> = flow of information)

A. National Offices (La Paz)

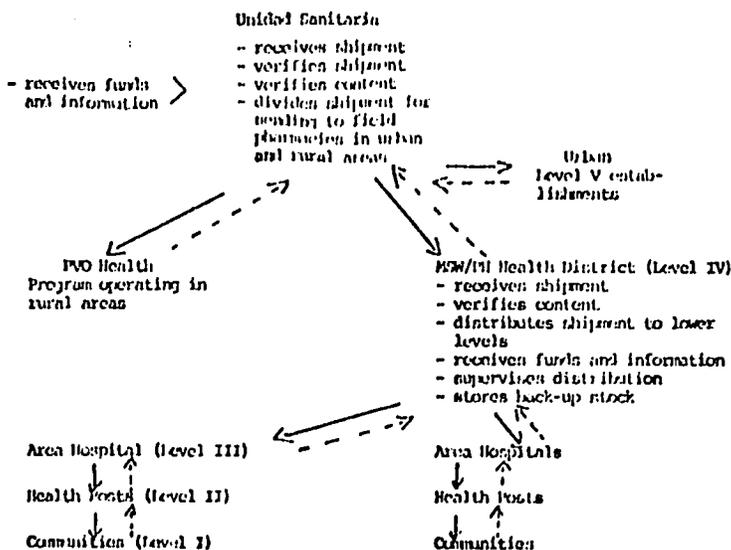
1. Initial Procurement



2. Replenishment Procurement



3. Regional Distribution



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MINISTERIO DE FINANZAS  
BOLIVIA

016-D.F.E. Of. No. 249/83  
La Paz, 11 de octubre de 1983



Señor  
Henry H. Bassford  
Director, USAID/BOLIVIA  
Presente.-

Señor Director:

En relación al Proyecto para Recuperación de Desastres, ratifico a usted nuestro acuerdo con este proyecto, en principio y mediante la presente, solicito a USAID, por su intermedio un préstamo de \$ 8.0 millones, acompañado de una donación de \$ 7.25 millones.

Como es de su conocimiento, durante el presente año se han presentado desastres causados por la naturaleza que han afectado seriamente extensas áreas del país y - han ocasionado una serie de problemas sociales y económicos, a los cuales el gobierno de mi país tiene que hacer frente en forma prioritaria. En este sentido, mi gobierno ha elaborado un Plan de Emergencia que incluye los siguientes seis - grandes componentes:

- 1) aumento en la producción agrícola, provisión de fertilizantes y proyectos de riego;
- 2) provisión de alimentos suplementarios;
- 3) rehabilitación de la infraestructura; carretera Cochabamba - Santa Cruz;
- 4) construcción y rehabilitación de proyectos de agua potable;
- 5) respaldo logístico para la distribución de alimentos y medicamentos;
- 6) prevención contra riadas.

FILE	ACTION	INFO
DIR		✓
DD		
EYO		
DP		
PD&I		✓
CONT		✓
RD	✓	
HR		✓
HHA		
PS		
RIG/A		
REPLY CUE	10/20	
ACTION TAKN		

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**MINISTERIO DE FINANZAS  
BOLIVIA**

Entendemos además, que USAID bajo el rubro del mismo proyecto, firmará un convenio de donación con CARE por la suma de \$ 1.75 millones para la construcción, con la participación de las Corporaciones Departamentales de Desarrollo, de Oruro, Potosí y Chuquisaca, proyectos de agua potable y mini-riego.

Aprovecho la oportunidad para agradecer por su intermedio al gobierno y pueblo norteamericanos por el eficiente apoyo que están prestando a Bolivia.

Con este motivo, reitero a usted, señor Director, las seguridades de mi consideración distinguida,

  
*Fernando Bustillos Gumucio*  
MINISTRO DE FINANZAS

CERTIFICATION PURSUANT TO SECTION 611(e)  
OF THE FOREIGN ASSISTANCE ACT OF 1961,  
AS AMENDED

I, Henry H. Bassford, the principal officer of the Agency for International Development in Bolivia, having taken into account among other factors the maintenance and utilization of projects in Bolivia previously financed or assisted by the United States, do hereby certify that in my judgement Bolivia has both the financial capability and human resources capability to effectively maintain and utilize the capital assistance portion of this project:  
Disaster Recovery.

  
Henry H. Bassford  
Director, USAID/Bolivia

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PROCUREMENT PLAN

Disaster Recovery Project  
Project No. 511-0581  
Loan/Grant No. 511-F-069

1. List and Budget of Equipment and Suppliers to be Procured

<u>Item</u>	<u>Budget</u>
a) Road construction equipment and materials	\$ 604,000
b) Potable water equipment and materials	\$ 660,000
c) Irrigation equipment and spare parts	\$ 254,000
d) Fertilizer and vehicles	\$1,116,000

2. Responsible Institution

USAID/Bolivia's Project Development and Implementation Office will be responsible for this procurement process, except for commodities that will be purchased directly by CARE. To such effect, PD&I working closely with the technical divisions involved in this project shall prepare all procurement documents (IFB, RFP, PO, etc.) GOB participation will also be required as needed.

USAID/B has the responsibility of awarding contracts as required by the project, and in strict fulfillment of Federal Procurement Regulations (CFR 41) and A.I.D. regulation 1.

3. Types of Procurement

According to project needs, there will be three types of purchases:

- a) Local Procurement (Managed by CARE and other institutions designated by USAID /Bolivia).
- b) International Procurement (Managed by USAID/Bolivia).
- c) Direct Procurement (managed by USAID/Bolivia and A.I.D./Washington).
- d) CARE will be responsible for the complete procurement process of items to be used in projects implemented by them.

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4. Origin and Source

The equipment and suppliers to be financed under this project must have their origin and source within the countries of A.I.D. Geographical Codes 000 and Bolivia for grant funds and A.I.D. Geographic Code 941, including Bolivia for loan funds.

5. Transportation

All items will be transported by sea and/or land. The cost will be covered by the loan and/or grant up to final use site. Nationality of carriers shall be according to FPR in effect.

6. Receipt and Utilization

USAID/Bolivia shall be responsible for the receipt and custom clearances of the commodities imported for the project. Inspection of commodity, as well as any claims for losses will be GOB counterparts and USAID/B responsibility. Utilization of the equipment and materials once delivered to final destination, will be GOB responsibility.

8. Schedule of Activities

a) Local Procurement

Schedule will be issued by GOB entities.

	<u>Date Scheduled</u>		<u>Responsible</u>	<u>Notes</u>
	<u>Original</u>	<u>Revised</u>		
1. List and approval of commodities			GOB/USAID/B	
2. Request for quotations			GOB	
3. Forwarding requests to suppliers			GOB	
4. Receipt of quotations			GOB	
5. Consideration of quotes and contract awarding			GOB/USAID/B	
6. Notification to suppliers			GOB	
7. Processing of payment doc.			GOB	
8. Payment to suppliers			GOB	
9. Receipt of commodities			GOB	
10. Delivery to final user			GOB	

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TIME CHART

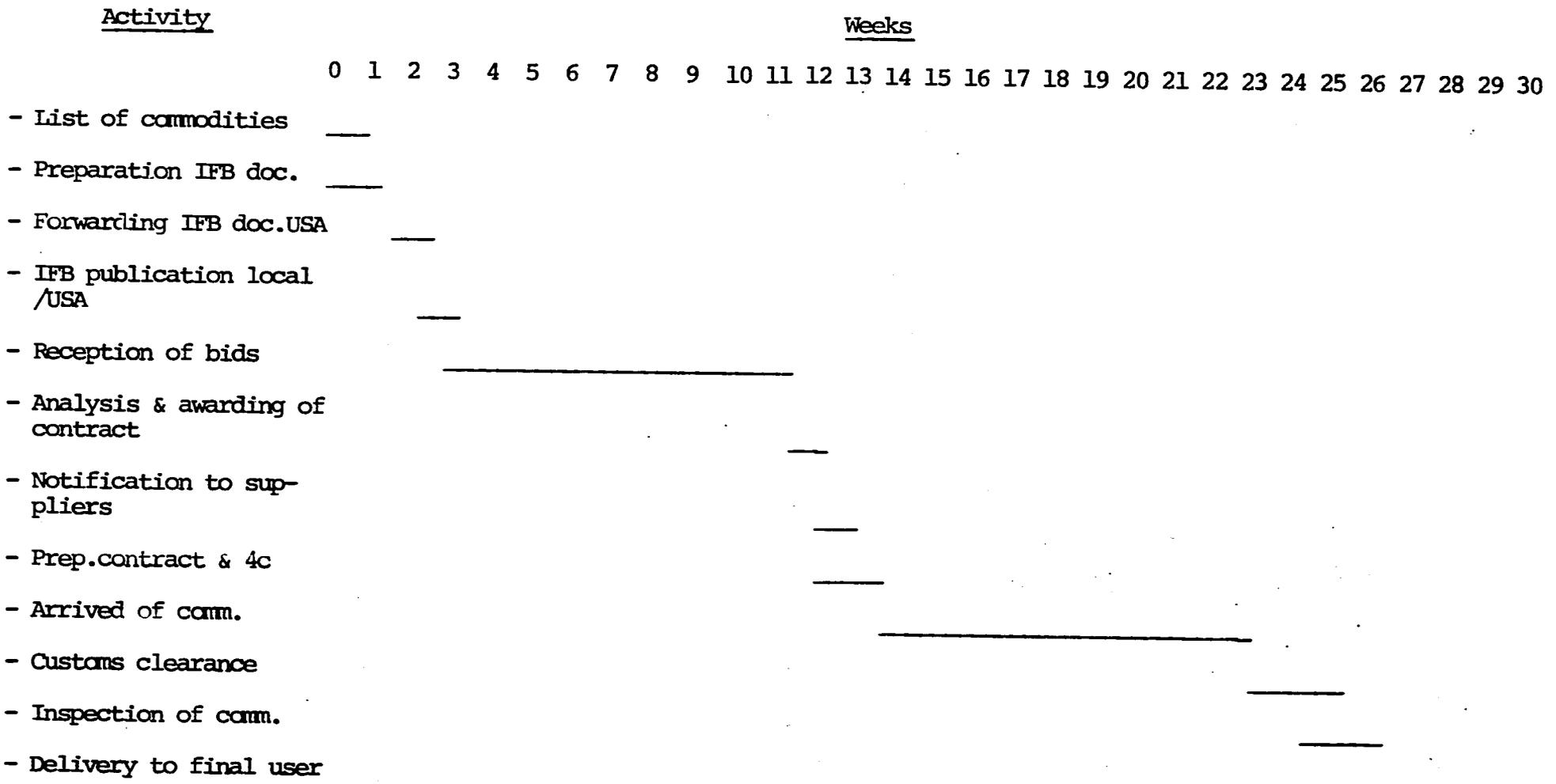
Working Day:

<u>Activity</u>	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
- List and approval of loan commodities	_____																			
- Request for quotations						_____														
- Forwarding request to suppliers								_____												
- Receipt of quotations consideration of quotes and award of contracts										_____										
- Notification to suppliers												_____								
- Processing of payment doc.													_____							
- Payment to suppliers																_____				
- Receipt of commodities																		_____		
- Delivery to final user																			_____	

b) International Procurement (Commercial Sources)

	<u>Date Scheduled</u>		<u>Notes</u>
	<u>Original</u>	<u>Revised</u>	
- List and approval of commodities	10/31/83		GOB-USAID/B
- Preparation of IFB documents	10/31/83		USAID/B
- Forwarding of IFB doc. to USA	11/4/83		USAID/B
- Publications Bolivia & USA	11/11/83		USAID/B
- Receipt of bids	12/2/83		USAID/B
- Analysis and awarding of contracts	12/9/83		GOB-USAID/B
- Notification to suppliers	12/16/83		USAID/B
- Preparation of contracts and letters of commitments (4a)	12/27/83		USAID/B
- Reception of commodities	3/2/84		USAID/B
- Custom clearances	3/10/84		USAID/B
- Inspection to commodities	3/15/84		GOB-USAID/B
- Delivery to final user	3/20/84		GOB-USAID/B

TIME CHART

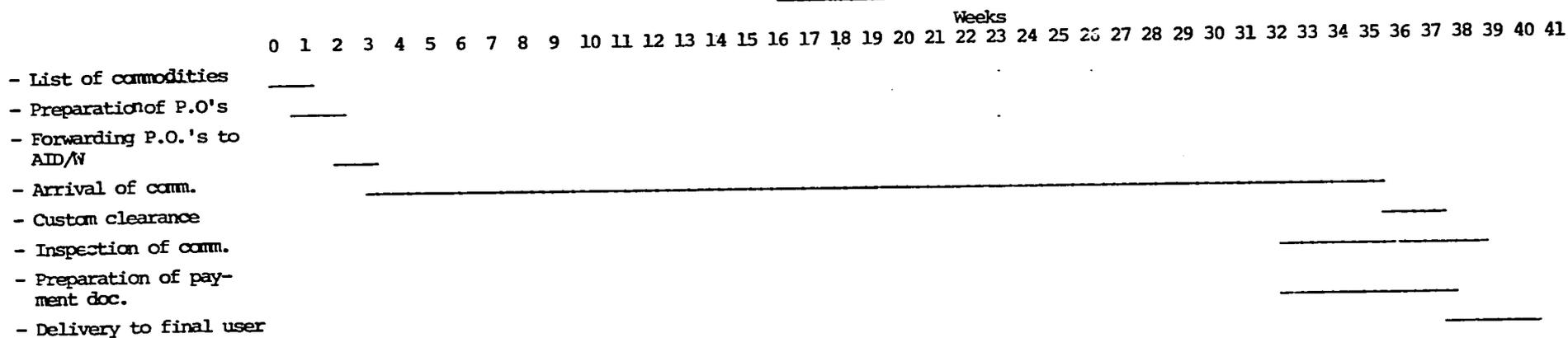


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c) Direct Procurement - (Excess Property and Others)

	Date Scheduled		Responsible	Notes
	Original	Revised		
- List and approval of commodities	10/31/82		GOB USAID/B	
- Preparation of P.O.'s	11/7/83		USAID/B	
- Forwarding P.O.'s doc. to AID/W	11/14/83		USAID/B	
- Reception of commodities	6/15/84		USAID/B	
- Custom clearance	6/30/84		USAID/B	
- Inspection of commodities	7/7/84		GOB-USAID/B	
- Preparation of payment doc.	6/30/84		USAID/B	
- Delivery to final users	7/20/84		GOB-USAID/B	

TIME CHART



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5 C (1) - COUNTRY CHECKLIST

Listed below are statutory criteria applicable generally to FAA funds, and criteria applicable to individual fund sources: Development Assistance and Economic Support Fund.

A. GENERAL CRITERIA FOR COUNTRY ELIGIBILITY

1. GENERAL CRITERIA FOR COUNTRY ELIGIBILITY

1. FAA Sec. (481). Has it been determined that the government of the recipient country has failed to take adequate steps to prevent narcotic drugs and other controlled substances (as defined by the Comprehensive Drug Abuse Prevention and Control Act of 1970) produced or processed, in whole or in part, in such country, or transported through such country, from being sold illegally within the jurisdiction of such country to U.S. Government personnel or their dependents, or from entering the U.S. unlawfully?
2. FAA Sec. 620(c). If assistance is to a government, is the government liable as debtor or unconditional guarantor on any debt to a U.S. citizen for goods or services furnished or ordered where (a) such citizen has exhausted available legal remedies and (b) the debt is not denied or contested by such government?
3. FAA Sec. 620(e)(1). If assistance is to a government, has it (including government agencies or subdivisions) taken any action which has the effect of nationalizing, expropriating, or otherwise seizing ownership or control of property of U.S. citizens or entities beneficially owned by them without taking steps to discharge its obligations toward such citizens or entities?

Bolivia has been strengthening the effectiveness of its narcotics control program, and has recently signed a series of agreements with the United States Government to reduce the illegal production of coca and control narcotics trafficking.

No.

No.

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4. FAA Sec. 532(c), 620(a), 620 (f), 620D; FY 1982 Appropriation Act Secs. 512 and 513. Is recipient country a Communist country? Will assistance be provided to Angola, Cambodia, Cuba, Laos, Vietnam, Syria, Libya, Iraq, or South Yemen? Will assistance be provided to Afghanistan or Mozambique without a waiver?  
No.
5. ISDCA of 1981 Secs. 724, 727 and 730. For specific restrictions on assistance to Nicaragua, see Sec. 724 of the ISDCA of 1981. For specific restrictions on assistance to El Salvador, see Secs. 727 and 730 of the ISDCA of 1981.  
N/A
6. FAA Sec. 620(j). Has the country permitted, or failed to take adequate measures to prevent, the damage or destruction by mob action of U.S. property?  
No.
7. FAA Sec. 620(l). Has the country failed to enter into an agreement with OPIC?  
Yes. Bolivia is a member of the Andean Pact
8. FAA Sec. 620(o); Fishermen's Protective Act of 1967, as amended, Sec. 5. (a) Has the country seized, or imposed any penalty or sanction against, any U.S. fishing activities in international waters?  
No.  
  
(b) If so, has any deduction required by the Fishermen's Protection Act been made?
9. FAA Sec. 620(q); FY 1982 Appropriation Act. Sec. 517, (a) Has the government of the recipient country been in default for more than six months on interest or principal of any AID loan to the country?  
No.

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- (b) Has the country been in default for more than one year on interest or principal on any U.S. loan, under a program for which the appropriation bill appropriates funds? No.
10. FAA Sec. 620(s). If contemplated assistance is development loan or from Economic Support Fund, has the Administrator taken into account the amount of foreign exchange or other resources which the country has spent on military equipment? (Reference may be made to the annual "Taking into Consideration" memo: "Yes, taken into account by the Administrator at time of approval of Agency OYB." This approval by the Administrator of the Operational Year Budget can be the basis for an affirmative answer during the fiscal year unless significant changes in circumstances occur.) Yes.
11. FAA Sec. 620(t). Has the country severed diplomatic relations with the United States? If so, have they been resumed and have new bilateral assistance agreements been negotiated and entered into since such resumption? No.
12. FAA Sec. 620(u). What is the payment status of the country's U.N. obligations? If the country is in arrears, were such arrearages taken into account by the AID Administrator in determining the current AID Operational Year Budget? (Reference may be made to the Taking into Consideration memo.) No arrearages.
13. FAA Sec. 620A; FY 1982 Appropriation Act Sec. 520. Has the country aided or abetted, by granting sanctuary from prosecution to, any individual or group which has committed an act of international terrorism? Has the country aided or abetted, by granting sanctuary from prosecution to, any individual or

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group which has committed a war crime?

14. FAA Sec. 666. Does the country object, on the basis of race, religion, national origin or sex, to the presence of any officer or employee of the U.S. who is present in such country to carry out economic development programs under the FAA? No.

15. FAA Sec. 669, 670. Has the country, after August 3, 1977, delivered or received nuclear enrichment or re-processing equipment, materials, or technology, without specified arrangements or safeguards? Has it transferred a nuclear explosive device to a non-nuclear weapon state, or if such a state, either received or detonated a nuclear explosive device, after August 3, 1977? (FAA SEC.620E permits a special waiver of Sec. 669 for Pakistan.) No.

16. ISDCA of 1981 Sec. 720. Was the country represented at the Meeting of Ministers of Foreign Affairs and Heads of Delegations of the Non-Aligned Countries to the 36th General Session of the General Assembly of the U.N. of Sept. 25 and 28, 1981, and failed to disassociate itself from the communique issued? If so, has the President taken it into account? (Reference may be made to the Taking into Consideration memo.) Bolivia was represented at the Meeting of Ministers by the Torrelío Government. It did not formally disassociate itself from the communique issued.

17. ISDCA of 1981 Sec. 721. See special requirements for assistance to Haiti. N/A

V. FUNDING SOURCE CRITERIA FOR COUNTRY ELIGIBILITY

1. Development Assistance Country Criteria

- a. FAA Sec. 116. Has the

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Department of State determined that this government has engaged in a consistent pattern of gross violations of internationally recognized human rights? If so, can it be demonstrated that contemplated assistance will directly benefit the needy?

No.

2. Economic Support Fund Country Criteria

a. FAA Sec. 502B. Has it been determined that the country has engaged in a consistent pattern of gross violations of internationally recognized human rights? If so, has the country made such significant improvements in its human rights record that furnishing such assistance is in the national interest?

N/A

b. ISDCA of 1981, Sec. 725(b). If ESF is to be furnished to Argentina, has the President certified that (1) the Govt. of Argentina has made significant progress in human rights; and (2) that the provision of such assistance is in the national interest of the U.S.?

N/A

c. ISDCA of 1981, Sec. 726(b). If ESF assistance is to be furnished to Chile, has the President certified that 1) the Govt. of Chile has made significant progress in human rights; (2) it is in the national interest of the U.S.; and (3) the Govt. of Chile is not aiding international terrorism and has taken steps to bring to justice those indicted in connection with the murder of Orlando Letelier?

N/A

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STANDARD ITEM CHECKLIST

A. Procurement

1. FAA Sec. 602. Are there arrangements to permit U.S. small businesses to participate equitably in the furnishing of commodities and services financed? Yes.
2. FAA Sec. 604(a). Will all procurement be from the U.S. except as otherwise determined by the President or under delegation from him? Yes.
3. FAA Sec. 604 (d). If the cooperating country discriminates against marine insurance companies authorized to do business in the U.S., will commodities be insured in the United States against marine risk with such a company? Bolivia does not so discriminate.
4. FAA Sec. 604 (e); ISDCA of 1980 Sec. 705(a). If offshore procurement of agricultural commodity or product is to be financed, is there a provision against such procurement, when the domestic price of such commodity is less than parity? (Exception where commodity financed could not reasonably be procured in U.S.) N/A
5. FAA Sec. 604(g). Will construction or engineering services be procured from firms of countries otherwise eligible under Code 941, but which have attained a competitive capability in international markets in one of these areas? No.
6. FAA Sec. 603. Is the shipping excluded from compliance with requirement in Section 901(b) of the Merchant Marine Act of 1936, as amended, that at least 50 percentum of the gross tonnage of commodities (computed separately for dry bulk carriers, dry cargo liners, and tankers) financed shall be transported on privately owned U.S. flag commercial vessels to the extent that such vessels are available at fair and reasonable rates. No.

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7. FAA Sec. 621. If technical assistance is financed, will such assistance be furnished by private enterprise on a contract basis to the fullest extent practicable? If the facilities of other Federal Agencies will be utilized, are they particularly suitable, not competitive with private enterprise, and made available without undue interference with domestic programs?

Yes.

8. International Air Transport. Fair Competitive Practices. Act. 1974. If air transportation of persons or property is financed on grant basis, will U.S. carriers be used to the extent such service is available?

Yes.

9. FY 1982 Appropriation Act Sec. 504. If the U.S. Government is a party to a contract for procurement, does the contract contain a provision authorizing termination of such contract for the convenience of the United States?

Yes.

B. Construction

1. FAA Sec. 601(d). If capital (e.g. construction) project, will U.S. engineering and professional services be used?

No. Local procurement will be used.

2. FAA Sec. 611(c). If contracts for construction are to be financed, will they be let on a competitive basis to maximum extent practicable?

Yes.

3. FAA Sec. 62(k). If for construction of productive enterprise, will aggregate value of assistance to be furnished by the U.S. not exceed \$100 million (except for productive enterprises in Egypt that were described in the CP)?

N/A

C. Other Restrictions

1. FAA Sec. 122(b). If development loan, is interest rate at least 2% per annum during grace period and at least 3% per annum thereafter?

Yes.

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2. FAA Sec. 301(d). If fund is established solely by U.S. contributions and administered by an international organization, does Comptroller General have audit rights? N/A
  
3. FAA Sec. 620(h). Do arrangements exist to insure that United States foreign aid is not used in manner which, contrary to the best interests of the United States, promotes or assists the foreign aid projects or activities of Communist-block countries? Yes.
  
4. Will arrangements preclude use of financing?
  - a. FAA Sec. 104(f); FY 1982 Appropriation Act. Sec. 525: (1) To pay for performance of abortions as a method of family planning or to motivate or coerce persons to practice abortions; (2) to pay for involuntary sterilization as method of family planning, or coerce or provide financial incentive to any person to undergo sterilization; (3) to pay for any biomedical research which relates, in whole or in part, to methods or the performance of abortions or involuntary sterilizations as a means of family planning; (4) to lobby for abortion? Yes.
  
  - b. FAA Sec. 620(g). To compensate owners for expropriated nationalized property? Yes.
  
  - c. FAA Sec. 660. To provide training or advice or provide any financial support for police, prisons, or other law enforcement forces, except for narcotics programs? Yes.
  
  - d. FAA Sec. 662. For CIA activities? Yes.
  
  - e. FAA Sec. 636(i). For purchases, sale, long-term lease, exchange or guaranty of the sale of motor vehicles manufactured outside U.S., unless a waiver is obtained? Yes.

- f. FY 1982 Appropriation Act. Sec. 503.  
To pay pensions, annuities, retirement pay, or adjusted service compensation for military personnel? Yes.
- g. FY 1982 Appropriation Act. Sec. 505  
To pay U.S. assessments, arrearages or dues? Yes.
- h. FY 1982 Appropriation Act, Sec. 506.  
To carry out provisions of FAA Section 209(d) (transfer of FAA funds to multilateral organizations for lending? Yes.
- i. FY 1982 Appropriation Act. Sec. 510.  
To finance the export of nuclear equipment, fuel, or technology or to train foreign nationals in nuclear fields? Yes.
- j. FY 1982 Appropriation Act, Sec. 511.  
Will assistance be provided for the purpose of aiding the efforts of the government of such country to repress the legitimate rights of the population of such country contrary to the United States Declaration of Human Rights? No.
- k. FY 1982 Appropriation Act. Sec. 515.  
To be used for publicity or propaganda purposes within U.S. not authorized by Congress? Yes.

PROJECT CHECKLIST

A. General Criteria for Project

1. FY 1982 Appropriation Act, Sec.523  
FAA Sec. 634A; Sec.653(b).  
(a) Describe how authorization and appropriations committees of Senate and House have been or will be notified concerning the project;  
(b) Is assistance within (Operational Year Budget) country or international organization allocation reported to Congress (or not more than \$1 million over that amount)?  

Committees will be notified using normal congressional notification procedures.

No. Congress has been advised.
2. FAA Sec.611(a)(1). Prior to obligation in excess of \$100,000, will there be (a) engineering, financial or other plans necessary to carry out the assistance and (b) a reasonably firm estimate of the cost to the U.S. of the assistance?  

Yes.

Yes.
3. FAA Sec.611(a)(2). If further legislative action is required within recipient country, what is basis for reasonable expectations that such action will be completed in time to permit orderly accomplishment of purpose of the assistance?  

GOB has agreed to issue required Decree as scheduled.
4. FAA Sec. 611(b); FY 1981 Appropriation Act, Sec. 501. If for water or water-related land resource construction, has project met the standards and criteria as set forth in the Principles and Standards for Planning Water and Related Land Resources, dated October 25, 1973? (See AID Handbook 3 for new guidelines.)  

Yes.
5. FAA Sec.611(e). If project is capital assistance (e.g. construction), and all U.S. assistance for it will exceed \$1 million, has Mission Director certified and Regional Assistant Administrator taken into consideration the country's capability effectively to maintain and utilize the project?  

Yes.

6. FAA Sec.209. Is project susceptible to execution as part of regional or multilateral project? If so, why is project not so executed? Information and conclusion whether assistance will encourage regional development programs.
- Yes. The GOB is negotiating with the Interamerican Development Bank concerning financing for Phase II, paving and finish work of the rehabilitation of the Santa Cruz Highway.
7. FAA Sec.601(a). Information and conclusions whether project will encourage efforts of the country to: (a) increase the flow of international trade; (b) foster private initiative and competition; and (c) encourage development and use of cooperatives, and credit unions, and savings and loan associations; (d) discourage monopolistic practices; (e) improve technical efficiency of industry, agriculture and commerce; and (f) strengthen free labor unions.
- Project will encourage efforts in all of the noted areas, but (f).
8. FAA Sec.601(b). Information and conclusions on how project will encourage U.S. private trade and investment abroad and encourage private U.S. participation in foreign assistance programs (including use of private trade channels and the services of U.S. private enterprise).
- Private U.S. suppliers may sell goods to project.
9. FAA Sec.612(b). 636(h); FY 1982 Appropriation Act, Sec.507. Describe steps taken to assure that, to the maximum extent possible, the country is contributing local currencies to meet the cost of contractual and other services, and foreign currencies owned by the U.S. are utilized in lieu of dollars.
- Bolivia will provide 27% of total project costs. There are no U.S. owned local currencies.
10. FAA Sec.612(d). Does the U.S. own excess foreign currency of the country and, if so, what arrangements have been made for its release?
- No.
11. FAA Sec.601(e). Will the project utilize competitive selection procedures for the awarding of contracts, except where applicable procurement rules allow otherwise?
- Yes.

12. FY 1982 Appropriation Act, Sec.521.  
If assistance is for the production of any commodity for export, is the commodity likely to be in surplus on world markets at the time, and is such assistance likely to cause substantial injury to U.S. producers of the same, similar or competing commodity? No.
13. FAA 118(c) and (d). Does the project comply with the environmental procedures set forth in AID Regulation 16? Does the project or program take into consideration the problem of the destruction of tropical forests? Yes.  
Yes.
14. FAA 121 (d). If a Sahel project, has a determination been made that the host government has an adequate system for accounting for and controlling receipt and expenditures of project funds (dollars or local currency generated therefrom)? N/A

B. Funding Criteria for Project

1. Development Assistance Project Criteria

- a. FAA Sec.102(b), 111, 113, 281(a).  
Extent to which activity will (a) effectively involve the poor in development, by extending access to economy at local level, increasing labor-intensive production and the use of appropriate technology, spreading investment out from cities to small towns and rural areas, and insuring wide participation of the poor in the benefits of development on a sustained basis, using the appropriate U.S. institutions; (b) help develop cooperatives, especially by technical assistance, to assist rural and urban poor to help themselves toward better life, and otherwise encourage democratic private and local governmental institutions; (c) support the self-help efforts of developing

- countries; (d) promote the participation of women in the national economies of developing countries and the improvement of women's status; and (e) utilize and encourage regional cooperation by developing countries?
- Project will have a direct impact in all these items with the exception of "e".
- b. FAA Sec.103, 103A, 104, 105, 106. Does the project fit the criteria for the type of funds (functional account) being used? Yes.
- c. FAA Sec.107. Is emphasis on use of appropriate technology (relatively smaller, cost-saving, labor-using technologies that are generally most appropriate for the small farms, small businesses, and small incomes of the poor)? Yes.
- d. FAA Sec.110(a). Will the recipient country provide at least 25% of the costs of the program, project, or activity with respect to which the assistance is to be furnished (or is the latter cost-sharing requirement being waived for a "relatively least developed"country)? Yes.
- e. FAA Sec.110(b). Will grant capital assistance be disbursed for project over more than 3 years? If so, has justification satisfactory to Congress been made, and efforts for other financing, or it the recipient country "relatively least developed"? (M.O. 1232.1 defined a capital project as "the construction", expansion, equipping or alteration of a physical facility or facilities financed by AID dollar assistance of not less than \$100,000, including related advisory managerial and training services, and not undertaken as part of a project of a predominantly technical assistance character. No.

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- f. FAA Sec.122(b). Does the activity give reasonable promise of contributing to the development of economic resources, or to the increase of productive capacities and self-sustaining economic growth? Yes.
- g. FAA Sec.281(b). Describe extent to which program recognizes the particular needs, desires, and capacities of the people of the country; utilizes the country's intellectual resources to encourage institutional development, and supports civil education and training in skills required for effective participation in governmental processes essential to self-government. Project will meet Bolivia's need to reduce illicit coca production and to expand agricultural and industrial productivity. Bolivia's research and education institutions will be used.

2. Development Assistance Project Criteria  
(Loans Only)

- a. FAA Sec.122 (b). Information and conclusions on capacity of the country to repay the loan, at a reasonable rate of interest. Bolivia has demonstrable problems in repayment of new short-term debt credits, such a long term loan as the proposed project poses no difficulty.
- b. FAA Sec.620(d). If assistance is for any productive enterprise which will compete with U.S. enterprises, is there an agreement by the recipient country to prevent export to the U.S. of more than 20% of the enterprise's annual production during the life of the loan? N/A
- c. ISDCA of 1981, Sec.724(c) and (d). If for Nicaragua, does the loan agreement require that the funds be used to the maximum extent possible for the private sector? Does the project provide for monitoring under FAA Sec. 624(g)? N/A

3. Economic Support Fund Project Criteria

- a. FAA Sec.531(a). Will this assistance promote economic or political stability? To the extent possible, does it reflect the policy directions of FAA Section 102? N/A

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- b. FAA Sec.531(c). Will assistance under this Chapter be used for military, or paramilitary activities? N/A
- c. FAA Sec.534. Will ESP funds be used to finance the construction of the operation or maintenance of, or the supplying of fuel for, a nuclear facility? If so, has the President certified that such use of funds is indispensable to non-proliferation objectives? N/A
- d. FAA Sec.609. If commodities are to be granted so that sale proceeds will accrue to the recipient country, have Special Account/ (counterpart) arrangements been made? N/A

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Annex 6

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CLASS: UNCLASSIFIED  
 CHRGE: AID 05/23/83  
 APPRV: AD:TACCFEN  
 DRFTD: GARVELINA/THURSTC  
 AYER/ASSELIN  
 CLEAR: ZELAYA LEONDEVIVE  
 ROUGIN  
 DISTR: AID AMB DCM FE

AIDAC

FOR M. BROWN AA/LAC FROM ACTING DIRECTOR COHEN

E.O. 12356: N/A  
 SUBJECT: DETAILED PRELIMINARY PROPOSAL FOR BOLIVIA  
 - DISASTER RECOVERY PROJECT

REF: ALMAGUER/FARLEY/COHEN TELCON AUGUST 5

I. SUMMARY

- PER REF TELCON, THIS MEMO SUMMARIZES USAID/BOLIVIA'S PROPOSAL FOR THE USE OF FUNDS FOR A DISASTER RECOVERY PROJECT IN RESPONSE TO THE EL NINO INDUCED DROUGHT AND FLOODING IN BOLIVIA. THE PROPOSED DOLS 22 MILLION GRANT WILL ASSIST THE GOB TO IMPLEMENT KEY PORTIONS OF ITS EMERGENCY PLAN AND HELP PROVIDE A BASIS FOR RECOVERY OVER THE NEXT THREE YEAR PERIOD FROM CURRENT CONDITIONS BROUGHT ABOUT BY RECENT NATURAL DISASTERS AND AGGRAVATED BY BOLIVIA'S ONGOING ECONOMIC CRISIS. A GRANT IS PREFERRED GIVEN THE NATURE OF THE PROJECT AND BOLIVIA'S CURRENT ECONOMIC SITUATION. THE PROJECT HAS BEEN FULLY DISCUSSED WITH THE DIRECTOR OF THE GOB'S CIVIL DEFENSE COMMITTEE, WHO IS RESPONSIBLE FOR DEVELOPING AND IMPLEMENTING THE GOVERNMENT'S EMERGENCY PLAN AND COORDINATING INTERNATIONAL ASSISTANCE TO THE RECOVERY EFFORT, AND IT HAS HIS ENDORSEMENT. THE PROJECT WILL COMPLEMENT AID'S SIGNIFICANT PL 482 EMERGENCY FOOD DONATION/SALES PROGRAM AND RECOVERY EFFORTS ALREADY UNDERWAY. THE THREE AREAS IN WHICH THE PROPOSED THREE-YEAR PROJECT WILL CONCENTRATE ARE POTABLE WATER AND SMALL-SCALE IRRIGATION IN THE DROUGHT AFFECTED HIGHLANDS, REHABILITATION OF THE COUNTRY'S MAIN COMMERCIAL TRANSPORTATION LINA -- THE SANTA CRUZ - COCHABAMBA HIGHWAY, AND IMPORTATION OF VITALLY NEEDED FERTILIZER AND MEDICINES. IF THE FOLLOWING PRELIMINARY PROJECT PROPOSAL IS APPROVED AND FUNDS ARE RESERVED BY MID-AUGUST, THE USAID WILL BE ABLE TO DEVELOP A PROJECT PAPER FOR THE PROPOSED PROJECT AND OBLIGATE THE FUNDS PROVIDED BY THE END OF SEPTEMBER. END SUMMARY.

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II. THE PROBLEM

A. CURRENT SITUATION

- SINCE MARCH 1983, BOLIVIA HAS BEEN BUFFETED BY  
 FLOODS AND UNUSUALLY HEAVY RAINS IN THE SANTA CRUZ

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REGION AND BY PROMPT IN THE NATION'S HIGHLANDS (ALTI-PLANO). THESE NATURAL DISASTERS HAVE OCCURRED IN THE MIDST OF THE WORST ECONOMIC CRISIS IN THE COUNTRY'S HISTORY. THE IMPACTS OF THESE DISASTERS NOW BEING EXPERIENCED ARE WIDESPREAD HUMAN SUFFERING, REDUCED AGRICULTURAL AND INDUSTRIAL PRODUCTION, MAJOR UNANTICIPATED OUTLAYS OF SCARCE FOREIGN EXCHANGE, AND GROWING POLITICAL DISCONTENT DUE TO THE GOVERNMENT'S INABILITY TO RESPOND ADEQUATELY.

#### 1. THE FLOOD

ON MARCH 19, A FLASH FLOOD OF THE FIRAI RIVER DEVASTATED PART OF THE CITY OF SANTA CRUZ, DESTROYING SURROUNDING CROP LANDS AND WASHING AWAY THE REGION'S MAJOR ROADS AND BRIDGES. THE FLOOD CAUSED THE DEATHS OF MORE THAN 100 PEOPLE AND LEFT 15,000 CITY DWELLERS HOMELESS. MORE THAN 40,000 HOMES WERE DESTROYED OR DAMAGED. THE REPLACEMENT COST FOR THESE DWELLINGS IS ESTIMATED TO BE \$23.5 MILLION. LOW-INCOME FAMILIES (8-10,000 PEOPLE), WHO RESIDED IN TIN OR WOODEN SHACKS ALONG THE FIRAI AND WHOSE HOMES WERE DESTROYED, WERE MOVED BY THE MUNICIPALITY TO A REFUGEE SETTLEMENT KNOWN AS PLAN 3000 EIGHT MILES OUTSIDE THE CITY OF SANTA CRUZ.

IN THE RURAL AREAS SURROUNDING SANTA CRUZ, MORE THAN 26,000 HECTARES OF THE NATION'S MOST PRODUCTIVE AGRICULTURAL LAND WAS SEVERELY AFFECTED DURING THE CRITICAL HARVEST PERIOD. FIELDS OF CORN, RICE, SOYBEANS, AND SUGAR CANE WERE FLOODED AND COULD NOT BE HARVESTED. THE FLOOD ALSO DESTROYED LIVESTOCK AND POULTRY. THE AREA'S AGRICULTURAL, LIVESTOCK AND POULTRY LOSSES ARE ESTIMATED AT \$27 MILLION.

FLOOD WATERS ALSO CAUSED MAJOR INFRASTRUCTURE DAMAGE THROUGHOUT THE AREA. THE FLASH FLOOD DESTROYED OR DAMAGED FIVE BRIDGES, 55 KILOMETERS OF THE SANTA CRUZ-COCHABAMBA TRUNK ROAD, AND 250 KILOMETERS OF SECONDARY ROADS. SINCE THE FLOOD, ABNORMALLY HEAVY RAINS HAVE CONTINUED IN THE REGION, CAUSING FREQUENT LANDSLIDES, AND CONSEQUENTLY ADDITIONAL SERIOUS DAMAGE TO AGRICULTURAL PRODUCTIVITY. ADDITIONAL ROADS AND BRIDGES

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HAVE BEEN WASHED AWAY OR UNDERMINED. AS OF THE END OF JULY, A TOTAL OF EIGHT KEY BRIDGES HAVE BEEN DAMAGED OR DESTROYED, 123 KILOMETERS OF PRIMARY ROADS ARE NOW UNPASSABLE, AND 562 KILOMETERS OF SECONDARY ROADS HAVE BEEN RENDERED USELESS. REPLACING OR REHABILITATING THIS INFRASTRUCTURE WILL COST THE GOB \$41.4 MILLION.

IN ADDITION TO THESE NEW INFRASTRUCTURE LOSSES, THE REGION HAS REMAINED IMMOBILIZED AS HEAVY RAINS HAVE PREVENTED ROAD AND BRIDGE REPAIRS. THE PRINCIPAL ROAD IN THIS REGION, THE SANTA CRUZ - COCHABAMBA HIGHWAY, WHICH CARRIES A SIGNIFICANT PERCENTAGE OF THE NATION'S FOOD PRODUCTION TO MARKET, REMAINS LARGELY OUT-OF-SERVICE. WITHOUT THESE PRIMARY AND SECONDARY TRANSPORTATION LINES, FARMERS IN THE OUTLYING AREAS OF THE DEPARTMENT OF SANTA CRUZ HAVE BEEN UNABLE TO GET THEIR PRODUCE TO MARKET, THEREBY CAUSING MORE CROP LOSSES AND EXPANDING THE AGRICULTURAL LAND SEVERELY AFFECTED BY THE FLOOD FIVE-FOLD. MOREOVER, WEATHER CONDITIONS HAVE PREVENTED THE FERTILE SANTA CRUZ AGRICULTURAL ZONE FROM MAXIMIZING ITS TRADITIONALLY HIGH PRODUCTION POTENTIAL AND HELPING TO OFFSET THE COUNTRY'S GROWING FOOD DEFICIT DUE TO THE ALTIPLANO DROUGHT.

THE CONTINUED RAINS IN THE SANTA CRUZ REGION HAVE CAUSED WIDESPREAD FLOODING, ESPECIALLY IN THE SAN JULIAN AREA EAST OF THE CITY. AT LEAST EIGHT COMMUNITIES (40,000 PEOPLE) CONTINUE TO BE AFFECTED. PLAN 3220, WHICH STILL HOLDS 10,000 REFUGEES, CONTINUES TO SUFFER FROM PERIODIC FLOODING. HEALTH AND SANITATION CONDITIONS IN THESE AREAS ARE DETERIORATING. THE MOST AFFECTED GROUPS ARE LACTATING MOTHERS AND YOUNG CHILDREN. INCREASING NUMBERS OF CHILDREN ARE SUFFERING FROM DIARRHEA AND ADVANCED STAGES OF MALNUTRITION, WHILE MANY ADULTS ARE SUFFERING FROM GASTROINTESTINAL DISEASES. HEALTH POSTS, CLINICS, AND HOSPITALS IN THESE REGIONS ARE VIRTUALLY CUT OFF MEDICINES AND MEDICAL SUPPLIES. THESE ITEMS MUST BE IMPORTED INTO BOLIVIA. THE GOVERNMENT HAS BEEN UNABLE TO ALLOCATE ENOUGH FOREIGN EXCHANGE TO PURCHASE EVEN MINIMAL AMOUNTS OF SUCH BASIC MEDICINES AS PENICILLIN, ANAESTHETICS AND ORAL REHYDRATION SALTS.

#### 2. THE DROUGHT

THE GOB ESTIMATES THAT 380,000 SQUARE KILOMETERS, OR 35 PERCENT OF BOLIVIA'S NATIONAL TERRITORY, IS CURRENTLY BEING AFFECTED BY SEVERE DROUGHT CONDITIONS. THE DROUGHT AREA ENCOMPASSES 90 PERCENT OF THE ALTIPLANO, 70 PERCENT OF THE VALLEYS, AND 10 PERCENT OF THE LOWLANDS. THE DROUGHT AFFECTS PORTIONS OF SEVEN OF BOLIVIA'S NINE DEPARTMENTS, ALL OF THE DEPARTMENTS OF POTOSI, CRURO, AND LA PAZ AND LESSER PORTIONS OF THE DEPARTMENTS OF COCHABAMBA, CHUQUISACA, TARIJA, AND SANTA CRUZ. APPROXIMATELY 1.5 MILLION RURAL INHABITANTS OF THESE DEPARTMENTS, OR 45 PERCENT OF THE AREA'S TOTAL RURAL POPULATION, WILL FACE STARVATION CONDITIONS BEFORE THE END OF 1993. THE MAJORITY OF THE AFFECTED POPULATION HAS INCOMES OF LESS THAN \$/20 PER ANNUM.

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- THE MOST SEVERELY AFFECTED URBAN CENTER TO DATE IS THE ALTIPLANO CITY OF POTOSI. BEGINNING IN MARCH OF THIS YEAR, AS A RESULT OF THE PROLONGED DROUGHT, THE WATER SUPPLY SOURCES OF THE CITY BECAME CONTAMINATED OR DRIED UP, LEAVING A POPULATION OF 130,000 WITHOUT ADEQUATE POTABLE WATER, WATER IS NOW HAULED 40 KILOMETERS BY RAILROAD TANK CARS DAILY. FOR THE PAST FOUR MONTHS, POTABLE WATER HAS BEEN AVAILABLE TO CITY RESIDENTS FOR APPROXIMATELY FIFTEEN MINUTES EACH DAY. SINCE THE WATER SITUATION HAS REACHED CRISIS PROPORTIONS, SCHOOLS HAVE BEEN PARTIALLY CLOSED AND MOST BUSINESSES HAVE BEEN OPERATING ON REDUCED SCHEDULES.

- HEALTH CONDITIONS IN THE DROUGHT AREAS ARE DETERIORATING. BELGIAN HEALTH SPECIALISTS WORKING IN THE DEPARTMENT OF POTOSI NOTE THAT MALNUTRITION IS SHOWING DRAMATIC INCREASES AMONG RURAL CHILDREN. INTESTINAL DISORDERS OF ALL TYPES ARE INCREASING AMONG ADULTS AS WELL AS CHILDREN, ESPECIALLY IN THE AREA AROUND THE CITY OF POTOSI AND IN THOSE RURAL AREAS NEAR MINES, AS PEOPLE RESORT TO DRINKING CONTAMINATED WATER. MEDICAL SUPPLIES ARE SCARCE THROUGHOUT THE DROUGHT REGION.

- WATER AND FOOD SHORTAGES HAVE ALREADY FORCED MANY CAMPESINOS TO TAKE EXTREME MEASURES. MINISTRY OF AGRICULTURE OFFICIALS INDICATE THAT INCREASING NUMBERS OF CAMPESINO FAMILIES HAVE EATEN OR ARE ABOUT TO EAT THEIR SEED STOCKS. THE MEAGER PASTURE LANDS WHICH EXIST IN THE ALTIPLANO HAVE BEEN DESTROYED BY THE DROUGHT. AVAILABLE POTABLE WATER RESOURCES ARE BECOMING TOO SCARCE TO SHARE WITH ANIMALS. RATHER THAN PERMIT THEIR LIVESTOCK TO STARVE, CAMPESINOS ARE SLAUGHTERING THEM.

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VILLAGERS IN THE WESTERN PART OF THE DEPARTMENT OF POTOSI EXPECT 84 PERCENT OF THEIR HERDS TO BE GONE BY NOVEMBER. LIVESTOCK (LLANAS, SHEEP, CATTLE, PIGS, AND GOATS) LOSSES IN THE DROUGHT AREAS ARE ESTIMATED TO BE DOLS 250 MILLION.

- AS A RESULT OF THE DROUGHT CONDITIONS IN THE ALTIPLANO, MANY OF THE AFFECTED SMALL FARMERS ARE MIGRATING TO OTHER PARTS OF BOLIVIA. ONE OF THE REGIONS RECEIVING A LARGE INFUX OF DROUGHT REFUGEES IS THE CHAPARE, THE MAIN COCA PRODUCTION AREA IN BOLIVIA. IN GENERAL, THE CHAPARE AND SEVERAL OTHER KEY COCA PRODUCTION AREAS HAVE ESCAPED THE DIRECT EFFECTS OF THE FLOOD OR DROUGHT CONDITIONS. MIGRANTS HAVE BEEN ABLE TO SETTLE ON MARGINAL LANDS AND IN NATIONAL FORESTS AND BEGIN GROWING COCA. GOB OFFICIALS EXPECT COCA PRODUCTION TO INCREASE AS LONG AS DROUGHT REFUGEES MOVE INTO THE AREA.

- AS THE IMPACT OF THE DISASTERS WORSENS IN RURAL BOLIVIA, THE NATION'S URBAN CENTERS ARE ALSO BEING AFFECTED. RURAL DWELLERS WITHOUT WATER OR FOOD ARE ALREADY MIGRATING TO THE CITIES AND SEVERELY TAX OVERBURDENED INFRASTRUCTURES. THE MIGRATION OF CAMPESINOS INTO THE CITIES OF CRURO, COCHABAMBA, AND LA PAZ HAS ALREADY NECESSITATED THE OPENING OF SOUP KITCHENS TO PROVIDE BOTH THE MIGRANTS AND DESTITUTE RESIDENTS WITH ONE NUTRITIOUS MEAL A DAY. THE CITIES ARE ENCOUNTERING MAJOR FOOD SHORTAGES WHICH WILL SUBSTANTIALLY WORSEN BEFORE THE END OF THE YEAR. AS MORE CAMPESINOS ENTER THE CITIES, AS INFRASTRUCTURES BREAK DOWN, AND AS FOOD SHORTAGES PERVADE THE URBAN CENTERS, THE GOVERNMENT WILL BE EXPECTED TO ACT. NEAR BANKRUPTCY, HOWEVER, WILL MAKE SATISFACTORY SOLUTIONS UNLIKELY. UNDER THESE CIRCUMSTANCES THE DEMANDS OF RURAL AND URBAN RESIDENTS WILL CHALLENGE THE EXISTENCE OF BOLIVIA'S YOUNG AND FRAGILE DEMOCRACY.

### 3. FOOD SHORTAGES

- CURRENT 1983 CROP PRODUCTION PROJECTIONS INDICATE THAT BOLIVIA FACES AN IMMEDIATE AND SERIOUS FOOD SHORTAGE DUE TO MAJOR CROP LOSSES CAUSED BY GENERAL DROUGHT CONDITIONS IN THE ALTIPLANO AND VALLEY REGIONS AND FLOODS AND PERSISTENT RAINS IN THE SANTA CRUZ AGRICULTURAL ZONE. AGRICULTURAL PRODUCTION IS ESTIMATED AT 50 PERCENT BELOW NORMAL. THE DATA OF THE RECENTLY COMPLETED "1983 CROP PRODUCTION ESTIMATE STUDY" PROJECTS DISASTER ASSOCIATED DEFICITS IN FOOD EXCEEDING 1,200,000 METRIC TONS, HALF OF WHICH IS POTATOS, THE BASIC STAPLE FOR LOW-INCOME AND SUSTINENCE FARMER GROUPS. THE WINTER PLANTING IS NOT EXPECTED TO HAVE A SIGNIFICANT IMPACT ON THIS PROJECTED DEFICIT. LOSSES IN AGRICULTURAL PRODUCTION ARE ESTIMATED TO BE \$54.3 MILLION.

- CURRENT 1983 PRODUCTION DEFICIT ESTIMATES FOR THE SIX MAJOR CROPS ARE PRESENTED BELOW. THE DEFICIT IS CALCULATED AS THE DIFFERENCE BETWEEN THE PROJECTION OF DOMESTIC CONSUMPTION AND THE 1983 ESTIMATED PRODUCTION.

CROP	DEFICIT IN METRIC TONS
RICE	52,402
CORN (GRAIN)	89,215
CORN (FRESH)	14,721
POTATOS	575,049
WHEAT	373,353
BARLEY	42,365

- TO PREPARE THE ALTIPLANO FOR THE 1982 PLANTING IN OCTOBER-NOVEMBER, SEEDS AND OTHER INPUTS WILL BE REQUIRED. LARGE AMOUNTS OF CHEMICAL FERTILIZER WILL ALSO BE REQUIRED TO REPLENISH ALTIPLANO FIELDS. ESPECIALLY AMONG POTATO FARMERS, THE USE OF FERTILIZERS TO MAXIMIZE CROP YIELDS HAS BECOME COMMON. FERTILIZERS ARE AN IMPORTED ITEM IN BOLIVIA, HOWEVER, BECAUSE OF THE NATION'S FOREIGN EXCHANGE CRISIS, IT IS UNLIKELY THAT THE GOB WILL BE ABLE TO PROVIDE WHAT IS NECESSARY TO MEET EMERGENCY-GENERATED NEEDS.

- BOLIVIA'S LOSSES AS A RESULT OF THE NATURAL DISASTERS ARE STAGGERING, AND ACCOUNT FOR APPROXIMATELY \$1 BILLION OR 13.3 PERCENT OF GDP. THE MAJOR ECONOMIC LOSSES INCLUDE: AGRICULTURAL PRODUCTION \$524.5 MILLION, LIVESTOCK \$279 MILLION, INFRASTRUCTURE \$23.5 MILLION, EXPORTS \$22.0 MILLION PLUS UNANTICIPATED FOREIGN EXCHANGE EXPENDITURES FOR FOOD PRODUCTION AND EMERGENCY SUPPLIES. IN ITS PRESENT ECONOMIC CONDITION, THE GOB WILL NOT BE ABLE TO RESPOND IN ANY ADEQUATE WAY TO THE COUNTRY'S RECONSTRUCTION AND RECOVERY NEEDS WITHOUT SUBSTANTIAL EXTERNAL ASSISTANCE.

F. THE GOB EMERGENCY PLAN  
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- IN APRIL 1983, ON THE OCCASION OF A DONORS' MEETING IN LA PAZ, THE GOB PRESENTED ITS NATIONAL EMERGENCY PLAN FOR RECONSTRUCTION AND REHABILITATION. THE OBJECTIVE OF THE EMERGENCY PLAN IS TO AVOID WIDESPREAD STARVATION AND HELP THE COUNTRY RETURN TO FOOD SELF-SUFFICIENCY IN TRADITIONAL FOOD CROPS. THE PLAN HAS SIX COMPONENTS: (1) INCREASED AGRICULTURAL PRODUCTION (COST: \$50 MILLION); (2) PROVISION OF EMERGENCY FOOD SUPPLIES (COST: \$219 MILLION); (3) PORTABLE WATER PROJECTS (COST: \$43 MILLION); (4) LOGISTICAL SUPPORT FOR FOOD DISTRIBUTION (COST: \$27 MILLION); (5) INFRASTRUCTURE REHABILITATION (COST: \$84 MILLION); AND (6) FLOOD PREVENTION (COST: \$37 MILLION). THE TOTAL COST OF THE EMERGENCY PROGRAM PLAN IS ESTIMATED TO BE \$470 MILLION.

- THE ENTITY WITHIN THE GOB RESPONSIBLE FOR THE DESIGN AND IMPLEMENTATION OF THE EMERGENCY PLAN IS THE NATIONAL CIVIL DEFENSE COMMITTEE. THE COMMITTEE IS CHAIRED BY THE MINISTER OF DEFENSE AND INCLUDES THE PARTICIPATION OF THE OTHER INVOLVED GOB MINISTRIES AND THE COMMANDER OF THE ARMED FORCES. THERE ARE PARALLEL CIVIL DEFENSE COMMITTEES AT THE DEPARTMENTAL AND PROVINCIAL LEVELS WHICH ARE CHARGED WITH COORDINATING RELIEF AND REHABILITATION EFFORTS WITHIN THEIR JURISDICTIONS.

- DONOR ASSISTANCE IN SUPPORT OF THE EMERGENCY PLAN HAS BEEN SOLICITED. TO DATE, DONORS HAVE PROVIDED \$1.9 MILLION IN EMERGENCY ASSISTANCE TO THE SANTA CRUZ FLOOD VICTIMS. MORE RECENTLY, THE WORLD FOOD PROGRAM HAS PROMISED THE GOB 10,000 MT OF RICE AND THE GOVERNMENT OF FRANCE HAS AGREED TO PROVIDE 6,000 MT OF WHEAT FLOUR. THE BRITISH AND THE FRENCH WILL PROVIDE ASSISTANCE TO RECONSTRUCT THE LA BELGICA BRIDGE ON THE SANTA CRUZ-COCHABAMBA HIGHWAY. THE GOVERNMENTS OF ARGENTINA AND CHILE HAVE PROVIDED EIGHTEEN WATER STORAGE TANKS TO THE CITY OF POTOSI. A MEETING AT THE UNITED NATIONS IS SCHEDULED AUGUST 10, 1983, AT WHICH THE SECRETARY-GENERAL OF THE UNITED NATIONS WILL MAKE AN APPEAL FOR EMERGENCY ASSISTANCE FOR THE EL NINO AFFECTED COUNTRIES OF BOLIVIA, PERU AND GUATEMALA.

C. AID RESPONSE

- USAID/BOLIVIA RESPONSE TO THE CURRENT DISASTER SITUATION HAS THREE COMPONENTS: 1) OFDA EMERGENCY ASSISTANCE FOR THE MOST IMMEDIATELY AFFECTED VICTIMS OF FLOODING AND DROUGHT, 2) ADDITIONAL PL 480 TITLE II AND TITLE III FOOD DONATIONS AND THE FINANCING OF RECOVERY ACTIVITIES FROM PL 480 FOOD SALES GENERATION; AND 3) THE INFRASTRUCTURE AND EMERGENCY IMPORTS TO BE FINANCED UNDER THE PROPOSED PROJECT.

- OFDA ASSISTANCE TO DATE AMOUNTS TO DOLS 75,000. SOME OF THE USES WHICH HAVE BEEN MADE OF THESE FUNDS ARE DESCRIBED BELOW.

- IN RESPONSE TO THE SANTA CRUZ FLOOD, THE UNITED

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STATES SENT A DISASTER ASSESSMENT TEAM TO SANTA CRUZ TO ASSIST IN EVALUATING THE EXTENT OF THE FLOOD DAMAGE AND TO ADVISE THE MUNICIPALITY ON HOW TO PROVIDE FOR THE REFUGEES IN PLAN 3000. SIX PORTABLE WATER STORAGE TANKS WERE FLOWN TO PLAN 3000 TO ASSIST WITH WATER DISTRIBUTION. PLASTIC SHEETING FOR 300 SHELTERS WAS PROVIDED. BLANKETS, WATER CONTAINERS, TOOLS, AND OTHER NEEDED ARTICLES WERE ALSO DONATED. IN ADDITION, USAID CONTRIBUTED FUNDS FOR LATRINE CONSTRUCTION, DISEASE CONTROL, AND IODINE AND CHLORINE TABLET DISTRIBUTION. THROUGH THE PL 400 TITLE II PROGRAM, MORE THAN 367 MT OF FOOD WERE DISTRIBUTED IN PLAN 3000, WARWES AND IN OTHER FLOODED AREAS.

- TO ASSIST THE PEOPLE IN SAN JULIAN IN THE DEPARTMENT OF SANTA CRUZ, USAID HAS PROVIDED FOOD, TOOLS, AND SOME MEDICINES AND MEDICAL SUPPLIES. USAID HAS ALSO DONATED \$10,000 FOR THE RECONSTRUCTION OF SIX SMALL BRIDGES IN THE SAN JULIAN AREA, ENABLING FARMERS TO RETURN TO FULL AGRICULTURAL PRODUCTION AS QUICKLY AS POSSIBLE. USAID HAS SUPPLIED THE DEPARTMENT OF POTOSI AND OTHER DROUGHT AREAS WITH 1,125 MT OF FOOD. TWENTY-THREE WATER STORAGE TANKS HAVE BEEN SENT TO POTOSI TO FACILITATE THE CITY'S WATER DISTRIBUTION EFFORTS. SEVENTH DAY ADVENTIST WORLD SERVICES HAS BEEN GRANTED FUNDS TO ASSIST DROUGHT VICTIMS IN AND AROUND THE CITY OF POTOSI. THROUGH THE UTAH-BOLIVIA PARTNERS, \$7,000 ALSO HAS BEEN PROVIDED FOR THE CONSTRUCTION OF WATER STORAGE FACILITIES FOR LIVESTOCK IN THE CITY OF LA PAZ. USAID/BOLIVIA HAS PROVIDED \$6,000 FOR SOUP KITCHENS TO FEED CAMPESINOS WHO HAVE MIGRATED TO THE CITY FROM THE DROUGHT AREAS.

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- THUS FAR, THE MISSION'S RESPONSE TO BOLIVIA'S DISASTERS HAS BEEN DIRECTED MAINLY TOWARD LIFE-SUSTAINING ACTIVITIES RATHER THAN RECOVERY AND REHABILITATION. PLANS TO SUPPORT THE GOB'S RECOVERY PROGRAM HAVE NOW BEGUN TO BE MADE. TO IMPLEMENT THE RECOVERY PROGRAM, THE GOB WILL USE RESOURCES GENERATED FROM THE SALE OF PL 480 TITLE II AND TITLE III EMERGENCY FOOD DONATIONS AND THE PROPOSED \$20 MILLION DISASTER RECOVERY PROJECT. NON-EMERGENCY PL 480 TITLE III WHEAT ALLOCATIONS TOTTALLING DOLS 23.5 MILLION HAVE BEEN MADE DURING THE PAST YEAR. FUNDS GENERATED THROUGH THE NORMAL TITLE III PROGRAM (THE PESO EQUIVALENT OF DOLS 2.8 MILLION) HAVE BEEN REPROGRAMMED TO ASSIST THE FARMERS IN THE FLOOD AND DROUGHT REGIONS OF THE COUNTRY. AN ADDITIONAL ALLOTMENT OF DOLS 5.8 MILLION IN RICE HAS ALSO BEEN PROVIDED, THE PROCEEDS OF WHICH WILL BE USED FOR THE RECOVERY PROGRAM.

- TITLE II FOOD DONATIONS, TO DATE, TOTAL DOLS 27.9 MILLION, OF WHICH A PORTION WILL BE SOLD TO GENERATE RESOURCES FOR RECOVERY ACTIVITIES. DOLS 5.5 MILLION IN ADDITIONAL TITLE II FOOD IS EXPECTED TO BE APPROVED SHORTLY FOR FOOD FOR THE HUNGRY. THE TITLE II EMERGENCY PROGRAM WILL ALLOW THE COOPERATING SPONSORS TO EXPAND THEIR PROGRAMS AND THE NUMBER OF BENEFICIARIES RECEIVING FOOD. THE PROCEEDS FROM THE SALE OF TITLE II RICE WILL BE USED TO UNDERWRITE THE ADDED OPERATING EXPENSES OF THE SPONSORS' EMERGENCY PROGRAMS AND OTHER DISASTER RECOVERY ACTIVITIES. THE PESO PROCEEDS FROM THE MONETIZED 29,000 MT OF TITLE III RICE WILL BE USED TO: REHABILITATE SECONDARY ROADS IN THE SANTA CRUZ AREA, INCREASE CREDIT TO SMALL FARMERS FOR THE PURCHASE OF PRODUCTION INPUTS, EXPAND STORAGE FACILITIES, EXPAND SEED DEVELOPMENT ACTIVITIES, STRENGTHEN RURAL COOPERATIVES, AND SUPPORT EXTENSION ACTIVITIES.

- NEW DA FUNDING WILL COMPLEMENT THESE ACTIVITIES. THE DISASTER RECOVERY ASSISTANCE PACKAGE OUTLINED ABOVE SUPPORTS KEY ELEMENTS OF THE GOB'S EMERGENCY PLAN AND CONFORMS TO USAID'S COUNTRY DEVELOPMENT STRATEGY. THE EMERGENCY PLAN EMPHASIZES EMERGENCY RELIEF, INFRASTRUCTURE REHABILITATION, RECOVERY OF AGRICULTURAL PRODUCTION, AND EXPANDED IRRIGATION AND POTABLE WATER IN THE ALTIPLANO.

### III. PROJECT DESCRIPTION

#### - A. PROJECT GOAL AND PURPOSE

- THE GOAL OF THE PROJECT IS TO ASSIST BOLIVIA TO RESTOND TO RECENT NATURAL DISASTERS AND RETURN TO A SELF-SUFFICIENT STATUS IN THE FOOD COMMODITIES IT TRADITIONALLY PRODUCES. THE PURPOSE OF THE PROJECT IS TO HELP THE GOB IMPLEMENT IMPORTANT ELEMENTS OF ITS EMERGENCY PLAN FOR RECOVERY FROM THE DROUGHT IN THE HIGHLANDS AND FLOODING IN THE SOUTHWESTERN AREA OF THE COUNTRY. A GRANT IS BEING REQUESTED BECAUSE OF THE NATURE OF THE PROJECT AND BOLIVIA'S CURRENT ECONOMIC SITUATION.

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B. PROJECT COMPONENTS

- THE PROJECT WILL HAVE THREE COMPONENTS: (I) REHABILITATION OF THE SANTA CRUZ-COCHABAMBA TRUNK ROAD; (II) SMALL-SCALE IRRIGATION AND POTABLE WATER ACTIVITIES IN THE DROUGHT-STRICKEN HIGHLANDS; AND (III) IMPORTATION OF ESSENTIAL FERTILIZERS AND MEDICINES. THESE THREE COMPONENTS HAVE BEEN SELECTED BECAUSE OF THE HIGH PRIORITY ACCORDED THEM BY THE GOP IN ITS EMERGENCY PLAN AND BECAUSE THEY WILL COMPLEMENT AND COMPLETE THE ASSISTANCE USAID IS PROVIDING THROUGH PL 450 GENERATED RESOURCES.

1. ROAD REHABILITATION

- THE TRUNK ROAD BETWEEN THE CITIES OF SANTA CRUZ AND COCHABAMBA IS THE MAIN ARTERY LINKING THE LOWLAND AND HIGHLAND REGIONS OF THE COUNTRY. IT PROVIDES A CRUCIAL LINK IN THE COUNTRY'S INTERNAL MARKETING SYSTEM. IN CONJUNCTION WITH THE COCHABAMBA-LA PAZ HIGHWAY, IT COMPRISES THE BACBONE OF THE EXISTING TRANSPORTATION NETWORK IN THE LA PAZ-COCHABAMBA-SANTA CRUZ DEVELOPMENT CORRIDOR. SEVERE RAINS AND ACCOMPANYING LANDSLIDES DURING THE MONTHS OF FEBRUARY AND MARCH CAUSED MAJOR DAMAGE TO A 55 KILOMETER SECTION OF THE SANTA CRUZ-COCHABAMBA HIGHWAY, THEREBY SERIOUSLY IMPEDING TRANSPORTATION BETWEEN THE AGRICULTURAL PRODUCTION REGIONS IN THE DEPARTMENT OF SANTA CRUZ AND MARKETS IN THE REST OF THE COUNTRY. TRAFFIC TO AND FROM SANTA CRUZ MUST NOW GO THROUGH THE DEPARTMENT OF CHUQUISACA ON ROADS NEVER BUILT TO TAKE SUCH A HEAVY FLOW OF TRAFFIC. THE DETOUR MORE THAN TRIPLES THE LENGTH OF TIME OF THE TRIP, RESULTING IN EXTENSIVE PRODUCE SPOILAGE.

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THE PROJECT WILL FINANCE THE RECONSTRUCTION OF 40 KMS. OF ROADS WASHED AWAY BY FLOODING, THE INSTALLATION OF DRAINAGE WORKS TO PREVENT FUTURE SLIDES, AND THE REPAIR OF THE ANCOSTURA AND TARUMA BRIDGES. RECONSTRUCTION OF THIS ROAD IS ESSENTIAL TO THE RE-ESTABLISHMENT OF THE MARKETING AND COMMUNICATION LINK BETWEEN THE CENTRAL AND SOUTHERN SECTIONS OF THE COUNTRY. IT IS THE SINGLE MOST IMPORTANT COMPONENT OF THE GOB'S PROGRAM TO HELP MAKE THE COUNTRY SELF-SUFFICIENT AGAIN IN TRADITIONAL AGRICULTURAL PRODUCTS. THE ROAD IS OF IMPORTANCE FOR TRANSPORTING AGRICULTURAL INPUTS INTO THE SANTA CRUZ REGION TO STIMULATE THE REGION'S PRODUCTION, AND IT IS VITAL AS A FOOD SUPPLY LINE FROM THE SOUTHWEST TO THE DROUGHT-RIDDEN ALTIPLANO. REHABILITATING THIS ROAD WILL ALSO COMPLEMENT THE TITLE III ACTIVITY OF REBUILDING FEEDER ROADS WHICH WILL LINK UP WITH THE SANTA CRUZ-COCHABAMBA HIGHWAY. BOLIVIA MIGHT HAVE BEEN ABLE TO DEAL WITH THE CONSEQUENCES OF EITHER THE DROUGHT OR FLOODING ALONE, BUT HAVING BOTH OCCUR AT THE SAME TIME HAS DISRUPTED NORMAL INTERNAL MARKETING CHANNELS, AND IT IS OF PRIME IMPORTANCE THAT THESE CHANNELS BE RE-ESTABLISHED. REPAIR OF THE SANTA CRUZ-COCHABAMBA ROAD WILL ASSIST SMALL, MEDIUM AND LARGE FARMERS IN SANTA CRUZ AS WELL AS URBAN CONSUMERS. THIS ACTIVITY IS CONSIDERED BY THE GOB AND USAID/E TO BE OF THE HIGHEST PRIORITY IN THE RECOVERY PROGRAM.

THE RECONSTRUCTION AND PAVING OF 40 KILOMETERS OF THE HIGHWAY WILL COST DOLS. 12,300,000 AT A PER KILOMETER COST OF DOLS. 265,000. THE REPAIR OF THE TARUMA BRIDGE WILL COST APPROXIMATELY DOLS. 512,000, WHILE THE REPAIR OF THE ANCOSTURA BRIDGE AND OTHER LESS SEVERELY AFFECTED STRUCTURES WILL COST DOLS. 300,000, DOLS. 360,000 WILL ALSO BE PROVIDED IN ORDER TO PROCURE ESSENTIAL EQUIPMENT SPARE PARTS.

PROJECT FUNDS WILL BE MADE AVAILABLE TO THE NATIONAL ROAD SERVICE (SNC), WHICH WILL BE RESPONSIBLE FOR CARRYING OUT ALL REPAIR AND CONSTRUCTION ACTIVITIES. SNC WAS ESTABLISHED IN 1951 AND MADE RESPONSIBLE FOR THE ADMINISTRATION OF THE NATIONAL ROAD SYSTEM WHICH IS COMPRISED OF NINE TRUNK ROADS TOTALLING 5,551 KILOMETERS AND 21 SECONDARY ROADS TOTALLING 3,804 KILOMETERS. SNC CARRIES OUT ITS RESPONSIBILITIES THROUGH A NETWORK OF TEN DISTRICT HIGHWAY OFFICES LOCATED THROUGHOUT THE COUNTRY WHICH SUPERVISE CONSTRUCTION ACTIVITIES AND PERFORM HEAVY EQUIPMENT AND MAJOR ROAD MAINTENANCE. IN ADDITION TO ITS DIRECT CONSTRUCTION ACTIVITIES, SNC HAS SUPERVISED MAJOR ROAD CONSTRUCTION BY PRIVATE CONTRACTORS FUNDED BY USAID/E, IDE AND THE WORLD BANK.

THE DOLS. 12,200 PROVIDED BY THIS PROJECT FOR THE REBUILDING AND REPAIR OF THE SANTA CRUZ-COCHABAMBA HIGHWAY WILL BE COMPLEMENTED BY THE PESO EQUIVALENT OF DOLS. 4,200,000 WHICH THE GOB WILL PROVIDE TO SNC TO UNDERTAKE THE REPAIR OF THE REMAINING 10 KMS. OF THE HIGHWAY. IT WILL ALSO BE COMPLEMENTED BY A JOINT FRENCH/BRITISH PROJECT TO REPAIR THE KEY BELGICA BRIDGE ON THE

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HIGHWAY, AT AN ESTIMATED COST OF DOLS. 1.3 MILLION.

2. DROUGHT AREA WATER PROJECTS

PROJECT ASSISTED WATER ACTIVITIES WILL RESPOND (A) IMMEDIATE NEEDS FOR DRINKING WATER FOR FARM FAMILIES AND THEIR LIVESTOCK IN DROUGHT-AFFECTED ALTIPLANO AND VALLEY AREAS, AND (B) THE NEED TO RE-ESTABLISH AND INCREASE FOOD PRODUCTION OVER THE NEAR TERM IN THOSE AREAS. THE ACTIVITIES TO BE UNDERTAKEN HAVE BEEN SELECTED ON THE BASIS OF PRELIMINARY REVIEWS OF HYDROLOGICAL RESOURCES AND INSTITUTIONAL CAPABILITIES IN THE AFFECTED AREAS.

A) WATER WELLS

IN ORDER TO ENSURE THE SUPPLY OF POTABLE WATER FOR HUMAN AND LIVESTOCK CONSUMPTION, BOTH DEEP WELL AND SHALLOW WELLS ARE PLANNED. WHILE HUMAN AND ANIMAL DRINKING WATER IS THE PRINCIPAL PURPOSE OF THE WELLS, SUPPLEMENTARY SMALL FLOT IRRIGATION MAY ALSO BE POSSIBLE IN SOME CASES.

A TOTAL OF 140 DEEP WELLS WILL BE DRILLED OR REHABILITATED IN SELECTED AREAS IN THE DEPARTMENTS OF LA PAZ, ORURO, POTOSI, TARIJA, COCHABAMBA AND CHUQUISACI. SEVENTY OF THESE ARE EXISTING WELLS WHICH WERE DRILLED FOR EXPLORATORY PURPOSES UNDER A PREVIOUS UNDP ACTIVITY AND ONLY REQUIRE THE INSTALLATION OF

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UMPS AND CONSTRUCTION OF HOLDING TANKS TO BECOME SERVICEABLE. AN ADDITIONAL SEVENTY DEEP WELLS WILL BE DRILLED AND EQUIPPED IN LOCATIONS SELECTED ON THE BASIS OF GROUND WATER AVAILABILITY, BENEFICIARY IMPACT, AND COMMUNITY ORGANIZATION CRITERIA. IT IS ESTIMATED THAT THESE WELLS WILL PROVIDE WATER FOR 8,000 FAMILIES AND 22,000 HEAD OF LIVESTOCK AND SOME SMALL PLOT IRRIGATION. THE PROJECT WILL PAY FOR THE COSTS OF DRILLING, CASINGS, PUMPS, TANKS/RESERVOIRS, PIPES AND FITTINGS, AND LOGISTICS. THE PROCUREMENT OF SPARE PARTS, IMPLEMENTS AND EXPENDABLE DRILLING ITEMS WILL ALSO BE INCLUDED. VILLAGE LABOR, LOCAL MATERIALS, TECHNICAL STAFF SALARIES AND ADMINISTRATION WILL CONSTITUTE THE COUNTERPART CONTRIBUTION. THE COST TO THE PROJECT OF THIS SUB-COMPONENT IS ESTIMATED AT \$1,752,000.

- THE DIGGING OF PRODUCTIVE SHALLOW WATER WELLS SERVING UP TO FOUR FAMILIES EACH WILL BE PROMOTED IN MORE SPARSELY SETTLED AREAS. SMALL COMMUNITIES OR FAMILY CLUSTERS WILL BE PROVIDED WITH A SET OF APPROPRIATE HAND TOOLS TO BE USED IN DIGGING THE NUMBER OF WELLS REQUIRED AND WHATEVER TECHNICAL GUIDANCE IS NECESSARY. IN ADDITION, A HAND PUMP AND PVC PIPE WILL ALSO BE PROVIDED FOR EACH PRODUCTIVE WELL. WHERE PRACTICABLE LABOR AND OTHER MATERIALS WILL BE SUPPLIED BY THE PARTICIPATING GROUPS. IT IS ESTIMATED THAT WELLS BENEFITTING APPROXIMATELY 7,500 FARM FAMILIES (37,500 PERSONS) AND PROVIDING WATER FOR SOME 52,500 HEAD OF LIVESTOCK CAN BE DEVELOPED WITH A TOTAL AID CONTRIBUTION OF DOLS 700,000.

- OTHER TECHNOLOGIES FOR DIGGING SHALLOW WELLS WILL ALSO BE INVESTIGATED. THE UNDP IS CONSIDERING TESTING LOW-COST MOTORIZED SHALLOW WELL DRILLING RIGS (AUGER AND COMPRESSION). FURTHER TESTING ON HAND PUMPS AND THE EVALUATION OF THE CAPACITY OF LOCAL FOUNDRIES TO PRODUCE SUCH PUMPS IS BEING PLANNED. THE POSSIBILITY OF USING THESE TECHNOLOGIES AND OTHERS TO PROVIDE SHALLOW-WELL DRINKING WATER WILL BE INVESTIGATED USING WASH PROJECT ASSISTANCE.

#### - B) SMALL-SCALE IRRIGATION

- THE DEPARTMENTAL DEVELOPMENT CORPORATIONS OF ORURO, POTOSI AND TARIJA HAVE SELECTED 47 HIGH PRIORITY SMALL-SCALE IRRIGATION PROJECTS FOR WHICH PRE-FEASIBILITY OR FEASIBILITY WORK HAS BEEN COMPLETED. IN MANY CASES, THESE PROJECTS INVOLVE ONLY SIMPLE WATER INTAKE AND SETTING STRUCTURES AND RUDIMENTARY DISTRIBUTION SYSTEMS. IN OTHER SITUATIONS, SMALL EARTH DAMS, RESERVOIRS, SEEP TANKS, SPRING CAPTLEMENTS, SMALL PUMPING STATIONS, WELL IMPROVEMENTS, OR REHABILITATION/EXPANSION OF EXISTING SYSTEMS WILL BE INVOLVED. THIS SUB-COMPONENT OF THE PROJECT WILL PROVIDE SUPPLEMENTARY OR COMPLETE IRRIGATION OF UP TO 22,200 HECTARES IN SEVERELY AFFECTED AREAS. THIS

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IRRIGATION WILL HELP RE-ESTABLISH, PROTECT OR INCREASE THE FOOD CROP PRODUCTION OF SOME 8,000 FARM FAMILIES, GENERATE ADDITIONAL EMPLOYMENT AND INCREASE FOOD SUPPLIES TO AREA MARKETS. CREDIT AND AGRICULTURAL PRODUCTION INPUTS, AS WELL AS HAND TOOLS AND FOOD-FOR-WORK RATIONS, WILL BE AVAILABLE TO PARTICIPATING FARMERS THROUGH EMERGENCY PL 489 TITLE II AND III ACTIVITIES AND THE WORLD FOOD PROGRAM. PROJECT RESOURCES REQUIRED FOR THE SMALL IRRIGATION ACTIVITIES ARE ESTIMATED AT DOLS 2,300,000. LOCAL LABOR, MATERIALS AND DDC CASE AND IN-KIND CONTRIBUTIONS ARE ESTIMATED AT DOLS 2,620,000.

- FURTHER ENVIRONMENTAL INVESTIGATION OF THE ABOVE WATER PROJECTS WILL BE REQUIRED. (SEE BELOW.)

- C) IMPLEMENTATION ARRANGEMENTS

THE DDC'S IN THE SIX DROUGHT AFFECTED DEPARTMENTS (LA PAZ, CRUC, POTOSI, COCHABAMBA, CHUQUISACA AND TARIJA) WILL GUIDE THE PLANNING, COORDINATION AND EXECUTION OF THE WATER PROJECT ACTIVITIES TAKING PLACE WITHIN THEIR INDIVIDUAL DEPARTMENTS. THE DDC'S WILL CONTRACT REGIONAL AND LOCAL ORGANIZATIONS (PUBLIC AND PRIVATE) BEST SUITED FOR CARRYING OUT WELL EXCAVATION AND IRRIGATION ACTIVITIES IN SPECIFIC TARGET AREAS WITHIN THEIR DEPARTMENTS AND DIRECTLY UNDERTAKE THE IMPLEMENTATION OF ACTIVITIES WHERE NO OTHER SUITABLE AGENCY OR ORGANIZATION EXISTS. MOST OF THE SMALL-SCALE IRRIGATION ACTIVITIES WILL BE UNDERTAKEN DIRECTLY BY THE DDC'S.

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## 3. VITAL IMPORTS

## A. FERTILIZERS

OVER THE PAST SEVERAL YEARS, FARMERS HAVE BECOME INCREASINGLY AWARE OF THE NEED TO USE FERTILIZER IN ORDER TO ACHIEVE OPTIMAL YIELDS ON RELATIVELY SMALL PARCELS OF LAND. THE NATIONAL SHORTFALL IN FERTILIZERS OVER THE PAST TWO YEARS DUE TO FOREIGN EXCHANGE SHORTAGES HAS BEEN ONLY PARTIALLY REDUCED BY FOREIGN DONATIONS. FARMERS WHO HAVE SUSTAINED HEAVY CROP LOSSES THIS PAST YEAR DUE TO DROUGHT OR FLOODING MUST USE MORE FERTILIZER IN ORDER TO INCREASE THEIR YIELDS AND COUNTERACT THE ECONOMIC EFFECTS OF RECENT CROP LOSSES. WITHOUT ADDITIONAL FERTILIZER, BOLIVIAN FARMERS WILL NOT BE ABLE TO RE-ESTABLISH NATIONAL SELF-SUFFICIENCY IN TRADITIONAL CROPS.

USAID AND THE GOB ARE MOST CONCERNED ABOUT THE COUNTRY'S RELATIVELY POORER FARMERS WHO WILL NOT BE ABLE TO AFFORD FERTILIZER AFTER SUFFERING CROP LOSSES THIS YEAR. ALTHOUGH THERE IS A SERIOUS PROJECTED AGRICULTURE INPUT SUPPLY DEFICIT NATION-WIDE, THE GOB DOES HAVE A FUND CURRENTLY TOTTALLING A LITTLE OVER DOLS 3 MILLION FOR THE COMMERCIAL IMPORTATION OF FERTILIZERS AND OTHER AGRICULTURAL INPUTS, WHICH MAY BE AUGMENTED BY OTHER DONORS, THAT CAN BE USED TO FINANCE AGRICULTURE INPUTS DESTINED FOR CASH SALE TO BETTER-OFF FARMERS. THE NEED FOR FERTILIZER COUNTRY-WIDE IS GREATER THAN CAN BE ACCOMMODATED WITHIN THE FUNDING CONSTRAINTS OF THE PROPOSED PROJECT. IN ORDER TO HELP MEET THE REQUIREMENT FOR FERTILIZER NEEDED ON A CREDIT BASIS BY POORER FARMERS, HOWEVER, THE PROJECT WILL ALLOCATE DOLS 2 MILLION FOR THE IMPORTATION OF FERTILIZER TO BE DISTRIBUTED THROUGH FARMER COOPERATIVES LOCATED IN FOUR OF THE COUNTRY'S HARDEST-HIT REGIONS.

THE IMPORTATION AND DISTRIBUTION OF FERTILIZER WILL BE COORDINATED BY THE NATIONAL FEDERATION OF CREDIT UNIONS (FENACRE). THIS ORGANIZATION WAS ESTABLISHED IN 1962 WITH 15 AFFILIATED SAVINGS AND LOAN COOPERATIVES. THERE ARE NOW 220 FENACRE AFFILIATED COOPERATIVES WITH OVER 200,000 RURAL AND URBAN MEMBERS LOCATED IN THE DEPARTMENTS OF LA PAZ, ORURO, POTOSI, CHUQUISACA, COCHABAMBA, SANTA CRUZ AND TRINIDAD. IN CONJUNCTION WITH THE USAID SMALL FARMER ORGANIZATIONS PROJECT (LOAN 511-T-355), FENACRE HAS ESTABLISHED A SENI-AUTONOMOUS CONSULTING AGENCY WHICH PROVIDES TECHNICAL ASSISTANCE TO AGRICULTURAL COOPERATIVES. THIS AGENCY, WHICH IS NOW LARGELY FINANCED BY FEES CHARGED TO THOSE COOPERATIVES RECEIVING TECHNICAL ASSISTANCE, HAS HELPED ORGANIZE THREE FINANCIALLY SOLVENT INTEGRAL COOPERATIVES WITH OVER 3,900 MEMBERS AND IS EXPANDING ITS ASSISTANCE TO OTHER AGRICULTURAL COOPERATIVES LOCATED THROUGHOUT THE COUNTRY. THESE THREE COOPERATIVES LOCATED IN STRICKEN AREAS IN THE DEPARTMENTS OF SANTA CRUZ, COCHABAMBA AND CHUQUISACA, AS WELL AS A

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LARGE POTATO PRODUCING COOPERATIVE IN THE DEPARTMENT OF POTOSI, WILL PROVIDE THE DISTRIBUTION NETWORK FOR THE IMPORTED FERTILIZERS.

USING PROPOSED PROJECT FUNDING, FENACRE WILL IMPORT APPROXIMATELY 5,320 METRIC TONS OF UREA AND DI-AMMONIUM PHOSPHATE FERTILIZERS VALUED AT DOLS 2 MILLION INCLUDING SHIPPING COSTS AND WILL ARRANGE FOR DISTRIBUTION AND SALE THROUGH THE FOUR COOPERATIVES. THE FERTILIZER WILL BE DISTRIBUTED TO THE COOPERATIVES ON AN IN-CREDIT BASIS. TRANSPORTATION COSTS OF THE FERTILIZER FROM THE U.S. TO BOLIVIA WILL BE FINANCED FROM THE DOLS 2 MILLION ALLOCATED FOR FERTILIZER PURCHASE, WHILE STORAGE, HANDLING, AND MARKETING COSTS WILL BE THE RESPONSIBILITY OF THE INDIVIDUAL COOPERATIVES. IN ACCORDANCE WITH ESTABLISHED PROCEDURES, THE FERTILIZER WILL BE DISTRIBUTED TO COOPERATIVE MEMBERS ON AN IN-CREDIT BASIS AND SOLD TO NON-MEMBERS ON A CASH BASIS. BASED ON PAST EXPERIENCE WITH THE COCHABAMBA COOPERATIVE, WHICH HAS PROFITABLY IMPORTED FERTILIZER FOR THREE YEARS, ABOUT FORTY PERCENT OF SALES WILL BE MADE TO NON-COOPERATIVE MEMBERS. UP TO 5,500 FARMER FAMILIES AFFILIATED WITH THE AGRICULTURE COOPERATIVES AND 4,000 INDEPENDENT FARMER FAMILIES WILL BE ABLE TO OBTAIN FERTILIZER THROUGH FENACRE'S DISTRIBUTION SYSTEM. DESERVING POOR FARMERS WHO ARE NOT MEMBERS OF THE COOPERATIVES WILL BE ABLE TO OBTAIN CREDIT UNDER THE TITLE III PROGRAM TO HELP PURCHASE THEIR FERTILIZER. IN ADDITION, THE CREDIT PROVIDED UNDER THE TITLE III PROGRAM WILL BE AVAILABLE TO BOTH MEMBERS AND NON-MEMBERS TO FINANCE

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THE PURCHASE OF OTHER NEEDED AGRICULTURAL INPUTS.

THE COOPERATIVES WILL REPAY FENACRE THE PESO EQUIVALENT OF THE CIF US DOLLAR PURCHASE PRICE OF THE FERTILIZER, PLUS IN-COUNTRY SHIPPING COSTS. PAST EXPERIENCE WITH THE COCHABAMBA COOPERATIVE HAS DEMONSTRATED THAT CHARGING CLOSE TO THE RETAIL PRICE OF FERTILIZER IN BOLIVIA WILL PROVIDE THE COOPERATIVES WITH AN ADEQUATE MARGIN TO COVER ALL COSTS AND MAKE A GOOD PROFIT. REPAYMENTS MADE BY THE COOPERATIVES TO FENACRE WILL BE DEPOSITED IN A REVOLVING AGRICULTURE CREDIT FUND, ALREADY ESTABLISHED WITH PE 420 TITLE III EMERGENCY FUNDS, AND USED FOR FUTURE AGRICULTURAL CREDIT TO COOPERATIVES AFFILIATED WITH FENACRE. THROUGHOUT THE FERTILIZER DISTRIBUTION OPERATION, THE FOUR COOPERATIVES WILL RECEIVE ASSISTANCE FROM FENACRE'S TECHNICAL CONSULTING DEPARTMENT.

B) MEDICINES

AS A CONSEQUENCE OF THE SHORTAGE OF FOREIGN EXCHANGE, ESSENTIAL DRUGS AND MEDICINES ARE IN SHORT SUPPLY THROUGHOUT BOLIVIA. MOST OF THE MAJOR PHARMACEUTICAL SUPPLIERS HAVE WITHDRAWN THEIR REPRESENTATIVES, AND THE PESO PRICE OF THOSE MEDICINES WHICH ARE AVAILABLE IN COMMERCIAL PHARMACIES IS AFFORDABLE ONLY TO THE RELATIVELY WELL-OFF. THE GOB IS MOST CONCERNED ABOUT DRUG AND MEDICINE AVAILABILITY IN RURAL AREAS WHERE FLOODING AND DROUGHT CONDITIONS HAVE INCREASED DEMAND ON ALREADY PRACTICALLY DEPLETED STOCKS AVAILABLE IN HOSPITALS AND HEALTH POSTS. THE SUPPLY SHORTAGE IN GOVERNMENT FACILITIES IS AGGRAVATED BY THE GOB'S PRACTICE OF CHARGING BELOW-COST PRICES FOR DRUGS AND MEDICINES DELIVERED THROUGH MINISTRY OF HEALTH FACILITIES, WHICH HAS THE EFFECT OF DECAPITALIZING THE MINISTRY'S DRUG PURCHASING ACCOUNT.

TO HELP ADDRESS THE PROBLEM OF THE SHORT SUPPLY OF DRUGS AND MEDICINES IN RURAL AREAS, USAID WILL PROVIDE BOB. 1 MILLION FOR THE IMPORTATION OF ESSENTIAL MEDICINES AND DRUGS TO BE MADE AVAILABLE THROUGH THE GOB'S SYSTEM OF CLINICS AND HEALTH POSTS AND THROUGH CERTAIN STATE-RUN EMPLOYEE HEALTH PLANS. PRIVATELY RUN HEALTH FACILITIES IN RURAL AREAS WILL ALSO HAVE ACCESS TO THE DRUGS AND MEDICINES PURCHASED. IT HAS NOT YET BEEN DECIDED WHETHER THESE DRUGS, WHICH WILL IN ANY CASE BE DISTRIBUTED FOR A NOMINAL FEE OR GRATIS FOR USE BY THE MOST DESTITUTE OR WHETHER AID'S CONTRIBUTION MIGHT BE USED TO SET UP A REVOLVING FUND FOR DRUG PURCHASES. THE LATTER OPTION WOULD REQUIRE THAT THE PRICES CHARGED FOR DRUGS AND MEDICINES COVER THEIR REPLACEMENT COST SO THAT THE FUND WOULD NOT BE DEPLETED. IF SOME MEDICINES HAD TO BE USED WITHOUT CHARGE IN EMERGENCY SITUATIONS, THE GOB WOULD HAVE TO DEPOSIT THEIR REPLACEMENT COST IN THE DRUG FUND FROM ITS OWN RESOURCES. IN ADDITION, THE GOB WOULD HAVE TO AGREE TO PROVIDE THE FOREIGN EXCHANGE REQUIRED TO REPLENISH IMPORTED DRUG

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SUPPLIES. A DECISION ON PRICE OPTION TO PURSUE WILL BE MADE BY USAID DURING THE INTENSIVE REVIEW AFTER INVESTIGATING THE EXTENT OF THE NEED FOR PROVISION OF DRUGS GRATIS AND WHETHER A SYSTEM FOR ENSURING PERMANENT ALLOCATIONS OF FOREIGN EXCHANGE FOR REPLENISHMENT OF DRUG SUPPLIES COULD BE WORKED OUT.

- C. INSTITUTIONAL ARRANGEMENTS

- A GRANT AGREEMENT WILL BE SIGNED WITH THE GOB CIVIL DEFENSE COMMITTEE. THE COMMITTEE WILL BE RESPONSIBLE FOR COORDINATING AID ASSISTANCE WITH THAT PROVIDED BY OTHER DONORS, APPROVING PLANS FOR THE USE OF AID ASSISTANCE BY THE VARIOUS IMPLEMENTING AGENCIES INVOLVED, AND MONITORING THEIR IMPLEMENTATION OF APPROVED PROGRAMS. THE COMMITTEE WILL RECEIVE ASSISTANCE FROM THE U.N. AND FROM THE RESOURCES GENERATED BY PL 480 FOOD SALES TO MAINTAIN THE STAFF NECESSARY TO CARRY OUT THESE FUNCTIONS.

- AID GRANT FUNDS WILL BE DISBURSED DIRECTLY TO THE ENTITIES IMPLEMENTING PROJECT-SPONSORED ACTIVITIES. THE ENTITIES WILL BE THE DDOS IN LA PAZ, CRURO, POTOSI, CO-CHABAMBA, CHUCUISACA, AND TARIJA THE SNC, FENACRE, AND THE MINISTRY OF HEALTH.

- D. TECHNICAL ASSISTANCE

- BECAUSE OF THE SIZE AND DIVERSITY OF THE PROJECT AND THE LIMITED STAFF RESOURCES OF THE CIVIL DEFENSE COMMITTEE, ONE OR TWO FULL-TIME DISASTER RELIEF COORDINATOR WILL BE REQUIRED. THIS PERSON WILL ASSIST BY

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BY CIVIL DEFENSE COMMITTEE WITH ITS PROGRAM APPROVAL AND MONITORING DUTIES AND WORK DIRECTLY WITH THE AGENCIES IMPLEMENTING AID-ASSISTED PROJECTS TO HELP ENSURE THEIR EFFICIENT IMPLEMENTATION. THE MISSION'S PROJECT OFFICER RESPONSIBLE FOR THIS PROJECT AND THE OTHER MEMBERS OF THE MISSION'S DISASTER RELIEF COMMITTEE WILL ALSO DEPEND ON THIS PERSON TO KEEP THEM INFORMED ON THE PROGRESS OF PROJECT-SUPPORTED ACTIVITIES. THE IDEAL CANDIDATE FOR THIS ADVISORY POSITION WOULD BE SOMEONE WITH A CIVIL ENGINEERING BACKGROUND, EXPERIENCE IN SUPERVISING RURAL CONSTRUCTION ACTIVITIES, AND ADMINISTRATIVE CAPABILITY.

- E.. ESTIMATED PROJECT BUDGET (DOLLARS)

-	SANTA CRUZ - COCHABAMBA HIGHWAY	12,200,000
-	WATER WELLS	2,500,000
-	SMALL-SCALE IRRIGATION	2,300,000
-	FERTILIZER IMPORTS	2,000,000
-	MEDICINES	1,000,000
-	TECHNICAL ASSISTANCE	200,000
-	TOTAL	DOLS 20,000,000

IV. PROJECT DEVELOPMENT PLAN

- BECAUSE OF THE IMMEDIATE NEED FOR DISASTER RELIEF ASSISTANCE AND THE DESIRE TO OBLIGATE ANY ADDITIONAL FUNDS MADE AVAILABLE FOR THIS PURPOSE AS SOON AS POSSIBLE, THE MISSION PLANS TO COMPLETE DEVELOPMENT OF THE PROPOSED PROJECT BY LATE SEPTEMBER. THE MOST IMPORTANT PROJECT DEVELOPMENT TASKS TO BE CARRIED OUT DURING THE INTENSIVE REVIEW ARE THE TECHNICAL (ENGINEERING) ANALYSIS, THE ADMINISTRATIVE ANALYSIS OF PROPOSED IMPLEMENTING AGENCIES, DETAILED COST ESTIMATES, THE PROCUREMENT PLAN, IMPLEMENTATION SCHEDULES, AND ADDITIONAL ENVIRONMENTAL INVESTIGATION. WITH RESPECT TO THE LATTER, THE MISSION HAS CONCLUDED THAT UNTIL REPRESENTATIVE SITES FOR POTABLE WATER AND IRRIGATION ACTIVITIES ARE VISITED, IT WILL NOT BE POSSIBLE TO MAKE AN ENVIRONMENTAL THRESHOLD DECISION. THE MISSION WILL REQUIRE THE ASSISTANCE OF THE REGIONAL ENVIRONMENTAL OFFICES, DENNIS MCCAFFREY, IN LATE AUGUST ORDER TO COMPLETE THE IEE. WITH THIS EXCEPTION, THE PROJECT PAPER CAN BE COMPLETED BY ON-BOARD MISSION STAFF.

- IN ORDER TO EXPEDITE THE OBLIGATION OF FUNDS AND THE INITIATION OF THE PROPOSED PROJECT, USAID HEREBY REQUESTS REDELEGATION OF AUTHORITY TO AUTHORIZE THE PROJECT. BEFORE EXERCISING THIS AUTHORITY, THE MISSION WILL SUBMIT A CABLED SUMMARY OF THE PROJECT TO AID/W FOR ITS INFORMATION. CORR

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TOR: 2327

CN: 19217

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Action: ~~UND~~ DP

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Reply due 2/1

Action tkn answered RD  
by La Paz 054404  
7/2/83 5424  
JL.

AIDAC

E.O. 12356: N/A

TAGS:

SUBJECT: BOLIVIA DISASTER RECOVERY PROJECT

REF: LA PAZ 4780

1. PID FOR SUBJECT PROJECT WAS REVIEWED BY DAEC ON AUGUST 15, 1983. MISSION IS AUTHORIZED TO PROCEED WITH PP DEVELOPMENT, SUBJECT TO THE FOLLOWING GUIDANCE. THE FINAL AMOUNT OF FUNDS AVAILABLE FROM THE RECENTLY AUTHORIZED DEOB-REOB AUTHORITY HAS NOT BEEN DETERMINED. DEPENDING ON THE FINAL AMOUNT AVAILABLE AND PROJECT REQUIREMENTS, THE FUNDING FOR THE SUBJECT PROJECT WILL PROBABLY BE BETWEEN DOLS 15 MILLION AND DOLS. 25 MILLION. BECAUSE THE MAJORITY OF THE DEOBLIGATED FUNDS ARE LOAN FUNDS AND MUST REMAIN AS LOAN FUNDS WHEN REOBLIGATED, THE AMOUNT OF GRANT FUNING AVAILABLE IS LIMITED. MISSION WILL BE CONTACTED TO DISCUSS FUNDING LEVEL AND GRANT/LOAN MI; AS MORE INFORMATION BECOMES AVAILABLE.

2. THE POSSIBLE USE OF PROJECT FUNDS TO IMPORT FOOD TO BOLIVIA IS BEING EXAMINED IN RESPONSE TO THE AUGUST 12, 1983 MEETING BETWEEN THE BOLIVIAN MINISTER OF DEFENSE AND THE A.I.D. ADMINISTRATOR. A DECISION SHOULD BE MADE SHORTLY IN CONSULTATION WITH THE MISSION.

3. OTHER ACTIVITIES NOT SPECIFICALLY PROPOSED BY THE MISSION, BUT WHICH SHOULD BE CONSIDERED IN THE PROCESS OF PREPARING THE PROJECT PAPER INCLUDE: A) THE PRESERVATION OF REMAINING POTATO SEED STOCK; B) THE PURCHASE AND/OR RELOCATION OF ANIMAL STOCK TO AVOID STARVATION AND WHOLFSALE SLAUGHTER; C) A DIRECTED SETTLEMENT ACTIVITY FOR MIGRANTS FROM DROUGHT AREAS OR TECHNICAL ASSISTANCE TO MINIMIZE PROBLEMS CAUSED BY MIGRATION.

4. POINT (C) ABOVE IS RELATED TO A MORE GENERAL CONCERN. SPECIFICALLY, WHAT ASSUMPTIONS IS THE MISSION MAKING REGARDING THE CLIMATE AND NATURAL RESOURCE CONDITIONS OF THE DROUGHT AREA (PARTICULARLY THE HIGHLANDS) DURING THE NEXT SEVERAL YEARS? THESE ASSUMPTIONS SHOULD BE CLEARLY LAID OUT IN THE PROJECT PAPER AND SHOULD FORM THE BASIS FOR THE RELIEF AND RECOVERY STRATEGY. THIS IS PARTICULARLY IMPORTANT WITH REGARD TO PROPOSED INFRASTRUCTURE INVESTMENTS IN DROUGHT AREAS, I.E. WELLS AND IRRIGATION.

5. WELLS - THE LENGTH OF TIME NEEDED TO IMPLEMENT THIS ACTIVITY WILL REQUIRE CAREFUL SITE SELECTION AND PRIORITIZATION. IF A YEAR OR SO PASSES BETWEEN INITIAL SITE SELECTION AND CONSTRUCTION, WE COULD POTENTIALLY HAVE

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THE PROBLEM OF CONSTRUCTING AN EXPENSIVE WELL IN AN AREA THAT HAS BECOME TOO DEPOPULATED TO WARRANT THE INVESTMENT OR IN AN AREA WHERE WATER SUPPLIES HAVE RETURNED TO ADEQUATE LEVELS. WITH REGARD TO WELLS THAT PROVIDE DRINKING WATER FOR LIVESTOCK, THE MISSION SHOULD FIRST BE ASSURED THAT THE LIVESTOCK IN THE AREA WILL ALSO HAVE ADEQUATE FOOD SUPPLIES.

6. IRRIGATION - AS THE CONSTRUCTION OF NEW IRRIGATION WORKS IS NOT AN IMMEDIATE RELIEF MEASURE, BUT RATHER A MEANS TO INCREASE FOOD PRODUCTION IN THE FUTURE, THESE ACTIVITIES SHOULD BE DEMONSTRATED TO BE ECONOMICALLY FEASIBLE AND A MORE COST-EFFECTIVE MEANS TO INCREASE FOOD PRODUCTION IN BOLIVIA THAN OTHER ALTERNATIVES (SUCH AS INCREASED CULTIVATION OF AREAS NOT REQUIRING IRRIGATION).

7. FERTILIZER AND MEDICINE DISTRIBUTION - WHILE FENACRE HAS EXPERIENCE IN DISTRIBUTING FERTILIZER, THE MISSION SHOULD ENSURE THAT FENACRE IS PREPARED TO TARGET DISASTER-AFFECTED FARMERS AND THAT THESE FARMERS, WHETHER COOP MEMBERS OR NOT, WILL RECEIVE PRIORITY OVER MEMBERS NOT AFFECTED BY THE DISASTER. PROPER TARGETTING AND EFFICIENT DISTRIBUTION OF MEDICINES WAS ALSO A MATTER OF CONCERN TO THE DAEC, PARTICULARLY IN VIEW OF THE RECORD OF THE MOH IN RURAL AREAS. THE PP SHOULD ADDRESS WHAT MEASURES WILL BE TAKEN BY THE MOH TO ASSURE EFFICIENT DISTRIBUTION AND

PROPER TARGETTING. A LIST OF THE SPECIFIC MEDICINES TO BE PROCURED SHOULD BE DEVELOPED AS SOON AS POSSIBLE AND A DETERMINATION MADE IF ANY OF THE MEDICINES NEED TO BE PROCURED LOCALLY DUE TO EMERGENCY CONDITIONS.

8. ROAD AND BRIDGE RECONSTRUCTION - THE MISSION SHOULD EXAMINE WHETHER RESTORATION OF THE SANTA CRUZ - COCHABAMBA HIGHWAY SHOULD BEST BE HANDLED IN TWO STAGES. THE FIRST STAGE WOULD BE MINIMAL TEMPORARY REPAIRS TO RESTORE TRANSIT, WHILE THE SECOND STAGE WOULD INVOLVE THE PERMANENT RECONSTRUCTION. STAGE ONE WOULD BE RAPID AND PROBABLY HANDLED BY FORCE ACCOUNT, WHEREAS STAGE TWO WOULD BE LONGER TERM WORK CONTRACTED OUT ON THE BASIS OF DESIGNS AND COST ESTIMATES PREPARED CONCURRENTLY WITH THE IMPLEMENTATION OF THE FIRST STAGE. IN ANY CASE, REASONABLE COST ESTIMATES, AS REQUIRED BY SECTION 811 OF THE FAA, MUST BE AVAILABLE BEFORE OBLIGATION OF FUNDS. THEREFORE, A TWO PHASED APPROACH CAN BE USED TO ALLOW EARLY OBLIGATION OF FUNDS FOR EMERGENCY REPAIR AND DESIGN WORK, WITH THE OBLIGATION OF FUNDS FOR FINAL CONSTRUCTION DELAYED UNTIL FINAL DESIGNS

AND COST ESTIMATES ARE READY. MISSION SHOULD ALSO EXAMINE WHETHER IDB OR IBRD WOULD BE INTERESTED IN FINANCING FINAL RECONSTRUCTION PHASE, THUS ALLOWING MISSION TO PROGRAM MORE PROJECT RESOURCES FOR THE DROUGHT AREAS. IF ONLY DOIS. 15 MILLION IS AVAILABLE FOR THIS PROJECT, THE ROAD CONSTRUCTION WOULD CONSUME MOST OF THE FUNDS.

9. IN EXAMINING WHAT ACTIVITIES MIGHT BE INCLUDED IN THE FIRST STAGE OF THE ROAD RECONSTRUCTION, THE MISSION SHOULD CONSIDER INCLUDING THE PERMANENT SUBSTRUCTURE FOR THE TARUMA BRIDGE. WITH THE SUBSTRUCTURE COMPLETED EARLY ON, A TEMPORARY PLATFORM COULD BE INSTALLED FOR THE UPCOMING RAINY SEASON.

10. REPROGRAMMING OF EXISTING PORTFOLIO - THE MISSION SHOULD EXAMINE THE EXISTING PORTFOLIO TO DETERMINE WHICH PROJECTS CAN BE REPROGRAMMED OR REFOCUSSED TO ADDRESS DISASTER-RELATED NEEDS. IN PARTICULAR, IT WOULD APPEAR THAT THE IDC LOAN WOULD BE IDEALLY SUITED FOR THIS PURPOSE.

11. REGARDING THE EXAMINATION OF ENVIRONMENTAL CONCERNS, THE MISSION SHOULD CONTACT JIM BOSTER TO ARRANGE ASSISTANCE IF THE REGIONAL ENVIRONMENTAL ADVISOR IS UNAVAILABLE.

12. MISSION IS REQUESTED TO RESPOND TO PARAGRAPHS 8 AND 10 BY CABLE, AT WHICH TIME MISSION WILL BE INFORMED WHETHER AN AD HOC REDELEGATION OF AUTHORITY WILL BE PROVIDED TO ALLOW THE MISSION TO AUTHORIZE THE PROJECT. DAM

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CLASS: UNCLASSIFIED  
 CHRGE: 9/2/83  
 APPRV: D:HHBASSFORD  
 DRFTD: RD:RVTHURSTON:LEF  
 CLEAR: 1.DD:DACOHEN  
 DISTR: USAID AMB DCM  
 CHRON P/E

AIDAC

FOR LIMA DENNIS MCCAFFREY, REA AND ROBERT BURKE,  
REGIONAL ECONOMIST

E.O. 12356: N/A  
 SUBJECT: RESPONSE TO ISSUES RAISED BY AID/W REGARDING  
 BOLIVIA DISASTER RECOVERY PROJECT

REF: A) STATE 244147; B) LA PAZ 4780

1. USAID/B APPRECIATES AID/W CONCERNS AND SUGGESTIONS  
 (REF A) PERTAINING TO DISASTER RECOVERY PROJECT PID  
 (REF B). RESPONSES TO THESE ISSUES ARE PRESENTED BELOW  
 AS ARE COURSES OF ACTION USAID IS TAKING TO MOVE FORWARD  
 QUICKLY WITH INTENSIVE REVIEW.

2. WITH REGARD TO PARAGRAPE 8 (F REF A, MISSION WILL  
 PROCEED TO SEPARATE COCHABAMBA-SANTA CRUZ ROAD AND BRIDGE  
 CONSTRUCTION INTO TWO DISCRETE PHASES AS RECOMMENDED.  
 PHASE ONE WILL BE DIRECTED AT THE MOST URGENT REPAIRS  
 NECESSARY TO OPEN THE ROAD, AS WELL AS THE FINAL DESIGN  
 COSTING, PROCUREMENT AND CONTRACTING FOR PERMANENT  
 REHABILITATION WHICH WILL TAKE PLACE DURING PHASE TWO.  
 USAID HAS DISCUSSED THIS ROAD SUB-PROJECT WITH IDB  
 OFFICIALS. INTEREST EXISTS FOR POSSIBLE CO-FINANCING.  
 MISSION WILL PURSUE MATTER FURTHER WITH IDB OVER THE  
 COURSE OF THE NEXT WEEK.

3. REFERRING TO PARAGRAPH 10 OF REYTEL, USAID HAS  
 CONSIDERED THE POSSIBILITIES FOR REPROGRAMMING EXISTING  
 PROJECTS. IN GENERAL, WE HAVE FOUND THAT MAJOR REVISIONS  
 ARE UNDESIRABLE OR HIGHLY IMPRACTICAL. EXTENSIVE  
 REPROGRAMMING AND REACTIVATING NEGOTIATIONS HAVE BEEN  
 COMPLETED. WITH THE EXCEPTION OF THE DDC LOAN,  
 ALL OF THE PREVIOUSLY SUSPENDED PROJECTS HAVE BEEN  
 RECENTLY REACTIVATED. THREE OF THESE, VILLAGE  
 DEVELOPMENT, RURAL ROADS II AND RURAL SANITATION, HAVE  
 BEEN REORIENTED TO THE CHAPARE AND CONSTITUTED PART OF  
 THE LEVERAGE PACKAGE IN ACHIEVING RECENT GOB AGREEMENT  
 ON COCA CONTROL AND REDUCTION EFFORTS. SOME OF THE FLOOD  
 DAMAGE TO ROADS AND BRIDGES OCCURRED IN THE CHAPARE AND  
 THIS EMERGENCY WORK WILL BE ATTENDED TO IN A MAJOR WAY  
 BY THE RURAL ROADS II ACTIVITY. IT IS ALSO IMPORTANT TO  
 POINT OUT THAT A MAJOR PORTION OF THE VILLAGE DEVELOPMENT  
 PROJECT IS BEING PROGRAMMED FOR DROUGHT AFFECTED AREAS  
 BOTH WITHIN AND OUTSIDE OF THE CORRIDOR LA PAZ-COCHABAMBA-  
 SANTA CRUZ. WITH BOTH RURAL ROADS AND VILLAGE DEVELOP-  
 MENT, THE LOANS AND ACCOMPANYING GRANTS ARE AIMED IN PART

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AT STRENGTHENING THE EXECUTING INSTITUTIONS (I.E. THE NATIONAL ROAD SERVICE (SNC) AND THE COMMUNITY DEVELOPMENT SERVICE (SNDC)). THIS WILL HELP THE INSTITUTIONS TO BETTER EMPLOY OTHER EMERGENCY RELATED TITLE II AND TITLE III ASSISTANCE WHICH IS ALSO BEING CHanneLED THROUGH THEM. REGARDING RURAL SANITATION, PART OF THE DROUGHT AFFECTED AREA IS INCLUDED IN THE TARGET AREA OF THE REPROGRAMMED PROJECT. GIVEN THE MAGNITUDE OF NEEDS RESULTING FROM THE DROUGHT, THE POTABLE WATER ACTIVITIES IN THE DISASTER PID GO BEYOND ANY WORK WHICH CAN BE DONE UNDER THAT PROJECT.

4. USAID/BOLIVIA'S MOST VERSATILE AND EXPEDITIOUS MEANS FOR CHANNELING RESOURCES TO EMERGENCY ACTIVITIES IS THE TITLE III PROGRAM. SINCE APRIL, OVER \$2.5 MILLION HAS BEEN CHanneLED THROUGH EXISTING TITLE III SUBPROJECTS TO DEAL WITH EMERGENCY REQUIREMENTS. SIGNIFICANT ADDITIONAL AMOUNTS ARE BEING MADE AVAILABLE THROUGH AMENDMENTS 9 AND 10 TO THE AGREEMENT. OVER THE NEXT FEW MONTHS, TITLE III SALES GENERATIONS WILL PROVIDE THE DEPARTMENTAL DEVELOPMENT CORPORATIONS (DDCS) WITH \$15 MILLION FOR CARRYING OUT RURAL IMPACT PROJECTS. MANY OF THESE WILL BE COMPLEMENTARY TO INVESTMENTS TO BE MADE WITH DDC LOAN FUNDING. AT THE SAME TIME, DDC PROJECT MONEY IS AIMED, IN PART, AT STRENGTHENING THE ABILITY OF THE DDCS TO BETTER PLAN AND MANAGE RURAL INVESTMENTS. FOR THE ABOVE REASONS, THE MISSION INTENDS TO MAINTAIN THE EMPLOYMENT, INCOME, PRODUCTION AND INSTITUTION BUILDING FOCUS OF THE DDC LOAN MONIES WHILE USING TITLE III FOR IMMEDIATE SOCIAL AND HUMANITARIAN RELIEF ACTIVITIES. THERE WILL CLEARLY BE SUBSTANTIAL BENEFICIAL OVERLAP.

5. THE SET OF ACTIVITIES DESCRIBED IN THE DISASTER ASSISTANCE PID REPRESENTS THE MISSION'S APPRAISAL OF BOLIVIA'S MOST URGENT RECOVERY PRIORITIES AFTER CONSULTATION WITH THE GOB OFFICE OF CIVIL DEFENSE AND MINISTRY OF PLANNING AUTHORITIES. THE OTHER ASSISTANCE POSSIBILITIES SUGGESTED IN REF A, PARAGRAPH 3 ARE ALSO IMPORTANT, BUT, FOR SEVERAL REASONS, ARE NOT JUDGED TO BE AS APPROPRIATE AS THOSE INCLUDED IN THE PID. BRIEFLY,

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AIDAC

FOR LIMA DENNIS MCCAFFREY, REA AND ROBERT BURKE,  
REGIONAL ECONOMIST

E.O. 12356: N/A

SUBJECT: RESPONSE TO ISSUES RAISED BY AID/W REGARDING

IN THE CASE OF POTATO SEED STOCK PRESERVATION, SEVERAL OTHER ACTIONS ARE BEING TAKEN UNDER TITLE III, THE AGRICULTURE SECTOR II PROJECT AND BY OTHER ORGANIZATIONS TO COLLECT AND MULTIPLY POTATO SEED. FUNDING FOR ANIMAL RECOVERY IS ALREADY INCLUDED UNDER THE MONETIZED TITLE II PROGRAM. THE WATER ACTIVITIES INCLUDED IN THE PID FOR HUMAN CONSUMPTION AND PASTURE/FORAGE PRODUCTION IS A CRUCIAL COMPLEMENT. THE GOB CAPACITY TO DEAL QUICKLY AND SIGNIFICANTLY WITH MIGRATION AND SETTLEMENT IS SORELY LACKING, DESPITE AID AND OTHER DONOR ATTEMPTS IN THE PAST TO IMPROVE THIS. A LONG-RANGE CONCERTED EFFORT IS UNDOUBTEDLY REQUIRED TO PROVIDE FOR ORDERLY MIGRATION AND SETTLEMENT. HOWEVER, SUCH A TASK, IN THE ESTIMATION OF THE MISSION, EXCEEDS THE SCOPE AND TIMEFRAME SET OUT FOR THE DISASTER RECOVERY PROJECT.

6. IN TERMS OF REF A PARAGRAPH 4 INQUIRIES CONCERNING MISSION ASSUMPTIONS ABOUT CLIMATE AND NATURAL RESOURCE CONDITIONS DURING THE NEXT SEVERAL YEARS, THERE APPEARS TO BE NO SCIENTIFIC BASIS FOR AN ACCURATE PREDICTION. FROM INFORMATION AVAILABLE FROM NOAA AND OTHER EXPERTS, THERE IS NO CERTAINTY AS TO WHEN THE NEGATIVE INFLUENCES OF EL NINO WILL DISSIPATE. THERE ARE HISTORICAL ANTECEDENTS FOR TWO-YEAR CYCLES OF EL NINO - INDUCED WEATHER DISTURBANCES (1877-1879 AND 1940-1942); BUT PROGNOSTICATION ON THIS BASIS IS TENUOUS. BASED ON A PRELIMINARY REVIEW OF 20-YEAR RAINFALL RECORDS, IT APPEARS THAT SOME GENERAL DECREASE IN RAINFALL IN ALTIPLANO AND VALLEY AREAS HAS BEEN OCCURRING OVER THE PAST 2-3 YEARS.

IT IS IMPORTANT TO POINT OUT THAT EVEN WITH NORMAL RAINFALL IN MANY ALTIPLANO AND VALLEY LOCATIONS THERE HAVE BEEN DIFFICULTIES IN SECURING ACHIEVABLE AGRICULTURAL YIELDS. TO THE EXTENT THAT THEIR PRIMITIVE TECHNOLOGIES AND CAPITAL ALLOW THEM TO, FARMERS THROUGHOUT THESE AREAS TAP AVAILABLE WATER FOR SUPPLEMENTAL IRRIGATION PURPOSES. THE DATA COLLECTED FOR THE SOUTHERN VALLEY REGION OF BOLIVIA INDICATE THAT MEAN NET FARM INCOME GENERALLY DOUBLES WITH IRRIGATION. THE MICRO-IRRIGATION, AND, TO A LESSER EXTENT, WATER WELL ACTIVITIES PROPOSED IN THE PID ARE CONSIDERED BY THE MISSION TO RESPOND BOTH TO THE SHORT AND LONGER TERM WATER NEEDS IN THE DROUGHT AFFECTED AREAS. MINISTRY OF AGRICULTURE AND MINISTRY OF PLANNING OFFICIALS PLACE THE HIGHEST PRIORITY ON WATER AND IRRIGATION WORKS AS MEANS OF DROUGHT RECOVERY. TECHNICAL, FINANCIAL, ECONOMIC, INSTITUTIONAL, SOCIAL AND ENVIRONMENTAL ANALYSES OF, AND GUIDELINES FOR, MICRO-IRRIGATION AND WATER WELL DEVELOPMENT WILL BE PREPARED AS PART OF THE INTENSIVE REVIEW.

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7. OTHER DAEC REVIEW COMMENTS AND REQUIREMENTS PERTAINING TO THE FERTILIZER AND MEDICINE PROCUREMENT/DISTRIBUTION ACTIVITIES WILL ALSO BE ADDRESSED IN CARRYING OUT THE ANALYSES FOR THE PROJECT PAPER.

8. PROJECT DESIGN ASSISTANCE REQUIREMENTS

- A. REA DENNIS MCCAFFREY IS NEEDED TO HELP PREPARE AND PROVIDE GUIDELINES FOR THE ENVIRONMENTAL ANALYSIS. PREFERRED TDY DATES ARE SEPTEMBER 8 THROUGH SEPTEMBER 14.

- B. TO COMPLEMENT MCCAFFREY AND TO PROVIDE OTHER SPECIALIZED DESIGN ASSISTANCE, THE SERVICES OF AN IRRIGATION SPECIALIST FROM AID/W OR THROUGH AN IQC ARE NEEDED FOR THREE WEEKS STARTING O/A SEPTEMBER 12.

- C. MISSION WILL REQUIRE THREE WEEKS TDY OF A HYDROLOGIST ALSO BEGINNING O/A SEPTEMBER 12, TO HELP WITH THE DESIGN OF THE WATER/STOCK WELL COMPONENT. WASH WOULD APPEAR TO BE AN APPROPRIATE SOURCE FOR SUCH ASSISTANCE.

- D. THE IMMEDIATE ASSISTANCE OF ROD MCDONALD (LAC/DR) OR SIMILARLY QUALIFIED ENGINEER IS NEEDED FOR THE ROAD AND BRIDGE COMPONENT. THREE TO FOUR WEEKS OF EFFORT IS REQUIRED FOR THIS TASK STARTING ASAP.

- E. REGIONAL ECONOMIST ROBERT BURKE'S HELP IN PREPARING THE ECONOMIC ANALYSIS IS NEEDED FOR TEN DAYS IN LATE SEPTEMBER-EARLY OCTOBER. SPECIFIC DATES FOR HIS ASSISTANCE CAN BE ESTABLISHED ACCORDING TO THE PROGRESS MADE IN OTHER PROJECT PAPER COMPONENTS.

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AIDAC

FOR LIMA DENNIS MCCAFFREY, REA AND ROBERT BURKE,  
REGIONAL ECONOMIST

E.O. 12356: N/A

SUBJECT: RESPONSE TO ISSUES RAISED BY AID/W REGARDING

9. MISSION WILL APPRECIATE RECEIVING ADVICE OF AD HOC  
REDELEGATION OF AUTHORIZATION AUTHORITY ASAP. CORR  
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UNCLAS STATE 265608

Action: DP 2  
Info: D  
EXO  
RD  
PDP1  
HHR 2  
CONT  
C  
RF 2 SF

Reply due 9/22

Action tkn \_\_\_\_\_

AIDAC: FROM ACTING AA/LAC

E.O. 12356: N/A

TAGS:  
SUBJECT: AD HOC REDELEGATION OF AUTHORITY - DISASTER  
RECOVERY PROJECT

REF: (A) STATE 244147 (B) LA PAZ 4780

1. PURSUANT TO REDELEGATION OF AUTHORITY 133, I HERELY REDELEGATE TO THE USAID/BOLIVIA MISSION DIRECTOR THE AUTHORITY TO AUTHORIZE THE BOLIVIA DISASTER RECOVERY PROJECT IN THE AMOUNT OF DOLS. EIGHT MILLION LOAN AND DOLS. NINE MILLION GRANT. THESE FUNDS ARE TO BE AUTHORIZED PURSUANT TO SECTION 492(B) OF THE FOREIGN ASSISTANCE ACT OF 1961, AS AMENDED.

2. GC/LAC HAS DETERMINED THAT AN IEE IS NOT REQUIRED BY REGULATION 16 FOR A DISASTER ASSISTANCE FUNDED PROJECT. GIVEN THE ACTIVITIES TO BE INCLUDED IN THE SUBJECT PROJECT, WE DO EXPECT THE MISSION TO PREPARE AN IEE FOR APPROVAL BY THE LAC ENVIRONMENTAL OFFICER. IDEALLY SUCH APPROVAL - SHOULD BE OBTAINED PRIOR TO AUTHORIZATION AND OBLIGATION. HOWEVER, WE DO NOT WISH TO HAVE OBLIGATION DELAYED BECAUSE OF THE IEE. THE MISSION SHOULD, NONETHELESS, SUBMIT THE IEE TO AID/W AS SOON AS POSSIBLE. DAM

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