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ISN 55032

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

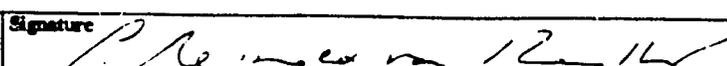
BOLIVIA
PROJECT PAPER

COMMUNITY AND CHILD HEALTH

AID/LAC/P-440

Project Number: 511-0594

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AGENCY FOR INTERNATIONAL DEVELOPMENT PROJECT DATA SHEET				1. TRANSACTION CODE <input type="checkbox"/> A = Add <input type="checkbox"/> C = Change <input type="checkbox"/> D = Delete A		Amendment Number _____		DOCUMENT CODE 3		
2. COUNTRY/ENTITY Bolivia				3. PROJECT NUMBER 511-0594						
4. BUREAU/OFFICE LAC				5. PROJECT TITLE (maximum 40 characters) <input type="checkbox"/> Community and Child Health <input type="checkbox"/>						
6. PROJECT ASSISTANCE COMPLETION DATE (PACD) MM DD YY 07 28 93				7. ESTIMATED DATE OF OBLIGATION (Under 'B' below, enter 1, 2, 3, or 4) A. Initial FY <u>88</u> B. Quarter <u>4</u> C. Final FY <u>92</u>						
8. COSTS (\$000 OR EQUIVALENT \$1 =)										
A. FUNDING SOURCE			FIRST FY <u>88</u>			LIFE OF PROJECT				
			B. FX	C. L/C	D. Total	E. FX	F. L/C	G. Total		
AID Appropriated Total			2,000	700	2,700	12,371	4,129	16,500		
(Grant)			(2,000)	(700)	(2,700)	(12,371)	(4,129)	(16,500)		
(Loan)			()	()	()	()	()	()		
Other										
U.S.										
Host Country			1,100			1,100		5,500		
Other Donor(s)										
TOTALS			2,000	1,800	3,800	12,371	9,629	22,000		
9. SCHEDULE OF AID FUNDING (\$000)										
A. APPRO- PRIATION	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	
(1) C5	510	510				2,500		14,500		
(2) HE	510	510				200		2,000		
(3)										
(4)										
TOTALS						2,700		16,500		
10. SECONDARY TECHNICAL CODES (maximum 6 codes of 3 positions each)								11. SECONDARY PURPOSE CODE		
550			570					580		
12. SPECIAL CONCERNS CODES (maximum 7 codes of 4 positions each)										
A. Code		BR		BU						
B. Amount										
13. PROJECT PURPOSE (maximum 480 characters)										
To reduce infant, child and maternal mortality and morbidity.										
14. SCHEDULED EVALUATIONS						15. SOURCE/ORIGIN OF GOODS AND SERVICES				
Interim		MM	YY	MM	YY	Final	MM	YY		
							07	93		
						<input checked="" type="checkbox"/> 000	<input type="checkbox"/> 941	<input type="checkbox"/> Local	<input type="checkbox"/> Other (Specify) _____	
16. AMENDMENTS/NATURE OF CHANGE PROPOSED (This is page 1 of a _____ page PP Amendment.)										
The USAID Controller has reviewed the financial procedures described herein and hereby indicates his concurrence.										
						 John R. Davison Controller				
17. APPROVED BY		Signature 						18. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION		
		Title G. Reginald van Raalte Mission Director				Date Signed				
						07 26 88				

PROJECT AUTHORIZATION

Name of Country/Entity: Bolivia
Name of Project: Community and Child Health
Number of Project: 511-0594

1. Pursuant to Section 103 of the Foreign Assistance Act of 1961, as amended, I hereby authorize the Community and Child Health Project, encompassing a grant to the Government of Bolivia (GOB), involving planned obligations not to exceed Sixteen Million Five Hundred Thousand United States Dollars (US\$16,500,000) in development assistance grant funds over a five year period, subject to the availability of funds, in accordance with the AID OYB/allotment process. The planned life of the Project is 60 months from the date of the signing of the Project Grant Agreement.

2. The Project will provide resources to effect the following integrated child survival interventions: oral rehydration, immunizations, water and sanitation, acute respiratory infections, nutrition and maternal care.

3. The Project Agreement, which may be negotiated and executed by the officer to whom such authority is delegated in accordance with AID regulations and Delegations of Authority, shall be subject to the following terms and conditions as AID may deem appropriate.

A. Conditions Precedent to Initial Disbursement

Prior to any disbursement, or the issuance by AID of any commitment document pursuant to which disbursement will be made, the Grantee will, except as AID may otherwise agree in writing, provide to AID, in form and substance satisfactory to AID:

1. Legal Opinion

A legal opinion from the Office of the Attorney General of the Republic of Bolivia, or other counsel acceptable to AID, stating that this Agreement has been duly authorized, or ratified by, and executed on behalf of the Grantee, and that it constitutes a valid and legally binding obligation of the Grantee in accordance with all of its terms and conditions;

2. Specimen Signatures

A statement of the name of the person(s) holding or acting in the office of the Grantee responsible for the Project, and of any additional representatives, together with a specimen signature of each person specified in such statement.

3. Conditions Precedent to Disbursements for the District Level Integrated Child Survival Program Activities.

1. All health services staff positions (items) officially assigned to the Districts must be assigned in fact. All such positions (items) temporarily assigned to the Sanitary Units, or elsewhere, must be restored to the District.

2. Prior to initiating Project activities in any District the MOU must assign a Director Medico to each respective District.

C. Covenants

1. The GOR covenants to increase the term of obligatory rural service for doctors assigned to District posts from one year to two years in the Project Districts, or fill those posts with other doctors who will remain for at least two years.

2. The GOR covenants to gradually increase its share of recurrent costs over the life of the Project and to assume all such costs by the Project Assistance Completion Date, thereby ensuring the continuation of Project funded child survival interventions.

4. Source and Origin of Commodities, Nationality of Services

Commodities financed by A.I.D. under the Project shall have their source and origin in Bolivia or the United States, (AID Geographic Code 000), except as A.I.D. may otherwise agree in writing. Except for ocean shipping and motor vehicles, the suppliers of commodities or services shall have Bolivia or the United States as their place of nationality, except as A.I.D. may otherwise agree in writing.

Ocean shipping financed by A.I.D. under the Project shall, except as A.I.D. may otherwise agree in writing, be financed only on flag vessels of the United States. Motor vehicles financed by A.I.D. under the Project shall, except as A.I.D. may otherwise agree in writing, have their origin in the United States.

C. Reginald van Raalte

C. Reginald van Raalte
Mission Director

Drafted by:PD&I:JJCloutier:mtn

Clearances:

HIR:PWartenberger (in draft) date 7/14/88

CONT:JDavison (in draft) date 7/14/88

EXO:ECassal (in draft) date 7/11/88

DP:AFunicello (in draft) date 7/12/88

RLA:ANewton (in draft) date 7/1/88

DD:HRKramer *[Signature]* date *7/24/88*

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* Bulk Annex

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LIST OF ACRONYMS

AED	Academy for Educational Development
ARI	Acute Respiratory Infections
BCG	Bacillus Calmette Guerin, for tuberculosis
BID	Banco Interamericano de Desarrollo (Interamerican Development Bank)
CDC	Centers for Disease Control
CS	Child Survival
DDC	Diarrheal Disease Control
DPT	Diphtheria/Pertussis/Tetanus, Innoculation
DSA	Departamento de Saneamiento Ambiental (Department of Environmental Sanitation)
EPI	Expanded Program of Immunization
GOB	Government of Bolivia
ICC	Interagency Coordinating Committee
IMR	Infant Mortality Rate
MMR	Maternal Mortality Rate
MOH	Ministry of Health
NGO	Non-Governmental Organization
NPA	National Plan of Action
OPG	Operational Program Grant
ORS	Oral Rehydration Salts
ORT	Oral Rehydration Therapy
PAHO	Pan American Health Organization
PHC	Primary Health Care
PL 480	Public Law 480
PID	Project Identification Document
PP	Project Paper
PVO	Private and Voluntary Organization
SU	Sanitary Unit
TA	Technical Assistance
TBA	Traditional Birth Attendants
TACS	Technical Advisor in Child Survival
TT	Tetanus Toxoid
USAID	United States Agency for International Development
WS	Water Supply and Sanitation Systems
WASH	Water and Sanitation for Health

I. SUMMARY AND RECOMMENDATIONS

A. Description of the Project

1. Grantee and Executing Agencies

The Grantee for the Community and Child Health Project (CCH) will be the Government of Bolivia (GOB). The Ministry of Health (MOH) will be responsible for implementing the Project, in conjunction with the Sanitary Units of three Departments - La Paz, Cochabamba and Santa Cruz. To ensure coordination and technical supervision a Project Executive Council, headed by the Minister of Health, will be established. A Project Executive Director will be contracted to direct a Project Management Office, assisted by several technical consultants.

2. Statement of the Problem

Bolivia has the highest infant mortality rate (IMR) in Latin America, at approximately 167 per 1,000 live births. The IMR in rural areas exceeds 200/1,000 in many regions, while in urban areas it averages 120/1,000. The rate has increased during recent years as a result of the deterioration of the economy. The maternal mortality rate (MMR) of 48/10,000 live births, is also the highest in Latin America. The principal causes of infant and child mortality are diarrheal diseases, acute respiratory infections, perinatal diseases and diseases preventable by immunization. Malnutrition is an important contributing cause in all cases.

The problems are the result of poverty and very low coverage of modern health services, estimated at less than 20% of the rural population. This is compounded by very low water and sanitation coverage, high female illiteracy, dispersed population centers and cultural resistance to modern health services among certain ethnic groups.

3. Summary Project Description

The goal of this five year Project is to improve the health status of the rural and peri-urban population, particularly children under the age of five and pregnant and lactating women. The purpose is to reduce infant, child, and maternal mortality. Achievement of the Project purpose will be determined by a reduction of infant, child and maternal mortality rates by 15% in eleven Project Districts by the PACD, and by increased effective service delivery by the MOH Department and District-level institutions, in collaboration with community organizations.

The Project will work within the framework of the MOH national health services program, according to technical norms established by it. Most technologies to be employed are those already used by the MOH. The Project has three components: 1) National Immunization Program Support (\$3.3 million), 2) National Diarrheal Disease Control Program Commodity Support (\$1.5 million), and 3) District Integrated Child

Survival Program (\$17.2 million). The first represents USAID's participation in the multi-donor Expanded Program in Immunization (EPI) Action Plan - 1987 to 1991. The second represents provision of ORS packets to cover Bolivia's National Diarrheal Disease Control requirements from 1989 to 1993. The third will include the following interventions in selected health districts:

- Immunization
- Diarrheal Disease Control
- Acute Respiratory Infection
- Nutrition
- Maternal Care
- Other Diseases (Malaria, Chagas, Tuberculosis, Dengue)
- Water & Sanitation

Those interventions will be supported by:

- Health Education
- Staff Training
- Community Participation
- Equipment and Supplies
- Technical Assistance

The total cost of the Project is \$22.0 million. The USAID contribution will be \$16.5 million in Grant funds. The Government of Bolivia's contribution, cash and in-kind, will be \$5.5 million. USAID's ongoing policy dialogue will stress ways for the GOB to meet its recurrent costs responsibilities during and after the Project's life. A prioritization of GOB resources for child survival needs to be an inherent component of USAID/GOB dialogue. The table below summarizes the USAID and GOB contributions.

Financial Summary

	<u>USAID</u>	<u>GOB</u>	<u>Total</u>
Personnel	1,357	1,090	2,447
Technical Assistance	2,816	778	3,594
Materials & Supplies	4,954	712	5,666
Other Costs	530	856	1,386
Equipment	3,490	0	3,490
Buildings	0	88	88
Training	327	1,146	1,473
Health Education	1,160	0	1,160
Research & Evaluation	893	133	1,026
Price/Quantity			
Contingencies	<u>973</u>	<u>697</u>	<u>1,670</u>
TOTAL	16,500	5,500	22,000

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4. Recommendations

The USAID/Bolivia Project Committee has determined that the proposed activities are technically, administratively, economically, financially, environmentally and socially sound. The analyses carried out during the intensive review indicated that all identified obstacles can be overcome. The environmental determination, as described in the Environmental Annex, is negative. (Per State 224799, AID/W has concurred with this determination.) It is the Committee's judgement that the Project, as designed, can and will achieve its purpose.

The Project is in conformity with the Agency's policies on child survival, health, nutrition, water and sanitation, and environmental protection. It is also consistent with the USAID/Bolivia Action Plan objectives of increasing child survival and community health.

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II. PROJECT BACKGROUND AND RATIONALE

Bolivia has an area of 696,619 square miles and a 1987 estimated population of 6.3 million, a population density of 10.8 per square mile and a population growth rate of 2.2% per annum. Forty three percent of the population is less than 15 years old.

Forty eight percent of the population lives in localities of more than 2,000 inhabitants. The other 52% is widely dispersed, significantly increasing the cost of meeting health needs. The mountainous topography, scarcity of roads, extensive, often flooded savanna areas, jungles in the north and east, and large distances between inhabited areas also increase the difficulty and expense of providing health services.

Like other Andean countries, Bolivia is multicultural and multilingual, with two large linguistic/ethnic groups: the Aymara and Quechua, together representing 62% of the population. The Aymara and Quechua groups participate only marginally in the economic and social benefits of development and are difficult to reach for cultural as well as geographic and institutional reasons. The indigenous cultures' explanations for health problems are quite different than those of modern science and, especially if dealt with insensitively, can constitute a significant obstacle to the introduction of modern health practices.

Although the country has made important efforts to reduce illiteracy, continuing high rates, particularly among women and non-Spanish speaking campesinos, has been another obstacle to introduction of modern health practices.

Poor quality of housing and limited access to piped water, 77% in urban areas and only 12% in rural, have also had a negative impact on health conditions. Latrine facilities are even rarer, 30% in urban areas and 3% in rural. The growth of basic services, moreover, has not even kept pace with that of population.

A. The Health and Child Survival Problems in Bolivia

The severe economic crisis experienced by the country in recent years has resulted in contraction of health services coverage which has impacted most heavily on the poor. According to UNICEF data, at most 23% of the population has access to modern health services. Rural women are particularly poorly served due to low literacy rates, limited access to money, and male domination. The maternal mortality rate is estimated at 48 per 10,000 live births, the highest in Latin America. This, of course, affects child survival as well. Infection, hemorrhage and induced abortion are the principal causes of maternal mortality. Malnutrition and anemia are important associated causes. The total fertility rate is high with a national average of 6.1 children per woman.

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According to a 1981 study by the National Institute of Food and Nutrition, 46.5% of under five year olds suffer from some degree of malnutrition. In rural areas the figure rises to 50.8% compared to 41.7% for urban. Twelve to 23 month-olds show the highest malnutrition rates, which is probably due to inadequate feeding during weaning. Infections also play an important role in malnutrition, so that other health interventions will affect nutritional status. Inadequate nutritional status increases vulnerability to diseases.

Health institutions in the country suffer from inadequate training of field personnel, weak supervision and logistics systems, and insufficient use of installed capacity.

The most reliable estimate of infant mortality rates showed a national average of 167 per 1000, with a range of 97 to 134 in urban areas and 120 to 210 in rural areas. Further variations relate to ecological region, ethnicity and socio-economic status. The rate for the non-salaried agricultural families, for instance, is 245 per 1000. The principal causes of infant and child mortality are, in the following order: 1) acute diarrheal infections, 2) acute respiratory infections, 3) perinatal infections, and 4) diseases preventible by immunizations. Malnutrition is an important contributing cause in all cases. Diarrhea accounted for a third of the recorded cases of infant and child morbidity in 1984-86. It is most prevalent among 12 to 23 month olds with an average rate of nine episodes per annum.

Acute respiratory infections affect most heavily the under one year olds among whom the risk of death is seven times as high as that among 1-4 year olds. The most common cause of perinatal mortality is asphyxiation caused by improper deliveries. The next most significant cause is low birth weight, which is closely related to maternal nutrition and child spacing, then by neonatal tetanus stemming from unhygienic practices severing the umbilical cord and low rates of tetanus vaccination among pregnant women. Measles, whooping cough, poliomyelitis, tetanus, diphtheria, and tuberculosis are the immunopreventible infant and child diseases. According to the Civil Registry, deaths from immunopreventible diseases accounted for 11.4% of infant and child mortality in 1981. Although more recent data do not exist, the situation has almost certainly improved as a result of massive vaccination campaigns.

B. Project Relationship to GOB Health Sector Policies and Programs

The MOH is developing an effort to extend the coverage of health services in order to improve epidemiological conditions in Bolivia, to reduce morbi-mortality rates, to improve the working capacity and nutritional status of its inhabitants, and the quality of life of its population.

For these purposes, strategies for health were defined based on Primary Health Care (PHC) that give emphasis to:

- Strengthening of health services
- Active, organized and conscientious community participation
- Regionalization of services
- Inter and intra-sectoral coordination

In 1986 the Triennial Health Plan was developed. This plan gives highest priority attention to mothers, children, and workers as the main subjects for health action. It also increases attention to the environment and reinforces community participation within a framework of co-responsibility.

Physical, financial and human resource constraints have hindered the accomplishment of the proposed objective: the development of efficient, effective and equitable health services. However, some activities directed to the reduction of the main causes of infant and child mortality have been developed with significant results. Starting in 1987 a draft National Plan for the "Development of the Health Services System with emphasis on PHC" was presented. This plan proposes a development strategy for middle and long terms with decentralized health services and supports the Triennial Health Plan. The strategy urges the strengthening of operational levels. These levels are the local health systems (Sanitary Districts) as part of a basic strategy for the improvement and development of the whole health system.

This strategy is possible through the mobilization of national financial resources and external financial resources. The national financing is represented mainly by the MOH budget, but it is insufficient to cover the expenses that are required for its implementation. This Project will complement the GOB policy to alleviate the social cost of the economic crisis.

In the same way, an extension program for coverage that is regionalized and prioritized will be developed in order to get the inter and intra-regional complementarity, so that with less effort and financing, necessary resources and actions can be completed. Within this general scope, this Project constitutes one of the fundamental components for area development, allowing the integration of CS actions into the local health systems (Sanitary Districts) through: incorporation of PHC, strengthening of institutional development so that with better use of resources, the mechanisms of community participation can be improved and enhanced.

The proposed Project is also in accord with A.I.D. policies, which give special prominence to child survival and, in fact, single out Bolivia as an "emphasis" country. The Project largely fulfills the guidelines set forth in the A.I.D. Child Survival Strategy of April 1, 1988, in its attention and approach to control of diarrheal disease, immunization, nutrition, and institutionalization of services.

The activities of other international organizations will be complemented by the Project. The World Bank, with an initial 1988 obligation of \$490,000 will design a project for the development of local health systems for the four largest cities of the country: La Paz, El Alto, Cochabamba, and Santa Cruz with a total LOP funding of \$40,000,000 for five years. It provides for the development of necessary physical and human resources and the institutional strengthening of all levels of the system. The Interamerican Development Bank (IDB) with an initial contribution of \$260,000 and with a special fund of an as yet undetermined amount, will permit the strengthening of four additional Sanitary Districts. These districts are considered experiments and will be evaluated to assess feasibility of an \$80,000,000 effort to cover the most depressed and needy regions of the country.

III. PROJECT DESCRIPTION

A. Project Goal and Purpose

The Project goal is to improve the health status of the rural population. The Project purpose is to reduce infant and child mortality and morbidity. This will be achieved through child survival interventions, institutional development and community participation. The end-of-project status indicators of purpose achievement will be reductions in infant, child and maternal mortality rates in 11 Project Districts, and increased capability of the MOH Department and District-level institutions, and of the community organizations, to plan, implement and sustain child survival interventions. The first will be verified by base-line and follow-up surveys, and the second by output indicators of performance by the various institutions and organizations.

Achievement of the purpose assumes that the MOH will delegate to its Departmental and District-level organizations sufficient authority over planning and administration of the Project activities to ensure timely and effective implementation. It also assumes that the MOH, Departmental entities, and USAID will provide adequate financial, technical, and material resources in a timely manner.

B. Project Strategy

The GOB and USAID will employ a multi-faceted strategy to achieve the Project purpose of improving community health by reducing infant and child mortality. A key element of the strategy will be to strengthen the operational capacity of District health units in three Departments to improve and expand coverage of their populations with an integrated package of priority "child survival" interventions - immunizations, diarrheal disease control via oral rehydration, nutrition, acute respiratory infections, maternal care, and water and sanitation. Promotion and delivery of the integrated package is compatible with the communities' holistic approach to health problems, and with the multi-purpose nature of the health extension workers' (auxiliary nurses and health promoters) responsibilities. Since the Districts receive technical, management and financial support from their Departmental Sanitary Units, the Project will also strengthen the Sanitary Units' capacity to provide that support. By focusing Project support at the District and Department levels, the Project will reinforce the current GOB initiative to decentralize management of health services from the national level to the Departments and Municipalities.

Because most Districts' current capacities to deliver priority services effectively to their dispersed rural populations are severely limited, the Project will start in two Districts in Cochabamba and one District each in Santa Cruz and La Paz Departments, comprising a total population of approximately 300,000. The Project will then expand

to at least two more Districts in each Department to reach a total of 11 Districts for the Project period in the second year. Based on evaluations, decisions will be made to expand to even more Districts in each of the three Departments.

Initial baseline data surveys will enable each individual district to determine its own immediate needs and its appropriate child survival interventions. However it is expected that several basic child survival interventions such as oral rehydration therapy, immunization, health and nutrition education, and water and sanitation activities will be a part of every initial integrated child survival package of services. Additional interventions will be phased in based on the results of ongoing evaluations. (See Evaluation Plan Section.)

Criteria for phasing in districts will be discussed and debated at the pre-implementation workshop tentatively scheduled for October or November 1988. Representatives from all three departmental Sanitary Units and the initial four districts as well as central, regional, and local MOH and Project support staff will be represented. An initial set of criteria will be developed and will be reviewed prior to its implementation, which is expected to be two years after the start of the Project.

Concurrent with implementation of the District-level program, the Project will also provide support for the Ministry's national immunization and diarrheal disease control programs. The former will be USAID's technical and commodity contribution to the joint WHO, UNICEF, USAID, MOH, Rotary Club, and PL 480 Title III Secretariat EPI Plan of Action and the second will consist of provision of ORS packets to the MOH.

C. Site Selection Methods

The following criteria for selection of districts were used: a rural area with more than 50,000 people and high rate of morbidity and mortality for infants and children under age five; economic capability of the areas to support and sustain Project activities; interest and capability of the Unidades Sanitarias to support and sustain the Project; existence and staffing of Centros Medicos and Puestos Sanitarios at the district and area levels; permanence of staff, and likelihood of success for the Project.

The SUs of the Departments of La Paz, Cochabamba, and Santa Cruz best fit the criteria. Although SUs of the Pando and Beni were considered, population in these areas is too dispersed. Others considered were the SUs in Tarija, Chuquisaca, and Potosi. Although these SUs were not visited, the possibility remains that they will be considered in the future. Because one objective is strengthening key SUs, the team decided that the more principal SUs of La Paz, Cochabamba, and Santa Cruz should be the places to begin.

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For SU La Paz, District Ayo Ayo was selected because of its high population (140,000) accessibility, and health system infrastructure. For SU Cochabamba, Districts Sacaba in the Chapare Valle Puna and Totora in Carrasco Valle were selected as best fitting the criteria. In addition, both of these districts in Cochabamba were targets of the recently completed Rural Water and Sanitation Project. The Project will build upon the water systems and village committees already in place in those districts. For SU Santa Cruz, District III in the Samaypata, Mairana, Vallegrande, and Caparapi area was chosen, primarily because this district has an effective district level health program. PP team members visited these districts to collect information on epidemiology and health organization, social and political systems of the communities, culture, and hydrology.

D. Project Components and Outputs

The Project will be organized into three major components, coordinated by a central project management unit in La Paz. The first two components concern provision of commodities and some technical assistance for two of the MCH's highest priority national-level child survival programs-immunizations and diarrheal disease control (ORT). Approximately 30% of the AID funds will be devoted to those components combined. Major Project emphasis will be devoted to the third component - the District Child Survival Program. Specific child survival interventions will be conducted in 11 Districts of the three Departments. The MOH Sanitary Units in each Department will have overall responsibility for planning and supporting the program to be implemented by each District, in collaboration with appropriate central MOH staff in La Paz, the District Health Officers and staffs and other Department government organizations.

1. National Immunization Program Support.

The Project will strengthen continued vaccination at the Health Centers, giving priority to children below the age of one year, based on the training of the operational staff and include supervision of popular education adapted to the particular cultural characteristics of the diverse national groups. Massive vaccine campaign strategies with community participation will complement regular vaccinations given at health services. Rural populations and groups living in precarious socio-economic conditions, such as seasonal migrants and the unemployed, will be targeted. TT vaccination should be dispensed to women in the 15 to 45 year old age group, during campaigns performed in mothers clubs, schools, and during massive vaccination campaigns aimed at children, giving priority to the valley and flatland regions. Infant BCG and Polio vaccinations should be common practice for child births in an institution. For epidemiologic surveillance of immuno-preventable diseases, surveillance centers will be required in every health center, which can report data regularly and reliably. Promotional and vaccination activities should be integrated with other child survival interventions.

The EPI at the national level receives technical and financial support from the Interagency Coordinating Committee (OPS/OMS, USAID, UNICEF, MOH, ROTARY CLUB and PL 480, Title III) which contributes resources for the EPI Plan of Action annually. The USAID contribution to the MOH of Bolivia for the immunization program is \$3,300,000 under this Project. Immunization program activities in the selected districts will be implemented together with all CS interventions in an integrated way. Supply of resources, such as vaccines, drugs, material and equipment for vaccination, as well as for the cold chain will be sent from the central level to the sanitary units, assuring a prompt and normal logistics system.

The expected impacts of this Project component include:

- Reduction of morbi-mortality rate caused by immuno-preventable diseases Polio, Measles, Tetanus, TB, Diphtheria, Whooping Cough.
- Improvement of the capacity of Health services to maintain continuous immunization programs supplemented by periodical campaigns.
- Disminution of frequency of urban campaigns due to the strengthening of the cold chain.
- Development of the supervision and the Epidemiological Surveillance System.

2. National Diarrheal Disease Control Program Commodity Support.

The Project will provide approximately two million packets of oral rehydration salts (ORS) per year to the MOH for use within the National Oral Rehydration Program. Many packets will be distributed through more than 4,000 ORT units (institution and community-based) which have been established by the MOH since 1984 when the program was initiated. In addition, the MOH will provide a portion of the ORS packets to non-governmental organizations (NGOs) which are conducting complementary ORT programs.

For example, CARITAS Boliviana, is expected to distribute approximately 300,000 packets per year through its Mothers' Clubs. The packets will also supply the needs of this Project's District-Level Programs in La Paz, Cochabamba, and Santa Cruz. USAID/Bolivia will purchase the packets through AID central procurement arrangements and ship them to the MOH in La Paz. The MOH will be responsible for all storage, transportation, promotion and distribution of the packets, but the Project will provide limited technical and material support for this as well. For example, the Project will finance a detailed evaluation of the MOH and NGO capacity to handle, store, distribute and monitor the ORS packets and their use. Recommendations will be made to improve performance when appropriate. However, the Project will not take responsibility for providing services to improve performance.

Based on an estimated price of \$0.10 per packet (plus transport and contingencies of 30%) the cost will be approximately \$260,000 per year, plus \$50,000 per year for the related assistance. The 1988/89 shipment has been funded by non-Project funds, so approximately \$1,500,000 will be required to meet the USAID Project commitment over the life of the Project.

Outputs expected from this Project component will consist of 140,000 children between ages zero to five treated with oral rehydration packets for approximately five episodes of acute diarrhea per year. Since the Project will only be responsible for providing the packets to the MOH for distribution to service delivery units (MOH and NGOs) throughout the entire country, the Project will not take responsibility for the training, supervision and monitoring of the service providers, except in the Project's eleven Districts. Consequently, the Project will not identify nor claim any intermediate service delivery or institution building outputs associated with this component.

3. District Integrated Child Survival Program

The objective of each District program will be to develop the capacity of the District health services staff under the direction of its Medical Director (Director Medico) to diagnose the District's priority health problems, and then to design, plan, implement and evaluate appropriate community-based interventions which will impact directly on infant, child and maternal morbidity and mortality. Because the Districts will require substantial technical and material support from the Department (Sanitary Unit) and Central MOH organizations, expansion of their capabilities to do so will also be supported by the Project. Consequently, this Component will seek to produce intermediate (process) outputs at all three levels (Central, Department and District) as well as concrete service delivery and health impact outputs. District outputs will not be uniform because each District will be encouraged to develop a program suited to its own situation, in a decentralized manner. Therefore, the Project will not seek standard outputs per intervention in each District, but rather total outputs from all Districts. However, during implementation, each District will plan and seek specific output targets for each intervention each year. Total outputs for each level are described briefly below.

a. District Service Delivery Outputs:

1. Immunizations

The Project will concentrate its efforts in Popular Education and in the improvement of Health Services to offer an integrated and continuous program of immunization, together with other C.S. interventions.

Mobile teams of health workers and programmed campaigns with ample community participation will be integrated with the MOH's EPI. The EPI Interagency Coordinating Committee composed of USAID, OPS/OMS, MOH, UNICEF, Rotary International, PL 480 Title III Secretariat, will guarantee adequate logistics support for all supplies, the handling and strengthening of the cold chain, plus the funding for a five year period.

The primary target group for the Immunization Program will be infants under one year of age, although it will be necessary to enlarge the target to children under five years of age. At the end of the fifth year, the Project expects to cover 80% of infants under one year of age, that is to say 30,000 approximately. With proper Polio (3 doses), DPT (3 doses), BCG (1 dose) and Measles immunizations, 80% of women (15-44 years of age), particularly the ones living in Savannas and Valleys, will also be covered with TT (2 doses).

ii. Diarrheal Disease Control

Since diarrheal diseases are the leading cause of the high mortality rate of infants and children under five years of age in Bolivia, the Project will use an integrated approach with promotional and educational interventions and modern medicine. Practices of traditional medicine will also be considered, since the Project aims not only to have accessibility for certain groups, but to support socially and culturally acceptable solutions.

The patterns for control will seek to educate about prevention and self-treatment of acute diarrheal disease. They will not be limited to simple distribution and use of the ORS. At the end of the fifth year, it is expected that the Project, with a positive combination of ORS plus adequate traditional practices will cover 80% of the diarrheal episodes among infants and children under 5 years of age of the targeted population of 1,000,000 inhabitants. That means that 140,000 infants and children under five years of age are covered, each having five diarrheal episodes per year which amounts to a grand total of 700,000 episodes per year (See Table No. 2).

iii. Nutrition

Nutrition interventions will focus on infants and children under five years of age and for pregnant and nursing women, especially through education, growth monitoring and promotion, breast feeding and weaning, food and practices promotion, plus the proper supplying of elements such as iron and iodine to avoid anemias and goiter. The Project will coordinate with other institutions promoting agricultural production to give and receive support for the nutritional and epidemiological vigilance at the community level.

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Emphasis for the component will also be placed on monitoring growth of infants and children with the use of a health card as a useful instrument for preventive health education. Growth control will be recorded with periodic passive visits to health centers and active visits to households.

At the end of the fifth year the Project expects that 60% of infants and children under five years of age will have proper growth control, that is to say 105,560 infants and children. About 41,000 women (80% of the targeted population) will also have pre-natal, peri-natal and post-natal control plus a dose of ferrous sulphate with folic acid. Approximately 600,000 persons (ages 0-40) will also receive at least one dose of iodine oil by oral ingestion, which represents 80% of coverage. (See Table No. 2)

iv. Acute Respiratory Infections

Infants and children under five years of age will be the target group for ARI interventions. These interventions will consist of DPT, Measles, BCG immunization. Home care of mild cases will be part of an educational program.

An institutional system for detection and treatment of ARI with antibiotics will be supported and emphasized. For this purpose, due to a lack of health personnel in certain areas, and the dispersal of communities in the rural area, it will be necessary that CHW's be responsible for the distribution of ARI medicines. Severe cases will be referred to hospitals

At the end of the fifth year the Project expects to have established of a system that will detect and treat 80% of ARI cases—infants and children under five years of age and that is to say 560,000 cases (See Table No. 2).

v. Maternal Health

To increase coverage of pregnancy follow-up, perinatal and neonatal care, the Project proposes to incorporate effectively traditional midwives under the health system through training and giving them support for efficient maternal care.

The role of Health Services with analytical capacity will be fundamentally directed to the attention of high risk births, dystocial births and complicated births.

At the end of the fifth year, the Project expects that 80% of pregnant and nursing mothers and deliveries can be served by the system (See Table No. 2).

vi. Water and Sanitation

The Project will strengthen the Rural Water and Sanitation Unit within the División de Saneamiento Ambiental (DSA) to coordinate rural activities and promote adoption of appropriate technologies in construction and other areas to reduce costs of rural water systems.

The Project support will be primarily technical assistance and equipment. It will provide services to each Sanitary Unit to help design and initiate rural water and sanitation programs with simple technologies.

The Project will install 160 community water systems in four Districts, benefitting approximately 200,000 persons. Approximately 1,150 shallow wells with hand pumps will also be provided in more dispersed communities, benefitting approximately 70,000 persons. In addition, almost 15,000 household latrines will be built.

b. District Institutional Outputs

i. Staff Training

Several workshops will be conducted prior to implementation of the program to inform and motivate the Project's personnel at the Central Sanitary Unit and District levels.

The District's personnel training will be done gradually responding to technical, administrative and health management needs. Priority training will be given to Auxiliary Nurses in charge of sanitary posts and to administrative personnel at the District level. Of primary importance is the training of personnel in Health Education and community participation techniques. Training methodologies will include short courses at the Public Health School, continuous education, workshops, formal training of auxiliary nurses, and W & S technicians, and local scholarships for courses leading to Masters of Public Health Degrees for the supervising staff.

Training will be conducted or coordinated/arranged by the joint US/Bolivian venture that is expected to receive the contract for technical assistance and most commodity procurement. In order to ensure that logistical arrangements are taken care of and to provide other backstopping services, the institutional contractor will employ a full-time training coordinator (locally hired). The specific procedures for the selection criteria and procedures for training participants will be the subject of an early Project Implementation Letter. One condition of all training will be that returned participants will work for the MOH for a period of time twice as long as that of the training. See Implementation Arrangements Section for a discussion of training implementation.

- Formative Training

The main training activities during the life of the Project are:

Supervisory Personnel:

14 two year scholarships leading to a Master in Public Health Degree.

Field Personnel:

44 eight month scholarships for Auxiliary Nurses.
22 eight month scholarships for W&S Technicians.
11 one month Scholarships for Social Workers on Health Education techniques and Community participation.

Field Personnel training will be mostly in Bolivia, but a small amount may be third country or U.S.

- Continuing Education (all in-country)

180 one month scholarships for Auxiliary Nurses.
11 two months scholarships for statistical technicians.
300 Auxiliary Nurses, three annual five day workshops

Course contents will include Health Education techniques, treatment of specific Child Survival diseases and Water and Sanitation education.

ii. Community Health Workers, Midwives and Popular Health Committees

Training of community health workers and midwives will be accomplished through three weeks of intensive courses and will be followed up by three annual five day workshops with heavy emphasis in communication skills and Health Education.

During the life of the Project the following will be trained:

- 2,000 Community Health Workers
- 800 Traditional Midwives

During this period 230 Popular Health Committees and 150 W & S Committees will be strengthened or formed at the community level.

iii. Staff Positions Filled

The employees funded by the Project will become permanent employees of the MOH prior to PACD.

iv. Development of Administrative Subsystems

After completion of the Project it is expected that:

- The District will have the capacity to develop local programming of activities.
- An information system will be established and working, carrying information from the area to the District and the Sanitary Unit. It is also expected that the District capacity for data processing and analysis will be increased.
- Periodic supervision activities will be instituted utilizing pertinent supervision guidelines.
- Personnel training will be continued.
- The referral and counter-referral pathology system will be fully developed and functioning dynamically.

c. Sanitary Units Service Support Outputs

The technical and administrative personnel from the Sanitary Units in La Paz, Cochabamba and Santa Cruz will provide the Districts selected for the Project with technical and logistic support. The main outputs are:

- . Participate as trainers in the workshops organized by the Sanitary Units.
- . Make a minimum of five annual supervision visits to each District.
- . Keep the Districts informed through the distribution of a monthly bulletin with information on transmittable diseases.
- . Provide advice and support during epidemiologic outbreaks and other emergencies.
- . Distribute promptly and efficiently commodities requested by the Districts.
- . Participation of approximately 200 Medical Students from the Medical University and 100 student nurses from the Health School in Community medicine programs within the Project's Districts.
- . Develop basic water quality control mechanisms by the Universidad Mayor de San Simon for the systems constructed by the Project.
- . Participation of the University Research Division and the SU in the design and implementation of studies and investigations required by the work performed in the Districts by the Project.

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Table I

TARGET POPULATION										
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
<u>Project Years</u>	<u>No. of Districts</u>	<u>Total Pop.</u>	<u>% Pop. Covered</u>	<u>Pop. Covered</u>	<u>No. Infants Covered 1 Year (3.6% of #5)</u>	<u>No. Children 5 Years Covered (17% of #5)</u>	<u>No. Women Age 15-44 Yr. Cvd. (21.6% of #5)</u>	<u>No. Pregnant Women Covered (5% of #5)</u>	<u>No. of Families Covered (#5 : 6)</u>	<u>Total Direct Beneficiaries (#7 + 8)</u>
1	5	375,000	50%	187,500	6,750	31,875	40,500	9,375	31,250	72,375
2	11	946,400	50%	473,200	17,035	78,067	102,211	23,660	78,867	181,067
3	11	974,900	70%	682,430	24,567	116,008	147,398	34,120	113,733	263,406
4	11	994,700	75%	746,025	26,857	124,304	157,934	36,560	121,887	282,238
5	11	1,035,100	80%	828,080	29,811	140,777	178,870	41,405	138,016	319,647

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Table II

PROJECT SERVICE DELIVERY OUTPUTS

Year	1. Infants Immunized	2. Diarrhoea Episodes Treated	3. IRA Cases Treated	4. Women Im- munized IT2	5. Prenatal Service	6. Births Attended	7. Child Growth Monitored	8. Iodine Doses	9. Water Supplied	10. Latrines
1	6,500	159,375	127,500	40,500	9,375	6,000	19,125	150,000	26,460	9,600
2	17,035	402,220	321,776	61,711	23,660	15,142	64,355	228,560	43,680	14,400
3	24,566	580,040	464,032	45,187	34,120	27,297	82,866	317,384	59,460	19,800
4	26,323	621,520	497,216	10,536	36,560	27,852	93,000	279,436	66,660	21,600
5	29,812	703,885	563,108	20,936	41,405	33,123	105,560	383,028	63,060	23,400

Notes:

1. Polio 3, DPT 3, Measles and BCG for children less than 1 year.
2. Average of 5 episodes per year per child under 5 years, treated with ORS packets.
3. Average of 4 episodes per year per child under 5 years.
4. Women aged 15-44 years.
5. Pregnant women receiving prenatal care.
6. Births attended by trained attendant.
7. Children under 5 years weighed monthly.
8. Iodine doses administered to all persons aged 0-40 years, 2 doses (1st and 3rd year).
9. Population receiving new water supplies (systems + hand pumps/wells). Based on 6 person per household.
10. Population receiving new latrines. Based on 6 persons per household.

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IV. COST ESTIMATES AND FINANCIAL PLAN

A. Budget

Budget Table III (attached to this section) summarizes the budget for all Project years combined, distributed by source and divided between foreign exchange (FX) and local costs (LC) and also distributed by inputs. The basis for calculation of costs are provided in Annex N. A related table is found in Annex N on "Cost Methods" (Table N-1). It gives details of each Project component similar to those of Table III. Information on each Project component, by type of input, for all years combined for USAID and GOB is found in Annex N (Tables N-2 and N-3 respectively.) Budget Table IV (attached to this section) breaks down the USAID contribution for each year between FX and LC expenditures. There are no salary supplements included in the Project budget.

B. Cost Estimation Methods

The costs of each component for the Project period, which constitute the bases of the summary tables just noted, were calculated by customary methods. Appropriate sources of information, varying among the types of inputs, were used for unit costs, which are presented in Annex N. From this information, the total base costs of components by year were calculated. Naturally, they were separated by funding source and in other ways evident in the tables. Some rounding of totals was done (when Tables of Annex N and the PP text are compared.)

Allowances were made for expected price/quantity variations in all budgetary items, for both AID and GOB, as shown in Table III. The overall AID contingency is approximately 6%. The overall GOB costs reflect a composite 12.5 per cent allowance for price/quantity variations.

C. Financial Plan

The summary budgets (Tables III and IV), backed by the detailed ones in Annex N, comprise the source of data for the financial plan of the Project.

The total Project cost for the life of the Project, is \$22,000,000. This total is distributed by source of financing as follows: USAID -- \$16,500,000 (75 per cent); GOB -- \$5,500,000 (25 per cent). A large part of GOB expenditures (\$5,000,000) is expected to be financed by P.L. 480 Title III funds. Another division of costs is between foreign exchange and local costs, with the former being larger. USAID will finance the following inputs (in \$000):

- Personnel	\$ 1,357
- Technical Assistance (TA)	\$ 2,816
- Materials and Supplies	\$ 4,954
- Other Operating Costs	\$ 530
- Equipment	\$ 3,490
- Training	\$ 327
- Social Communications	\$ 1,160
- Research and Evaluation	\$ 893
- Price/Quantity Contingencies	\$ 973
Total: USAID	<u>\$16,500</u>

The GOB will finance the following inputs (in \$000)

- Personnel	\$ 1,090
- TA	\$ 778
- Materials and Supplies	\$ 712
- Other Operating Costs	\$ 856
- Buildings	\$ 88
- Training	\$ 1,146
- Research and Evaluation	\$ 133
- Price/Quantity Contingencies	\$ 697
Total: GOB	<u>\$ 5,500</u>

The distribution of Project cost over time is evident in Table IV. It shows that expenditures are expected to rise from the first to the fourth years (peaking in 1991); they then will fall sharply to be lowest in the last two. The rise and then fall in annual spending is to be expected due to the time required for "start-up" in the earliest years and the lack of need for non-recurrent expenditures (e.g., equipment) in the last years.

The results tabulated in Table III for the proposed Project indicate that the largest (most costly) input categories are materials and supplies, technical assistance, and equipment (including vehicles).

A breakdown of the budget based on the three Project components is provided below:

	<u>USAID</u>	<u>GOB</u>
I. <u>ORAL REHYDRATION</u>		
A. TA	-	-
B. Training	-	-
C. Commodities	1,500	-
D. Other Costs (Local Currency Support Costs)		
Subtotal	<u>1,500</u>	<u>-</u>
II. IMMUNIZATION (EPI)		
A. TA	-	-
B. Training	500	300
C. Commodities	2,300	1,000
D. Other Costs (Local Currency Support Costs)	500	-
Subtotal	<u>3,300</u>	<u>1,300</u>
III. INTEGRATED CS (ICS)		
A. TA	2,816	778
B. Training	327	1,146
C. Commodities	3,644	-
D. Other Costs (Local Currency Support Costs)	4,913	2,276
Subtotal	<u>11,700</u>	<u>4,200</u>
Grand Total	16,500	5,500

D. Methods of Implementation and Financing

The methods of implementing and financing for each component of the Project are summarized as follows:

<u>Component</u>	<u>Method of Implementation</u>	<u>Method of Payment</u>	<u>Estimated Amount</u>
Oral Rehydration: Commodities	PIO/C procurement from GSA	Direct Pay	\$ 1,500
Immunization: Training Commodities	Institutional Contract PIO/C procurement from CSA, PAHO, UNICEF	Direct Pay	500
Other Costs	Host Country	Direct Pay HC Reimbursement	2,300 500
Integrated Child Survival: TA	PASA Agreement Institutional Contract	Direct Pay Direct Pay	500 2,315
Training	Institutional Contract	Direct Pay	327
Commodities: Vehicles All other commodities	PIO/C - USAID/E Institutional Contract	Direct Pay Direct Pay	300 3,344
Other Costs	Host Country	Host Country Reimbursement	<u>4,913</u>
	T o t a l		\$ 16,500 -----

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TABLE III
LIFE OF PROJECT COST ESTIMATES AND FINANCIAL PLAN (a)
(US \$ 000)

INPUTS	FINANCING		SOURCES		TOTAL		GRAND TOTAL
	USAID Ft	GRANT LC	TOTAL USAID GRANT	GGE LC	Ft	LC	
PERSONNEL	0	1,356	1,356	1,070	0	2,448	2,448
TECHNICAL ASSISTANCE	2,744	72	2,816	775	2,744	350	3,514
MATERIALS AND SUPPLIES	4,430	524	4,954	712	4,430	1,236	5,916
OTHER OPERATING COSTS	530	0	530	856	530	856	1,136
EQUIPMENT	3,316	174	3,490	0	3,316	174	3,490
BUILDINGS	0	0	6	85	0	89	95
TRAINING	0	327	327	1,146	0	1,473	1,473
SOCIAL COMMUNICATION	0	1,166	1,166	0	0	1,166	1,166
RESEARCH AND EVALUATION	823	270	893	133	823	463	825
PRICE/QUANTITY CONTINGENCIES (b)	720	244	972	457	720	541	1,462
TOTAL:	12,371	4,129	16,500	5,500	12,371	7,429	22,050
PERCENTAGE OF TOTAL PROJECT COSTS:			75.01	25.01			100.01

(a) For details and basis of calculations please see Annex X.

(b) Approximately 6% is included under the 410 portion to cover expected price/quantity variations in the above estimates.

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TABLE IV
 PROJECTION OF EXPENDITURES BY PROJECT YEARS
 (US \$ 000)

INPUTS	U	S	A	I	S	USAID		EGE	GRAND
	1980	1981	1980	1981	1982	1983	TOTAL	TOTAL	TOTAL
PERSONNEL	59	205	255	345	323	61	1,358	1,070	2,428
TECHNICAL ASSISTANCE	137	763	763	204	223	126	2,816	778	3,594
MATERIALS AND SUPPLIES	416	243	1,152	1,175	647	469	4,954	712	5,666
OTHER OPERATING EXPENSES	43	23	110	139	126	18	536	856	1,392
EQUIPMENT	1,597	729	652	395	127	0	2,490	0	3,450
BUILDINGS	0	0	0	0	0	0	0	23	23
TRAINING	55	60	55	55	56	55	327	1,146	1,473
SOCIAL COMMUNICATIONS	29	233	329	325	168	15	1,160	0	1,160
RESEARCH AND EVALUATION	76	250	25	125	115	318	893	133	1,026
PRICE/QUANTITY CONTINGENCIES	0	0	18	445	282	227	972	977	1,949
TOTAL:	2,478	3,150	3,497	3,770	2,569	1,370	16,500	5,500	22,000
YEARLY PERCENTAGE OF TOTAL AID FINANCING:	15.14%	19.95%	26.63%	22.67%	13.87%	8.20%			
CUMULATIVE PERCENTAGE OF DISBURSEMENTS BY PROJECT YEAR:		34.23%	54.86%	77.53%	91.40%	100.00%			

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V. IMPLEMENTATION ARRANGEMENTS

A. Start-up Workshops

The first implementation step to be taken once the Project Management Office is established will be to hold a facilitated workshop involving all key Project participants from the Central, Department and District levels. The purpose of the workshop will be to ensure common understanding by all parties of the Project objectives, the participants' respective roles and responsibilities in it, and to plan the first step to be taken to get it underway. Workshop facilitators will be engaged to maximize its effectiveness. It is anticipated that three to five days will be required for the workshop. The identity of the participants will be determined by pre-Workshop interviews and by the roles individuals will play in the Project.

Subsequently, similar but smaller-scale start-up workshops will be conducted at each District prior to initiating Project activities. They will involve all key participants from the District and support staff from the respective Sanitary Units, and the central Executive Unit.

B. Oral Rehydration

In 1984, the MOH initiated a national child survival program based on oral rehydration therapy (ORT) strategy. By the end of 1986, the program had created 1,857 institutional and 6,127 community ORT units to serve as ORS information and distribution facilities. The MOH currently distributes approximately one million ORS packets per year through the UROs and plans to expand this system significantly. The MOH will make ORS packets available to other, non-governmental agencies which are conducting complementary ORT programs in Bolivia. Specifically, the MOH will provide a significant number of ORS packets to CARITAS Boliviana (according to need and ability to utilize), which will distribute these packets primarily through CARITAS Mothers' Clubs during the Project. The MOH and other donors will provide all warehousing, promotion, transportation, and distribution costs for the salts once they have been delivered to the MOH.

An evaluation will be conducted of the ongoing MOH oral rehydration packets distribution program early in the Project's life. Packets already ordered under the National Oral Rehydration Program (511-0600) will be sufficient for at least another year. During that time, the ORS component of the CCH Project will have been evaluated and modified, as necessary, to improve distribution efficiency and commodity control.

C. National Immunization Activity

On October 12, 1987 The Ministry of Health, USAID, the PL 480 Title III Secretariat, the Rotary Club International, UNICFF, and PAHO signed a Letter of Understanding to support the MOH Expanded Program of Immunization's (EPI) National Plan of Action from 1987-91. Under this

Project, USAID is committed to provide approximately \$3,300,000 to support the EPI National Plan of Action in an effort to strengthen the MOH's accelerated routine EPI activities and strive to eliminate polio in Bolivia. An Inter-Agency Coordinating Committee (ICC) consisting of all donors including USAID, meets every quarter and annually to review implementation progress and to revise the annual EPI plans as necessary. The USAID TACS Advisor will represent USAID on the ICC. The ICC will submit requests to the MOH and the Project Management Unit for procurement and other expenses.

The Project Management Office will maintain overall responsibility and accountability for the national EPI program activities financed under the Project. EPI equipment, supplies, drugs, vaccines, etc. will either be procured directly by USAID or under existing USAID or MOH bilateral agreements with the World Health Organization/Pan American Health Organization and UNICEF. The Project Management Office will review, and if appropriate, approve all ICC-initiated requests for Project funds under the EPI National Plan of Action. The MOH and the ICC will be responsible to the Project Management Office for the proper use and accountability of these funds.

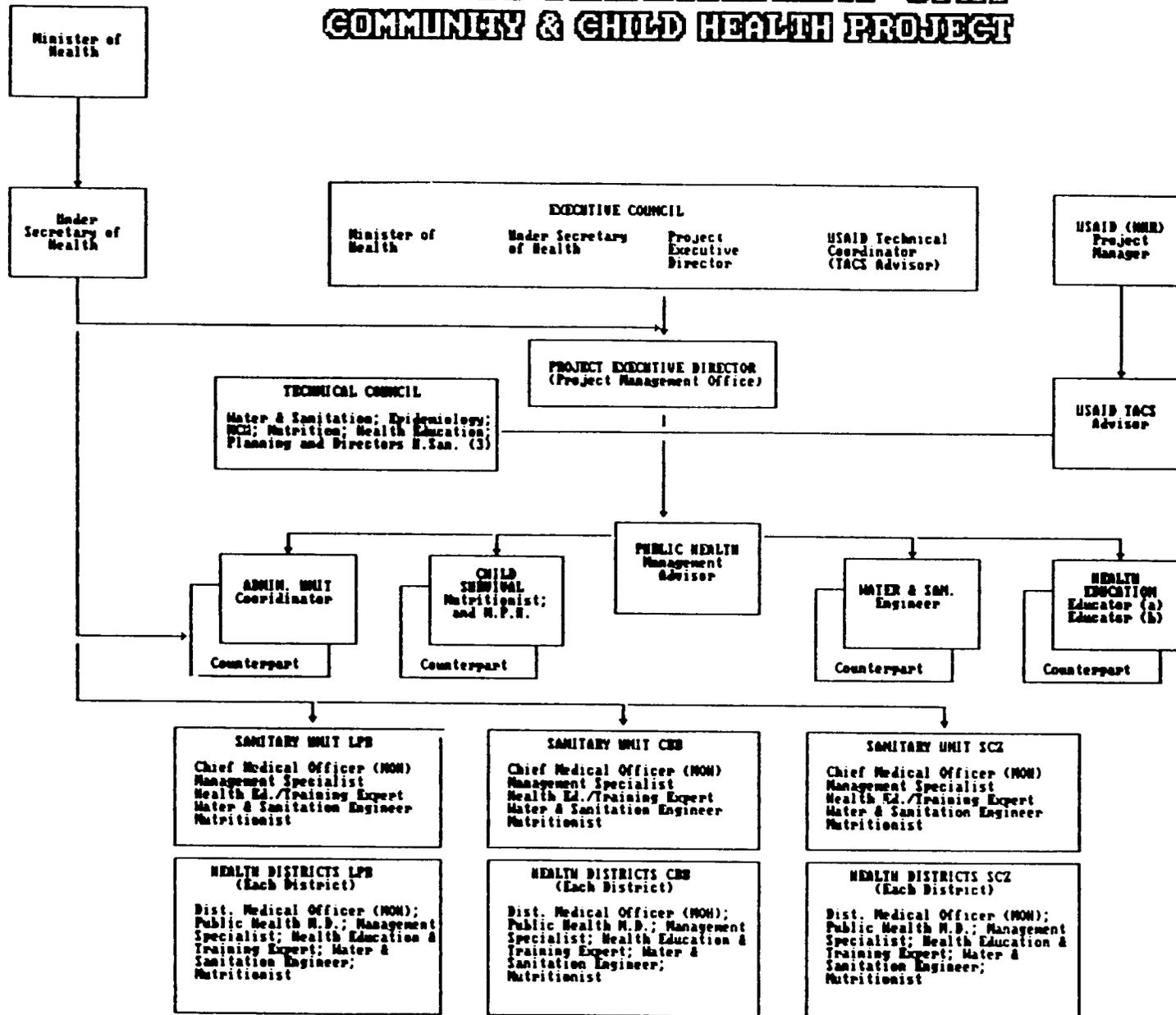
As noted in the February 1988 Resources for Child Health Project (REACH) report entitled Annual Review of EPI Plans in Bolivia, 1988, the MOH EPI Plan of Action consists of nine major elements: biologics and logistics; cold chain; training; social communication; operating expenditures; supervision; epidemiological surveillance; investigation; and evaluation. A financial overview of the EPI Plan of Action indicates that although USAID support is targetted for eight of the nine elements (no funds for operating expenditures), a majority of USAID's financing (approximately 70%) is for investment costs. USAID has the major financing role in six of the nine EPI Plan of Action elements. Support for this national Project component will begin once the Project Grant Agreement has been signed and initial conditions precedent have been met.

The Project will attempt to establish a routine package of EPI services which will be continuously available throughout the country. And in spite of the GOB's plans for decentralization of the Health Ministry, the EPI program will continue to be a national program directed from the central levels of the MOH.

D. Project Management Unit

Immediately following execution of the Project Agreement, the Ministry of Health will establish a Project Executive Council (Consejo Ejecutivo). The Consejo Ejecutivo will be headed by the Minister of Health, the Subsecretary of Health, and Project Executive Director, and a Technical Coordinator nominated by USAID. The Project Executive Director will be delegated authority by the Consejo Ejecutivo to manage the Project on behalf of the Ministry and to establish a Project Management Office to do so. The contract salary and operating costs of the office will be paid with Project funds provided by USAID. The Chart on the following page summarizes the structure of the Project Management Unit.

PROJECT MANAGEMENT UNIT COMMUNITY & CHILD HEALTH PROJECT



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All of the Project technical consultants who will work at the national level, in contrast to Department and District levels, will be assigned to the Project Management Office. A senior public health management advisor will serve as Administrative Coordinator and counterpart to the Executive Director. The rest of the consultants will be assigned to three sections: Child Survival, Water and Sanitation, and Health Education. A public health expert and a nutritionist (Bolivians) will be assigned to the Child Survival section, one Bolivian Water and Sanitation Engineer will be assigned to the Water and Sanitation Section, and two Health Education experts (one Bolivian and one expatriate) will be assigned to the Health Education Section. All of these contracted technicians will work closely with their respective counterparts in the MOH and may actually be located in the MOH offices or rented office space, as appropriate.

The Project Management Office will maintain close coordination with key MOH officers by means of a Technical Council consisting of the MOH Directors of Water and Sanitation, Epidemiology, Maternal and Child Health, Nutrition, Health Education and Planning, and the Directors of the three Sanitary Units with which the Project will work (Cochabamba, Santa Cruz and La Paz). The Technical Council will meet with the Project Management Office staff once each month to review programs and plans. The USAID Child Survival Advisor (TACS) will work closely with the Project Management Office staff, providing overall guidance on Project direction, liaison with USAID, and direct technical assistance to the Project on epidemiological aspects and the immunization, ARI and Dengue components. The Project Management Office will establish an Administrative Unit responsible for Project financial management, contract management, and for administrative, secretarial, transport and related needs. All national contract employees at the Central, Department and District levels will be provided through the institutional contract consortium. The firm will identify and nominate candidates for each contract position, to be approved by the Project Management Office, and/or respective Sanitary Units and District Medical Officers. The firm will be responsible for all administrative requirements of the contract employees, but they will be subject to technical direction of the Project Management Office, Sanitary Units and Districts.

The Project Management Office will direct the use of the short-term technical assistance Research and Studies component, administering a budget of \$200,000 allocated for that purpose. The overall budget for the Project Management Office will be about \$2.7 million, including all technical assistance.

E. Technical Assistance

1. Districts

Each District involved in a Departmental Child Survival Program will require a small team of technical and management technicians to supplement the current District Health services staff for two to three years each, until positions (items) are created at the Districts to absorb the technicians. The teams' composition may vary somewhat from District

to District according to local conditions and capacity of the District staffs. However, each team should include one administrator, a health education technician (Trabajador Social), and a water and sanitation technician.

The MOH will assign a qualified Medical Officer (Director Medico) to direct Project activities in each District. With assistance from the Sanitary Unit and La Paz teams, he will plan the District program, design and conduct surveys, analyze the District health problems, design specific interventions, train and supervise staff, and evaluate progress. The administrator will assist the District health officer and staff to organize the District's recording and reporting system, financial records and reports, drug supply system, equipment and supplies system, etc. The health educator will plan and conduct, or arrange for, training programs for the District staff; plan and conduct orientation/promotion sessions with community groups; and plan and conduct overall health education, information, and communication programs in support of the District Health and Child Survival Program. The educator will receive technical and material support from the Project's central health education team in La Paz via the Sanitary Unit health education team. The water and sanitation technician will work closely with the water and sanitation engineer from the Sanitary Unit and La Paz in the planning and design of the water and sanitation projects in the District, and be responsible for continuing monitoring and maintenance of the systems thereafter.

2. Departments (Sanitary Units)

The basic management responsibility for Project implementation rests with the individual districts, supervised by the three MOH departmental Sanitary Units. Technical support for the Sanitary Units, districts, and areas will be supplied by the central Project Management Office and the contracted Sanitary Unit Project field staff. The existing Sanitary Unit MOH field staff will be supported directly by this contracted Sanitary Unit-level Project staff including a public health physician, and administrative/ management specialist, a health education/training expert, and a water and sanitation engineer. This joint MOH-Project field staff will be responsible for working directly with the MOH medical and paramedical support staff and for developing effective communication with individual community level participants.

Specific job responsibilities for the Sanitary Unit Project field staff will be mutually agreed upon with the District Medical Officer and approved by the central Project Management Unit Office staff and the Consejo Ejecutivo. The initial effort to design specific job responsibilities will be made during the pre-implementation workshop.

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Each department will require technical support which corresponds to the skills of the district teams. Therefore, these teams will include a public health physician as counterpart to the chief of the Sanitary Unit, or to the staff member responsible for this Project. He/she will assist the staff in planning and monitoring the overall CCH program in the Department. An administrative/management specialist will be required to assist with administration of the Project resources including funds, equipment, and supplies and to help strengthen the SU capacity with regard to its overall administrative responsibilities. The health education/training expert will assist the SU health education unit to develop a comprehensive program to support each District, including training and supervision of District and Area personnel, and production of education and training materials, in collaboration with the central health education advisor in La Paz. A water and sanitation engineer will assist the Sanitary Unit W&S division to design and install the W&S systems. A nutritionist will also be provided to assist the Sanitary Unit engineer to plan and implement the nutrition activities in the Districts. All these technicians will be Bolivians whose services will be provided by contract. They will receive technical and administrative support from the Project Management Office in La Paz.

2. MOH La Paz

A technical assistance management team will be required to assist the Project Executive Director in managing the Project, prepare annual work plans, monitor progress, make arrangements for long-term and short-term technical assistance services at all levels, prepare reports for USAID and MOH, solve problems that arise, develop methodologies for use in the field, coordinate with other donors and assist with equipment and commodity procurement and distribution. This team will constitute the Project Management Office and will consist of a Chief of Party (Public Health management advisor), two health education specialists, administration/logistics specialist, a water and sanitation engineer, and a nutritionist. One of the health education advisors will be an expatriate and the rest of the team will be probably Bolivians.

4. Arrangements for Contracting Technical Assistance

The entire technical assistance requirements will be provided by a single joint U.S. - Bolivian consortium (joint venture or sub-contract) in order to assure uniformity of objectives and management and policy control over the services. Because the Project activities will take place in many locations and will include an array of technical subjects, management and policy control over the technical assistance services will be critical to successful performance. The MOH management of the three SUs is highly decentralized. Central direction of the technical assistance services will be necessary to assure uniformity within that decentralized and diverse environment. The technical

assistance consortium will be contracted by a solicitation of proposals from U.S. and Bolivian health services management consulting firms, either as joint ventures, or a prime contractor with sub-contractor. The firm (or firms) will also provide a portion of the short-term technical assistance requirements. Additional short-term consultant services will be obtained from CDC and from AID central contractors such as REACH, PRITECH, Academy for Educational Development and WASH, and other central contractors as appropriate.

5. Proposed Tasks of Principal Advisors

a. Long-Term

1) Public Health Management Advisor (Central Level, La Paz):

This person should be a public health physician or public health management advisor with at least 5 years' experience with primary health care projects in developing countries, and with demonstrated leadership capacity. This person should have a strong background in training and supervision, especially for the lower levels of health personnel: promoters, TBA's, and auxiliary nurses. He/she should have extensive administrative and management experience, and have a good sense of how to integrate the different components of child health.

The Public Health Management Advisor would function as a "Chief of Party" for the technical assistance team, and would work directly with the Bolivian full-time Executive Director of the Project. He/she would:

- Be responsible for coordinating all management activities of the Project.
- Be in charge of coordinating the various short-term technical advisors.
- Have responsibility for reporting on a regular basis to USAID on the overall progress of the CCH Project.
- Relate to the three departmental public health advisors, and co-ordinate the public health activities of the district field projects, especially with regard to the specific interventions in Child Survival.
- Monitor the Project work being done at the Sanitary Unit and district levels to keep the various components of the Project integrated.

- Monitor the Project to be sure that the appropriate administrative actions were being included, such as information systems, logistics, training, and supervision.
- Ensure that the water/sanitation component and health education component are integrated into the general child survival efforts

2) Health Education Advisor

One expatriate health education consultant will:

- Assist in the overall planning of the Health Education campaign.
- Assist in the analysis of results of the anthropological survey.
- Assist in the design of a five-year implementation plan.
- Assist in the implementation of the plan.
- Assist in the training of personnel at every level to implement the plan.
- Train counterpart and staff in the administration of IEC programs.
- Train counterpart and staff in the techniques to implement IEC programs.
- Train counterparts in the appropriate contents, media and materials selection in accordance to the audience and program needs and objectives.
- Assist in the design of a feedback system to evaluate materials and education techniques during field implementation.
- Assist in the training of personnel of every subcomponent of the Project.

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3) The Technical Advisor in Child Survival (TACS).

The TACS advisor, assigned from CDC to USAID, would function as a full-time technical advisor to the CCH Project while serving as USAID's primary technical advisor. In line with the type of expertise best provided by CDC, the TACS advisor would:

- Provide technical assistance in epidemiology, disease surveillance, ARI and Dengue Hemorrhagic Fever.
- Work with the health information system to provide good epidemiological data for Project planning and for the use of the MOH and AID.
- Work with the epidemiology division of the MOH.
- Be responsible for coordinating the survey work contemplated within the Project, including the baseline studies.
- Oversee the various epidemiological and other studies envisioned in the Project.
- Help in the training of field people in epidemiological work.
- Act as USAID's representative to the EPI Inter-Agency Coordinating Committee (ICC).
- Provide T.A. to the Project specifically for the EPI component.
- Help arrange T.A. for the Project on other specific issues as needed, such as malaria, Chagas' disease, or tuberculosis.

The TACS advisor would also act as a technical advisor to the USAID Health officer with regard to this Project and any other USAID health projects. He would spend a certain amount of time at USAID, and attend the regular USAID meetings on this health project and perhaps other USAID health projects as needed.

b. Short Term

1) Health Informations Systems:

- a) Reconcile forms used by MOH, which are often onerous, especially at the level of the auxiliary nurse and the CSH.

- b) Rationalize what information is really needed.
- c) Would work at all levels: MOH, Unidad Sanitaria, district.
- d) If computerization required, would be an additional aspect of consultancy.
- e) Develop system for feedback.
- f) Improve epidemiological reporting systems.
- g) Would have to work closely with Project people to decide what HIS interventions are feasible, worthwhile.

Term of work: 6-12 months over the five years of the Project.

Qualifications: Experience in design and implementation of HIS in developing countries, knowledge of computers.

2) Training/Supervision:

Depends on the availability of local resources. This could be Bolivian or foreign technical assistance. Also depends on the makeup of the technical team. Work would include:

- a) Revision, development of curricula.
- b) Course planning and integration of different course inputs, including health education and water/sanitation components.
- c) Planning for continuing education components.

Term of work: Depending on capabilities of team members already working in the Project, could be anywhere from three to six months over the term of the Project.

Qualifications: Experience in designing and running training programs in developing countries for promoters, TBAs, and auxiliary nurses.

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3) Other consultancies:

- Peri-natal care (midwife)
- Diarrheal Disease Control(CDC)
- Malaria and/or Chagas
- Transportation/Maintenance
- Nutrition
- Survey, studies methods
- Economics studies: financing system/barriers to care
- Water and Sanitation (evaluation only)
- Others as needed

Terms of Work: Approximately 35-40 person months over the five years of the Project. (See Research Studies Annex)

F. USAID Disbursement Procedures

USAID will disburse Bolivianos directly to Project implementing units authorized by the MOH to receive such funds when satisfactory accounting and reporting procedures are established. Such disbursements will be based on budgets and work plans approved by the MOH and USAID in advance. Detailed guidelines for these payments will be provided by USAID in Project Implementation Letters following Project initiation. In the case of the District Integrated Child Survival program, each Sanitary Unit will develop a three year plan for each District involved in the Project, in collaboration with the District staff and with assistance of the central Project Management Office and Project advisors. Upon approval of that plan by the MOH and USAID, the SU will prepare a detailed work plan and budget for the first year of operation, including activities and costs at the District level and SU level required to support the Districts.

Following approval of that plan and budget by MOH and USAID, the SU will open a non-interest bearing account at a bank at its location and request, via the Project Management Office, an advance from USAID sufficient to cover approximately three months' requirements of the items to be covered by USAID Project funds in its work plan and budget. USAID will pay the advance directly to the Project Management Office which will provide it immediately to the respective SU which will deposit the funds in its special Project bank account.

At the end of each month the SU will prepare a brief progress report, and report of expenditures from the account, and send them to USAID via the central Project Management Office. Based on that office's approval, and concurrence of the USAID Project Officer, USAID will reimburse the amount spent during the reporting month to the SU for deposit to its special account, thereby replenishing it as a revolving

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fund. That process will be repeated until Project activities cease in that Department. In order to keep the SU's revolving fund from becoming depleted, the SU must send its monthly progress reports and reimbursement requests to the central Project Management Office promptly within two weeks after the end of each month. The Project Management Office, in turn, must send them on to USAID within one week after receiving them from the SU, in order to enable USAID to review the requests and effect payment by the middle of the third month.

A similar arrangement will be made for other Project components or entities which will incur expenses charged to the USAID contribution on a regular basis, such as the Project Management Office for monitoring and supervision purposes, for example. However, if a component will incur expenses only sporadically, such as for immunization campaigns; specific one-time disbursements will be made for that purpose instead of establishing revolving funds.

If a contract(s) is negotiated by the MOH or USAID with a Bolivian organization to provide technical services financed by USAID, USAID will make payments directly to the organization in Bolivianos in response to payment vouchers duly approved by the central Project Management Office and USAID Project Officer.

USAID payments for goods and services procured from outside of Bolivia will be made directly to the suppliers in response to evidence that the goods and services have been shipped from the U.S.

G. Procurement Plans

Detailed procurement plans for commodities to be used in the Project during its 1988-1992 period are presented in Annex L. They provide information concerning the resource input needs of the Project, organized according to component (Information, Education, and Communication; Water Supply and Sanitation; etc.). That information includes the identity of the item to be procured, with some specifications reserved. Supplemental information provided to the USAID Mission suggests a rearrangement of the layout of Annex L in hopes of better meeting staff needs at the implementation stage. Where parties other than the PP team can best specify their procurement needs, they are identified.

The institutional contract will contain much of the Project's procurement. Exceptions to this will include vaccines and cold chain equipment, which will be provided by UNICEF or PAHO, and large purchase items such as automobiles, which USAID will procure directly. Most other procurement will be included in the central contract, which will fund the part or full-time services of commodity specialists and someone to deal with the problems of shipping and receiving logistics in Bolivia.

Most materials and equipment, as well as services purchased with foreign exchange, will have their source and origin in the United States or the host country, except as USAID may agree otherwise in writing. However, source and origin waivers may be needed for some specific purchases. Local cost financing will be used so that self procurement can be utilized.

H. Training

Training will be coordinated and arranged by the joint US/Bolivian venture that is expected to receive the contract for technical assistance and much of the commodity procurement. The following work outline and description of responsibilities will ensure that logistical arrangements are taken care of:

1. Institutional Contractor

The institutional contractor will be responsible for processing all selected US and third country participants following the general guidelines described in AID's Participant Training Handbook X.

The specific functions and responsibilities of the Contractor shall include but not be limited to the following:

1. The Contractor will be responsible for filling out the standard forms used by AID for processing participants (such as biographic data, visa applications, security forms, medical forms). The Contractor also will assist participants as required in arranging for medical examinations.
2. Coordinate candidate placement in appropriate US, Third Country and Bolivian training institutions, monitor their progress and activities while in training, to include insuring that stipulated maintenance allowances, training institution costs, and other funding, as required, are paid on a timely basis.
3. **Oversee** and ensure that participants have all the documentation they require to travel.
4. The Contractor will provide logistical assistance, as required, upon return to La Paz, especially to those participants who live outside of La Paz.
5. Debrief all participants upon return from the US or third countries.
6. Submit to USAID/Bolivia quarterly and annual program, progress and financial reports and other documentation in accordance with the terms and conditions of the Contract.
7. Participate as resource personnel in periodic evaluations of the project undertaken by USAID/Bolivia.

It is required that the Contractor's local office be adequately staffed to provide the variety of services described above. In addition, the Contractor's US office should also be staffed to provide the resources necessary to place Bolivian candidates in US institutions and monitor progress of participants in training.

2. Selection Criteria (USAID/Bolivia)

The specific functions and responsibilities of USAID/Bolivia under this project shall include but not be limited to the following:

1. In collaboration with the Contractor, define annual training program objectives, plans and activities, identify specific eligible target groups, define priority training areas, and establish specific screening and selection criteria, and establish annual participant training targets (i.e. total number of participants) for the life of the program by target groups, duration of training (long-term versus short-term), and geographic distribution, if necessary, within Bolivia.
2. Assist the Contractor to identify potential candidates.
3. Ensure that the Contractor receives pertinent data on all potential candidates identified by USAID/Bolivia.
4. Review all completed applications submitted by the Contractor on recommended candidates and interview candidates as necessary.
5. Make final selection of participants.
6. In collaboration with the Contractor, advise all selected participants about the nature of their training programs/activities.
7. Assist the Contractor to conduct debriefings on all participants upon their return from the U.S.
8. Receive and review quarterly program progress and financial reports from the Contractor.
9. In collaboration with the Contractor, conduct intensive program reviews and program workshops in accordance with the terms of the Contract.

10. Establish and operate a computerized information system to track all participants through the participant placement process and to store and analyze data from application forms for all selected participants.
11. Assist the Contractor to determine the reasonable needs for office space under the Contract.
12. Train and assist the Contractor's Project office staff in A.I.D. procurement, participant training and financial management procedures.

USAID HHR staff, the Project Management Office, and the regional Sanitary Unit and district staff will develop appropriate selection criteria and procedures for the training participants. The initial selection criteria and procedures will be included as part of the pre-implementation workshop program agenda with the final approval detailed in a Project Implementation Letter. One condition of all training will be that returned participants will work for the MOH for a period of time twice as long as that of the training.

Project supervisory personnel will be eligible for approximately 14 two-year scholarships over five years leading to a Masters of Public Health degree at U.S. and third country schools of public health. The Contractor in collaboration with USAID HHR staff will help identify appropriate schools of public health to provide the required training programs.

Project field staff will be eligible for in-country continuing education training at one of Bolivia's three Medical Schools (La Paz, Cochabamba, and Sucre), which also have Nursing Schools. These participant training programs will be arranged by the institutional contractor's staff in conjunction with the central Project Management Office and the departmental Sanitary Units' Medical Directors. In addition, Project technical personnel will arrange continuing education training workshops for MOH Project paramedical field staff. Special training workshops will also be developed for community health workers, midwives/traditional birth attendants and Popular Health Committee personnel by the technical Project staff.

I. Gray Amendment

During the implementation of the Project, opportunities for minority owned and other Gray Amendment organizations will be stressed. The institutional contract, or associated subcontracts, are likely to involve Gray Amendment organizations. Several such organizations appear uniquely qualified to provide or support Project technical assistance and training activities.

VI. SUMMARIES OF ANALYSES

A. Technical Analyses

1. Child Survival Interventions

This Project will try to reduce the incidence, morbidity, and mortality of these health problems through:

(1) Increasing the accessibility to health education, preventive and simple curative care by increasing the number of trained health workers in the more remote rural areas. It is contemplated that about 2,000 community health promoters will be trained or integrated into the program in the eleven Project districts. About 300 auxiliary nurses will be re-trained or incorporated in the program, which will work entirely within the MOH system. Active care (going out to homes) rather than passive care (waiting for people to come in) will be encouraged. It is likely that PVOs with Bolivian experience in community outreach programs will be used to help in the training.

(2) Serious health education efforts at all levels, but especially at the community level, to educate mothers, siblings, and all levels of health workers.

(3) Water and sanitation programs to help reduce the incidence of diarrheal diseases.

(4) Strengthening of the MOH infrastructure, especially at the District and Sanitary Unit levels, in accordance with the proposed plan for decentralization of the health system. This measure would include providing for the staffing of a health team in each Project district with the understanding that the MOH is to assume the responsibility of paying the team members after two to three years. The Project area sanitary units would also be strengthened technically and administratively. The Project would also give the health teams at the various levels (sanitary unit, district, health center, health post) the means to do regular supervision (vehicles, motorcycles, bicycles, per diems, gasoline).

A sizable component of the Project will involve training, not only the basic training referred to above for the promoters and auxiliary nurses, but also training for district level administrative people, as well as a large amount of continuing education programs. A principal reason for strengthening the MOH infrastructure and doing so much continuing education is to assure that supervision will not just get done, but will get done correctly. Part of the health education efforts will also involve the teaching of communication skills. Efforts will be made to strengthen and unify the health information system and to do some economic analysis of the fee systems being used, as well as the drug supply system.

(5) The provision of basic materials and equipment which the MOH is unable to provide because of very limited financial resources. Vaccines, ORS packets, and ARI medications will be provided, as well as iodine and iron with folic acid for the nutrition component. These materials will be used for the preventive programs. Some basic equipment will also be included to help in the delivery of some basic curative services at the health posts, medical posts, and health center/hospitals. Basic health education equipment and materials will also be provided. It is felt that development of some rural curative services is necessary if the specific high-risk ORT and ARI programs are to win the confidence of rural people. There has to be a place for the health promoter or the auxiliary nurse to send the child with severe dehydration or pneumonia, and that place must be capable of emergency care in these situations. For example, in the case of severe pneumonias, the Project contemplates supplying the health center/hospitals with the means to administer oxygen and give intravenous antibiotics on an emergency basis, as transfer of a very sick child to a city hospital is often impossible or untimely. Some logistic support will also be required for the handling of these materials.

(6) Integration of the nutrition component into the other components of the Project. The nutrition component will mostly consist of growth monitoring, nutrition education, and diet supplementation with iodine (to prevent goiter and cretinism), iron with folic acid, and vitamins.

The overall strategy of the child survival interventions involves the integration of the various preventive and curative services at the lowest levels in the health system: the community, the health promoter, and the auxiliary nurse. The major child health problems are interrelated, and to deal with only one of the problems without touching on the others is inefficient and probably also ineffective. The resources, both human and material, are extremely limited in the rural areas and must be used to get the best results. An approach limited to only one or two child survival interventions can have only limited overall success, whereas this child survival "package" intervention will be more efficient and hopefully deal with all the common factors causing child mortality and morbidity. This integrated approach to child survival will require some infrastructure strengthening (as described above) and effective integrated supervision so as not to overwhelm the health promoters and auxiliary nurses if it is to be successful.

2. Water and Sanitation

The purpose of W&S is to develop rural community water systems to serve the minimum domestic needs: (1) Seal latrines installed where piped water systems exist; (2) Pit latrines installed in communities with hand pumps; (3) Simple treatment through sedimentation and slow sand filtration; (4) Consumption and other uses. Only known technologies will be employed. Water supply and sanitation works will be based on a health district delivery system supported by strengthened institutional capacity at Departmental and National Levels.

As discussed in the Social Soundness Section, the Project will stress operations and maintenance plans which are self-sustaining, at least after the second year of the Project. This will be a key role for Promotores and the district equipos.

The Project will strengthen the Rural Water and Sanitation Unit within the D.S.A. (División Saneamiento Ambiental) to coordinate rural activities and promote adoption of appropriate technologies in construction and other areas to reduce costs of rural water systems. The D.S.A. will provide continuous supervision of all water construction activities. Specific procedures for selecting the companies to construct water systems and for villages to receive systems will be the subject of an early Project Implementation Letter.

The Project support will be that primarily of technical assistance and equipment. It will provide the services of an experienced engineer at the Central level and one at each Sanitary Unit to help design and initiate rural water and sanitation programs with simple technologies. The Project will install 160 community water systems in four Districts, benefitting approximately 200,000 persons. Approximately 1,150 shallow wells with hand pumps will also be provided in more dispersed communities, benefitting approximately 70,000 persons. In addition almost 15,000 household latrines will be built.

Intensive SU level training on a short-term in-country basis will be provided. This training, along with personnel assistance will strengthen the ability to do appropriate training, field promotion experiences, promote operations and maintenance systems and other administrative components.

B. Economic Analysis

Bolivia suffered even more than many other countries of the Americas from the economic crisis of the late-1970s through the mid-1980s. Recent macro-economic indicators, such as those on inflation and real economic growth, are more encouraging. Nevertheless, rapid economic progress is not anticipated. There are important implications of the economic situation for the public budget -- discussed elsewhere in this document.

Serious social problems remain, and might be worsening. They are exacerbated by unemployment, falling family income, and the incidence of severe poverty. An especially unfortunate social effect of recent economic reverses has been an adverse impact on expenditures on health services, at least in the public sector. The capacity of Bolivia to sustain new health interventions, such as this Project, is examined in another section.

Another economic aspect of new or expanded health projects is the analysis of costs. To the extent possible, the comparative costs of alternative means of providing the same interventions have been examined

to reach the recommendations in this PP; however, the applicability of cost-effectiveness analysis -- which relates costs to effects, such as health status impacts, for alternative interventions -- is rejected for the PP stage. The greatly different effects of the diverse interventions make the interpretation of costs in relation to effects questionable. Conceptual doubts about such analyses must be resolved when more data are available, presumably when the on-going project is evaluated. (See the suggestions for research and evaluation.) As the Economic Analysis Annex explains, there is no viable alternative for the provision of these services.

C. Financial Analysis

Summary Project budgets are presented and discussed in the "Cost Estimate and Financial Plan" of the PP; detailed budgets for components are available to the Mission as supplementary materials. Budgetary summaries reveal, among other points, the relative sizes of the Project components and their resource inputs (with relative costs), the distribution of financial support among sources, and pace of financial activity over the years of the Project.

Sustainability of the Project is discussed at length in the Financial Annex. After an analysis of recent developments concerning Bolivian national budgets of the Central Government and The Ministry of Health and a consideration of the uncertain future prospects for the economy, it is concluded that full coverage of recurrent costs after PACD could be problematic unless the GOB prioritizes this type of child survival activity. USAID will continue to discuss the GOB commitment to the health sector and to this Project with the Ministry of Planning throughout the Project's five-year life. Evaluations will identify those costs which are most important for the GOB to absorb after PACD so that progress achieved during the Project is not lost when USAID development assistance funding terminates. In the event that there is some gap at PACD between GOB resources and recurrent costs, the most critical costs will have been identified so that community participatory activities (village committees and the operations and maintenance programs) and the delivery of the key interventions (as determined by evaluations) can be continued in priority sites. The sustainability issue, therefore, will be an important component of USAID/GOB dialogue during and after the life of this Project.

Alternative sources of funding include other levels of government, quasi-public organizations (e.g., the Departmental Development Corporations), and various private means. Discussions with these sources will continue throughout the Project's life.

The most promising source of new financing consists of community contributions, in-kind and perhaps in cash, to support water supply and sanitation programs. These will provide some cost recovery during the Project and should continue after it. Patients' payments for other health-related services, notably for drugs, already exist; it is unlikely that poor communities will have the capacity to pay much more for those,

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although more local revolving funds for drugs should be tried. Self-financing experiments, such as PROSALUD in Santa Cruz, are interesting, but offer little encouragement for generating much support in the rural areas that are the targets of this Project.

A final part of the Financial Analysis, spelled out in the annex, concerns the capacity of the Government of Bolivia to manage the finances of the proposed Project. Matters relating to financial management are covered also in the Institutional Analysis and in the Implementation Plan. It appears that the Government, through the Ministry of Health, is capable of managing its part of the Project's financial details at the national and lower levels. However, technical assistance will be required at all levels to facilitate the handling of funds and the maintenance of appropriate records.

D. Institutional Analysis

1. Administrative Structure

The MOH and SUs employ approximately 11,000 people throughout the country, the majority working in administrative tasks. Efficiency is low in that personnel of different departments are not coordinated and often perform redundant tasks. Authority and payment emanate from the MOH and SUs where, for example, auxiliary nurses need to obtain many signatures before they can be paid for their services.

These auxiliary nurses, as well as other health workers, fill out forms each month concerning incidence of diseases and treatments which are reported to the statistical branches of the Sanitary Units. This information is collected and stored, but has rarely been analyzed. Consequently, feedback is not provided to the health workers who provided the data.

Advisors of the proposed Project could help these units by providing administrative assistance in organizing personnel and processing information, such as the use of computer programs for statistical data.

2. Resources

The MOH and SUs have a surplus of hospitals, centros de salud, and puestos sanitarios. They are however, inadequately equipped. These health establishments are underutilized, having only about 10% occupancy for hospital beds and an average of two visits a day to health posts. Some explanations are the low level of care for peasants, poor location of hospitals and puestos sanitarios, and lack of activity of personnel. Solutions are to relocate health posts to peasant areas, encourage personnel to visit the communities, and to have these workers dedicate more time to preventive rather than curative medicine. The Project should invest money in building, maintaining, and equipping health posts only in support of the CS program.

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3. Personnel Management

Personnel management in the MOH and SUs is currently in need of assistance. Unfortunately personal initiative is sometimes squelched because of political appointments and favoritism. Administrators reallocate items (positions) from rural to urban areas because some people do not want to work in the country. These problems exist in all central bureaucracies.

In rural areas, it appears that doctors and auxiliary nurses lack motivation and supervision. Doctors serve one year of required service in these rural posts and return to the city. This results in lack of continuity. It is advised that instruction in rural medicine, public health, and community participation should be given to all doctors working in rural areas.

Auxiliary nurses constitute the most important health services personnel in the the districts. They are usually poorly trained, paid, and supervised. Many, however, have performed curative roles for communities, but others have not done this, being absent or culturally isolated from their communities. A high priority of the Project should be 1) to insist that the MOH fill items (positions) for auxiliary nurses in designated puestos sanitarios of target districts; 2) to contract auxiliary nurses for other puestos sanitarios; 3) to provide courses in continuing education for them; and 4) to collaborate with Training Schools for auxiliary nurses so that courses in public health and CS are offered.

While an exhaustive study has not been made of the motivational methods to be employed for extension workers under this Project, it is presumed from discussions with MOH and PVO field personnel that the provision of per diem and transportation, supervision and timely information feedback, and basic and refresher training opportunities, will be sufficient to motivate extension workers. Project team members and MOH personnel in the Project areas who interact with the extension workers will speak the local language, have an understanding and appreciation of the local culture, and have appropriate cross-cultural communication skills.

Some extension workers will be elected by the community (to complement the Promotores already in place) and as such will be responsible to the community for their actions. Staff support for and effective supervision of these extension workers will enhance their image and role within the community and enable them to provide essential preventive and curative health care, which in many project areas does not now exist. Basic operational research will also be carried out in each of the three departmental project areas in order to seek additional means of motivating extension workers. Such operational research is essential not only to assess motivation, but also to explore feasibility of workers absorbing additional tasks and the affect those additional tasks will have on performance.

4. Education

Doctors and auxiliary nurses receive little training in public health, rural medicine, administration, and community participation. Their training is impractical and too technical for working with peasants. Few doctors and nurses speak Aymara and Quechua, and they lack cross-cultural communication skills, often offending the peasants with superior attitudes. The result is underutilization of health resources. One major concern is that health personnel are trained in curative rather than preventive medicine. Rural health personnel should function as health educators to peasants.

The Project should provide educational materials and courses to doctors, auxiliary nurses, and community health workers of districts. They should also implement evaluation and supervision programs. At the SU level, Project members should collaborate with faculties of medicine and training schools to assist them in teaching courses in community participation, public health, child survival, and rural medicine.

5. The Sanitary Unit and Districts

Within the annex, administrative assessment is made of the Sanitary Units and districts in La Paz, Cochabamba, and Santa Cruz. The MOH La Paz often abrogates decision-making of the SU La Paz which causes confusion and frustrates the Sanitary Unit staff. Within district Ayo Ayo, medical centers are poorly located. SU Cochabamba has an organized rural health delivery system with the various programs integrally coordinated, which could be used as a model for other SUs in Bolivia. SU Santa Cruz has a developed administrative organization almost completely decentralized from MOH La Paz. District III is an exception to the poorly administered and inefficient districts of Bolivia. In all districts considered, there is need to increase the number of doctors, auxiliary nurses and attendants.

6. Private Voluntary Organizations (PVOs)

With the exception of some PVOs, most have not coordinated their efforts with each other and the MOH. One effort to do this has been the organization of the Child Survival PVO Rotating Executive Committee through a separate USAID Project. PROSALUD in Santa Cruz has an excellent and self-sufficient urban/peri-urban primary health delivery system. It is recommended that some PVOs be contracted for short-term consultation and training for services needed for the Project. Long-term involvement of PVOs to manage Project activities is not recommended.

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7. Logistics Systems

The current MOH logistical system is in need of strengthening and additional support. It is envisioned that district warehouses will be built in each of the 11 project districts at an average cost of approximately \$8,000 each. GOB funds totalling \$88,000 have been budgeted for this activity. The Sanitary Units and the individual districts will be responsible for the proper storage and accountability for all commodities stored under their control with technical support as necessary being provided by short-term technical assistance from the central Project Management Office (through the institutional contract.)

E. Social Soundness

In three districts studied, a basic political organization is the traditional body of authority which includes ritual and directive leadership. Chosen by the community, these leaders perform leadership roles in the community for one year without pay, but with increased prestige as community members. Following similar patterns, Community Health Workers (CHW) should be elected by members of the community and freely contribute to their community for prestige and contribution to their communities. On the other hand, health personnel often exercise autocratic and directive authority without acceptance and delegation by the community. They should endeavor to participate in meetings of the community as members.

The second political organization is the Sindicato Agrario, which convokes peasants for communal activity. A problem with Sindicatos, especially in the Cochabamba region, is that they often advocate political parties and cause division among the peasants. Sindicatos in the Altiplano represent indigenous Aymara solidarity movements. Project members can use sindicatos to mobilize people for work projects and to convoke peasants for health education, but should be careful that sindicato leaders do not use this for non-health related objectives.

The third organization is the Club de Madres, which exist in many communities and are differently organized according to objectives of Caritas, OFINAAL, ADRA/OFASA, Parroquias Católicas, Federación de Mujeres, and women of the community. One concern is that members join to receive food. Project workers could utilize these clubs to motivate and educate women about CS. Mothers' clubs also monitor child development, pregnancy, and immunizations, but need support system of CS program to provide services in these areas.

1. Community Participation

Effective community participation will be a key success factor in the implementation of the Water and Sanitation component of the Project. This component is based upon the successful joint MOH-USAID Basic Rural Sanitation Project (511-U-058) which ended in September 1987. A principal objective of this Project was to create within the central MOH Dirección Nacional de Saneamiento Ambiental (DSA) the necessary institutional capacity to respond to the demands and needs for water and sanitation projects in the Departments of Cochabamba and Chuquisaca. In addition to building some 130 water systems and 11,540 latrines, four workshops on Operation & Maintenance (O&M) were given to tecnicos de saneamiento, systems operators, and community participants.

Juntas Administradoras (water committees) were organized in each community and the water users were educated in the proper use of water with each junta paying a monthly fee to cover the O&M needs. In this Project, it is expected that during the first year after a water system has been turned over to the community, the DSA Maintenance Division will be directly responsible for executing any required O&M. The DSA Maintenance Division will subsequently train selected individuals within the community from the water committees to form a semi-skilled maintenance capacity which will be able to carry out preventive and minor maintenance. A stock of spare parts and replacement pumps will be maintained by the DSA and sold to the community at cost as required. A DSA maintenance vehicle will make periodic scheduled visits to each community based upon pump usage and they will also respond to emergencies. After the first operational year of a water system, all DSA service to communities will be on a cost reimbursable basis.

In many communities, health committees already exist. An attempt will be made to combine the water and health committees or work with existing health committees to incorporate functions of a water committee within the existing health committees. It is expected that after three years, the O&M functions will be self-sustaining and constitute a major portion of the total water system cost recovery. The combined water/health committee will be expected to become involved in the package of integrated child survival interventions through intensive health and community education fairs and campaigns which include video displays and presentations, child survival booths, and contests. All such fairs and campaigns will be preceded by in-depth sociological and anthropological studies to identify and establish appropriate educational strategies and objectives.

Obstacles to community participation are principally the ignorance of health workers about language, culture, and cognitive patterns. Another obstacle is that health workers communicate to peasants attitudes of superiority and lack of respect, often derisive and derogatory. Health workers do not communicate the objectives of the Project in meaningful and motivational ways. Health workers too often

assume that knowledge alone converts people to change age-old traditions about health. Training for promoters will stress culturally sensitive methods of effecting health interventions and active involvement of local leaders will also help to alleviate this problem.

Some families do not have money to participate in water projects. Health workers need to be sensitive to Andean economics, for example waiting until after harvest or receiving goods for payment. The paradox is that the people suspect donations which upset relations of economic exchange, but yet want and cannot pay for necessary health programs. Creative methods of contributing and self-financing need to be devised. Some people need to be educated to value of health as a personal and consumer good.

2. Role of Women

The role of women is a key focus of this Project. As discussed in the Social Soundness Annex, the role of women is different among the Aymaras, Quechuas, and people of Santa Cruz. The Project will promote women as Community Health Workers, as members of the equipos medicos in the districts, and in other participant roles, through an emphasis on the training and hiring of women. In some areas this will entail attempting to modify existing attitudes which have precluded or limited participation by women. Therefore, the Project will promote the role of women as participants as well as beneficiaries in this activity.

Since women already comprise about half of all Promotores in Bolivia, at least one half of training for this group will be specifically for women. The majority of the 44 eight month scholarships for auxiliary nurses and of the 11 one month scholarships for social workers, will be for women. In addition, most of the 300 auxiliary nurses who will attend periodic training workshops will be women. Consistent with AID guidelines for participant training, 40% of the 14 long-term trainees will be women. Specific procedures for the selection criteria and procedures for training participants will be the subject of an early Implementation Letter. These training objectives and targets, as well as an emphasis to hire women for key positions, will be written into the institutional contract. This emphasis on training for women is to ensure their participation as project implementors rather than solely as project beneficiaries.

Progress in meeting training objectives for women will be measured by the continuous monitoring program described in the Evaluation Plan (p. 51).

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VII. EVALUATION PLAN

A. Baseline Data

One of the first steps of each District Integrated Child Survival program will be to conduct community-level surveys to collect morbidity and mortality baseline data for subsequent evaluation purposes. This will be done by District staff following their initial training by the Project team and during the community education phase. These surveys will also collect household and community data which, combined with morbidity and mortality data, will serve as the basis for planning the District program to be supported by the Project. Such data gathering will be an ongoing process during the Project.

B. Annual Performance Reviews

Each District will prepare an annual work plan which will set its targets and outline how it will achieve them. It will prepare an accompanying budget which will serve as the basis for requesting periodic payments from USAID. At the conclusion of each year the Sanitary Unit will conduct a review of each District's performance, with participation of representatives from the central executive unit, MOH and USAID. Local political and community representatives will be contacted in the course of these reviews. Adjustments to the subsequent year work plan and budget will be made according to the findings of each annual review.

C. Ongoing Evaluations

Given the Project's approach of phasing in new districts and interventions when feasible, an ongoing monitoring and evaluation system will be used. This approach will allow the Project to respond to decision points such as phasing and to closely monitor the status of GOB ability to absorb all recurrent costs (see summary of Financial Analysis Annex).

Evaluations will focus on attainment of Project implementation targets including provision of financial, technical and material inputs, institutional development objectives at the District and Department levels, and quality and quantity of Child Survival and water and sanitation services delivered in each District, as measured against baseline data collected at the outset of each District program. The major indicators to be used are included in the Logical Framework. Evaluations will also assess the utility of methodologies used in each Project component and recommend modifications, as appropriate.

The Evaluation monitoring system used by the MOH and USAID will determine the course and pace of the Project implementation. The following decisions will be as a result of evaluations:

- Based on performance to date, whether to continue to expand Project coverage to new Districts or to consolidate implementation in those currently underway;
- If expansion is recommended, whether to limit Project expansion to additional Districts within the initial three Departments or to extend the Project to new Departments;
- If prospects appear good for continued expansion, whether to request extension of the Project beyond its current termination date, 1993.

Evaluation Performance Indicators:

1. Integrated Child Survival Component:

It will be difficult to evaluate the child survival component on the basis of such indicators as reduction in infant or child mortality rates. However, it will be feasible to do an evaluation on the basis of process indicators. Some morbidity indicators might also be meaningful.

a) Some process indicators for the child survival component should be:

- Number of health promoters trained and functioning
- Other training activities completed
- Number of pre-natal visits done at various levels, from promoters through health centers (CSH)
- Number of growth-monitoring interventions at same levels
- Vaccination coverage, including maternal tetanus toxoid
- Number of diarrheal cases treated (promoters thru CSH)
- Number of ARIs treated (promoters thru CSH)
- Number of supervisory visits accomplished (all levels)
- Number of home visits
- Number of community talks given
- Number of post-natal visits
- Number of people treated with iodine for goiter

b) Morbidity data

- The incidence of immunopreventable diseases
- The incidence of severe pneumonia requiring hospitalization
- The incidence of severe dehydration from diarrhea
- The incidence of diarrheal disease in general, although this figure may reflect more the results of the water/sanitation program.
- The incidence of neonatal tetanus, although this will be difficult to interpret
- The incidence of goiters

This data may be of limited usefulness because of the short period during which the Project will have been operative. Data such as

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infant mortality and maternal mortality will probably require a longer Project period to see any significant change.

c) Water and Sanitation Component

- Percentage of water and sanitation systems constructed and operating efficiently in relation to the Implementation Plan.
- Percentage of shallow wells with hand pumps built and its relation to the Implementation Plan.
- Percentage of water sealed latrines built during the evaluation period.
- Percentage of Pit Latrines built.
- Number of new population with access to potable water and latrines.
- Number of new "Juntas Administradoras or Cooperativas" organized, trained and functioning for the administration of water systems.
- Number of maintenance technicians functioning and supported by Regional Sanitary Units.
- Numbers of additional technicians hired, trained and functioning.
- Water sources quality control, not exceeding safe standards.
- Existing equipment and numbers and type of vehicles assigned to WS/S activities.
- Quality and Reliability of materials used: pipes, hand-pumps, etc.
- Level of community participation for construction and O&M.

3. Social Soundness Factors

- Community participation
- Cross-cultural communication skills of Project personnel
- Socio-cultural obstacles encountered
- Community's acceptance and sustaining of Project
- Participation of women in Project and progress in meeting training and hiring objectives for women
- Sociocultural implications of Project within social and cultural contexts of community
- Cultural attitudes of people toward innovations
- Usefulness of operations research in assessing worker motivation, performance and the effects on workers of adding new services and tasks.

4. Final Evaluation

A final evaluation will be conducted six months prior to the Project completion date to measure overall progress and achievement of Project objectives, including health impacts. A team similar to the one used for the on-going evaluation will be used. The team will be asked to make concrete recommendations to the MOH and USAID regarding continuation of the program.

VIII. CONDITIONS AND COVENANTS

A. Conditions Precedent to Initial Disbursement

Prior to any disbursement, or the issuance by AID of any commitment document pursuant to which disbursement will be made, the Grantee will, except as AID may otherwise agree in writing, provide to AID, in form and substance satisfactory to AID:

1. Legal Opinion

A legal opinion from the Office of the Attorney General of the Republic of Bolivia, or other counsel acceptable to AID, stating that this Agreement has been duly authorized, or ratified by, and executed on behalf of the Grantee, and that it constitutes a valid and legally binding obligation of the Grantee in accordance with all of its terms and conditions;

2. Specimen Signatures

A statement of the name of the person(s) holding or acting in the office of the Grantee responsible for the Project, and of any additional representatives, together with a specimen signature of each person specified in such statement.

B. Conditions Precedent to Disbursements for the District Level Integrated Child Survival Program Activities.

1. All health services staff positions (items) officially assigned to the Districts must be assigned in fact. All such positions (items) temporarily assigned to the Sanitary Units, or elsewhere, must be restored to the District.

2. Prior to initiating Project activities in any District the MOH must assign a Director Medico to each respective District.

C. Covenants

1. The MOH covenants to increase the term of obligatory rural service for doctors assigned to District posts from one year to two years in the Project Districts, or fill those posts with other doctors who will remain for at least two years.

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AID AMB DCM ECON

Rec'd 03/08

ANNEX A

VZCZCLP0404
 PP RUEHLP
 DE RUEHC #1523 0680936
 ZNR UUUUU ZZH
 P 080933Z MAR 88
 FM SECSTATE WASHDC
 TO AMEMBASSY LA PAZ PRIORITY 4193
 BT
 UNCLAS STATE 071523

File: PD&I

LOC: 080 473
 08 MAR 88 1034
 CN: 08978
 CERG: AID
 DIST: AIDE

Action: HHR-2
 Info: D/DD
 EXO
 PD&I
 RF 3
 SF

AIDAC

Reply due 03/11

E.O. 12356:56: N/A

TAGS:

Action tkn _____

SUBJECT: BOLIVIA COMMUNITY AND CHILD HEALTH (CCH) PID
 (527-0594)

1. AN ISSUES MEETING WAS HELD TO DISCUSS THE CCH PID ON 2/22/88 AND THE RECOMMENDATION WAS MADE THAT THE PROJECT BE APPROVED WITHOUT A DAEC REVIEW. SUBJECT TO THE FOLLOWING GUIDANCE, THE MISSION MAY PROCEED TO PREPARE THE PP AND AUTHORIZED THE PROJECT IN THE FIELD.

2. AID/W SHARES THE MISSION'S CONCERN THAT THE PROJECT IS OVERLY AMBITIOUS. IN THE PP DESIGN STAGE, THE MISSION SHOULD CONSIDER HOW EACH INTERVENTION CAN BE PEASED INTO THE PROJECT TO FACILITATE IMPLEMENTATION. ONE ALTERNATIVE WOULD BE TO SUPPORT THE MINISTRY OF HEALTH'S ONGOING ORT AND IMMUNIZATION COMPONENTS FIRST AND IMPLEMENT THE ARI COMPONENT LAST, ESPECIALLY SINCE ARI TECHNOLOGY IS JUST BEING DEVELOPED. CONCERNING THE WATER AND SANITATION COMPONENT, THE MISSION IS STRONGLY URGED TO CONSIDER THE LESSONS LEARNED FROM THE RURAL SANITATION PROJECT PRIOR TO DETERMINING THE IMPLEMENTATION ENTITY. WE ARE FORWARDING VIA THE POUCH COMMENTS ON THE PID WHICH WERE PREPARED BY S AND T

SEALTE WHICH WERE NOT REVIEWED AT THE ISSUES MEETING.

3. AID/W QUESTIONS WHETHER THE MINISTRY OF HEALTH AND THE SANITARY UNITS HAVE THE INSTITUTIONAL CAPACITY TO MANAGE THE PROJECT, PARTICULARLY AS IT RELATES TO THOSE PVO'S WHICH ARE EFFECTIVELY CARRYING OUT CS ACTIVITIES. IN THE PP, THE MISSION SHOULD SPECIFY PROCEDURES FOR THE QUOTE SUBCONTRACTING UNQUOTE BETWEEN THE MOH AND PVO'S. ASPECTS TO BE CONSIDERED INCLUDE: APPROVAL AND DISBURSING AUTHORITY, MONITORING RESPONSIBILITIES, AND SUBGRANT PROCESSING TIME, AMONG OTHERS.

4. THE PP SHOULD MORE PRECISELY QUANTIFY END-OF-PROJECT INDICATORS FOR HEALTH OBJECTIVES IN THE LOG-FRAME.

5. THE SCOPE OF WORK FOR THE PP DESIGN TEAM SHOULD CLEARLY STATE THE WEIGHT TO BE GIVEN TO EACH CHILD SURVIVAL INTERVENTION IN ORDER TO ENSURE AN ADEQUATE STAFFING MIX IN THE DESIGN TEAM IN ADDITION TO THE

TECHNICAL EXPERTISE REQUIRED, THERE MAY BE A NEED FOR AN INDIVIDUAL WITH STRONG PROJECT ADMINISTRATION EXPERIENCE.

6. THE PID DID NOT INCLUDE A NARRATIVE JUSTIFICATION FOR THE NEGATIVE ENVIRONMENTAL DETERMINATION. THE MISSION SHOULD CABLE THIS IMMEDIATELY TO THE LAC BUREAU'S ENVIRONMENTAL OFFICER, SO THAT HE MAY REVIEW AND APPROVE/DISAPPROVE THE DETERMINATION. WHEN DRAFTING THE IEE, THE MISSION SHOULD PLACE SPECIAL EMPHASIS ON THE WATER AND SANITATION PROJECT COMPONENT AND DESCRIBE HOW THE PP DESIGN WILL ADDRESS A MECHANISM FOR ENSURING HOW THE ACTIVITIES WILL BE IMPLEMENTED IN AN ENVIRONMENTALLY SOUND WAY.

7. NATIONAL ORAL REHYDRATION PROJECT. AID/W IS PROCEEDING WITH THE PREPARATION OF A CN THAT WILL OBLIGATE U.S. DOLLARS 200,000 IN FY 1988. FUNDING IN SUBSEQUENT YEARS SHOULD TAKE PLACE UNDER THE CCH PROJECT: THE BUREAU RECOGNIZES THAT THIS MAY INCREASE THE ANTICIPATED LOP CONTAINED IN THE PID.

8 AID/W NOTES AND APPLAUDS THE FACT THAT THIS CCH PROJECT IS AN EFFORT TO CONSOLIDATE SEVERAL OF THE MISSION'S HEALTH EFFORTS, SINCE THE RURAL SANITATION PROJECT ENDED IN SEPTEMBER 1987 AND THE NATIONAL ORAL REHYDRATION PROJECT WILL BE SUBSUMED UNDER THIS PROJECT. SHULTZ
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LOGICAL FRAMEWORK CHILD AND COMMUNITY HEALTH PROJECT (511-0594)

GOAL

To improve the health status of the urban and rural population.

OVI

1. Decrease in the relevant human suffering indicators.

MOV

1. COB records, World Bank and other International reports.

Assumptions

1. Economic conditions will not deteriorate.
2. Relative political stability will continue.

PURPOSES

To improve community health by reducing infant, child and maternal mortality.

EOPS

1. Reduction in infant, child and maternal mortality in project areas by 15%.
2. Sustained institutional and community capability to maintain CS and Water and Sanitation interventions.

MOV

1. Surveys: Baseline and follow-up.
2. Output data below.

Assumptions

1. Sufficient funding will be made available by the MOH to carry on CS interventions.
2. That decentralized administration will be more effective than centralized.
3. MOH, particularly at the regional levels, has sufficient institutional/administrative capability to implement the project, with assistance provided by the Project.

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OUTPUTS

1. Institutionalization of CS Interventions at regional level.
2. Mechanics developed for in-depth community involvement in CS interventions.
3. Strengthened primary health care system and access to it.
4. CS and maternal health services delivered to target population.
5. Increased number of functioning water and sanitation facilities.
6. Changes adopted in family health behavior.

OVI

1. Increase in number of personnel functioning at District level.
2.
 - a. Increase in number of water and health committees functioning
 - b. Community resources dedicated to CS interventions.
 - c. Community involvement methodologies developed, tested and implemented.
3.
 - a. Increase in community-based provider teams (CHVs)
 - Infants receive immunization.
 - Children under 5 receive ORT.
 - Women 15-44 receive TT2.
 - Pregnant women receive prenatal care.
 - Births attended by trained attendant.
 - Children under 5 monitored for nutritional status.
 - Persons receive iodine for goiter peration.
 - b. Continuous training in specific CS interventions.
 - c. Improvement of physical infrastructure and equipment.
 - d. Improved logistical system.
 - e. Increased number of people exposed to health education.
 - f. Improved health services referral system.
 - g. Improved HIS
4.
 - a. 150 new water systems, or improved water systems.
 - b. 1,500 latrines built and in use.
 - c. O + M systems established and operational.
5.
 - a. Increased immunizations coverage.
 - b. Increased diarrheal disease episodes treated with ORT.
 - c. Increased number of people adopting appropriate ARI treatment
 - d. Increased number of children with appropriate weight for age.
 - d. Increased monitoring and care of high risk births.
 - e. Health and sanitary education materials developed, tested and implemented.

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MOV

1. MOH records and project reports from MOH and TA personnel based on informal and structured observation.
2. Survey.
3. Project reports.
4. Project reports and behavior assessment.

Assumptions

1. Sufficient MOH human resources will be allocated to the project.
2. MOH will strengthen existing mechanisms to promote participation.
3. Project will support and enhance existing positive traditional health habits.
4. Project will develop culturally acceptable means of improving health behavior.

INPUTS

Financial Summary

	<u>USAID</u>	<u>GOB</u>	<u>Total</u>
Personnel	1,357	1,090	2,447
Technical Assistance	2,816	778	3,594
Materials & Supplies	4,954	712	5,666
Other Costs	530	856	1,386
Equipment	3,490	0	3,490
Buildings	0	88	88
Training	327	1,146	1,473
Health Education	1,160	0	1,160
Research & Evaluation	893	133	1,026
Price/Quantity			
Contingencies	<u>973</u>	<u>697</u>	<u>1,670</u>
TOTAL	16,500	5,500	22,000

OVI

1. Pro Ag specifies financial contribution of USAID and GOB

MOV

1. Controller records.
2. GOB records.
3. MOH records.

Assumptions

1. USAID will make DA funds available.
2. GOE funds will be available for PL 480.

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5C(1) - COUNTRY CHECKLIST

Listed below are statutory criteria applicable to: (A) FAA funds generally; (B)(1) Development Assistance funds only; or (B)(2) the Economic Support Fund only.

A. GENERAL CRITERIA FOR COUNTRY ELIGIBILITY

1. FY 1988 Continuing Resolution Sec. 526.
Has the President certified to the Congress that the government of the recipient country is failing to take adequate measures to prevent narcotic drugs or other controlled substances which are cultivated, produced or processed illicitly, in whole or in part, in such country or transported through such country, from being sold illegally within the jurisdiction of such country to United States Government personnel or their dependents or from entering the United States unlawfully?
2. FAA Sec. 481(h). (This provision applies to assistance of any kind provided by grant, sale, loan, lease, credit, guaranty, or insurance, except assistance from the Child Survival Fund or relating to international narcotics control, disaster and refugee relief, or the provision of food or medicine.) If the recipient is a "major illicit drug producing country" (defined as a country producing during a fiscal year at least five metric tons of opium or 500 metric tons of coca or marijuana) or a "major drug-transit country" (defined as a country that is a significant direct source of illicit drugs significantly affecting the United States, through which such drugs are transported, or through which significant sums of drug-related profits are laundered with the knowledge or complicity of the government), has the President in the March 1 International Narcotics Control Strategy Report (INSCR) determined and certified to the Congress (without

NO

YES

Congressional enactment, within 30 days of continuous session, of a resolution disapproving such a certification), or has the President determined and certified to the Congress on any other date (with enactment by Congress of a resolution approving such certification), that (a) during the previous year the country has cooperated fully with the United States or taken adequate steps on its own to prevent illicit drugs produced or processed in or transported through such country from being transported into the United States, and to prevent and punish drug profit laundering in the country, or that (b) the vital national interests of the United States require the provision of such assistance?

YES

3. Drug Act Sec. 2013. (This section applies to the same categories of assistance subject to the restrictions in FAA Sec. 481(h), above.) If recipient country is a "major illicit drug producing country" or "major drug-transit country" (as defined for the purpose of FAA Sec 481(h)), has the President submitted a report to Congress listing such country as one (a) which, as a matter of government policy, encourages or facilitates the production or distribution of illicit drugs; (b) in which any senior official of the government engages in, encourages, or facilitates the production or distribution of illegal drugs; (c) in which any member of a U.S. Government agency has suffered or been threatened with violence inflicted by or with the complicity of any government officer; or (d) which fails to provide reasonable cooperation to lawful activities of U.S. drug enforcement agents, unless the President has provided the required certification to Congress pertaining to U.S. national interests and the drug control and criminal prosecution efforts of that country?

NO

W

4. 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? NO

5. FAA Sec. 620(e)(1). If assistance is to a government, has it (including any 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? NO

6. FAA Secs. 620(a), 620(f), 620D; FY 1988 Continuing Resolution Sec. 512. Is recipient country a Communist country? If so, has the President determined that assistance to the country is vital to the security of the United States, that the recipient country is not controlled by the international Communist conspiracy, and that such assistance will further promote the independence of the recipient country from international communism? Will assistance be provided directly to Angola, Cambodia, Cuba, Iraq, Libya, Vietnam, South Yemen, Iran or Syria? Will assistance be provided to Afghanistan without a certification? NO

7. FAA Sec. 620(j). Has the country permitted, or failed to take adequate measures to prevent, damage or destruction by mob action of U.S. property? NO

8. FAA Sec. 620(l). Has the country failed to enter into an investment guaranty agreement with OPIC? NO

9. 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 vessel because of fishing activities in international waters? NO
(b) If so, has any deduction required by the Fishermen's Protective Act been made?
10. FAA Sec. 620(q); FY 1988 Continuing Resolution Sec. 518. (a) Has the government of the recipient country been in default for more than six months on interest or principal of any loan to the country under the FAA? a) YES (waived)
(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 FY 1988 Continuing Resolution appropriates funds? b) NO
11. FAA Sec. 620(s). If contemplated assistance is development loan or to come from Economic Support Fund, has the Administrator taken into account the percentage of the country's budget and amount of the country's foreign exchange or other resources 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, taken into account by the Administrator at time of approval of Agency OYB.
12. FAA Sec. 620(t). Has the country severed diplomatic relations with the United States? If so, have relations been resumed and have new bilateral assistance agreements been negotiated and entered into since such resumption? NO

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13. 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 A.I.D. Administrator in determining the current A.I.D. Operational Year Budget? (Reference may be made to the Taking into Consideration memo.)
- Taken into consideration by the Administrator at the time of approval of Agency OYB.
14. FAA Sec. 620A. Has the President determined that the recipient country grants sanctuary from prosecution to any individual or group which has committed an act of international terrorism or otherwise supports international terrorism?
- NO
15. FY 1988 Continuing Resolution Sec. 576. Has the country been placed on the list provided for in Section 6(j) of the Export Administration Act of 1979 (currently Libya, Iran, South Yemen, Syria, Cuba, or North Korea)?
- NO
16. ISDCA of 1985 Sec. 552(b). Has the Secretary of State determined that the country is a high terrorist threat country after the Secretary of Transportation has determined, pursuant to section 1115(e)(2) of the Federal Aviation Act of 1958, that an airport in the country does not maintain and administer effective security measures?
- NO
17. FAA Sec. 666(b). 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
18. FAA Secs. 669, 670. Has the country, after August 3, 1977, delivered to any other country or received nuclear enrichment or reprocessing equipment, materials, or technology, without specified arrangements or safeguards, and without special certification by the President? 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? (FAA Sec. 620E permits a special waiver of Sec. 669 for Pakistan.)
- NO

19. FAA Sec. 670. If the country is a non-nuclear weapon state, has it, on or after August 8, 1985, exported (or attempted to export) illegally from the United States any material, equipment, or technology which would contribute significantly to the ability of a country to manufacture a nuclear explosive device? NO
20. 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 Assembly of the U.N. on Sept. 25 and 28, 1981, and did it fail 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.) Taken into consideration by the Administrator at the time of approval of the Agency OYB.
21. FY 1988 Continuing Resolution Sec. 528. Has the recipient country been determined by the President to have engaged in a consistent pattern of opposition to the foreign policy of the United States? NO
22. FY 1988 Continuing Resolution Sec. 513. Has the duly elected Head of Government of the country been deposed by military coup or decree? If assistance has been terminated, has the President notified Congress that a democratically elected government has taken office prior to the resumption of assistance? NO
23. FY 1988 Continuing Resolution Sec. 543. Does the recipient country fully cooperate with the international refugee assistance organizations, the United States, and other governments in facilitating lasting solutions to refugee situations, including resettlement without respect to race, sex, religion, or national origin? YES

B. FUNDING SOURCE CRITERIA FOR COUNTRY ELIGIBILITY

1. Development Assistance Country Criteria

FAA Sec. 116. Has the 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

FY 1988 Continuing Resolution Sec. 538. Has the President certified that use of DA funds by this country would violate any of the prohibitions against use of funds to pay for the performance of abortions as a method of family planning, to motivate or coerce any person to practice abortions, to pay for the performance of involuntary sterilization as a method of family planning, to coerce or provide any financial incentive to any person to undergo sterilizations, to pay for any biomedical research which relates, in whole or in part, to methods of, or the performance of, abortions or involuntary sterilization as a means of family planning? NO

2. Economic Support Fund Country Criteria

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 President found that the country made such significant improvement in its human rights record that furnishing such assistance is in the U.S. national interest? NO

FY 1988 Continuing Resolution Sec. 549. Has this country met its drug eradication targets or otherwise taken significant steps to halt illicit drug production or trafficking? YES

5C(2) - PROJECT CHECKLIST

Listed below are statutory criteria applicable to projects. This section is divided into two parts. Part A includes criteria applicable to all projects. Part B applies to projects funded from specific sources only: B(1) applies to all projects funded with Development Assistance; B(2) applies to projects funded with Development Assistance loans; and B(3) applies to projects funded from ESF.

CROSS REFERENCES: IS COUNTRY CHECKLIST UP TO DATE? HAS STANDARD ITEM CHECKLIST BEEN REVIEWED FOR THIS PROJECT?

A. GENERAL CRITERIA FOR PROJECT

1. FY 1988 Continuing Resolution Sec. 523; FAA Sec. 634A. If money is sought to obligated for an activity not previously justified to Congress, or for an amount in excess of amount previously justified to Congress, has Congress been properly notified? YES
2. FAA Sec. 611(a)(1). Prior to an obligation in excess of \$500,000, 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 legislative action is required within recipient country, what is the basis for a reasonable expectation that such action will be completed in time to permit orderly accomplishment of the purpose of the assistance? N/A

4. FAA Sec. 611(b); FY 1988 Continuing Resolution Sec. 501. If project is for water or water-related land resource construction, have benefits and costs been computed to the extent practicable in accordance with the principles, standards, and procedures established pursuant to the Water Resources Planning Act (42 U.S.C. 1962, et seq.)? (See A.I.D. Handbook 3 for guidelines.) YES
5. FAA Sec. 611(e). If project is capital assistance (e.g., construction), and total U.S. assistance for it will exceed \$1 million, has Mission Director certified and Regional Assistant Administrator taken into consideration the country's capability to maintain and utilize the project effectively? N/A
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. NO;
N/A
7. FAA Sec. 601(a). Information and conclusions on whether projects will encourage efforts of the country to:
(a) increase the flow of international trade; (b) foster private initiative and competition; (c) encourage development and use of cooperatives, 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. N/A
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). N/A
9. FAA Secs. 612(b), 636(h). 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. Such steps included in Project Grant Agreement.

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. FY 1988 Continuing Resolution 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 the resulting productive capacity becomes operative, and is such assistance likely to cause substantial injury to U.S. producers of the same, similar or competing commodity? N/A
12. FY 1988 Continuing Resolution Sec. 553. Will the assistance (except for programs in Caribbean Basin Initiative countries under U.S. Tariff Schedule "Section 807," which allows reduced tariffs on articles assembled abroad from U.S.-made components) be used directly to procure feasibility studies, prefeasibility studies, or project profiles of potential investment in, or to assist the establishment of facilities specifically designed for, the manufacture for export to the United States or to third country markets in direct competition with U.S. exports, of textiles, apparel, footwear, handbags, flat goods (such as wallets or coin purses worn on the person), work gloves or leather wearing apparel? NO
13. FAA Sec. 119(q)(4)-(6). Will the assistance (a) support training and education efforts which improve the capacity of recipient countries to prevent loss of biological diversity; (b) be provided under a long-term agreement in which the recipient country agrees to protect ecosystems or other wildlife habitats; (c) support efforts to identify and survey ecosystems in recipient countries worthy of protection; or (d) by any direct or indirect means significantly degrade national parks or similar protected areas or introduce exotic plants or animals into such areas? N/A

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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 expenditure of project funds (either dollars or local currency generated therefrom)? N/A
15. FY 1988 Continuing Resolution. If assistance is to be made to a United States PVO (other than a cooperative development organization), does it obtain at least 20 percent of its total annual funding for international activities from sources other than the United States Government? YES
16. FY Continuing Resolution Sec. 541. If assistance is being made available to a PVO, has that organization provided upon timely request any document, file, or record necessary to the auditing requirements of A.I.D., and is the PVO registered with A.I.D.? YES
17. FY 1988 Continuing Resolution Sec. 514. If funds are being obligated under an appropriation account to which they were not appropriated, has prior approval of the Appropriations Committees of Congress been obtained? N/A
18. FY Continuing Resolution Sec. 515. If deob/reob authority is sought to be exercised in the provision of assistance, are the funds being obligated for the same general purpose, and for countries within the same general region as originally obligated, and have the Appropriations Committees of both Houses of Congress been properly notified? N/A
19. State Authorization Sec. 139 (as interpreted by conference report). Has confirmation of the date of signing of the project agreement, including the amount involved, been cabled to State L/T and A.I.D. LEG within 60 days of the agreement's entry into force with respect to the United States, and has the full text of the agreement been pouched to those same offices? (See Handbook 3, Appendix 6G for agreements covered by this provision). YES

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B. FUNDING CRITERIA FOR PROJECT

1. Development Assistance Project Criteria

- a. FY 1988 Continuing Resolution Sec. 552 (as interpreted by conference report). If assistance is for agricultural development activities (specifically, any testing or breeding feasibility study, variety improvement or introduction, consultancy, publication, conference, or training), are such activities (a) specifically and principally designed to increase agricultural exports by the host country to a country other than the United States, where the export would lead to direct competition in that third country with exports of a similar commodity grown or produced in the United States, and can the activities reasonably be expected to cause substantial injury to U.S. exporters of a similar agricultural commodity; or (b) in support of research that is intended primarily to benefit U.S. producers?

N/A

- b. FAA Secs. 102(b), 111, 113, 281(a). Describe 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, dispersing investment 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 appropriate U.S. institutions; (b) help develop cooperatives, especially by technical assistance, to assist rural and urban poor to help themselves toward a 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.

a) through integrated child survival interventions in rural areas.

b) N/A

c) Promote self-sustaining water activities.

d) Women as implementors of the Project at ten District level.

e) Complements efforts of other donors.

- c. FAA Secs. 103, 103A, 104, 105, 106, 120-21. Does the project fit the criteria for the source of funds (functional account) being used? YES
- d. FAA Sec. 107. Is emphasis placed 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
- e. FAA Secs. 110, 124(d). Will the recipient country provide at least 25 percent 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
- f. FAA Sec. 128(b). If the activity attempts to increase the institutional capabilities of private organizations or the government of the country, or if it attempts to stimulate scientific and technological research, has it been designed and will it be monitored to ensure that the ultimate beneficiaries are the poor majority? 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.

Addresses basic health needs through training, technical assistance, water supply, and specific child survival interventions.

h. FY 1988 Continuing Resolution Sec. 538. Are any of the funds to be used for the performance of abortions as a method of family planning or to motivate or coerce any person to practice abortions?

NO

Are any of the funds to be used to pay for the performance of involuntary sterilization as a method of family planning or to coerce or provide any financial incentive to any person to undergo sterilizations?

NO

Are any of the funds to be used to pay for any biomedical research which relates, in whole or in part, to methods of, or the performance of, abortions or involuntary sterilization as a means of family planning?

NO

i. FY 1988 Continuing Resolution. Is the assistance being made available to any organization or program which has been determined to support or participate in the management of a program of coercive abortion or involuntary sterilization?

NO

If assistance is from the population functional account, are any of the funds to be made available to voluntary family planning projects which do not offer, either directly or through referral to or information about access to, a broad range of family planning methods and services?

N/A

- j. FAA Sec. 601(e). Will the project utilize competitive selection procedures for the awarding of contracts, except where applicable procurement rules allow otherwise? YES
- k. FY 1988 Continuing Resolution. What portion of the funds will be available only for activities of economically and socially disadvantaged enterprises, historically black colleges and universities, colleges and universities having a student body in which more than 20 percent of the students are Hispanic Americans, and private and voluntary organizations which are controlled by individuals who are black Americans, Hispanic Americans, or Native Americans, or who are economically or socially disadvantaged (including women)? Technical assistance consortium will include a local Bolivian firm:
- l. FAA Sec. 118(c). Does the assistance comply with the environmental procedures set forth in A.I.D. Regulation 16? Does the assistance place a high priority on conservation and sustainable management of tropical forests? Specifically, does the assistance, to the fullest extent feasible: (a) stress the importance of conserving and sustainably managing forest resources; (b) support activities which offer employment and income alternatives to those who otherwise would cause destruction and loss of forests, and help countries identify and implement alternatives to colonizing forested areas; (c) support training programs, educational efforts, and the establishment or strengthening of institutions to improve forest management; (d) help end destructive slash-and-burn agriculture by supporting stable and productive farming practices; (e) help conserve forests which have not yet been degraded by helping to increase production on lands already cleared YES
a) - k): N/A

or degraded; (f) conserve forested watersheds and rehabilitate those which have been deforested; (g) support training, research, and other actions which lead to sustainable and more environmentally sound practices for timber harvesting, removal, and processing; (h) support research to expand knowledge of tropical forests and identify alternatives which will prevent forest destruction, loss, or degradation; (i) conserve biological diversity in forest areas by supporting efforts to identify, establish, and maintain a representative network of protected tropical forest ecosystems on a worldwide basis, by making the establishment of protected areas a condition of support for activities involving forest clearance or degradation, and by helping to identify tropical forest ecosystems and species in need of protection and establish and maintain appropriate protected areas; (j) seek to increase the awareness of U.S. government agencies and other donors of the immediate and long-term value of tropical forests; and (k) utilize the resources and abilities of all relevant U.S. government agencies?

- m. FAA Sec. 118(c)(13). If the assistance will support a program or project significantly affecting tropical forests (including projects involving the planting of exotic plant species), will the program or project (a) be based upon careful analysis of the alternatives available to achieve the best sustainable use of the land, and (b) take full account of the environmental impacts of the proposed activities on biological diversity?

N/A

n. FAA Sec. 118(c)(14). Will assistance be used for (a) the procurement or use of logging equipment, unless an environmental assessment indicates that all timber harvesting operations involved will be conducted in an environmentally sound manner and that the proposed activity will produce positive economic benefits and sustainable forest management systems; or (b) actions which will significantly degrade national parks or similar protected areas which contain tropical forests, or introduce exotic plants or animals into such areas?

N/A

o. FAA Sec. 118(c)(15). Will assistance be used for (a) activities which would result in the conversion of forest lands to the rearing of livestock; (b) the construction, upgrading, or maintenance of roads (including temporary haul roads for logging or other extractive industries) which pass through relatively undegraded forest lands; (c) the colonization of forest lands; or (d) the construction of dams or other water control structures which flood relatively undegraded forest lands, unless with respect to each such activity an environmental assessment indicates that the activity will contribute significantly and directly to improving the livelihood of the rural poor and will be conducted in an environmentally sound manner which supports sustainable development?

N/A

p. FY 1988 Continuing Resolution If assistance will come from the Sub-Saharan Africa DA account, is it (a) to be used to help the poor majority in Sub-Saharan Africa through a process of long-term development and economic growth that is equitable, participatory, environmentally sustainable, and self-reliant; (b) being provided in

N/A

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accordance with the policies contained in section 102 of the FAA; (c) being provided, when consistent with the objectives of such assistance, through African, United States and other PVOs that have demonstrated effectiveness in the promotion of local grassroots activities on behalf of long-term development in Sub-Saharan Africa; (d) being used to help overcome shorter-term constraints to long-term development, to promote reform of sectoral economic policies, to support the critical sector priorities of agricultural production and natural resources, health, voluntary family planning services, education, and income generating opportunities, to bring about appropriate sectoral restructuring of the Sub-Saharan African economies, to support reform in public administration and finances and to establish a favorable environment for individual enterprise and self-sustaining development, and to take into account, in assisted policy reforms, the need to protect vulnerable groups; (e) being used to increase agricultural production in ways that protect and restore the natural resource base, especially food production, to maintain and improve basic transportation and communication networks, to maintain and restore the natural resource base in ways that increase agricultural production, to improve health conditions with special emphasis on meeting the health needs of mothers and children, including the establishment of self-sustaining primary health care systems that give priority to preventive care, to provide increased access to voluntary family planning services, to improve basic literacy and mathematics especially to those outside the formal educational system and to improve primary education, and to develop income-generating opportunities for the unemployed and underemployed in urban and rural areas?

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2. Development Assistance Project Criteria
(Loans Only)

(Project is
100% Grant)

- a. FAA Sec. 122(b). Information and conclusion on capacity of the country to repay the loan at a reasonable rate of interest. N/A

- 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 percent of the enterprise's annual production during the life of the loan, or has the requirement to enter into such an agreement been waived by the President because of a national security interest? N/A

- c. FY 1988 Continuing Resolution. If for a loan to a private sector institution from funds made available to carry out the provisions of FAA Sections 103 through 106, will loan be provided, to the maximum extent practicable, at or near the prevailing interest rate paid on Treasury obligations of similar maturity at the time of obligating such funds? N/A

- d. FAA Sec. 122(b). Does the activity give reasonable promise of assisting long-range plans and programs designed to develop economic resources and increase productive capacities? N/A

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3. Economic Support Fund Project Criteria

- a. FAA Sec. 531(a). Will this assistance promote economic and political stability? To the maximum extent feasible, is this assistance consistent with the policy directions, purposes, and programs of Part I of the FAA? N/A

- b. FAA Sec. 531(e). Will this assistance be used for military or paramilitary purposes? N/A

- c. 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



39104MM

Cite N°

MINISTERIO DE PREVISION SOCIAL Y SALUD PUBLICA
Bolivia

ANNEX D



La Paz, 21 de junio de 1988

Señor
G. Reginald van Realte
Director
USAID/Bolivia
Presente

Estimado Señor Director:

Tengo el agrado de dirigirme a usted para solicitar que USAID/Bolivia proceda con la conclusión de los requisitos necesarios para efectivizar la implementación del proyecto de Supervivencia Infantil por un período mínimo de cinco años. Como es de su conocimiento, este proyecto involucrará programas nacionales de terapia y rehidratación oral, inmunización y un programa integrado de intervenciones para el proyecto, incluyendo control de enfermedades diarreicas, nutrición, enfermedades agudas de respiración, cuidado materno infantil y actividades de saneamiento ambiental.

El proyecto será implementado por el Ministerio de Salud y las correspondientes Unidades Sanitarias en aproximadamente en 11 distritos de los Departamentos de La Paz, Santa Cruz y Cochabamba.

Basándonos en la información obtenida durante reuniones que sostuvimos con personeros de USAID/Bolivia, entendemos que el financiamiento total será de aproximadamente 16.5 millones de dólares durante un periodo de cinco años.

A la espera de sus prontas noticias, saludamos a ustedes muy atentamente.

[Handwritten signature]
Dra. Maria Teresa Paz P.
Subsecretaria de Salud Pública
Min. Prev. Social y Salud Pública

[Handwritten signature]
Carlos Perez Guzmán
MINISION SOCIAL Y SALUD PUBLICA

FILE	R022	
DIV	ACTION	INFO
DIR		✓
DD		
ECOV		
EXD		
IC		✓
PDSE		
CONF		
PRG		
URR		✓
REPLY DATE	7/15	
ACTION TAKEN		

30 JUN 1988



HH12
9

Cite No. # 3979

MINISTERIO DE PREVISION SOCIAL Y SALUD PUBLICA
Bolivia



La Paz, 29 de junio de 1988

Señor
Paul H. Hartenberger
Jefe de la División Salud y
Recursos Humanos
USAID/Bolivia
Presente

Distinguido Sr. Hartenberger:

El Ministerio de Previsión Social y Salud Pública con sumo interés apoya el proyecto de salud infantil y comunitaria (CCH) por \$us. 16.500.000 que se iniciará en los próximos meses en el país, con una duración de cinco años y cuya meta es reducir la morbi-mortalidad materno e infantil.

La contribución del gobierno de Bolivia se hará principalmente con fondos del título III de la PL 410 y también en especie.

El proyecto va a modificar sustancialmente las condiciones de salud de los distritos en los que se ejecutará y por ende del país, es por este motivo que comprometo todo el apoyo del personal de este Ministerio.

Sin otro particular, saludo a usted atentamente.

FILE	HLS	
DIV	ACTION	INFO
DIA		✓
DII		
EXI		
EXII		
EXIII		
PDPA		✓
CONP		
PHI		
HHG		
APPLY	7/15	
ACTION	PKN	

[Handwritten Signature]
Dra. Maria Teresa Paz P.
Sub-Secretaria de Salud Infancia
Min. Pre. Social y Salud Pública

30 JUN 1988

SECTION 611(E)
CERTIFICATION ON CAPACITY TO
MAINTAIN AND UTILIZE
a. WATER SUPPLY AND SANITATION CONSTRUCTION

Taking into consideration, among other factors, the maintenance and utilization of projects in Bolivia previously financed or assisted by the United States, it is judged that the Government of Bolivia has the technical capability and the financial resources to effectively maintain and utilize the capital assistance project, water supply and sanitation construction, for which United States government financial assistance is sought under the Community and Child Health Project.

The design of this Project element, as described in the Project Paper, takes into account existing GOB institutional capabilities (both financial and human) to meet its obligations under Section 611(e) of the Foreign Assistance Act.



Director

7/26/88

Date

SECTION 611(E)
CERTIFICATION ON CAPACITY TO
MAINTAIN AND UTILIZE
b. CONSTRUCTION OF STORAGE FACILITIES AT HEALTH DISTRICTS

Taking into consideration, among other factors, the maintenance and utilization of projects in Bolivia previously financed or assisted by the United States, it is judged that the Government of Bolivia has the technical capability and the financial resources to effectively maintain and utilize the capital assistance project, construction of storage facilities at health districts, for which United States government financial assistance is sought under the Community and Child Health Project.

The design of this Project element, as described in the Project Paper, takes into account existing GOB institutional capabilities (both financial and human) to meet its obligations under Section 611(e) of the Foreign Assistance Act.



Director

7/26/88

Date

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TECHNICAL ANALYSISI. ImmunizationsA. The Problem

Diseases which could be prevented through immunization, in spite of all efforts made to date, are still a major cause of mortality and morbidity in this country. Measles, polio, pertussis and diphtheria are endemic, showing epidemic cycles every two to five years, affecting mostly children below the age of five. TB is also highly prevalent and is present in all age groups. There is also a high incidence of tetanus in the infant population.

Mortality records only partially cover urban areas and minimally cover the rural areas. Of all deaths registered in the civil records of 1981, 11.4% of the deaths of five-year olds and younger was due to an immuno-preventable disease. Mortality increases when there is either malnutrition or a lack of timely and adequate medical attention when complications arise.

The MOH maintains an Epidemiological Surveillance System, the reports from which demonstrate a remarkable downward trend during the past five years (except for infant tetanus). Through the years, however, reporting has been less than complete. In 1986 there were 4 cases of polio, 346 cases of measles, and 537 cases of whooping cough in Bolivia. However, in 1987, one outbreak of measles in a small area of the Santa Cruz Department (San Mathias, population 8,132) had 344 cases of measles with 18 deaths. This example represents the cyclical nature of the endemic immuno-preventable diseases in Bolivia.

B. The Program

The Expanded Immunizations Program, implemented since 1979, is one of the major MOH programs. During the past five years in the period it was given the highest political and operational priority, which resulted in a considerable reduction of deaths due to immuno-preventable diseases. The present program dispenses, to children below the age of five, polio, measles, DPT and BCG vaccines, as well as TT to pregnant and women of child bearing age, using the following basic strategy:

- Nation-wide Immunization Campaigns at the rate of three times a year. These are conducted in the urban areas and are relatively successful.

- Vaccine dispensation by mobile crews, designed to cover rural areas with a dispersed population. This is done immediately after an urban campaign has been completed. The coverage is partial.
- Continued vaccination in health centers which have refrigeration facilities. The coverage is partial.

Twenty five vaccine coverage surveys conducted for the MOH/PHO/UNICEF in 1987 in 11 urban cities, representing 34% of the entire Bolivian population, indicated a weighted coverage with Polio 3 and DPT 3, of 62% and 60% respectively, for children in the 12 to 23 month old bracket. The measles and BCG vaccine coverage was 66% and 76% respectively, in the same age group. The TT2 coverage of mothers of the same children was 3%. The results of 13 surveys conducted in rural areas show that for Polio 3 and DPT 3, coverage varies between 12-44% and 12-43%. Measles vaccination coverage varies between 37-66% and the BCG coverage, between 11-76%. TT2 coverage varies between 0-4%. The coverages reported by the MOH for children below the age of one year are considerably below the figures cited above.

C. Critical Factors and Limitations

The main problems identified by the MOH are:

- dispersed population and lack of resources for mobilization to serve distant villages;
- insufficient and discontinuous immunization programs in health services;
- frequent changes of operative personnel and interruption of health services;
- insufficient direct supervision and deficiencies in training and in the epidemiological surveillance system;
- lack of continuous popular education.

D. Technologies and Methodologies

For the preservation of vaccines at headquarters central level there is technical capacity and physical capacity (refrigerating boxes, freezers, etc.) which guarantee their effectiveness.

Sanitary Units also have refrigerators and freezers in good working condition with well-trained cold chain technicians. The same is true at the district level.

It is at the area and sanitary post level that equipment is needed, since they only have partial resources for conservation. For the transportation of vaccines from the Central level to different Sanitary Units a new refrigerated car and air transportation, with boxes properly sealed are used. From Sanitary Units to districts and posts vaccines are carried in King Seeley thermos. Handling and application of vaccines are properly standardized and, in general, operative personnel are experienced, as the program has been in operation since 1978. Strategies for immunization should be continuous in health centers as well as with movable groups. The same is true for immunization campaigns.

E. Proposed Intervention Plan

1. Strengthen continued vaccination at the Health Centers, giving priority to children below the age of one year. This should be accomplished through the training of the operational staff and supervision of popular education adapted to the particular cultural characteristics of the diverse national groups.

2. Massive vaccine campaign strategies with community participation should complement, not substitute, regular vaccinations given at health services. To this end, it is recommended that campaigns reduce their frequency gradually, that they contribute to cover the vaccine shortage at such centers, and that they do not repeat vaccination in groups already fully protected. However, it is recognized that different strategies might be needed for different groups.

3. Rural populations and groups living in precarious socio-economic conditions, such as seasonal migrants and the unemployed are the principal target groups.

4. The effective incorporation of the Social Security System and non-government organizations which provide health services to the EPI.

5. TT vaccination should be dispensed to women in the 15 to 45 year old age group, during controls performed in mothers clubs, schools, and during massive vaccination campaigns aimed at children, giving priority to the valley and flatland regions.

6. Infant BCG and Polio vaccination should be common practice for child births in an institution.

7. For epidemiologic surveillance of immuno-preventable diseases, surveillance centers are required in every health center, which may report data regularly and reliably. In addition, for polio it will be necessary to conduct thorough case searches (detection?).

8. Promotional and vaccination activities should be integrated with other child survival interventions.

F. National and District Components

The EPI at the national level receives technical and financial support from the Interagency Coordinating Committee (OPS/OMS, USAID, MOH UNICEF, ROTARY CLUB and PL 480, Title III) which contributes resources for the Plan of Action annually, starting in 1988. The USAID contribution to the MOH of Bolivia for the immunization program is \$3,300,000.

Immunization program activities in the selected districts will be implemented in an integrated way together with all other C.S. interventions. Resources, such as biologicals and materials and equipment for vaccination as well as for the cold chain, will be sent from the central level to the sanitary units, to ensure a prompt and normal logistics system.

G. Expected Impact

- Reduction of morbi-mortality rate caused by immuno-preventable diseases Polio, Measles, Tetanus, TB, Diphtheria, Whooping Cough.
- Improvement of the capacity of health services to maintain continuous immunization programs supplemented by periodical health campaigns.
- Diminution of frequency of urban campaigns due to the strengthening of the cold chain.
- Development of improved supervision practices and of an Epidemiological Surveillance System.

H. Proposed Indicators

- Immunization coverage of infants under 1 year of age according to type of vaccine, doses and geographic unit.
- Specific morbidity rates of immuno-preventable diseases.
- Percentage of the increased and continuous immunization by health services.

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II. Acute Diarrheal Diseases

A. Background

Diarrheal diseases constitute, at the national level, the main cause for the mortality of children under five years of age (42.3% of deaths for this age group (INE 1981)). Malnutrition in infants and children appears as a related cause for these deaths, being at once a result of and a predisponent factor for enteric infections.

According to MOH statistics, one third of all consultations in health centers, and 20% of hospital expenses are related to diarrheal diseases and complications, especially dehydration. A survey among 41,261 households in cities of the Altiplano, Valle and Plains (Murillo et al., 1985) showed that acute diarrheal diseases are prevalent in groups of children 12 to 35 months of age, with an average 6-9 diarrheal episodes per year.

In the country socio-economic and environmental conditions such as provision of potable water, handling, preservation and preparation of foodstuffs, systems for disposal of excreta and solid domestic residues are gravely deficient and constitute a high risk for enteric infections.

B. GOB Programs

The national program for the Control of Acute Diarrheal Diseases started in June 1984 with the cooperation of UNICEF, PAHO and USAID. Its main objective is to diminish the high rate of infant and child (under five years of age) mortality caused by diarrheal episodes. This program is based on the implementation of ORS units (URO's) in community and health services. The program has the following goals:

- to diminish by 50% all mortality cases due to diarrheal causes in children under 5 years of age by 1988;
- to reach 80% of all children with dehydration due to acute diarrheal disease;
- rehydration of 100% of children entering URO's (Oral Rehydration Units) without serious complications;
- to install institutional URO's (URO-I) in 100% of all centers or posts by the end of 1988; and
- to complete the installation of 10 popular URO's (URO-P) for each URO-I.

The lack of opportunity and integrity of the program's information system obscures its real coverage and the degree of progress in fulfilling the proposed objectives of the program.

PAHO's evaluation in 1985 and field visits during 1987 showed:

- lack of a program for controlling purposes, and lack of goals and adequate indicators to verify the progress of the program;
- supervision guides do not exist, there are not sufficient resources for the mobilization of personnel, and there are no field visits;
- on the operative level, educational material does not exist, especially material adapted to the socio-cultural characteristics of the people;
- delivery of ORS for home treatment was not performed according to procedures; and
- logistical difficulties for the supply of ORS exist. Additionally, there is inadequate control of ORS use.

C. Critical Factors and Limitations

The precarious socio-economic conditions and low levels of education in the rural and marginal areas are the principal risk factors contributing to a high incidence of acute diarrheal diseases. The Andeans believe that the origin of illnesses is based on the improper circulation of liquids through the body and its cavities which promotes the reduction of liquids given to patients with diarrhea. At present, the program does not adequately take social and cultural values into account when designing and implementing diarrheal disease control interventions. Antibiotics and anti-diarrheal drugs are also used indiscriminately.

D. Technology and methodology

For effective mortality control caused by secondary dehydration among children under 5 years of age, primary preventive actions such as education and construction of water systems and latrines, and secondary preventive activities, such as anticipated identification of diarrhea cases to be treated with traditional home-made solutions and therapeutic measures with ORS, must be undertaken. Thus, in rural areas, particularly in the regions of Aymara and Quechua culture, an acceptable cultural and social answer can be obtained avoiding a clash between modern medical technology and traditional medical solutions.

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E. Proposed Intervention Plan

- Develop a popular education program, particularly by direct means using the structure of the MOH, the CHW's, Mothers' Clubs, and the midwives (Parteras), among others. Culturally acceptable educational material will be used and the contents will include: promotion of personal hygiene, proper nourishment during the diarrhea episode, breastfeeding promotion, use of traditional rehydration solutions, use of ORS, and potable water and environmental sanitation.
- Extend water and sanitation systems to the more densely populated rural areas.
- Strengthen institutional URO's and to amplify and/or implement popular URO's, integrating these unities with other CS interventions.
- Continue training institutional personnel and CHWs, adjusting some contents to emphasize the solution for detected dependencies.
- Improve sub-systems of local programming, supervision, information and logistics support. In the same manner, refer cases of grave dehydration to higher levels of capacity for solutions where parenteral rehydration therapies will be implemented and improved.

F. National and District Components

USAID will support the National Program for the Control of Acute Diarrheal Diseases with UNICEF, OPS/OMS and PL-480, Title III. For this purpose, \$ 1.5 million has been allocated for the purchase of ORSs and research purposes. Activities of the National Program for the Control of Acute Diarrheal Diseases in the selected districts will be integrated with other CS interventions, and with water and environmental sanitation. Supply of ORSs to selected districts will be accomplished from the central level through the corresponding Sanitary Units.

G. Expected Impacts

- Reduction of infant and children mortality for the population one to four years of age.
- Integration of educational, water and sanitation, immunizations, DDC, ARI control, breastfeeding, etc. activities.
- Increased community participation in the development of solutions of concrete health problems.

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- Development of institutional capacity to maintain programs for the control of Acute Diarrheal Diseases.

H. Proposed Indicators

Number and percentage (%) of health services with ORS stocks.
Number and percentage (%) of diarrhea cases attended to by health services and treated with ORSs.

Recognition of diarrhea as a primary cause of death among infants under 1 year of age and among children 1 to 4 years of age. This will be determined by periodic surveys.

III. Nutrition

A. The Problem

There is severe malnutrition in Bolivia; surveys of weight and age indicate that around 46.5 per cent of children below the age of five weigh less than 90% of the median. Only one percent of this population meets the weight for height standard. Child growth slows down with age. Of those below the age of five, 40.1% are shorter than minus two DE of the population covered by the NCHS.

Malnutrition is prevalent in the Altiplano and the mountain areas, but less so in the valleys and the Eastern flatlands. It is also more frequent in children below the age of 5, and among these, children less than two years old appear to be most affected. In addition to insufficient food intake, other factors such as infectious diseases and problems related to inadequate weaning appear to play an important role in the higher rate of malnutrition in these age groups.

Malnutrition is clearly responsible for the high child and infant mortality rates. We consider it an underlying cause in more than 40% of child and infant deaths.

Other nutritional deficiencies are also worthy of priority attention. Endemic goiter affects more than 60 per cent of the population, it begins to increase at the early ages and reaches maximum frequency at the end of adolescence. It then regresses in males, but maintains its level in females, whose lack of iodine may be a conditioning factor for the disease and its complication in their children. There is a high rate of retardation, deafness and dumbness. Nutritional anemia affects one out of every five individuals. The highest risk groups are infants and pregnant women. Anemia in the female population may cause damage to their future children, lowering their survival possibilities.

B. Government Programs

In order to control malnutrition, the Ministry of Health has initiated a growth monitoring program through the issuance of a Child Health Card (CSI). Health workers have started to use this system, although with some deficiencies. The early stage of the program makes it difficult to evaluate its capacity to prevent or address the DPC.

Complementary Feeding Programs are being developed throughout the territory, benefiting nearly 300,000 persons through Mothers Clubs, infant milk centers, integrated centers, school breakfasts, hospital feeding or food for work programs. There are no convincing positive evaluations of their impact, and those which do exist are dubious.

A Nutritional Epidemiological Surveillance System is being developed for community-level use, and sustainability evaluation is being used for planning at the national, regional and local levels. Since 1984, the National Plan for Control of Endemic Goiter (PRONALCOBO) has been implemented based on a triple strategy: the manufacture, promotion and consumption of iodine added table salt, and the application of iodated oil and nutritional education. There are initial indications that its impact is positive.

A year ago, the National Plan to Control Nutritional Anemia (PROLAN) was initiated, based on the free distribution of iron tablets to pregnant women in order to treat, and above all, to prevent damage. The program is in its initial stages of implementation.

C. Results and Limitations

If the nutritional condition of both mother and child can be controlled and improved, the results will be expressed in better health conditions, and ultimately, in a decrease of infant and child mortality. Nevertheless, there are limitations to be considered:

1. Inadequate training and poor guidance of health workers who must address the problem imaginatively, with dedication, and within the social context.
2. Deficient and scarce guidelines for control, prevention, and treatment activities, which must be implemented by human resources at every level.
3. Scarce knowledge of nutritional problems at the local and regional levels, and not enough feedback for planning and evaluation purposes.

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4. A low level of comprehension and knowledge in the population about dietetic and hygiene facts of the diverse stages of child growth, and specific pathologic or physical states.

5. Low health coverage due to limited health infrastructure and personnel, and economic limitations.

6. Relating nutritional programs with food distribution, causing material and psychological dependence on Mothers Clubs.

7. Cultural barriers between the population and health workers, which result in mistrust and low credibility in the health system and medication dispensed.

D. Technologies and Methodologies

The technologies of choice are simple: scales, infant health cards (CSI), nutritional control formularies, iodine oil, and iron pills. The educational component will need materials for small groups and for social communication (details are included in the education chapter).

E. Proposed Plan of Intervention

1. Growth Control

Nutrition will be evaluated by growth control monitored by individual CSI cards. The program will give priority to the prevention of malnutrition, controlling continuously the targeted population of children by domiciliary visits or by the routine weight control when children attend health centers. Correct CSI use will allow a relationship with the families and the integration of all health programs around this important source of registered information.

2. Treatment and Rehabilitation

If, regardless of the means employed, any child is considered undernourished, the program will look for his (her) treatment and rehabilitation, by ambulatory assistance or by hospitalization if necessary to avoid death or complication.

3. Nutritional Control

The targeted population will be monitored permanently to determine its nutritional level for the purpose of adequate planning, promotion and evaluation. Groups at higher risk will be determined with

the purpose of intervention. The source of SVEN epidemiological surveillance is the same CSI, either indicator weight/age or the National Census of Height among first basic grade students for height/age.

4. Nutritional Education

The program as a whole, and each one of its derived actions, will be supported by the program's educational actions for nutrition, using all possible means such as person to person dialogue during the monitoring sessions for growth control, and the domiciliary visits, as well as the use of massive social communication means. For the weaning risk period a number of actions will be taken: education will be provided to nursing mothers so they maintain the same high level of lactation and so that they understand the best way to substitute, in a very hygienic way, breastfeeding with solid foods upon a previous study of local practices.

5. Specific Fallacies

The struggle against specific fallacies will be subjected to the norms set by the MOH in their specific programs. For goiter: encouragement for the use of iodized salt and application of iodine oil. PRONALCOBO announced recently the change of iodine oil given by injection to iodine oil given orally as the project will do. On agreement with PROLAN criteria ferrous sulphate tablets will be distributed in cases of anemia due to nutritional deficiencies.

6. Proposed Indicators

- Malnutrition prevalence among children under five years of age utilizing the age/weight table related to target population NCHS.
- Chronic malnutrition prevalence utilizing height/age table among 1st basic grade students of all district schools
- Height mean among first basic grade students of all district schools by age.
- Incidence of low weight at birth.
- Mean weight at birth.
- Number of internal patients with grave malnutrition (Kwashiorkoi & Marasmo).
- Percentage of children under five years of age utilizing CSI.

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- Prevalence of Goiter among school population.
- Percentage of persons 0-4 years of age who received iodine oil.
- Percentage of pregnant women who received supplementary iron.

F. Technology and Methodology to be Used

The focus of nutritional interventions will be the "Nutritional Epidemiological Surveillance", using the CSI for child growth monitoring and utilizing the SVEN instruments and norms at the community level for planning and evaluation, and for the purpose of making possible intersectorial interventions. Among these instruments, there is the weight/age ratio follow-up of less than five years and the recording of the height of children attending the equivalent of the first grade of grammar school in all schools.

The program will give priority to the prevention of malnutrition, monitoring continuously the children of the target population, either actively, through home visits, or passively, through routine weight control for children who come to the centers for attention. The correct utilization of the CSI will allow an approach to the family and the integration of all health programs around this important data record.

If, in spite of all these actions, some children still suffer from malnutrition, the program will provide for his recovery, either at home or under internment at the center, avoiding complications and death by all possible means.

The nutritional program as a whole, and each of the individual actions derived from it will be supported by the program, and by nutritional education activities, using all available means, from direct talks to the social communications media.

The attack on specific deficiencies will be subject to the provisions of the Ministry of Health for specific programs. In the case of endemic goiter, consumption of iodinated salt and iodinated oil shots will be promoted. The PRONALCOBO has just announced the change in strategy from the iodinated oil shots to oral means. In the case of nutritional anemia, ferrous sulphate tablets, enriched with folic acid will be used, following the criteria of PRONAL.

In light of the increased risks at weaning age, special attention will be given to the introduction of solid foods at weaning.

G. Expected Impact

The program is expected to achieve:

- Reduction in infant and child mortality for children less than two years old by 50 per cent.
- Reduction in the incidence of diphtheria, polio and pertussis (DPC) by 20%.
- Reduction in the prevalence of endemic goiter by 70%.
- Reduction in the incidence of nutritional anemia in pregnant women by 30%.
- Improvement in weaning practices and augmentation of family knowledge with respect to a balanced diet for the family.

H. Inputs

The Project will provide the following supplies to carry out the proposed nutrition component. The quantities and costs for the inputs are shown in the Procurement Plan, and are based on an estimated target population of _____ children and _____ women.

ITEM	UNITS	US DOLLARS
Scales		
Infant scales		
Salter Scales		
Wooden height meters		
Family CSIs		
Institutional CSIs		
SVEN Forms		
Consolidated SVEN Forms		
Iodated Oil		
Ferrous Sulphate		
TOTAL		

Note: The program will include the acquisition of milk and other complementary foods needed to treat and rehabilitate children suffering from severe malnutrition.

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IV. Acute Respiratory Infections

A. Problems

ARI is the second major cause of infant mortality, attacking mainly infants under 12 months old. In regions where ORT programs were more effective (La Paz and Oruro), diarrheal diseases have fallen to second place behind ARI on the infant mortality scale.

Incidence

ARI cases are more prevalent in the rural areas of the high plains, and less prevalent in the valleys and plains, which implies a relationship to environmental conditions.

As many ARI deaths taking place in distant rural communities usually go unreported, present data do not represent the actual number of deaths and are not valid.

B. ARI Problem

The National ARI Program was initiated in 1984, and is under the jurisdiction of the Maternal and Child Division of the MOH. The Program is based on a diagnostic standard considering only the severity of the case without regard to the location of the infection. The care, treatment and level of service to resolve the case are established in accordance with the degree of the infection (mild, moderate or acute).

<u>Degree of the Disease</u>	<u>Attention Required</u>	<u>Treatment</u>	<u>Level of Service where to be Treated</u>
Mid ARI	ORT	Anti-pyretics ORT	Home, Community, Health worker.
Moderate ARI	ORT, Anti-biotics	Anti-pyretics ORT, Penicilin Cotrimoxazol.	Health Post, Doctors or Auxiliary Nurses.
Acute ARI District	Referral Hospitali- zation.	Antibiotics, Oxygen, etc.	Area Hospital. Hospital, Referrals Hospital.

Since ARIs are a Public Health priority, this program provides free consultation and treatment oriented to resolve all cases and to prevent complications.

To be more effective, the program should be supported with health education activities by health personnel with the objective of informing the community about the severity of ARIs, how to prevent them and the available resources for early treatment.

The ARI Program has not yet been fully implemented and its coverage is very low. This situation might be compounded by the passive attitude of health personnel who are limiting themselves to treating cases on demand rather than by detection.

Health education efforts are insufficient and ineffective because the community still ignores the implications of ARI.

Program personnel persist in making diagnoses according to the topographic location of greatest damage and with a diversity of treatment that causes confusion and lowers efficiency.

C. Proposed Program

The ARI component will include the following elements:

- Develop and organize an educational component through the use of mass media, home visits, Mothers Centers, etc.
- Provide continuing training to health personnel concerning standards, treatment, education, and handling of supplies among other subjects.
- Evaluate staff performance, knowledge, and skills in providing feedback information.
- Ensure the acquisition of the different drugs and supplies for free distribution, and establish a revolving stock of drugs for the treatment of emergencies and complications.
- Outfit the Health Centers with basic equipment to treat referral cases requiring hospitalization.

Program Actions

- Messages and educational material aimed at the community.
- Training Staff by levels (seminars, workshops, etc.)

Districts

- Provide in-service training for health personnel.
- Produce educational materials for distribution to the community.
- Prepare clinical records for follow-up and forms for reference and cross-reference.
- Increase availability of beds for inpatients.
- Provide the necessary medical equipment such as humidifiers, oxygen tanks, and tents.
- Dispense free medications such as aspirins or paracetamol and benzocic penicillin.
- Sell Cotrimoxazol or ampicillin, and aminofilyn or solbutamol.

Service Delivery Model

	<u>Division</u>	<u>Pathological Referral</u>
Ministry	Maternal and Child Div.	
Health Unit	Maternal and Child Program	General Hospital
District	District Hospital	Pathology Referral
Area	Area Health Post	Treatment-Education
		ARI Treatment Acute
		to moderate Education
		Immunization
Sector	Sanitary Post	ARI Treatment -
		Moderate to mild Edu-
	Promoters Mothers Other	cation Immunization
	Family	<u>ARI Treatment-mild</u>
		Education
		At Home Care

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V. Maternal Health

A. The Problem

Maternal mortality in Bolivia is among the highest in Latin America. The actual magnitude of the problem cannot be precisely assessed as most of the data available is deficient or outdated. Nevertheless, the official estimates are 48 per 10,000 born alive. Complication during pregnancy, birth and in the puerperium are among the main causes of death. Prenatal care coverage is estimated at 30 to 40% of pregnant women in urban areas and only 5 to 15% in rural areas. The majority of the visits to health services are reported to take place after the sixth month of pregnancy. According to MOH data, approximately 20% of births are institutional and the rest take place in homes.

Among the indigenous population and the majority of mestizos, births take place at home assisted by a midwife, a member of the family or it is often self-assisted.

The main causes of perinatal death are hypoxia and asphyxia attributed to a deficient treatment of the newborn at the institutional or home level, or fetal malposition before birth.

Deficient nutrition during gestation and multiple pregnancies without proper birth spacing are the primary causes of the birth of malnourished infants. Data show that 15% of children born alive are underweight (another important cause of infant mortality). The frequent occurrence of Neonatal Tetanus in valleys and plains is a cause of death easily preventable with the vaccination of women. The blindness of newborns due to gonococcal infections is another important pathology not yet quantified.

B. The Maternal and Child Health Program

The MCH program of the MOH has standardized prenatal control, birth and post-partum services, and established "free of charge" birth services in some of the MOH Urban Clinics. The program consists of financial support for the acquisition of supplies for the obstetric attention of normal childbirths. Its objective is to increase the use by pregnant women of prenatal control services and to increase institutional coverage during childbirth. However, records show that between 30 to 50% of beds in obstetric and gynecologic wards are still underutilized. In general, Ob gyn wards lack the minimal equipment to guarantee efficient and high quality attention.

In an attempt to expand childbirth coverage, the MOH is promoting what it calls "clean childbirth", consisting of home childbirth services provided by traditional midwives specially trained. To date, this program has had relatively limited coverage.

C. Critical Factors and Limitations

- Insufficient hospital infrastructure to service women during gestation, parturition and puerperium.
- Underutilization of resources.
- Cultural and economic constraints limiting access and utilization of Health services.
- Lack of equipment, supplies and personnel training in the proper attention of childbirth.
- Underutilization of paramedics and traditional midwives in hygienic child delivery.
- Lack of referral services for dystocia and other complications.

D. Recommended Technology and Methodology

The recommended technology is simple and tested in the field. It seeks to involve rural community resources to increase coverage of prenatal, parturition and puerperal services, and care of the newborn. The approach will be risk-oriented to increase maternal and infant care at the community and institutional level. A referral subsystem will be developed to ensure efficient attention of critical cases. Traditional midwives will be trained in hygienic treatment of childbirth, proper care of the newborn and care during puerperium.

Basic Ob gyn instruments will be distributed to midwives, such as measuring tapes, forceps for skin fold thickness, scissors, umbilical cord's clamps and suction bubbles for the newborn fluids, among others. Institutional personnel will be retrained and outfitted with basic equipment for the attending of normal childbirths.

E. Proposed Plan

1. Participation of Traditional Midwives

Traditional midwives will be contacted and their correct practices will be reinforced, modifying the incorrect ones through periodic workshops and continuous education seminars. There will also be training in other subjects ranging from improved nutrition to treatment of complications during pregnancy.

2. Increased Utilization of Health Promoters and Auxiliary Nurses for Pre and Peri-natal care

Specific training will be given to health promoters and auxiliary nurses in order to integrate simple prenatal and peri-natal care into their basic preventive health functions. To extend the coverage of prenatal and peri-natal care, health promoters will be trained to perform simple screening measures for pregnant women in order to be able recognize and refer problems early, in the prenatal period, in labor, and the puerperium. The promoters and nurses will also participate more actively in programs to increase such measures as iodine and iron supplementation and tetanus immunization during pregnancy, both of which contribute to decreased infant mortality and morbidity. Health education will be a large component of the increased actions of the promoters and auxiliary nurses.

3. Hospital Services

Hospital Services will concentrate on the care of high risk pregnancies and parturition with complications. For this purpose training of personnel will be reinforced and basic supplies provided for the correct treatment of these problems.

4. Education

Education activities will be directed specifically to pregnant women and new mothers on such subjects as care of the new born, immunizations, personal hygiene of the nipples, promotion of breast feeding, and proper feeding during pregnancy, among others.

F. Expected Impact

By implementing this project it is expected to:

- Reduce maternal mortality due to obstetric complications.
- Reduce neonatal mortality.
- Improve performance of the health services institutions.
- Develop a system for perinatal care and service based in the community and supported by the health sector.

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Malaria

a. The Problem

Bolivia's malarial area covers approximately 75% of the national territory. Malaria has traditionally been responsible for the abandonment of large fertile areas. That situation results in pathetic proportions in tropical and subtropical areas of the country, where settlement and development are severely restricted with direct consequences to the population.

The reduction in productivity caused by job absenteeism, school absenteeism, abortion and still-born births, as well as the lack in the growth and development of infants, and the high death rate in areas plagued by plasmodium fasporum, also are direct consequences of this disease.

b. Technology and Activities Proposed

Control measures must be undertaken at the primary health care level for the purpose of reducing the impact of the disease on the infants health. To this end, the following actions are recommended:

- Support the development of treatment with a view of reducing mortality rates.
- Promote the program "usage of mosquito nets".
- Promote community participation in eliminating or reducing the breeding places of anopheles mosquitoes identified by the malaria personnel.

Chagas Disease

a. The Problem

The Chagas disease area covers approximately 60% of the national territory. According to data from the recent National Survey undertaken by the MOH, 30 to 45 percent of the total population at risk is infected (positive testing), and the sick population (with symptoms and electrocardiogram signs indicating Chagas' disease) comprises 15% to 20% of the infected population.

Triatoma Infestans, occurs at an elevation of 300 to 3,500 meters over the sea level. House infestation rates were found in the towns of the Santa Cruz and Cochabamba areas.

According to studies by Mazza in the northern part of Argentina, 1.80% of the children in the endemic areas became infected with *Tripanosomo cruzi* before they reached the age of 10.

b. Tecnology and Activities Proposed

In view of the absence of immunization agents and drugs that can be used on a mass scale at the primary health care level and the impossibility of implementing measures in annual reserves, which are many and varied, the control strategy becomes limited to control the . The most effective alternative would be to improve home conditions to prevent infestation by Triatoma Infestans. The following measures are consequently recommended:

- Ongoing health education to promote through all available means the improvement of homes, using local materials, and systematic daily cleaning of the same.
- Provision of information and motivation of teachers and health operations staff to act as multiple agents in the struggle against the vector (triatoma).
- Promotion of the use of mosquito nets as personal protection.

Tuberculosis

a. The Problem

Tuberculosis constitutes one of the major infectious diseases in the country. Its chronic status and its morbidity and mortality characteristics give this pathology significant importance. It usually affects the most deprived socioeconomic stratas at all age levels. According to current health statistics, this disease in Bolivia has reached one of the highest rates of incidence in the Americas. An increase in the number cases has been observed in gestant women and frequent cases of tuberculos meningitis, including some cases of cavity formations associated to chronic malnutrition, have been found in children less than five years of age.

The National Tuberculosis Program has not had the expected impact due mainly to deficiencies in detection and to discontinuing treatment. Also BCG edverture in children under five years has been exceptionally low in rural areas.

b. Activities and Technology Recommended

- Vaccination of newborn and children under five years old with BCG.
- Revaccination of children with BCG in the first cycles of primary school.
- Increased detection efforts of baciliferous cases with emphasis on women of childbearing ages.
- Treatment of identified cases with chemotherapy and various drugs in accordance with the national program.

c. Expected Impact

- Reduction of tuberculosis meningitis in children under 5 years of age.
- Reduction of Maternal Mortality related to tuberculosis.

VI. Water and Sanitation

A. The Problem

The lack of full coverage of water and sanitation services in Bolivia contributes to high mortality and morbidity rates, especially those related to diarrheal diseases and malnutrition. Safe water supplies, adequate excreta disposal services, good personal hygiene together with primary health services have a greater impact on health status than any of them alone. The following chart drawn from the Report of the Third Workshop of Sanitation Sector - 17-19/06/87, Pag. 32 lays out the current water and sanitation situation of national level:

TABLE No. 1
Water Supply and Sanitation
(Percent coverage)

Year	WATER SUPPLIES House			SANITATION		
	Connect	Public	Total	Sewers	Latrines	Total
1976	1.34	7.46	8.8	0.84	3.47	4.31
1980	3.2	7.0	10.2			3.7
1985	9.9	8.3	18.2			9.8
1987			23.0			10.0

The estimated rural population for 1987 is 3,529,956.

From 1984 to 1987 USAID Water programs and rural sanitation have been focused in two departments, Cochabamba and Chuquisaca, serving a population of about 69,000 people. In all departments in Bolivia there are many rural areas which still do not have any services.

B. Recent Program Experience

The Basic Rural Sanitation Project (AID 511-U-058) signed by MOH and USAID was completed successfully in September 1987. The principal objective was to create within the Dirección Nacional de Saneamiento Ambiental (MOH) the necessary institutional capacity to respond to the demands and needs for water and sanitation schemes in the rural areas of the country. As part of this effort, some 130 water systems and 11,540 latrines were built, 4 workshops on Operation & Maintenance (O&M) procedures were given to técnicos de saneamiento, system operators and community people. Also, Juntas Administradoras were organized in each community and the users were educated in the proper use of the water and to pay a monthly fee for O&M needs. Similar efforts through CARE are still underway.

C. Mayor Issues/Constraints to Expanding Effective Coverage

Under the technical and engineering analysis two major components of the project are considered in terms of feasibility of implementation: (1) approaches to the development of institutional capacity within D.S.A. on the basis and results of the AID 511-U-058 Project; and (2) appropriateness and feasibility of the area model field activities in C.S., water and sanitation, and nutrition.

The strengthening of the central, departmental and district offices as well as the rural WS/S coordination unit, with concomitant authority to monitor and coordinate the planning, design, construction and O&M, is technically feasible. The strengthening of D.S.A. within the MOH will permit coordination of rural development without major problems.

The work at departmental and district level will be facilitated through a comprehensive training program for technical and professional staff at all levels. The provision of all necessary ingredients of an implementation capability (i.e., adequate staffing, logistic support, technology development and data processing support) will ensure that an effective rural WS/S program is technically feasible.

Water & Sanitation projects which extend coverage to a portion of the target population will be implemented through a strengthened MOH model area at national, departmental and local levels.

D. Technologies and Methodologies to be Used

The major engineering activities under this component will relate to the planning, design and construction of small rural community water supply systems to serve the minimum domestic needs. The project will install water seal latrines for dwellings where piped water systems have been installed. Pit latrines will be installed in communities with hand pumps. In cases where a natural, safe source could not be provided, the water will receive simple treatment through sedimentation and slow sand filtration. All water and sanitation systems to be constructed will use proven technology.

E. Water systems

Hand Pumped Water Systems

Where community wells are installed, the selected site will be at a location where individual houses can be easily served. Each well will serve between five and six families. Standard piston type hand pumps will be installed on a concrete sealed well cap; a concrete ring platform will provide for appropriate drainage away from the well to avoid water contamination. Wells should be placed at least 30 mt away from any latrine.

Gravity Flow Small Aqueducts

Gravity Flow Small Aqueducts are constructed by tapping water sources above the community level and piping the water to the village by gravity with a hydrostatic head of at least 10 p.s.i. over the last house. The water source will provide twice the minimum quantity of water that the community needs during the dry season. This type of system is estimated to cost about \$ 45 per capita when the source is located at a maximum distance of 4 Km.

Where the surface water does not meet minimum standards of quality, some treatment will be necessary which will increase the unit cost by about \$15 per capita.

Water Treatment

In some cases, water sources do not meet safe water standards or criteria for human consumption. In such cases, known low cost, easy to operate and maintain treatment units will be used. Such units could consist of sedimentation to separate coarse materials from water, slow sand filtration and hypochlorination. Usually for most waters, the use of these measures produce a water of acceptable quality especially when raw water contains low turbidity and high coliform count. When color is present, a special treatment will be necessary.

Pumped Water Systems

When water sources are at a lower elevation than the community, pumping equipment will be needed to pipe the water to an elevation from which the village could be served by gravity. Electric, gasoline or diesel powered pumps can be used. If the source is more than 1.5 Km away and/or 60 mt lower, this solution will become economically infeasible.

F. Sanitary Services

Water-sealed latrines

Water-sealed latrines will be generally installed in rural communities where individual water systems have been introduced and serving family taps exist. The construction is similar to that of a pit latrine except that the toilet fixture (inodoro campesino o vacinete campesino) is not directly placed over the pit but is connected to it by a short PVC pipe of 10 cm diameter. Families may build a shed outside the house or place the toilet indoors according to their own preferences. No venting is required with this system. The cost of a campesino toilet is about \$ 55 including the cost of the ceramic fixture and the PVC pipe.

Pit Latrines

Pit latrines will be constructed in areas where is no easy access to water. These pit latrines consist of a concrete slab, ceramic or wooden toilet which are placed over a hole approximately 1 mt x 1 mt excavated by the user family. A venting of 3 mt length and 10 cm diameter PVC pipe is required. The cost of one such unit is about \$ 40. It is always necessary to provide a shed for each latrine. Each family will have a latrine.

G. Water Quality Criteria

Criteria for the selection of a water source for rural systems is based on three parameters: turbidity, color and coliform count. The standard values for this criteria are:

	Turbidity (Jackson Units)	Color (Std. Units)	Coliform (M.P.N.) (No. per 100 Ml.)
Safe	10 or less	10 or less	20 or less
Unacceptable	11 - 50	11 - 20	21 - 100
Polluted	51 - 200	21 - 50	101 or more

Efforts will be concentrated in the development of protected, safe water sources to minimize contamination hazards and reduce treatment needs.

H. Methodology

The water supply and sanitation works will be based on a health district delivery system supported by a strengthened institutional capacity at Departmental and National levels.

1) National Level

At this level the project will strengthen the ability of the Rural Water and Sanitation Unit within the D.S.A., to coordinate rural activities and promote adoption of appropriate norms, criterias, standards for design and construction, O&M procedures and the development of appropriate technologies to reduce costs of rural water systems. The unit will also coordinate rural training and evaluation activities with the D.S.A. at S.U. and District water and sanitation responsibilities. D.S.A. will staff the coordination unit with a chief engineer, a health educator trained in water and sanitation community promotion and secretarial personnel.

USAID support will be primarily technical assistance and equipment. It will provide the services of an engineer experienced in managing rural water and sanitation programs with simple technologies. He will emphasize health education and promotion activities to assure community participation. He will also supervise field activities, help to develop technical manuals, plan and implement training programs and organize O&M at community and other levels.

2) Sanitary Unit Level

Institutional development of D.S.A. at the S.U. level is critical to overcome ineffective organizational and managerial arrangements for implementing rural water and sanitation projects. The D.S.A. at the Departmental level will be responsible for the planning, design, promotion, construction and maintenance of rural systems and will develop alternative technologies and design modifications leading to cost reductions. It will also coordinate training and evaluation activities. The WS/S unit will staff a qualified engineer, with extensive experience in design, construction and maintenance of rural water and sanitation schemes; one Sanitation Technician (Técnico Sanitario), with appropriate training, field promotion experience and specialized training in O&M; and drivers and secretarial personnel. All the other administrative and managerial aspects will go together with the other components of the C.S/WS-S project. It will also be responsible for the establishment of a regional maintenance capability.

Training under this component will be all short-term and in-country. Training models should be prepared and directed to improve the performance of the técnicos de saneamiento, promoters, health educators, system operators, and administrative and directive personnel at the S.U. level.

3. District Level

The project will be located in three Departments: La Paz, Cochabamba and Santa Cruz. It will be implemented initially in five Districts: one in La Paz and two each in Santa Cruz and Cochabamba. The two in Cochabamba will overlap with the areas worked under the Basic Rural Sanitation Project AID 511-U-058. The USAID loan will finance one utility vehicle for the WS/S unit within the D.S.A. of each of the three S.U. selected.

During the second year of the Project, another two districts will be included in each Department.

I. Water Supply Systems Technology

The preferred strategy will be to seek naturally protected sources, when possible and economically feasible, in order to secure a reliable safe source.

The system will be composed of some combination of these components:

- a) a water source, such as a spring, stream, or a 6-inch cased well (with pre-fabricated screen and gravel packed);
- b) a simple pumping facility, usually piston-type, diesel-driven, or an electrical pump where electricity is available;
- c) a supply main and distribution network;
- d) a storage reservoir for pressure control and balancing of distribution;
- e) a water reel or pit latrine for every dwelling. The construction of individual latrines will be considered a precondition to the construction of the water supply system.

Design Standards

- a supply of:
 - Communities between 200-500 Inhab. 60 lpcd
 - Communities between 500-1,000 Inhab. 60-80 lpcd
- a pumping capacity, as necessary, coordinated with balancing storage, which will require pumping of from 6 to 10 hours per day, depending on rate of well flow;
- a minimum distribution system pressure of 10 pounds per square inch;
- preferably yard connections, wherever this is financially feasible;
- WHO standards on potability;
-) a 20 year population growth design period for major components.

Efforts will be concentrated in the development of protected, potable water sources to minimize contamination hazards and reliance on treatment measures. However, where the needed quantities cannot be thus readily developed, other sources will be utilized. In such cases chlorination will be utilized where natural protection is insufficient. In all cases, systems will be disinfected prior to their being placed in use.

The least cost, technically acceptable, system will be selected in each case. A decision will be made whether to proceed based on an assessment of the financial capacity of the village to cover costs of maintenance and operation.

The main line, together with the distribution network, will consist mainly of PVC pipe, and/or galvanized steel pipe, the type to be determined on a cost comparison basis. The use of galvanized iron pipe will be necessary under certain conditions, particularly where the pipe may be exposed or where damage or stress is possible.

Closed storage and distribution tanks of reinforced or masonry concrete are proposed. Where topography permits, a ground-level masonry concrete reservoir will be located at a point near the center of consumption. Where this is not practical, the tank will be installed on a reinforced-concrete elevated structure.

Engineering and Construction

The implementation of the engineering planning and design, and construction and operation phases of the water supply projects will be based on the procedures established in the previous domestic water supply activities of DSA.

Prior to commencing the program the DSA Regional office will prepare and submit to USAID, for its review and approval, a detailed project work plan for the first year and a more general plan for the remaining four-year planning and construction program. This plan will include proposed project scheduling, personnel staffing, and a list of quantities for all required materials and equipment.

The expected division of work during construction of a water supply system is as follows:

- Manual labor and local materials by villagers.
- Skilled labor for pipe fitting, carpentry and other trades by DSA through contract.
- Pump house, forming and finishing tanks, setting and connecting pumps, and installation of chlorinators by DSA through contract with assistance from community members.
- Drilling of wells, testing and disinfection of system by DSA regular personnel using DSA equipment.
- Supply and transport of other than local materials by DSA.
- Regular supervision of all work by DSA personnel.

Systems Maintenance

To maintain all the systems contemplated in the program the following actions are planned:

- During the first year after a water system is turned over to a community, the DSA Maintenance Division will be directly responsible for executing any required maintenance.
- During the first year actual maintenance is expected to be minimal. Therefore, the activities of the Maintenance Division will be directed to training selected individuals within each community to form a semi-skilled maintenance team which will be able to attend to preventive and minor maintenance matters.

- In the procurement of equipment, 10% is included for an initial spare parts stock to be administered by DSA. These parts will be sold to the communities by DSA at cost as required. The communities will make payment of tariffs or fees on behalf of each family for the water service obtained.
- DSA will procure replacement pumps that will be used to test wells and to temporarily replace those that may unexpectedly break down to minimize down time while the regular pump is being repaired.
- The DSA maintenance vehicle will visit the communities on a scheduled basis to perform maintenance according to requirements projected by periods of pump usage. They will also be on call for emergency needs. After the first year of the system all service to communities will be on a cost reimbursable basis.

Latrines

An important component of the program is the construction of the water seal latrines for every dwelling that presently does not have one. They will consist of:

- Infiltration hole about 2'10" square and about 6' deep, to be dug by the home owner.
- A concrete slab built by DSA and provided to the home owner on a cost basis.
- Three adobe or brick walls, a baffle entrance wall and roof built by the home owner at his own expense.

J. Proposal for Water Supply and Sanitation

1) Water Supply

To build 185 water supply systems for the same number of rural communities and 1,142 shallow wells benefiting a present population of about 200,000 inhabitants and some 560,000 people in the 8 Districts.

2) Excreta Sanitary Disposal

To build 15,200 water-sealed or pit latrines.

K. Estimated Cost of the Proposed Program

Studies and Designs	450.00
Engineering and Construction	675.00
185 Water systems	1,483.00
1,142 Shallow wells/hand pump	571.00
15,200 Excreta Disposal Services	421.00
Tool and Equipment	900.00
TOTAL	4,500.00

A detailed breakdown of the proposed programs is as follow:

Personnel	1,162.50
Technical Assistance	72.00
Supplies and Materials	2,054.50
Equipment	1,157.00
Training	54.00
Sub-Total	4,500.00
Inflation factor, 5%	225.00
Contingencies, 2% p.m.	90.00
TOTAL	4,815.00

ANNEX 4-b
Exhibit 4

BUDGET DETAILS (\$,000)
Water Supply and Sanitation Procurements

COMPONENTS	Year 1		Year 2		Year 3		Year 4		Year 5		Commulative	
	QTY	COST	QTY	COST								
1. Estudios and Designs	25	75.0	30	90.0	40	120.0	40	120.0	23	45.0	185	450.0
2. Construction Materials	lot	410.0	lot	410.0	lot	620.0	lot	614.0			lot	2,054.0
3. Tools and Equipment	lot	200.0	lot	250.0	lot	177.0					lot	627.0
4. Hand Pumps	300	67.5	300	67.5	300	67.5	242	54.5			1,142	257.0
5. Pick-up 4x4	3	40.5									3	40.5
6. 4x4 Trucks	3	90.0									3	90.0
7. Motorcycles	5	12.5	4	10.0							9	22.5
8. Drilling Equipment	3	120.0									3	120.5
9. Personnel Technicians	8	14.4	8	14.4	8	14.4	8	14.4	8	14.4	8	72.0
10. Skilled labor contracted 11%		84.3	17%	130.3	22%	168.6	25	191.6	25	191.7	100%	766.5
TOTAL												4,500.0

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WS/S FIELD IMPLEMENTATION

Years	Year 1				Year 2				Year 3				Year 4				Year 5			
	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
A. WATER SUPPLY SYSTEMS																				
1. Studies & Designs	6	6	6	7	7	7	8	8	10	10	10	10	10	10	10	10	13	10		
2. Prod. of Constructions Materials	Prepare Contract				Delivery as Scheduled															
3. Procurement of tools & Equipment	Prepare Contract				Delivery as Scheduled															
4. Procurement of Vehicles	Contract				Delvy. as scheduled															
5. Construction of systems			7	8	7	7	7	7	8	8	9	9	10	10	11	11	10	10	10	9
B. SHALLOW WELLS																				
1. Local Manufacture of Purchase of Hand Pump	Contract				Delivery as scheduled															
2. Construction	50	55	56	42	42	42	42	67	67	68	69	67	67	68	69	67	67	68	69	
C. EXCRETA DISPOSAL																				
1. Local Manufacture of "campesino" bowl	Contract				Delivery as scheduled															
2. Construction	Prepare	500	500	600	650	650	650	650	800	800	900	900	950	950	950	950	960	980	980	980

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Average Parameters of Rural Water Systems

1. Population to be served 600 actual inhabitants
2. Number of housing units 120
3. Persons/housing unit 5
4. Period of design 20 years
5. Growth index 2.4% per year
6. Typical arrangement, gravity systems
 - a) Intake or Entrapment: Rack scoop; Spring protector (tank); Canal deviation
 - b) Desander
 - c) 3 Km pipeline of PVC tubing with 1 Km of 3" and 2 Km of 2"
 - d) Slow filter (optional)
 - e) Chlorinator with dosigying tank
 - f) Distribution tank with 30 m3 capacity, cyclopean concrete
 - g) Distribution network of 4 Km with PVC tubing, of the following lengths and diameters:

3"	-	200 mt
2"	-	1,000 mt
1 1/2"	-	1,600 mt
1"	-	1,200 mt
		<u>4,000 mt</u>
 - h) Household connections including: 50 mt of PVC turbing of 2/2"; 2 mt HG tubing of 1/2", one 1/2" tap.
 - i) For scattered populations, 5 water units instead of household connections. In this case, the distribution network will be of 7 Km. PVC tubing of following lengths and diameters: 4 Km of 1 1/2", 3 Km of 1".
7. Variables for well pumping systems:
 - a) Drilled well of 60 mt in 6"
 - b) Pumping equipment
 - c) Shed for pump
 - d) 100 mt pipeline of PVC, 2" tubing
 - e) Elevated distribution tank, 30 m3 capacity in reinforced concrete
 - f) Distribution networks, same as above
8. Parameters for scattered populations with no other possibility or source other than hand pump systems. (These systems assume an average number of 6 families per well):
 - a) Shallow well, 10 mt deep, 1.5 mt diameter, internal coating.
 - b) Hand pump, locally manufactured, drop pipe and connecting rods.

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NUMERO DE FUNCIONARIOS POR TIPO DE PERSONAL
EN LAS REGIONALES DE SANEAMIENTO AMBIENTAL Y DISTRITAL

<u>Personal Regional y Distrital</u>	<u>Profesional</u>	<u>Técnico</u>	<u>Inspector</u>	<u>Administrativo</u>	<u>De Apoyo</u>	<u>Total</u>
La Paz	2	18	18	2	1	41
Cochabamba	6	25	14	13	8	76
Chuquisaca	3	27	9	7	8	54
Santa Cruz	1	19	23	5	2	50
Oruro	2	13	11	4	3	33
Potos	1	15	10	2	3	31
Potosí: Tupiza	-	8	4	1	2	15
Tarija	2	13	11	2	4	32
Beni: Trinidad	1	18	8	4	2	33
Beni: Riberalta	-	2	3	-	-	5
Beni: Guayaramerin	-	3	1	-	-	4
Pando	-	8	1	1	-	10
<u>TOTALES</u>	<u>18</u>	<u>169</u>	<u>113</u>	<u>41</u>	<u>43</u>	<u>384</u>
<u>%</u>	<u>5</u>	<u>44</u>	<u>29</u>	<u>11</u>	<u>11</u>	<u>100</u>
<u>X por Depto.</u>	<u>2</u>	<u>19</u>	<u>13</u>	<u>5</u>	<u>5</u>	<u>43</u>
Nivel Central	12	2	6	8	5	33

VII. Information, Education and Communications

A. Institutional Situation

Health education in the departments covered by the project has been, in general, the product of unprogrammed activities responding to immediate needs such as vaccination campaigns. Because of the economic crisis that Bolivia has experienced, many Health Education activities planned at the community level never took place. When activities were organized, materials were often produced without pre-testing or community participation. Another problem is that many divisions within the MOH develop their own educational activities without central coordination.

On the positive side there have been activities carried out during the past years which have been innovative and interesting, displaying the many talents in Health Education that exist in Bolivia. For example, the community health education fairs which included video displays, booths and contests were uniquely successful. Besides providing health education, these fairs bring the community together in a social context.

In terms of personnel, they are enthusiastic and capable both at the central level and at the S.U. in the three departments selected. One of the problems, however, appears to be a lack of leadership. To address this problem a workshop was held in April 1988 of all the Health Education personnel from the different Sanitary Units. As a result of this meeting a new national Health Education program was designed for the rural communities of Bolivia. It is still recognized, however, that personnel with leadership capabilities are needed.

B. Cultural Patterns Related to Health Education

The population of the three departments selected for the project are diverse not only in their customs and language but also in their approaches to health problems. These present unique health education challenges. In brief, many in the population use traditional medicines and appear to reject modern medicine. Their perception of life, death and sickness often differs completely from "western" cultural values. For example, contracting any malady is often connected with magical or external action such as children becoming sick when one of the parents leave the home to go to work for an extended period or somebody contracting goiter by walking in the fog. These health education challenges suggest the need for an in-depth sociological and anthropological study prior to establishing educational strategies, objectives or goals.

C. Target Population

The largest population for the health education component will be 700,000 inhabitants of the three selected departments that will be reached through mass media, mainly radio educational messages in soap operas and spots. Of these, 60,000 will be reached through person-to-person approaches through group meetings, with an expected multiplying factor of 5 to 1 or 300,000 people.

Approximately 50,000 rural school children will be reached through specially developed Health Education classes and materials. These are expected to have a multiplier factor of 3 to 1, or 150,000 children by either lending the materials to peers or by taking them to their homes.

Using as a base the parameters established through the sociological or anthropological study, the target population will be segmented by sex, age, language, cultural pattern, and behavior and actual health practice.

D. The Health Education Component of the Child Survival Project

The health education component will facilitate changes of attitudes and practices related to health and child survival among the rural population of the selected departments through the use of education techniques.

1. Water and Sanitation

Promotion and community participation activities displayed by water and sanitation programs in the department of Cochabamba seem adequate and its techniques and materials could be adapted to the other department needs. However, the Health Education efforts seem insufficient and should be included under the water born diseases prevention part of the Health Education component of the C.S. Project, which could among other measures encourage the proper use of potable water and latrines.

2. Messages and Contents

A main message will be established for the Health Education campaign to which all materials should note. The appropriate media and materials will be selected responding to the idiosyncracies of the message, the audience and the dosification of contents. All contents and materials will have specific educational objectives and develop single concepts throughout.

3. Media Channels and Materials

Educational contents should reinforce, support and relate to each other through all media, channels and materials.

The person-to-person approach will be the aim and most important channel used to communicate the educational messages, supported by printed materials and radio. Person-to-person communication education techniques will be applied by specially trained social workers, auxiliary nurses, rural teachers and CHWs, using flipcharts, pamphlets, wall charts and teaching guides, supported by soap operas, radio spots and posters.

4. Current Facilities

The MOH at the central level has adequate printing, radio and video production facilities operated by trained personnel responding to monthly production schedules that keep the personnel and facilities fully occupied. Therefore, the expected production demands of the CS project probably could not be satisfied by these. Occasionally educational material might be produced at these facilities, although, outside commercial institutions may be the most appropriate to absorb more efficiently the main production load of educational materials.

5. Physical Infrastructure

The IEC Component will have a central level unit that will be in charge of planning, design and production. The staff will include:

- 1 Communication planner
- 1 Expatriate advisor
- 1 Local counterpart
- 1 Evaluator producer
- 1 Contents writer
- 1 Administrative assistant, typist bilingual
- 1 Secretary-typist
- 1 Driver

Production Units (one at each Sanitary Unit):

- 3 Communicator producers
- 3 Translators (1 La Paz Quechua, 1 Cochabamba Quechua, 1 Aymara)
- 3 Illustrators
- 3 Secretaries
- 3 Storage Clerks

District's Social Education Unit:

At the district level a special unit will be staffed with a Social Worker preferably with a strong anthropological and sociological background who will be in charge of training personnel, mobilizing the community and gathering information for the formative evaluation system. The staff requirement for the districts education units will be 8 Social Workers (1 for each district)

At the community level one educator selected from and by the community, (RPS) will undertake all group education activities.

CS and Posts:

Auxiliary nurses for each of the village health posts and health centers will be trained to give personal domiciliary attention to high risk children. These personnel will be trained specifically in good communications skills based in dialogue, conducive to participation, analysis and active interaction. These personnel will carry little support materials and should be able to create the educational situation using as a base the child's condition at the moment of the visit, leading the participant toward an educational synthesis to change attitudes and behavior. Although perhaps a time consuming effort, it might be the key to changing the behavior of reluctant parents.

6. Message Delivery System

The community will be reached through every channel available such as:

- Authority groups ("grupos de base" such as as syndicates, etc.)
- Other groups, (mothers clubs, cooperatives, sewing groups, water and sanitation committees, etc.)
- The rural school
- Community Education Fairs (Ferias Populares Educativas)
- Radio
- Printed materials
- Doctors, nurses, promoters, child survival specialists, traditional midwives, etc.

Contents should be risk-oriented and developed taking as a base the actual cultural attitudes, beliefs and behaviors of the target population.

7. Water and Sanitation IEC Activities

Promotion efforts in W&S will be undertaken using the materials, techniques and training already designed and tested by the recent W&S project financed by USAID/B. However, education will be applied to reinforce concepts and to ensure that the systems are being properly used.

8. Studies

There should be two main studies undertaken for the education component of this project:

- At the community level a study will be conducted to assess the cultural beliefs, cognitive patterns, attitudes and the actual behavior among the target population regarding nutrition, IRA, vaccination, water & sanitation and dehydration. In addition, their attitudes and feelings toward the hospital and doctors, nurses and other health services, and why and when they seek a health service, will be assessed.
- At the medical and health service level: the beliefs, attitudes and behaviors of doctors, nurses, auxiliary nurses, and other health services employees toward the target population will be assessed.

Personnel IEC

The following is a list of the personnel needed:

Central Level:

1 Local counterpart to Communication & Education Adviser	60 m/m
1 Administrative assistant	36 m/m
1 Secretary typist	60 m/m
1 Producer evaluator	60 m/m
1 Driver	36 m/m
1 Writer	60 m/m

Sanitary Unit (X 3 Units):

1 Translator	54 m/m
1 Secretary	60 m/m
1 Illustrator	60 m/m

Technical Assistance:

1	Communication and Education Adviser	36 m/m
3	Education Advisers (one per Sanitary Unit)	36 m/m
	Short term	15 m/m

9. Person-to-Person Education and Communication Techniques

Person-to-person education techniques will be based strictly on participatory-analytic-interactive dynamics to raise consciousness among participants about their health situation leading to problem-solving activities, and attitude and behavior modification.

As the education effort will attempt to modify negative behavioral patterns deeply rooted within the participants' cultural practices, anthropological studies will be conducted to identify these patterns and design the appropriate contents, techniques and educational objectives. Extensive pretesting of materials will be conducted to ensure community participation in the contents development and assess the validity of the messages and medium.

A periodic visit of a cultural anthropologist will be necessary to investigate the effect of the educational effort at the community level, and evaluate the overall performance and effect of the Project.

10. Contents Development

The contents of materials will be developed at the central unit with technical supervision on the information given by nutrition, water and sanitation, and the CS experts.

11. IEC Recommended Approach

If educational efforts are to be effective in changing behaviors, they should respond to the overall objectives and goals of the programs they are supposed to support. These should have carefully defined strategies, objectives and goals based on studies of the actual knowledge, attitudes and practices of the target population selected. The main message should be also carefully defined in accordance with the project's objective, with the contents of every single educational material and activity reflecting this message.

One of the most difficult tasks for the rural adult educator is to get the target population to analyze a problem and propose or accept solutions. They have a fatalistic view which inhibits them from taking preventive measures, as they assume they will do no good. Therefore, the educational techniques to be applied should conduct the audience through dialogue to an analysis of their own health situation and to problem solving activities, with the minimum guidance of a group facilitator or animator.

12. IEC Infrastructure

A central planning and design unit located at La Paz will control all IEC activities and training. Materials production and training at the field level will be done through three production units one in La Paz, one in Santa Cruz, and the third one in Cochabamba, working out of their corresponding sanitary unit. At the district level there will be one social worker who will conduct the training of Community Health Workers to perform health education activities at the community level and distribute health educational materials to villages and elementary schools. Rural teachers will be approached by the Social Workers and encouraged to collaborate in the health education activities.

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ECONOMIC ANALYSIS

A. Macroeconomic Situation and its Impact on the Health Sector.

The economic crisis that afflicted Latin America from the late-1970s through the mid-1980s affected Bolivia severely. The country suffered even more than many others in the hemisphere owing mainly to the hyperinflation of 1982-1985 and the dramatic decline of its main export products, such as tin and natural gas. The economy has had negative rates of growth since 1981 for a total accumulated growth of -14%. The gross domestic product per capita declined approximately 25% in the same period and unemployment rose close to 25%.

Thanks to conservative fiscal and monetary economic policies implemented by the current government, recent macroeconomic indicators are more encouraging. The hyperinflation has been eliminated and the price level is steady holding at about 10 to 15% annually. The economy has arrested its decline and has experienced a small increase of 2.2% in 1987. However, the economy is still in a fragile situation owing mainly to the lack of resources and a heavy debt burden. In 1987, the value of exports declined almost 25% and imports increased by more than 45%. Even though the debt service has been rescheduled and the capital influx from official external credit has been augmented, the external situation of the economy is still fragile. In 1987, the balance of payments deficit increased to US\$ 432 million and the economy experienced a US\$ 91 million loss in net international reserves.

An unequally heavy burden of the economic crisis has fallen on the poorest segment of the population owing mainly to the "dollarization" -which slashed savings from the medium to lower income population, and the hyperinflation -which affected the poorer people the most as they were not able to protect themselves from a rapidly devalued currency. As a result, family income has fallen. Salaries are estimated to have declined anywhere between 20 to 75%, in real terms, exacerbating the extreme poverty status of the entire country, especially the rural and semi-urban population.

Consequently, it is not surprising that adverse economic conditions have negative effects on expenditures for health services and on health status. It is extremely difficult to demonstrate empirically the adverse impact of economic distress on the health status of the population. Some evidence, including Bolivia, has been reviewed by one staff member of the Pan American Health Organization, leading to the conclusion that poorer economic conditions can have serious adverse effects on health (Musgrove 1987). Furthermore, there are reasons to fear that economic reverses within family are suffered especially by children and women, worsening their health status. During the economic crisis, central government expenditures for the health sector declined significantly in real per capita terms; likewise, consumption per capita fell 24%, in real terms, over 1980-1987.

It appears very likely that the health of the Bolivian population has been damaged by economic developments during the past decade and that prospects for the near future are for only slight improvement, especially in view of the growing number of persons needing services as a result of the high population growth rate of 2.8% annually. Furthermore, there are uncertainties in relation to the economic and political situation in the near future given Bolivia's past political instability and, especially, due to the change in government leadership that will follow the 1989 elections.

F. Analysis of Costs for Project Interventions.

Information on the cost of interventions in this or any project is essential. Project planners, administrators and evaluators as well as officials of any organizations that help to pay for interventions must know the true value of the resource inputs (labor, materials, etc.) of the services or outputs provided. The principal use of cost estimates in this FP has come in the preparation of the project budget and other aspects of the financial plan. Procurement, among other functions, also require cost data. Both recurrent (operating) and non-recurrent (capital or investment) costs are estimated for the needs above, as can be seen in other sections.

G. Justification of Project.

In some cases, attempts have been made to justify USAID health projects in terms of their economic benefits in relation to their costs. An "internal rate of return" is estimated in this process. This kind of justification would not be appropriate for the project covered in this document. The inadequacies of estimates of project benefits in monetary terms are due to the existence of benefits that cannot be quantified. The spillover of benefits to persons beyond the immediate patients (for example, when epidemics are prevented through immunizations) is a related complication to this approach. Another is the lack of a market for pricing each service.

With regard to justifying the project on a cost effectiveness basis, there is a prima facie case that the proposal to carry out this project through the Public Health System is the most cost effective way. There are no viable alternatives. The main points in support of this argument are as follows:

1. Channelling health services through the existing Public Health System is the least expensive way since there is no other national health service in the country. The creation of a more efficient private system clearly would entail substantial costs for infrastructure alone.

2. Since the project is primarily directed at the rural and semi-urban poor population which has been the hardest hit by the economic crisis, only the Public Health System, as opposed to any PVO or private entity, has the capability of reaching the poor majority in both the urban and rural areas. Moreover, the objective of covering 80% of the targeted population cannot be reached within a reasonable period if the project had to start with near zero infrastructure.

3. There are economies of scale in providing health services on a massive scale (e.g. lower cost for immunizations and distribution of oral rehydration salts). If the project were not implemented through the Public Health System, these services could only be provided at much higher cost, if at all.

4. Channelling the services through some other institution, such as PROSALUD or the PVOs, would entail charging for the service, eventually on a full cost basis, which many of the poor cannot afford. It is very unlikely that these segments of the population could afford to pay for preventive health services, and even less so for curative ones.

5. The project will deliver health services as part of an integrated approach with promotional and educational interventions, as well as with the help of modern medicine. The project will also include traditional medical practices. Thus, the project aims at achieving general accessibility by providing solutions that are socially and culturally acceptable. Clearly, only a broad system directed at the general population, can incorporate these diverse activities.

6. Several of the preventive health measures to be undertaken by the project are not amenable to "cost recovery", i.e. charges based on a "benefit received" basis. Examples include improved sanitary and potable water services. As a result, they could not be undertaken by PROSALUD, a PVO or a private organization that cannot count on tax revenues and must be able to cover all costs very quickly.

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FINANCIAL ANALYSISA. Detailed Budgets

For every major component of the Project, a detailed budget was prepared. The budgets were summarized to create the total Project budget tables that are presented in the "Cost Estimate and Financial Plan" of the P.P.; the detailed budgets can be found in the supplementary materials provided by the team to the AID Mission staff.

B. Sustainability of the Project

The capacity of Bolivia to support the proposed health Project financially after the period of AID funding is a crucial question. Sustainability of the Project after 1993 is critically appraised in this section. First Bolivian support capability in the form of governmental resources is assessed. Then, alternative sources of funding are identified; the most commonly suggested ones are given the most attention. Finally, some general policy conclusions are reached.

1. Governmental Resources:

Assessing the capacity of the Bolivian public sector, especially the national Government, to sustain the proposed Project is complicated by economic problems and statistical limitations. The crisis in the economy from the late-1970s to the mid-1980s severely damaged the country and left its financial situation in doubt. (See the P.P.'s "Economic Analysis".) Moreover, the recent hyper-inflation distorted all monetary values, rendering statistics on the Government virtually useless. As a result of these events, expenditure and revenue data derived from the Central Government budget or that of the Ministry of Health would be useless for establishing trends before about 1986. A further complication in projecting governmental capacity to finance health on the basis of past years' experience is the lack of up-to-date information on actually executed budgets as distinct from planned ones (presupuesto ejecutado versus presupuestado). In fact, usable data on executed budgets are available now only for 1986 and 1987 for the MOH and the central Government. The 1988 figures are simply the budgeted (planned) ones. It is well known that public sector budgets can differ greatly between their planned and executed stages; there often are reductions from the plan to the actuality, especially in the capital (non-recurrent or investment) budget. This was true for the MOH in 1986 and 1987, with large drops. The Central Government budget as executed in 1987 did not change much from the planned value. Budgetary information, for what it is worth, is provided in some tables that are part of the supplementary information being provided to the Mission.

In the process of being executed, the Government and MOH budgets often are revised ("readjusted"). The current year's Central Government budget might very well receive the same treatment soon, especially in view of the prediction in April, 1988, that the current year's GDP growth rate would be 2 per cent instead of the previously expected 4.3 per cent. That would leave it equal to the estimated rate for 1987, continuing only modest growth.

What does all this mean for sustainability of a major new set of interventions in the health field? For one thing, it indicates that extrapolating past experience to create projections of future fiscal needs and capacity can be done only with serious doubt, if at all. Second, it reinforces the uncertainty noted in the macroeconomic survey of the "Economic Analysis." Thus, while the major variables to be considered in arriving at judgments on sustainability can be identified, it is not at all clear what they can tell us now.

The key factors affecting future spending needs of the MOH (in nominal terms) after the Project period will be growth of the target population and inflation. This assumes that the full set of Project activities and all the same past programs will extend into the post-project activities and all the same past programs will extend into the post-project period (1994 and later) and that no major changes will occur in population composition or in the Ministry's service outputs or its mix of resource inputs used to produce them. The burden to be borne after the Project is suggested by the anticipated recurrent expenditures on it in the final project years, multiplied by factors reflecting the increases in persons served and input prices.

The key factors affecting financial capacity of the MOH are growth in the GDP, changes (if any) in the share of the GDP devoted to the Central Government and in the share of Central Government expenditures made by the MOH. Inflation would expand revenues in nominal terms but probably no faster (if as fast) as the increase in expenditures due to price rises. The "Economic Analysis" section shows the harm that was done to spending on health during the economic crisis. Bolivia's already-low per capita spending on public health declined drastically. Health's share of Central Government spending fell as part of this process. The most recent available data show, among other things, that the MOH's shares of the Central Government Budget in 1986, 1987, and 1988 (planned only) were, respectively, 3.37, 1.24, and 2.24. There is no reason to predict that the MOH share of Central Government funds in a slowly growing economy will increase appreciably. Assuming that the MOH budget for existing programs is barely balanced by public revenues through 1993 while the new project is funded mostly by AID and special counterpart sources (especially P.L. 480), there are few grounds for optimism in expecting the Ministry to come forward with appreciable new funds from the Government in order to bear much of the burden of the new recurrent costs required to continue the full Project in 1994 and beyond.

2. Alternative Sources of Funding:

It is obvious that the efforts of the Central Government of Bolivia, through the Ministry of Health, to bear the financial burden of the proposed Project after grant funds run out (by the end of 1993) will not be sufficient, despite the best of intentions. Therefore, alternative financial sources in Bolivia must be examined. These take the form of other governmental and quasi-public sources of funds and a variety of private means. Of course, other external assistance would represent another potential category of finance.

Other levels of Government below the national level levy certain taxes and impose certain charges or fees. Some of these funds are used for various health sector needs. They are not large and are already fully obligated, so it does not appear that appreciable additional tax proceeds from lower levels can be applied to any new project.

Quasi-public entities are potentially important for financing health services. The two principal types in Bolivia are departmental development corporations (e.g., CORDECRUZ) and social insurance schemes (e.g., Instituto Boliviano de Seguridad Social or IBSS). The development corporations have sources and amounts of revenue that vary appreciably among the departments. In the more prosperous regions -- especially the Department of Santa Cruz -- these entities can provide measurable amounts of support to health, but that assistance is limited to construction and other investment. That does not offer any help in meeting recurrent costs in the post-project period, and is not likely to be appropriate for counterpart spending during the life of the Project.

Social insurance is no more promising for meeting the new needs. IBSS programs, including for medical care, are concentrated on urban working groups plus some miners. These are not the target populations of the new project. Neither the necessary employment relationships nor the other administrative requirements will exist in the predominantly rural target areas to sustain the Project.

With Government funds insufficient and with quasi-public means limited or non-existent for the new Project, we must turn to an appraisal of private sources of support. It is easy to identify many possibilities but much harder to find any that offers encouragement for substantial new financing of health as envisioned in this project.

Community contributions in-kind, through the provision of labor and other inputs (e.g., material for construction and office space), do represent a good source of support for certain health interventions, especially for water supply and sanitation (WS&S). An additional contribution is represented by volunteer promoters in the local child survival program. They are allowed for in the "GOB" share of the financing during the project period. Unlike the Central Government contribution derived from PL 480 funds, some of these in-kind contributions should continue to provide partial coverage of recurrent costs in the post-project period. Largely confined to WS&S, they might account for about two per cent of total Project cost. This is not a negligible figure, although it cannot begin to cover a large proportion of total costs. No additional types of in-kind contributions, particularly for other (non-WS&S) services, are apparent.

A logical list of private or semi-private financial sources would include some that must be quickly dismissed, because they cannot meet the major new needs of the post-project period. Charitable contributions -- through missions, PVOs, and other means -- presumably already are being fully used for various purposes, including health programs. It is not realistic to expect to find appreciable new funds of that type to sustain the Project. Income from private raffles or other gambling is not likely (Public lottery proceeds already are accounted for in Central Government revenues.) Direct provision of medical services by large employers might occur, but it would apply only to select groups and could not be integrated into the Project.

After consideration of these private sources of support -- funding only in-kind contributions to offer (limited) promise -- what else can be said? Clearly the one major remaining possibility is "cost recovery" through the payment of direct fees by patients to providers or through prepayment mechanisms. The latter are not yet well developed in Bolivia and appear to offer little hope for extensive applicability to project needs by 1984. However, direct payments, or fees, have been tried and are worthy of further examination here. Local delivery units of the MOH charge fees for certain services. Such funds (fondos propios) are used to support inputs other than payrolls and food for hospital patients. They already are fully utilized for the on-going programs of the Ministry and, thus, represent no new financing source. Given the limited ability of rural Bolivians to pay for additional services, further cost recovery through fees offers little promise for the proposed Project. However, three other notable examples of fee-supported activities in Bolivia should be cited: a proposed fee-based WS&S project of CARE; the use of revolving funds with fees for medicines in four departments and in one of the project's likely target districts, and the PROSALUD experiment with self-financing of basic health services at several sites in the Department of Santa Cruz.

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In a grant proposal to AID, CARE has estimated that water fees can cover the operating costs of a new water system and even generate a surplus that might be used to cover some costs of other services in a community. The estimates of capacity to pay are surprisingly optimistic. They can be tested during the life of the project proposed here, as it also has a WS&S component with contributions expected. It would be risky, however, to assume that in the post-project period all communities could self-finance all of their WS&S recurrent costs, let alone support other services.

Revolving funds for drugs or medicines are not a new idea, in Bolivia or elsewhere in the developing world. In fact, poor persons appear more likely to pay for drugs than for almost any other type of primary health service. Revolving funds are used in several places to receive payments for medicines from patients and to purchase replenishment stocks. Initial evaluations suggest successes for an AID-funded experiment so far in Oruro and Potosí but failures in La Paz and Chuquisaca. The talents of a fund's top manager and independence from regular MOH controls appear to be the keys to its success. These programs do not seem to be large and long-lived enough to provide the basis for an assumption of much self-financing under the proposed Project, but they do suggest a feature to be tried for drugs during the period. A revolving fund for medicines already exists as well in one of the high priority districts of the project, District III of Santa Cruz. Clearly, that activity should continue and be evaluated during the project's life (say, at the mid-term evaluation) to determine its applicability to other districts covered. Of course, successful endeavors of this kind should be continued and expanded if possible in the post-project period to help Bolivia sustain at least a part of the recurrent cost burden.

Considerable favorable attention has been paid in Bolivia recently to the PROSALUD experiment with self-financing of primary health services now operating in eight urban and rural sites in and around the city of Santa Cruz. The program, using both prepayment and fee-for-service, has documented its financial experience in various reports and has described its plans in detail. It has been the subject of an intensive study of demand and financing elements supported by an AID contract. Persons associated with PROSALUD and some observers of it have voiced optimism at the financial experience of the program. Several of the urban centers recently have generated revenues nearly equal to their direct costs and allocated central office costs. Full self-financing, at least for urban middle class Bolivians, might become a reality after the development period. However, further examination is needed, especially of the accounting for start-up and other general costs (e.g., for technical assistance and evaluation). Moreover, it is clear that success will depend on reasonably high capacity utilization in a fairly large scale program.

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For the specific purposes of the proposed Project, PROSALUD unfortunately offers very limited guidance. The project's activities are primarily based in health districts serving rural populations. Those differ considerably from the structure and targets of PROSALUD. The latter model could be considered further, but its difficulties in making rural centers nearly self-sufficient reduces the promise for sustainability of the Project. That conclusion should not be surprising in view of the fact that most surveys of self-financing possibilities in developing countries have indicated the doubtful merits of charging fees for preventive and certain other services and have noted that willingness and ability to pay for curative services largely remain to be documented. [E.g., Russell]

3. Some General Financial Policy Conclusions:

An inevitable result of proposing a large, Ministry-based Project to serve very needy rural populations through multiple interventions is high cost. As shown in this PP, substantial expenditures supported by AID and GOP are required for the Project period. If the activities are to continue after that, appreciable recurrent costs must be borne somehow. Among the conclusions in this analysis are: the doubtful capability of the Government to meet many of those recurrent costs, if economic and other conditions do not change in unexpectedly favorable ways; and the limited prospects for financial sustainability through alternative means. Some help can be found in community in-kind contributions, drug purchases (with new revolving funds), and perhaps modest fees for certain services. It is quite unlikely, however, that these and the Government's general revenue sources will add up to sustainability of a large part of the total recurrent burden.

Therefore, still other sources -- probably external to Bolivia -- must be considered for the post-project period. Even if those, including USAID, can somehow be tapped, Bolivians must bear some of the load and should meet certain requirements. In addition to reasonable attempts to use the non-governmental sources identified above, public officials must be held to the requirement that there be no reduction (and preferably be some increase) in the share of the GDP devoted to health (in the form of MOR revenues and expenditures). Presumably, this would require that the percentage of the Central Government budget directed to the MOR be maintained or increased over the life of the project. This could be tested during the mid-project evaluation and again near the end of the Project period (See "Conditions and Covenants".) Those also could be the checkpoints for verifying that good faith efforts have been made in exploring the more promising private revenue sources. Despite its serious economic limitations and grave health problems, Bolivia can be encouraged to help to meet its financial needs.

C. Financial Management

The capacity of the Government of Bolivia to manage the finances of the proposed Project is assessed here in brief. Some related matters are covered in the institutional analysis (concerning other managerial capabilities) and the implementation plan (concerning certain payment mechanisms).

It appears that the Government, through the Ministry of Health, is capable of managing its part of the Project's financial details at both the national and lower levels. However, technical assistance will be required at several levels to facilitate the handling of funds and the maintenance of appropriate records. This is similar to the need for T.A. in other aspects of project administration.

Appropriate financial records and reports -- for example, in the form of budgets planned and executed -- already exist at the level of the department (in the unidad sanitaria) and in the national MOH. Departments require documentation of revenues and expenditures at lower levels, done through the health districts. In turn, each unidad sanitaria files monthly and annual reports with the MOH in La Paz that permits the compilation of an executed budget after the year has ended. This process is satisfactory for project-related needs, although there is an unfortunate delay of over a year in the compilation of the annual executed budget of the Ministry. (The 1987 budget has only recently become available.)

Standard controls on funds handling are applied to the national MOH. Within the Ministry, occasional audits are conducted by the units called Control Previo and Auditoria Interna. Externally, the MOH like others is subject to the audits of the Contraloria de la Republica.

Although the P.P. team cannot verify the workings of the above agencies, it appears that the appropriate mechanisms and procedures of financial management are in place in the Bolivian public sector. However, some additional personnel must be deployed at the departmental and district levels to implement the processes adequately. Certain personnel of the unidad would need to be shifted to the districts to perform a variety of functions, inclusive of administration. Both they and similar employees of the unidad will require training and other guidance in such functions as budget handling.

This Project calls for technical assistance to reinforce administrators at all levels, especially those below the national. With such aid and training, the staffs of the MOH units covered by this project should be able to discharge their obligations in the field of financial management.

ANNEX I

DEPARTMENT ANALYSES

I. SANITARY UNIT LA PAZ

The Sanitary Unit of La Paz includes the Department of La Paz with 2,300,000 inhabitants. One million three hundred thousand live in the cities of La Paz and El Alto and the rest live in three different ecological zones: the Altiplano (13,000 feet), the Valleys (6,000-9,000 feet), and the tropical plains (sea-level 3,000 feet). Because of its ecological diversity, the Department of La Paz produces a wide range of products: gold, tin, lead, silver, quinoa, potatoes, corn, and barley in the Altiplano; fruit and coca in the Valleys, and lumber, rubber, and fish in the tropical plains.

Health problems within this sanitary unit and in the Altiplano are diarrhea, ARI, gastroenteritis, sarcoptosis, TB, and malnutrition. In the Valleys there are similar diseases, plus diseases carried by vectors, such as chagas, yellow fever, malaria, and leishmania. Goiter (bocio) is also found in the Altiplano and the Valleys. In the tropical plains there are an increased number of diseases caused by vectors and of tropical origin, such as the bubonic plague.

There are few water and sanitation systems. Regarding malnutrition, studies indicate that the people receive about 80% of required calories and 75% of required proteins. Iodine deficiencies are prevalent, and pregnant women lack vitamins, specifically iron.

Regarding the Sanitary Unit of La Paz, the following observations are relevant:

- 1) Hospitals are concentrated in La Paz, and if located in rural areas are underutilized, understaffed, and poorly equipped.
- 2) Personnel in rural areas are limited and poorly trained in public health, sociology, and the cultural aspects of medicine. They provide mainly primary medical care, do not have child survival programs, and are not accepted by the community.
- 3) The majority of personnel for the Sanitary Unit are located in La Paz and work in administrative functions.
- 4) The major link with the rural populace is the auxiliary nurse who is poorly-trained, undersupervised, and provided with few resources.
- 5) Underutilization of health personnel is indicated by the fact that the average health worker attends to about two patients a day.

District Ayo Ayo

The District of Ayo Ayo was selected for the Project because of the following characteristics:

- 1) Existence of a functioning district health services infrastructure with personnel positioned throughout the district.
- 2) Access to the Sanitary Unit headquarters in La Paz.
- 3) Encompasses the ecological zones of the Altiplano and the Valleys: this could provide an exchange of food supplies for nutritional programs.
- 4) Well-developed community organizations which can provide a base for child survival and water and sanitation programs.
- 5) High population growth, infant mortality, and morbidity rates.

Background

District Ayo Ayo is located to the southeast of La Paz within the provinces of Loayza, north of the La Paz-Oruro highway, and, south of the road, Aroma. Approximately 158,000 Aymara-speaking peasants inhabit this district.

They live in small communities (250 to 500 people) scattered throughout the region. There are two distinct ecological zones in this district, the Altiplano and the Rio Abajo. First the Altiplano zone will be discussed, then the Rio Abajo.

Altiplano Region of District

The Altiplano is at 12,000 ft (3,700 mt). Campesinos farm potatoes, oca (Oxalis sp), quinoa, and barley on rotative fields (three years in production and five or more years in fallow). These farmers have plots in the different aynoqas (large rotative fields) with an average holding of 20 hectares. The farmers also herd cattle, sheep, and, in declining numbers, llamas. They invest their capital in livestock. This region of the Altiplano is less productive than areas near Lake Titicaca where rainfall is greater, but is more productive than regions farther south where rainfall is less. Even though this region, as well as other parts of the Altiplano, has been hit by drought and floods since 1983, it shows signs of recovery with excellent crop yield for 1988. It is not uncommon to see tractors and trucks in farms of this region.

Within the Altiplano area of this district, three types of communities are found. The first type of community includes Machacamarca, Calamarca, Ayo Ayo, Patacamaya, and Sicasica which are located near the La Paz - Oruro highway and 2 hours, at most, from La Paz. Members of these communities are transient in residence, many living in La Paz. They operate service facilities for travelers. (Calamarca and Patacamaya are the centers of jurisdiction; corregidores oversee the numerous small communities.)

Calamarca is 57 Kms from La Paz and has 6 cantones and 15 communities. Patacamaya is a larger city (population 5,000) with 32 communities (population about 17,000), with an average of 300 persons per community. Patacamaya, the economic center of this district, is an aggressive Aymara center. Calamarca and Ayo Ayo are considerably active.

The second type of communities is the former free communities (communities that were not haciendas before the Agrarian Reform 1953). These communities, such as Llallagua, have a deep traditional pattern of solidarity and leadership. The third type of communities is those formed from haciendas after the Agrarian Reform, such as Tumarapi. Sindicatos (Unions) often form the pervasive political organization of these communities. Peasants of these communities often have more land than those of "free communities". Nonetheless, peasants throughout the entire district, with the exception of vecinos (residents of pueblos--merchants), are organized into sindicatos. For example, Tumarapi, which has 800 families living in 5 dispersed communities, is a subcenter with 12 annually elected officials who coordinate numerous sindicatos, each with 12 elected officials. Officials at Tumarapi were able to mobilize 400 workers to build the school at this site.

Accessibility to communities distant from the trunk line is a problem in the rainy season (December - March) when the dirt roads become gutted and the streams impassable. However, sindicatos work on the roads and, if necessary, can see to it that materials are transported. If motivated, Aymaras can transport material to any site. Health workers can travel by bike or by foot.

With regard to innovations, Aymaras of this region of the Altiplano have adapted conservatively to change. They do subsistence farming. Although some have increased production by using tractors and trucks, most farm with oxen and the foot plow. Some communities have latrines and communities along the main highway have water systems. Although the adaption to innovation is slow, they are receptive to improving their health and indicate that at the community level they will support child survival projects, if these projects are implemented with intensive education programs and subsequent supervision. Vehicles of implementation would be sindicatos and traditional leaders, who would need to be shown the suitability and sustainability of the project.

Rio Abajo Region

In striking contrast to the high Altiplano are the lower valleys of Rio Abajo, at elevations of 8,000 to 9,000 feet (- to 2,700 mt). They constitute a large part of the Health District of Ayo Ayo. This part of the district forms a large part of the Province Loayza which borders on the Provinces Sud Yungas and Inquisivi. The valley of Rio Abajo is narrow, along whose riparian and alluvial fields are found orchards, remnants of extensive haciendas, where apples, pears, and grapes grow.

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They also grow lettuce, cabbage, carrots, onions, and other vegetables. Although lush and fertile, this paradise for tourists has several drawbacks for the Aymara farmers of the region: fruits are heavy, perishable, and marketable only in the distant cities of La Paz (5 hours) and Cochabamba (8 hours). Transport rates are high, 4 bs for a load which sells for 6. Other problems are landslides and floods. Political organizations in this region are Juntas Vecinales and sindicatos, and in some communities there is tension between the sindicatos and vecinos of the Junta Vecinal. Culturally, the people speak Aymara and have maintained their Aymara culture.

Major communities of Rio Abajo are Sapahaqui with about 120 families. Sapahaqui is located 25 Kms from Ayo Ayo and 75 Kms (4 hours) from La Paz. Sapahaqui has 30 communities under its jurisdiction, with approximately 5,500 people. Caracato is located 20 Kms from Sapahaqui. Both have well-kept dirt roads connecting them to the La Paz - Oruro road. Caracato also has a number of communities within its jurisdiction. Another center is Luribay with communities under its jurisdiction. With the exception of these communities, many communities cannot be reached by road and are only accessible by foot or mule.

Health Problems

Epidemiologically, the infant mortality rate is over 200 in Rio Abajo and the Altiplano because of diarrhea, ARI, gastroenteritis, TB, and malnutrition. Babies are delivered by the husband. There is no prenatal or postnatal care. Tetanus toxoid immunizations are considered to be a form of birth control which indicates inadequate education of what immunizations are for. Except for a limited number of communities with active Clubes de Madres, there is no monitoring of children's weight. Conjunctivitis primaverale is also common. Even in areas with water systems, there is high incidence of water-transmitted diseases, often because of improper maintenance of the system. Parasites and worms are frequently found in children.

In Rio Abajo, yellow fever, malaria, goiter, and leishmaniasis are found. Also, there is greater incidence of diseases caused by parasites. Generally, there is greater incidence of malnutrition in Rio Abajo than in the Altiplano because people in the valley do not have cattle and sheep. Aymaras in the valley are also poorer than those in the Altiplano: one explanation is that Altiplano Aymaras have cheaper transport costs and another is that they invest their income in livestock.

Adults have traditional ideas of body functions and diseases. Diarrhea is considered a "wet" disease that should be cured by giving the child dry products. After delivery, women should stay in bed so as not to be hit by cold winds. Fat and fatness are esteemed--perhaps children with distended stomachs from malnutrition are considered healthy. Blood is in limited quantities and should be conserved--hence they are resistant to the taking

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of blood samples. Elders are esteemed and given much better health care, if any, than children who are dispensable. Etiology of disease is embedded in cosmology, land, and society, so it is difficult to convince them of the transmittable nature of diseases. (Hence, education founded on traditional beliefs is essential to the sustainability of any CS program). Women inherit 1/4 of the land and live with their husbands who inherit 3/4 of their parents' land. A serious problem is unmarried women with children who have little or no land. These children resort to begging for survival. Another illness with deep social repercussions for children is alcoholism. Often the men and women use their resources to buy alcohol, not only causing severe economic problems, but also hindering appropriate care of their children and causing prenatal complications.

Regarding sanitation and water, many communities have water systems and latrines, but either the water systems have become polluted and poorly maintained or the latrines have become full, creating more health hazards than if they were no latrines. The lesson learned is that before beginning a water & sanitation project, members of the community must be thoroughly educated regarding proper use and maintenance. Most notably lacking were water and sanitation systems for schools, a good place to begin.

Health Services

Ayo Ayo district has a Centro Hospital de Salud in Patacamaya with Puestos Sanitarios (health posts) in Canuma and Umalo, Calamarca has PS in Llallagua and Callapa and Sica Sica; Caracato has PS in Sapahaquí; Luribay has PS in Caracato and Torrepampa; Colquiri has PS in Cavari, Sallani, Mahoza Lanza, Luruta, Tablachaca, and Cuguas; and Esteban Arce has PS in Papel Pampa, Villa Manquiri, Janki Marka, Unupata, and Curaguara. The district chief resides at the hospital in Ayo Ayo. This hospital has 2 doctors, 1 dentist, 1 nurse, three auxiliaries, 1 pharmacist, 1 administrator, and three staff.

These positions are staffed by doctors in año de provincia with an average of 11 months. Continuity and motivation are serious problems. None of the major staff spoke Aymara and except for vaccination campaigns, they spend little time visiting the communities. They have no child survival programs.

The PM of Patacamaya is staffed by a doctor and an auxiliary nurse. The building is poorly located and equipped. The staff though is highly motivated: they have vaccinated about 50% of the people, have a small CS program (about 7% under prenatal care), and treat about 12 patients a week.

The PM of Caracato also has a dedicated doctor and auxiliary nurse who have a track record similar to Patacamaya.

Auxiliary nurses in Llallagua and Canuma were not well received by Aymaras in these communities.

Health services were deficient for the following reasons: 1) health centers, especially in Ayo Ayo and Patacamaya, were not centrally located and were poorly equipped; 2) personnel was transient, poorly motivated, and not culturally equipped to deal with Aymara patients; 3) there were few, if any, programs in health education; and 4) there was lack of personnel in several places.

In regard to water and sanitation, the level of sanitary education is low. Water systems and latrines exist in some communities, but are poorly maintained. Water sources are vertientes ladera, and because of the dispersed settlements, hand pumps working by gravity are recommended. Comites de Agua exist but with differing levels of enthusiasm.

Proposed Program

The following program is recommended:

- 1) The Unidad Sanitaria of La Paz must agree to fill all items, personnel should be given three year contracts, and doctors serving their "year of province" should not be given positions of authority.
- 2) The personnel should be given an intensive course in CS and Public Health by a team of educators and technicians.
- 3) The newly trained personnel and Project Team should plan a CS program for the district.
- 4) The personnel and project team should educate members of the community concerning CS, water and sanitation.
- 5) When the members of the community are sufficiently educated, they should elect community health workers.
- 6) Community health workers are then trained by the project team in two week courses, once a month for three months.
- 7) Unidad Sanitaria people should supervise the community health workers.
- 8) The team will move to another district after two years.

The goal is to have adequately trained personnel and community health workers covering all communities of District Ayo Ayo after three years. In addition, it is expected that community health workers will have educated community members on CS programs, and the community will have responded by preventative measures, such as better nutrition, immunization, and water and sanitation implementation and sustainment.

Inputs are the salaries of the project team members, five technicians (two educators, two engineers, and one administrator) for three years, at \$12,000 each per year.

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Total cost is \$180,000. Cost for 6 two week training sessions a year is \$2,000 a session. Total cost is \$36,000. Cost of educational materials is \$12,000. Input needed from the community is the backing of the community health workers, who are not to be salaried either by the MOH, project, or community. CHWs will, however, receive in-kind payment: members of the community are required to take care of the CHW'S animals and land while he is attending courses or doing health projects.

Water and Sanitation Evaluation and Recommendations

About 85% of the population of District Ayo Ayo lack sanitation and water systems. Sanitary education is very low and in 95% of the communities there exist no Comites de Agua nor Juntas Administrativas. Waste products are deposited in the open air by 95% of the population. There is no control of water quality by DSA because there is no portable testing equipment available. Appropriate technologies are: 1) for dispersed settlements, construction and improvement of excavated wells with the installation of manual pumps, 2) for concentrated settlements, construction of pump systems: manual (15%) and gravity (85%). Project team, MOH personnel, and CHWs should speak Aymara in order to educate members of the community on sanitation. They should also reactivate Comites de Agua. This project should be coordinated with CORDEPAZ and the European Economic Community which is active in the Rio Abajo area (26 million dollar project which includes water systems).

The input for the water systems (study, design, and construction) would be: by gravity - \$15,000 - \$20,000 per system; by pump - \$20,00 - \$35,000 per system. Manual pump system would cost \$7,000 each. Latrines would cost \$160 a unit. Sanitary units for schools would cost \$2,000 a unit.

Total estimates are:

1) 2,000 manual pumps at \$350*	\$ 700,000
2) 100 sanitary units, schools at \$2,000	\$ 200,000
3) Construction of 20 systems	\$ 300,000
4) 2,000 latrines at \$80	\$ 160,000
5) Amplification of current water systems	\$ 90,000
TOTAL	\$1,252,000

* The family would be expected to pay half the costs for manual pumps and latrines. The community would be expected to pay 25% of the cost for water systems.

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II. SANTA CRUZ

A. Background

- a) Location: The Department of Santa Cruz comprises 370,621 Km² which is about 33% of the national territory. About 75% of the Department is a flat and humid plateau that continues up to the Brazilian border. The western area comprises the Mesotermic Valleys of Mairana, Samaipata, and Comarapa.

The Department of Santa Cruz has several important rivers including the Ichilo, Rio Grande, Yapacan and other tributaries of the Mamoré, all of which form part of the Amazon basin.

With the exception of small areas, the average normal temperature is about 34 degrees centigrade with higher temperatures in November and December and lower temperatures in June and July.

- b) Population: The Department is divided into 14 provinces and 129 regions, with a total population of 1,444,453 (estimated for September 1987). Only 34% of the population is rural.
- c) Economy: Santa Cruz receives 11% of the internal tax revenue from domestic sale of natural gas and petroleum produced in the Department. This represents the principal source of development funds for the Santa Cruz Development Corporation (CORDECRUZ). The Department also is an important producer of cotton, sugar, livestock, lumber, and iron.
- d) Health Problems: The health situation is similar to other areas. The official infant mortality rate for the Santa Cruz department is estimated at 169 per 1,000. The most common causes of mortality and morbidity are diarrheal episodes in infants, acute respiratory infections, malaria, tuberculosis, measles, venereal diseases, malnutrition, and endemic goiter.
- e) Unidad Sanitaria (S.U.) - Institution Situation: The health services provided in the Santa Cruz Sanitary Unit (S.U.) cover about 63% of the population. The institutional structure, definition of responsibilities, and logistical capability need strengthening, as well as do the transport, health education, and nutrition components. However, drug supply and medical equipment seem to be generally adequate at the central level and in the peripheral areas.

There are Sanitary Technicians (Técnico de Saneamiento) who are trained and have good experience, but the Dirección de Saneamiento Ambiental (D.S.A.) is not programming its activities according to the needs of the rural area. Also, they have limited transportation capability and an inadequate budget.

The S.U. has tried to develop its own ways to solve its problems and limitations due to the lack of facilities and transportation. The Director of the S.U., Dr. Ronald Rivero, has instituted a dynamic working style for the technical and administrative departments within the S.U. The S.U. receives technical and logistical support from a Belgian team of advisors, who help strengthen the service, information, and social mobilization sub-systems.

There are several PVOs, mostly religious organizations, helping the Departmental Sanitary Unit in different aspects of health. The S.U. cooperates with approximately 25 PVOs working in the rural areas, but it is believed that there are about 40 PVOs doing some kind of health work. Some PVOs have signed agreements directly with the MOH.

The S.U. Director and technical staff have established strong ties with other GOB and decentralized agencies to solve some of the needs and deficiencies of the health institutions and to promote integrated projects. Such is the case with CORDECRUZ.

The Planning Department at the S.U. is weak, even with the Belgian team's help. The supervision activities are also weak because the S.U. does not have sufficient logistical support.

The Maternal and Child Health Program has a good understanding of what is happening in the urban and rural areas. The Epidemiology Department is overloaded with work because of recent increases in malaria, Chagas, dengue, and yellow fever cases. In the Social Communication Department, there is great enthusiasm but limited technical knowledge, equipment, and financial resources. The same is true of the Social Mobilization and Health Education unit, which provides assistance to 36 Centros de Madres. The Nursing Department is perhaps the weakest of the S.U.: it has no budget, transportation facilities, or defined institutional responsibilities and duties.

B. District Analysis:

Health District III - Samaipata

a) Population: Three Provinces constitute Health District III: Florida, with an estimated population of 27,469 (September 1987), of which 81% is considered rural; Vallegrande with an estimated 27,337 inhabitants of which 84% considered rural; and Manuel María Caballero with an estimated 13,598 inhabitants, of which 85% is considered rural.

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District III occupies about 14,810 Km² and has a population density of 4.6 inhabitants per square kilometer. The population growth rate for 1976-87 was 2.30% for Florida Province, - 0.93% for Vallegrande and 0.34% for Caballero. The low or negative rates are the result of migration to other areas in Santa Cruz or to other Departments. District III has the three official levels of education: básico, intermedio, and medio. The official language is Spanish, but there is a segment of the population that speaks Quechua in Caballero Province. Sixty per cent of the population is mestizo, while a minority consists of whites and Indians.

- b) Location: The capital city of Florida Province is Samaipata, 120 Km from Santa Cruz on the road to Cochabamba. Florida has 4,132 Km². Samaipata is the head of District III. A second important town in Florida is Mairana, which is the head of a health area.

Vallegrande is the capital city and head of a health area in the province of the same name with an area of 6,314 Km². Vallegrande is 244 Km from Santa Cruz, 50 Km off the highway to Cochabamba.

Finally, Comarapa is the capital of Caballero Province and the head of a health area. It is 240 Km from Santa Cruz on the road to Cochabamba. The province has an area of about 3,195 Km². The three provinces have fertile valleys whose altitude varies from 2,000 to 3,000 mt, and also some tropical zones which go down to 600 mt. The region is primarily agricultural and produces corn, peanuts, potatoes, tomatoes, sugar cane, wheat, tobacco, fruit, and quinoa. Livestock cultivated include cattle, pigs, and goats. Communication is good; there are roads, mail, telegraph, radio, and local and foreign TV.

- c) Health Problems: The health situation in District III is similar to that described for the Department of Santa Cruz. Hansen's disease is also a significant problem.

Gastrointestinal diseases, malnutrition, respiratory diseases, accidents, and tuberculosis, together with complications of pregnancy are those health problems which are responsible for the greatest mortality and morbidity.

In the urban areas, water systems are available for about 60% of the population and there are no sewer lines except in Vallegrande. In the rural areas, about 15% of the population has some water facilities, but with no disinfection. The use of latrines is practically nonexistent.

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- d) Health Services: Health services in Samaipata District (District III) are available only to about 30% of the population because of limited resources assigned to the District and because the rural communities are dispersed and lack easy access to health services. There are four Health Centers/Hospitals, one in each health area. There are also 3 Medical Posts (with physicians) and 17 health posts (with auxiliary nurses), but several are not functioning because of the lack of personnel.

Only the province of Vallegrande has rural health promoters. One hundred seven promoters were functioning in Vallegrande province at the beginning of 1988.

The Health Center/Hospital (CSH) in Samaipata has 10 beds, basic laboratory services, a newly-constructed "medium" surgery facility, two physicians, dental services, obstetrical services and one functioning ambulance. The Health Center/Hospital in Mairana, newly constructed in 1987 with the help of CORDECruz, has two physicians, surgery capability, obstetrical services, and eight beds.

Vallegrande has a larger Health Center/Hospital which has three physicians, surgical and obstetrical services, limited laboratory and very limited radiology services, 44 beds, and one ambulance. Comarapa Health Center/Hospital is privately run by the Dominican sisters and has West German support. It has two physicians, surgery capability (none is currently done), obstetrical services, inpatient nutrition rehabilitation services, a basic laboratory, a pharmacy, 44 beds, and one ambulance.

Of the rural health or medical posts, 3 depend on Samaipata, 3 on Mairana, 4 on Comarapa, and 10 on Vallegrande. There is also a functioning mobile unit in Vallegrande which serves the rural areas. This mobile unit receives support from religious groups.

District III health personnel seem enthusiastic and have a good understanding of the health problems. There is a Physician Director of the District, and there are two or three physicians at each Health Center/Hospital, including one Physician Director for each Hospital. Most of the physicians are doing their obligatory one year rural service. The district has only one graduate nurse, 2 sanitary technicians, 2 laboratory people, and mostly empirically-trained auxiliary nurses.

Each hospital in the District has developed an interesting self-financing program on a fee-for-service basis. Poor people receive some free services and medicines, although there is some question as to how much the relatively high fees (Bs5 for a physician outpatient visit) inhibit use. A rotating drug fund forms a significant part of this program. The overall proceeds are used for the needs of the CSH.

Although District III does in fact have a work plan that was developed by Dr. Oscar La Fuente Z., the physician-in-chief of the District, the plan was just begun to be implemented in 1988. The plan does project preventive services in detail, but the actual delivery of these preventive services in any organized way formerly began in late 1987 or in 1988.

Immunization coverage of the district is estimated at 54%, largely as the result of immunization campaigns. Permanent immunization capability is barely being implemented. Pre-natal coverage is probably about 20%, although it varies considerably between the four areas. Well-child care and growth monitoring is hardly done at all. Post-natal coverage is probably less than 5%. The treatment of diarrheal diseases and respiratory infections is often questionable.

Except for Vallegrande's mobile unit, supervision in District III is inadequate, largely because of the lack of transportation. However, there has been excellent precedent in the district for annual evaluations and the gathering of statistics. Annual evaluations started in Vallegrande in 1977, and under Dr. Oscar La Fuente Z., evaluations have been introduced in the other areas, along with the development of a work plan for the district.

The lack of trained personnel is a major problem, especially with regard to auxiliary nurses. Another major problem is the low utilization care for medical services in general.

e. Sanitation and Water

Basic sanitation services are provided by two technicians, one experienced and well-trained and the other with little training. Construction of conventional pit privy latrines and improvement of houses are the most important activities in addition to the promotion of water systems installation and maintenance.

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Sometimes assistance is provided to local Juntas or Cooperativas de Agua for their operation. Several of the water schemes are being built with the cooperation of CORDECRUZ through the construction of wells, water intakes, reservoirs, and distribution systems as well as a few sanitation services. The district has few pit latrines, which are not well kept and sometimes not in use. People are not aware of the benefits of the latrines and prefer the open field around the house to dispose of their excretas. Only the city of Vallegrande has about 60% of a sewer system, which discharges directly to the river without any treatment. The system is a simple sanitary type with no grease traps. There are limited services for garbage and refuse in some villages, with little success up to now.

Water systems are administered by cooperatives which charge a fee of 4 - 5 Bs per month per connection. Some people in the communities are not willing to pay the fee, because they disagree with the Cooperative Administrators, especially regarding their use of funds. Some cooperatives have a good amount of money both in Bolivianos and in US Dollars. The systems are not maintained, so they are quickly deteriorating. Except for one community that performs tank disinfection when it is washed, all the others do not consider it necessary to chlorinate the water. Most of the systems provide only one tap in the patio of the house. Very few have improvements like laundry facilities or a second tap. People in the Community do not always know the benefits of a clean water service. Information, communication, and education are needed everywhere and at all levels.

- f) Community participation: At the Health Center and Health Post levels, there are some health committees and Mother's Clubs, but they are not functioning well. At the local levels, community organization is generally weak. Cooperatives are strong but do not always consider community needs and potential community participation.

On the other hand, people in the communities are willing to collaborate with initiatives regarding health, child care, and the provision of water and sanitation facilities.

- g) NGOs Activity - Other International Donors: The Church has been active in delivering health services, especially in the Vallegrande area, where it has sponsored mobile units to cover 16

communities (target population of about 7,500). These units provide services related to vaccination, maternal and child health, nutrition, goiter, Hansen's disease, and sanitation. Instituto de Capacitación de Oriente (ICO) sponsored by Belgian organizations is present also in the District to collaborate with training activities. C.I.D.R. is a P.V.O. sponsored by French institutions that provides assistance and support for the distribution of medicines through cooperatives in Vallegrande, Comarapa, Samaipata, and, recently, Mairana. In addition to running the hospital in Comarapa, the Dominicans collaborate with the supervision of the rural workers in Caballero Province. At the Sanitary Unit Level in Santa Cruz, Belgian cooperation has provided Dr. Daras to work within the planning unit, and he makes regular supervisory visits to District III.

C. Proposed Program - District III-Samaipata

a) Outputs:

1. Institutionalization and expansion of child survival (CS) interventions at the District level
2. Increased community involvement in C.S. interventions
3. Strengthened primary health care at the District level
4. Increased number of communities with simple water schemes and sanitation facilities.
5. Increased number of communities with direct C.S. interventions.

b) Outcomes:

1. Increased number of trained personnel at the District level, especially promoters and auxiliary nurses.
2. Increased collaboration between the District III office and private (NGOs or PVOs) health organizations in the area. Increased number of local functioning Health Cooperatives or Community Committees. Increased community resources and more continuous support to C.S. interventions.
3. Improvement of infrastructure, equipment, and logistical systems as well as education and continuous training in C.S. interventions.
4. Thirty-three new or improved water systems and 3,200 new water sealed "campesino" latrines to increase coverage.
5. Increased immunization coverage, more effective treatment of diarrheal episodes and infections, increased peri-natal care and growth monitoring resulting in decreased maternal and child morbidity and mortality and improved nutritional status.
6. Decreased incidence of diarrheal disease.
7. Improved supervision of health services

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III. COCHABAMBA

A. Background

Cochabamba Department located at the center of Bolivia is divided into 14 Provinces, 32 Sections, and 118 Cantons.

It covers approximately 55,631 Km² which is 5.1% of the national territory. The total population numbers 955,000 which is about 15% of the nation's population. Of these, 588,568 or 62% live in the rural areas.

According to MOH's records, its employees for 1987 numbered 1,216, which is roughly 1.7 MOH employee per thousand people. The illiteracy rate fluctuates between 40 to 60% in the different Provinces. Weather conditions vary between cold to very cold at the Andean heights of the Tunari and warm in the valleys and very hot in the tropical zones.

1. Health

According to a survey taken in 1985 (1), during 1984 the infant mortality rate was 147 per thousand born alive in the city of Cochabamba, up 40% since 1976.

At the department level data from the latest census taken in 1976 indicate that infant mortality in the rural areas reached 269 to 280 per thousand born alive, the highest in Bolivia.

It should be noted that the data reflects only groups that had access to the Civilian Registry and that in reality the mortality rate might be higher. According to surveys taken in 1986, 45.2% of the total dead in the department were children under five years of age.

The three major causes of death were:

1. Disenterya and gastroenteritis
2. Acute disease of the respiratory system
3. Perinatal complications

Two-thirds (65%) of these causes of death in children under five years of age are treatable by the appropriate application of current medical technologies.

(1) Reda Duran L. et al., 1985

Malnutrition constitutes the most important associated cause of infant mortality. The survey in 1981 by the National Nutrition Institute showed that 51% of the 0 to 59 month olds in Cochabamba department had some degree of malnutrition. In the urban area, rates reached 47%, with 54% corresponding to the rural area.

2. Literacy

Languages spoken in the Department are:

Spanish & others	36%
Only Spanish	32%
Only Quechua	12%
Only Aymara	6%

The remaining 19% of the population speak some other native language, which makes communication difficult. The high illiteracy rate is concentrated in the poor rural areas and the literacy mostly in the urban higher socio-economic groups.

B. Institutional Analysis

Health services at Cochabamba's Sanitary Units have been regionalized in nine Districts

- I. Valle Alto
- II. Chapare Tropical
- III. Carrasco Tropical
- IV. Valle Bajo
- V. Capare Valle Puna
- VI. Capinota
- VII. Carrasco Valle
- VIII. Sud Este
- IX. City of Cochabamba

At the regional level is the Sanitary Unit Directorship, with a technical-administrative staff responsible for planning and programming health activities throughout the region, administering and developing resources, establishing and maintaining supporting subsystems, supervising and evaluating activities, and coordinating central, and regional interinstitutional and intersectorial levels.

The main restrictions at the sanitary unit level are insufficient financial resources, lack of integration between technical and administrative staff, inadequate physical infrastructure, and obsolete transport equipment.

At the district level is the Health Center/Hospital which combines administrative and health services. Administratively it programs activities of interest in the district, supervising and evaluating activities at lower levels. In the health services there are staff doctors and paramedics performing preventive medicine and treatment activities, with facilities for minor surgery and hospitalization.

Restrictions at the district level are: insufficient staff and administrative capacity, deficient technical training, unstable personnel, low resource output, lack of medicines, deficient infrastructure, equipment, and logistical support.

At the area level are the Medical Posts, small infrastructures with some hospital facilities and a minimal medical and paramedical staff. Usually the restrictions are: lack of personnel, low performance levels, lack of medicines, lack of transportation, and very low credibility.

At the sector level auxiliary nurses are in charge of the Sanitary Posts. The main problems are poor training, lack of medicines, lack of transport, excessive emphasis on treatment, and minimal promotion activities.

In many villages volunteer community health workers perform some activities, though with insufficient training and supervision. On the other hand the many traditional practitioners of the communities are mostly untrained and have not been incorporated into the health system.

C. District Analysis

a) Districts Preselected

A meeting took place at the Sanitary Unit in Cochabamba with participants from the Sanitary Unit, the Rural Development Corporation, the Medical University, the Technical School for Health, and USAID Consultants for development of the CS project paper. During the meeting the group proposed selection criteria by which it selected seven sites. Two, Carrasco Valle and Sacaba, were proposed as possible sites for the implementation of the beginning stages of the CS project.

b) Population

The population of Chapare Valle Puna is estimated at 48,000 and Carrasco Valle at 40,000.

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The head of the District Chapare Valle Puna, at Sacaba, is only 15 minutes from Cochabamba by car, and is easily accessible by good paved roads. Most of the areas lay near the main roads. In contrast, Carrasco Valle, although it also has some areas near the main road, is mainly accessible by dirt roads which are cut off by flooding during the rainy season.

Health Infrastructure

According to a list of needs prepared by the S.U. regarding infrastructure, vehicles, and communication equipment for 1988, the District of Chapare Valle Puna has three Health Center-Hospitals at Sacaba, Ucuchi, and Coloma. Of these, Colomi and Ucuchi are considered to be in barely acceptable condition, and Sacaba in bad condition. Sacaba needs a new ambulance and a new Health Center-Hospital with 15 beds. Colomi and Palca need some remodeling, Colomi specifically in the ob/gyn room. Tablas Montes and Melgar need a Health Center. Carrasco Valle District Head is Totora with a Health Center and hospital in poor condition. It has Health Centers at Poso, Pocoma, Lope Mendoza, Chismuri, Epizama, Quehu a Pampa, Llachaymayu, Laimiña, Chilijchi and La Habana.

D. Information, Education, and Communication

The IEC effort at the SU level and throughout the region is sporadic at best. SU activities seem to be oriented toward response to immediate needs such as vaccination or construction of W&S systems. The efforts end with the campaign or construction, explained the interviewed personnel of districts and health centers. The exception is Carrasco Valle where INEDER has been conducting health education campaigns by radio and promoters who conduct meetings with Mother's Clubs, syndicates, and other community organizations.

There is no evidence of any combined efforts of health education through the rural school system or a plan for continuous education for health.

As a result of the lack of community involvement efforts by the centers the villagers either do not use the services or are reluctant to use them and usually only as a last resort.

The SU plans and projections for personnel needs for 1988-89 do not consider health education personnel such as promoters or technical personnel.

Although perhaps too early to reach any conclusions, and recognizing that more research should be conducted on the IEC activities, the evidence observed and gathered through educational materials and conversations with key personnel seems to indicate that there is a complete lack of comprehensive, structured strategy for continuous coordinated health education activities at the national and regional levels in either the W&S or child survival fields.

The above indicates that to mount an effective IEC campaign for the CS project it is necessary to start from zero. There is no infrastructure that can be used effectively to deliver educational services.

Nurses are performing health education activities, among other duties, without any evaluation of the effects. Water and sanitation education seem to stop once the system is constructed and the maintenance personnel has been trained, as promoters are needed to prepare other communities and gain their cooperation. Nevertheless, it is important to strengthen the educational activities until there is evidence of behavioral changes among much of the target population.

Another important point that should be noted is that the educational method applied most often, as described by the nurses in Colomi and Sacaba, is talks using flipcharts that do not allow the audience to analyse their own problems and reality.

E. Rural Water Supply and Sanitation Analysis

1. Chapare Puna Sanitary District

a) Climate

The Chapare Puna Sanitary District is located in the Southern part of Chapare province where the temperature varies from 10c to 30c, and the rainy season period generally begins in December and ends in March, with an average rainfall of 700 milliliters. The dry season is from July to October.

b) Topography

Its topography is mountainous. The majority of the population live in the valleys. Hydrological studies done in the areas of Cochabamba-Sacaba indicates that there exists underground water of good quality at a depth of 50 to 75 mt. The water static level varies from 15 to 20 mts. and the well capacity is from 6 to 10 lts/sec.

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c) Population

In this district there are 48,000 inhabitants distributed in 60 communities (200 to 600 inhabitants) or scattered throughout the region. The majority of the houses are made out of bricks with roofs of corrugated galvanized iron or straw. Family size averages 5 to 6 persons.

The district has enough skilled labor to carry out water supply and sanitation works. With reference to local materials, there are enough stones, sand, gravel, bricks cement, and lime. The main road that crosses the central part of the District is paved, and the lateral roads that connect the different communities are of gravel and earth, which in the rainy season are difficult to travel. Most of the localities have electricity 24 hours a day.

d) Water Supply

According with the existing information in the Dirección Nacional de Saneamiento Ambiental of the Ministry of Health, 2,390 the rural population is benefited by potable water supply. The rest of the population uses contaminated water from rivers, irrigation canals, and shallow wells; during the dry season, the source of water is scarce, and people walk longer distances to get the water.

In this District, DSA, with the help of USAID, has constructed 19 rural water supply systems by gravity benefiting 8,000 inhabitants approximately. The water supply systems are operated and maintained by Juntas Administradoras de Agua organized in each community. The water system operator is selected from the same community. The Junta members are comprised of the President, treasurer, secretary and an extra member. This personnel has been trained by DSA/USAID to carry out their tasks efficiently, as has the water system operator. With reference to the water quality, the majority of the water sources are springs or infiltration galleries. The water from these sources are occasionally disinfected with a solution of H.T.H.

The nurse in the community of Colomi indicated that the water supply system was built by CORDECO. The quantity and the quality of the water is deficient and it does not receive any treatment. The operation and maintenance of this system is also deficient.

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e) Sanitary Excreta Disposal

According to the existing information in the District, approximately 14% of the rural population has pit latrine service built of adobe walls and corrugated galvanized iron or straw roofs. The majority of the pit latrines were built by the community with the technical supervision of the DSA/USAID Project.

2. Carrasco Valley Sanitary District

a) Climate and Topography

This District is located in the Southern part of the Carrasco Province, bordering the provinces of Arani, Mizque, and Campero. The temperature in this area varies from 8.5C to 20C. The valley covers 30% of the District area and the rest is covered by hills. The rainfall is similar to the Chapare area.

b) Population

In this District there are 40,000 inhabitants, which live in small communities of 200 to 1,000 inhabitants or in scattered population. The majority of the houses are built of adobe and roofs of corrugated galvanized iron or straw. Family size averages 5 to 6 persons.

The center of the District is 120 Km away from the city of Cochabamba and is linked by a paved road. The lateral roads which connect the several communities are made of gravel and earth. Travelling on these roads is difficult during the rainy season, especially because there are no bridges to cross the rivers.

This District has limited skilled labor to construct water supply systems. Regarding local materials, there are stones, sand, gravel, bricks, cement, and lime.

3. Present Environmental and Sanitation Conditions

a) Water Supply

According to DSA information, an estimated 18% of the rural population has access to uncontaminated water; the rest of the population takes water from contaminated sources (rivers, irrigation canals, and shallow wells). During the dry season some of the water sources dry up.

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In this District, DSA, with the help of USAID, has built 6 gravity water supply systems which benefit approximately 3,000 inhabitants. The water systems are operated and maintained by Juntas Administradoras organized in each community. During the field trip a gravity water supply system in Lope Mendoza which works 24 hours a day locality was visited. The water quantity and pressure is sufficient for the community and the quality appears good.

In one of the visited communities the inhabitants are building a water system, and on their own initiative have contributed unskilled labor and money to buy water pipes. According to their income, the contributions ranged from Bs 20 to 100. This work is incomplete because of the lack of funds.

b) Excreta Sanitary Disposal

According to the existing information in the District, about 11% of the rural population has pit latrines. The design and the construction material used is similar to the ones in Chapare Puna.

F. Expected Outputs

1. Health System

Increase the preventive and treatment services in child survival activities.

Increase vaccination coverage.

Increase ORT treatment.

Increase the number of people treated for ARI.

Increase the number of children with adequate weight.

Increase the control and care of high risk pregnancies.

Develop, test, and use educational materials.

Construct water and sanitation systems.

Improve the performance of administrative subsystems at the regional and district levels.

Increase community participation in health activities.

2. Water and Sanitation

a. Water Supply

Build 19 water supply systems for the same number of communities. This will benefit an estimated population of 9,920 inhabitants.

Water sources considered for these systems are 7 springs, 5 infiltration galleries, and 7 drilled wells.

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With reference to the type of water systems, 12 will work by gravity and 7 will be pumping systems. 90% of the total population will benefit from this service through house connections.

b. Excreta Sanitary Disposal

Build 1,590 water-sealed latrines and ventilated pit latrines, to benefit 7,940 inhabitants.

3. Outputs IEC

- a. Support to the MOH to implement the newly drafted National Health Education Program.
 - b. Increase District, area, and sector personnel to implement health education activities.
 - c. Assist in planning and implementation of health education activities, including the necessary studies and surveys.
 - d. Technical and financial support for the production of education, promotion, and information materials.
4. The design of a comprehensive, sanitation education campaign for rural populations.

G. Inputs

- MOH
 - Personnel
 - Infrastructure
- USAID
 - Technical support (Advisors, training, etc.)
 - Vehicles
 - Financial support
 - Medicines, construction materials to construct water and sanitation systems, etc.
 - Per diem, transportation expenses

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INSTITUTIONAL ANALYSIS

Institutional analysis has been divided into the following components: Administrative Structure, Physical Resources, Personnel Management and Education.

Administrative Structure

The Health System in Bolivia is comprised of various institutions grouped in 2 sectors:

Public: The Ministry of Social Prevision and Public Health (MDSSP); Social Security and others that also develop health actions such as: Junta Nacional de Solidaridad (National Committee of Social Solidarity and Development) under the Presidency Scope; Accion Civica de la FFAA (Armed Forces Civic Action) and Desarrollo de la Comunidad (Community Development).

Private: Private and lucrative institutions (clinics and private consultant professionals) and non-lucrative institutions such as the PVO's.

The distribution of responsibility of attention according with a established structure is:

Public Sector:	MPSSP (MOH)	68%
	Social Security	25%
	Other Institutions	5%
Private:	PVO's and others	2%

It is important to notice that real coverage of the MOH is only 40%, and in the rural area does not surpass 20%. The MOH is structured as follows:

Central Level. Minister's Office, Sub-Secretary of Public Health, Sub-Secretary of Social Prevision, General Health Direction, other technical offices, and an administrative support office.

Regional Level. These are 11 Sanitary Units in the different departments: La Paz, Cochabamba, Santa Cruz, Potosi, Chuquisaca, Oruro, Tarija, Beni, Riberalta, Tupiza and Pando. Each sanitary unit is headed by a Director, who represents the MOH. Each sanitary unit is comprised of districts, further divided into areas and sectors.

Local Level. This is the level at which health services are offered to the community. With varying complexity they are: Institutos and Centros de Investigacion, Hospital Especializado, Hospital General, Centro de Salud, Centro de Salud-Hospital, and Puestos Medicos y Puestos de Sanitarios.

MOH Functioning

Politics. The Minister's Office and the Sub-Secretaries are responsible for the definition of political strategy that serve as a scope of reference for the development of health programs

Technical. Within those parameters, the national-level Directorates elaborate the technical content of the interventions to be executed by each one of the divisions in the sanitary units.

Administration:

- Personnel. There is a statute (by-laws) for the hiring of employees that are not utilized for all cases. Once the employee is nominated for position the Minister's signature is required. This mechanism is followed for all MOH employees and for all offices under the MOH.

- Budget. The resources for payment of salaries come from the General Treasury (Tesoro Nacional) and they are sent to each Sanitary Unit. Most of the resources for development of projects and programs derive from foreign aid.

The following summarizes key characteristics of the MOH:

- The MOH and the S.U.'s have an inadequate organization.
- There are many vertical programs with a complete lack of relation to other (horizontal) programs.
- It is evident that the MOH centralization enables the S.U.'s to solve regional problems.
- The administrative processing is very complicated in relation to social and structural characteristics and constitutes a restraining factor.
- The information system shows a series of deficiencies causing generated data to be incomplete, inopportune and generally not reliable.
- Although many employees work hard, the lack of clearly defined objectives in their work do not allow them to accomplish analysis activities.
- Most MOH activities are focused on curative actions and not on preventive measures.

- Administrative proceedings are very bureaucratic. As an example, an auxiliary nurse loses more than 2 days each month in the process of being paid, which requires 13 to 19 signatures.

Physical Resources

The MOH has a network of services installed all over the country. It has investigation centers like CENETROP, Centro Nacional de Enfermedades Tropicales (National Center of Tropical Diseases) and the IBBA, Instituto Boliviano de Biología de Altura (National Institute of Altitude Biology).

The MOH has 22 Specialized Hospitals, 12 General Hospitals, 17 Health Centers, 151 Centers of Health-Hospitals, 83 Peripheral Medical Posts, 126 Medical Posts and 864 Sanitary Posts. All Sanitary Posts in the rural area are working as well as the medical posts and the Center of Health-Hospitals. Only 2 specialized hospitals are in the rural area: Jorochito Hospital in Santa Cruz, and Candua in Chuquisaca.

The MOH has 7,500 hospital beds. Only 37% of these are in the rural areas. Close to 95% of all establishments in the rural area belong to the MOH.

The functioning of health services has the following characteristics:

- The percentage of occupied hospital beds is barely 40-50%.
- Each hospital bed renders, yearly, 17 hospital leaves.
- Many Health establishments with a good amount of equipment cannot be utilized because the health workers are insufficiently trained in their use.
- Donations of equipment received from different agencies do not permit a proper maintenance process, since they are often of diverse brands and natures.
- The output (efficiency) per hour/medic is really low. In some hospitals the figure does not reach 5 patients per day.

Personnel

In 1987 the MOH had 11,921 employees. Of them, Doctors constitute 15%, Dentists, 2%, Professional Nurses, 8%, Auxiliary Nurses, 23%, other professionals, 11%, Administrative, 18% and Service Personnel, 23%.

Of the 1987 Medics only 24% work in the rural areas.

Most personnel are auxiliary nurses (2,752), and 49% of them are working in the rural area.

Of all MOH employees (11,921), 2,889 are working in rural areas that is to say 24%.

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The lack of nursing personnel is evident, since for every 10 medics there are only 5 nurses. For 8 auxiliary nurses there is only one graduated nurse. Many employees are inefficient and not motivated to perform effective actions for public health.

Frequently, authorities of different levels hire employees for political or friendship affiliation, without considering professional capacity or technical MOH requirements.

Many personnel changes occur, in part because salaries are low and capable employees prefer to leave. This atmosphere fosters a lack of initiative and responsible dedication to work, and creates instability.

Education

Bolivia has three medical schools: La Paz, Cochabamba, and Sucre and four faculties of dentistry: La Paz, Cochabamba, Sucre, and Tarija. Some of the faculties of medicine also have Nursing Schools. Of approximately 200 to 250 professionals graduated each year, only 50 professional nurses graduate each year. Medical studies last 6 years with one year of hospital internship. Four years of study are needed to attain bachelor's in nursing. Medics, dentists and nurses must fulfill 1 year of compulsory rural service (año de provincia), although many times they choose to pay a fine rather than to fulfill this obligation.

Medical schools are in most cases oriented to the creation of Scientific Medics, Surgeons, Biologists, whose preparation does not go match the rural reality they will have to face.

Medical schools do not have Administration and Health Promotion programs. Graduates, therefore, are inadequately trained to fulfill these functions.

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SOCIAL SOUNDNESS ANALYSIS

The social feasibility of this project depends upon community participation. If members of the communities have not accepted and integrated innovations of Child Survival and Water and Sanitation systems, these health measures obviously will not be sustained. Community participation implies that members of the community have incorporated health changes into their political, social, and cultural context. Members of the project teams must not only be implementers, but educators, who are able to communicate in the languages and cognitive patterns of the people of the communities. As a national program, this project encounters additional difficulties in cross-cultural communication because it includes districts that are predominately Aymara, Quechua, and Spanish (Tupi-Guarani descendants). Nonetheless, these barriers can be crossed by selection of team members on the district level who speak their language and know their cultures. The following sections deal with some socio-cultural specifics of La Paz, Cochabamba, and Santa Cruz.

I. LA PAZ

The Basic political organizations of Aymara communities are Sindicatos Agrarios, Cooperatives, Centrales Campesinos, and Cabildos (authorities of the community). Sindicatos are strongest in ex-haciendas but are not as politically aligned to national parties as those in the valleys of Cochabamba. Aymara Sindicatos follow an ancient indigenous movement and are called Partido Indio de Bolivia and MITKA (Movimiento Indio Tupac Katari). This cultural identity will make them excellent vehicles for carrying out this project in the communities. One way to do this is to give CS project activities Aymara names. Aymara legends can be used to teach and symbolize concepts and project members should speak and teach in Aymara in order to be accepted and understood by the community. Although Aymaras are not easily convinced, when they are, they will work wholeheartedly on projects. Their history is one of continual resistance to conquest and change. Aymaras say that given enough time, they will conquer the world. Aymaras consider participation in the larger Bolivian nation as a necessary evil, and they demand services from the government as their right without the need for repayment. For this reason, donations are received by the Aymara with little labor in return. Yet they perceive these donors as dumb and manipulatable (1). However, they also realize that free gifts harm their economic system of reciprocal exchange. Project members should insist that members of Aymara communities actively participate in CS programs and that no donations be given.

Basic Aymara society consists of the community and family. Aymara communities are small (250-500 people) but closely organized in organic form, sometimes taking ecological models for social organization; for example, three parts of the community correspond to high, center, and low levels of the mountain as well as to legs, trunk, and head of the human body. One reason for the unified community is that many members are related to each other. Ostracism from the community is the most serious punishment for someone. Individuals identify themselves in terms of the community. The community has high solidarity when, for example, someone injures an individual in the community. He in effect injures all the members of the community. When someone has good luck, all members of the community are happy. When a soldier returns from service, the whole community celebrates. These examples illustrate the need to incorporate all members into the project's social and political aspects.

Cosmological underpinnings of the community remain in spite of intensive Protestant evangelization. Presently, some curers are Protestants yet perform Andean rituals for healing. The greatest thing a community can give the individual is prestige (being preste, naming a promotor, and being honored with a LLUCHU.) Project members can use prestige as a reward for hard workers. CHWs can also be motivated to work for community prestige, which is just as important as monetary rewards. An example is where CHWs were happier to receive diplomas than other gifts. If the community rejects a project or a health worker, there is little chance of changing their minds.

The Aymara family is a microcosm of the community, sharing the same values, social norms and taboos. Healing is done in their homes, and they believe that if they are taken from homes and communities, sicknesses will get worse. Diseases are often attributed to family and community conflicts, such as when a child leaves the family. Family members express sympathetic illness symptoms.

The Aymara family is patriarchal and patrilineal. The father is the functional authority of the family, and the grandfather is a spiritual template of the father's authority with mythological and cosmological overtones. This extends to paternal ancestors, who at pivotal positions of the lineage performed outstanding deeds. The mother lacks authority but regulates activities for the family. She controls commercial activities, choice of spouses for the children and family rituals. She does not perform rituals. The husband serves as midwife in delivering of babies. Grandfathers and fathers first try to cure sicknesses, and if they are unsuccessful call curanderos. Of inheritances, male children receive greater shares than female children. Traditionally, children of unmarried girls were accepted into the family of the women and given their fathers' names. Now, lawyers require that the mothers marry or support their children.

Project activities should concentrate more on the family and community than on individuals in Aymara communities. One way to promote CS is to visit families in their homes. CHWs and auxiliary nurses can assist in this. It is costlier to vaccinate children in schools or clinics; a more effective way is to do this in their homes where all the children are present and their parents are taught about immunization. Although family and community approaches take considerable time, these methods are effective within Aymaran culture.

A obstacle to innovations is that Aymaras are slow to change. They mistrust strangers and yet want them too. Aymaras are used to authoritative instructions and are not used to being educated by group dynamics. Health and illness concepts fit into an Andean system of ethnomedicine where body concepts and etiology of diseases are metaphorical and cosmological rather than cause and effect observations. Nonetheless, their theoretical assumptions for medicine are expressed in empirical practices, such as complicated use of medicinal plants, bone setting, chiropractors, and spirits. A problem with modern health workers is that they frequently disparage the complicated Andean medical system and assume that its practices are superstitious and unwarranted. This Project should use the resources of traditional medicine and practitioners.

The social consequences of the Project will be positive if project personnel respect cultural patterns and include family and community participation. Conversely, if project members impose the project on the community, it will be rejected or rendered impotent by the cultural mechanisms of the community.

II. COCHABAMBA

Basic political units in districts of Cochabamba are Sindicatos Campesinos Zonales and, of lesser importance, cooperatives of agriculture, water, electricity, consumer, and savings and loans. Sindicatos are often aligned with political parties which might jeopardize the project in that Sindicatos may use it for their political ends. Differently aligned Sindicatos have difficulty working together on projects. Sindicatos do not support the decentralization of health services, a goal of the Project. To avoid potential conflict, the Project should work with the sindicato as part of the community, concentrate exclusively on child survival and avoid the politics of MOH and Bolivia. Nonetheless, sindicatos are necessary to mobilize large numbers of people to construct buildings and systems, and to assemble people for vaccination campaigns and educational purposes.

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Quechua communities of Cochabamba still have traditional bodies of authority, Jilakatas, Corregidores, Juez de Aguas, Juez de Tierra, and Alcaldes, which combine elements from pre-Columbian caciques and Spanish cabildos. These authorities have much influence over people, water, and land, especially in ex-haciendas. Their leadership is embedded in Quechua cosmological and ritual systems, expressed communally in fiestas. Traditional leaders are often in opposition to the sindicato leaders. Practitioners of traditional medicine share similar authority and concentrate more on symbolic, moral and traditional assumptions. One avenue of acceptance of project members by the community is to participate in rituals and fiestas when the community invites them to do so. Failure to do so results in opposition between members of the community and those of the project.

Quechua families are closely knit with inheritance still bilineal, meaning that the female and male children receive equal inheritances. Bilineality also extends to divided but nearly equal influence and power within the family between the husband and wife. The husband is in charge of the agriculture and livestock, and the wife takes charge of commercial activities and the household. Women live with their husband after marriage, and children live with them until marriage or military service. Quechua women are active, well-organized, and exercise much influence over the family and community. When men are working, women work together in groups knitting and processing food. For example, the Sindicato de Amas de Casa de la Minas consists of Cochabamba women who have migrated to the mines and form a powerful sindicato. Member of the project should use these groups to educate them about child survival strategies. Quechua peasants remain very traditional and are hesitant to accept innovations. Peasants of Cochabamba prefer to speak Quechua, even though most men, some women and schooled children speak Spanish. Members of the project should speak Quechua for meaningful communication and educational purposes. These peasants frequently pay for services with crops, and personnel of project should accept payment in species or other traditional payment methods. Quechua peasants are practical and accept innovations when they have a recognized positive effect upon their family and herding.

Changes need to be introduced according to Quechuas patterns. For example, Quechuas listen to Quechua radio programs from 5 to 7 AM, and throughout other hours of the day, to Spanish programs. Consequently early morning should be the time to schedule educational material. Quechuas, as well as Aymaras, identify closely with their animals, and frequently health workers insist that animals be kept in rooms separated

from the household. This creates resistance to healthworkers. Only after health workers are accepted by the community and have educated them, project workers should introduce change. Quechuas also have traditional ideas concerning hygiene: they prefer to have oily, dirty skin which protects them from the sun and a "clean skin" for them is one without abrasions, parasites and cuts. These examples illustrate that their perceptions of health and change must first be elicited and respected before change can be introduced.

Obstacles to participation are communication barriers between members of community and members of the project. Even Quechua-speaking health workers have difficulty expressing health concepts in meaningful terms to Quechua listeners because they cannot translate these concepts into Quechua cognitive patterns. This double translation into Quechua and cognitive patterns is important so that the project can be sustained and incorporated into their mental and cognitive systems. Development workers in Bolivia often think that peasants comprehend western and Spanish ideas, whereas in reality these peasants follow Aymara and Quechua systems of thought. Sustainability of CS will depend upon the degree to which the community has participated and how much the project has responded to cultural patterns.

One way to do this is to have technical advisors remain in the same cultural area for long periods so as to become emeshed in that culture. Members of the community will work together and increase solidarity of the community. Team members will enhance the role of women by education in health, water and sanitation. Regarding community participation, Quechua peasants place little value in health, child survival, and sanitation. For instance, although children are loved they are not well cared for, and sick children are considered as minor problems and receive little attention. Members of the community participate in fiestas and rituals, and similar activities, such as Ferías de Salud, Comidas Nutritivas, and rituals of health can be used as ways to educate people about child survival. From the start, traditional practitioners should also be invited to demonstrate their activities and enter into discussion of ways of improving health. Members of project should consult and involve midwives, herbalists, and diviners in the planning and implementation of the CS project. Support of traditional practitioners enhances community participation. Project members should provide courses for midwives, herbalists, and diviners to instruct them about modern medicine and to substitute salubrious practices for harmful ones.

III. SANTA CRUZ

The Basic political units of district III in Santa Cruz units are Sindicatos Agrarios, Cooperativas Agricolas, Centros de Madres, and of less influence, religious organizations. Traditional authority does not have much influence. Political authorities are named by the government of the department and collaborate little with health workers. Cooperativas de Agua are unified and involved in health projects.

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No one political organization that can be said to be the major influence in all communities, and thus the significant political entity must be sought out in each community. Most communities use the commonly accepted political model of electing leaders by votes for a political party rather than the individual. A few communities employ traditional leadership, which permits selection of individuals according to age, contributions and role in the community.

Project members should be aware of differences and conflicts between organizations in the community. One concern is the political capability of authorities to utilize the objectives of this project for political and personal ends. It is recommended that planning and evaluation meetings be of the entire community rather than of factional groups. Community meetings can be used to identify health problems and to plan programs. After members are educated, they should elect a community health worker (CHW) and director of water (DW). CHWs and DWs should collaborate with sindicatos in health and water projects.

Cultural patterns are undefined in District III of Santa Cruz because this area is mixture of Tupi-Guarani with Aymara and Quechua peasants. Modernization and urbanization influenced these inhabitants who frequently travel to Cochabamba, Santa Cruz, and the interior of Bolivia. Residents speak Spanish with Aymara and Quechua phonemes. Tupi-Guarani have rejected their traditional patterns in favor of Aymara traditions; for example, communal fiestas relating to the date of a saint, and prestes paying for fiestas. Many residents watch television channels from Brasil and Chile, which renders them somewhat cosmopolitan and open to modernization. In sum, people of District III are receptive to innovations because they constitute a mixture of cultures and lack strong traditional patterns. Conversely, this presents problems in that their receptiveness also inhibits the sustainability of projects because readily change with new trends.

Sociologically, people of District III have extended families which live in close but separated houses. Although the father is head of the family, the mother has more influence: she is the more stable element in the family, instilling values and solidarity. The father is frequently absent on business and pleasure, following the liberties of machismo. Even though women play such important roles in the family, husbands dominate economic and political decisions without consulting their wives. They also waste money drinking and in worthless endeavors with impunity from their wives. Men prefer not to work in groups, whereas women enjoy working together. One example is that Santa Cruz has a Comite de Salud which consists only of women.

Mothers raise their children throughout the ciclo intermedio after which the boys migrate to other places. In families either young or old are found, while youth are seldom encountered. In short, the mother is an essential element of education because men are occupied in other activities.

She is also the stability of the family. Although Clubes de Madres are active and educational in this district, mothers criticize them because they are absent from the family. It is recommended that health workers visit and educate mothers in their homes.

Regarding community participation, people of district III place little value in health, child survival, and sanitation. To change this, educators should accept traditional beliefs in medicine and reinforce cultural values, such as the importance of the mother in the family. Instruction in Spanish should be given during evening hours and after harvest. Because women are timid, instructions should be low keyed and participatory, employing for example sociodramas, educational games, and projects (preparing a balanced meal).

Some obstacles to involvement are mistrust of strangers, especially those who promise and don't comply. As in other districts, promises of the project should be underscored, letting results inform people about them. Ignorance of the value of health and the relationship of water to diseases present obstacles to sustaining CS projects. Consequently, people should be well educated about their responsibility before beginning the project. Another obstacle is the disparity of wealth in communities, with the danger being that the rich will accept the project and allocate it for themselves, creating another class barrier. Education can eliminate some of these obstacle and enhance the possibility of total participation by the community. Social consequences of the project are increased solidarity of the community in activities that promote well-being of individual members and decrease suffering from diseases. Water systems and sanitation provide amenities in rural communities and make them suitable places to live. This should decrease out-migration and improve the economy of the community.

IV. The Role of Women

The role of women is a consideration of this project. As discussed above, the role of women is different among the Aymaras, Quechuas, and people of Santa Cruz. Among the Aymaras, women have less authority due to a long tradition of patriarchal and patrilineality. Members of some Aymara communities are changing these norms and electing women to political positions. A suggestion of the PID has been to select more women CHWs, but problems with this are that CHWs are elected by members of

the community, and it is not the prerogative of the Project to interfere in these elections. Problems exist with female CHWs who travel alone in the community as CHWs. Nevertheless project members should encourage the election of women as CHWs in communities where there is no concern on the part of the community. Among the Quechua, women frequently perform leadership roles, and the election of women as CHWs should be encouraged. As distinct from the Aymara, Quechua women tend to be less direct and more shy. Among the people of District III in Santa Cruz, women are given a secondary role in society according to a long tradition of paternalistic Spanish influence. Men abuse their roles with liberties of machismo and the preferred sex. The project can do little to change these deeply embedded practices but it can strengthen the motherly and instrumental role of the mother by removing some of the illnesses related to maternity and child raising. Women should also be encouraged to be CHWs, but with the understanding that in community matters they may not carry the same authority as male CHWs.

Regarding sex of project personnel, consideration should be given to how people of the district perceive authority embodied in the sexes. Among many Aymaras and some Quechuas, women personnel would be perceived of lesser authority than male personnel. This is more true among the people of District III in Santa Cruz. Although a concern of the PID is the enhancement of the role of women, this objective needs to be weighed according to other objectives of child survival. Indirectly, members of project can enhance the role of women by educating all community members concerning problems of alcoholism and machismo among men, which includes wife neglect, abuse, and depletion of family income. Another way is to change the educational objectives of Clubes de Madres from that of teaching women cottage industries to that of advancing technical skills in agriculture and commerce.

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ANNEX L

PROCUREMENT PLANS AND COMMODITY LISTS

This annex is organized in terms of Project components (or groups of activities). A suggested change in layout for later application in the Mission is offered in supplemental materials. For an introduction to procurement, see Section V.D. of the P.P. Details here are confined to AID's payments.

Component 1, EPI - Immunizations (National):

The previously-determined AID share of the collaborative national EPI program has been listed for financing under this Project. However, substantive details of the program, including commodity procurement, lie outside of the scope of the PP team, so no such information is appropriate here.

Component 2, Control of Diarrhea (National):

Provision of ORS packets as part of the national diarrheal disease control program also has been pre-determined by AID to be part of the Project. Procurement will be by PIO/C through GSA.

Component 3, Executive Office of Project:

Personnel, Materials, and Miscellaneous Operating Costs --
Contracted by GOB with its LC funds.

Technical Assistance -- AID with Foreign Exchange for:

Public Health Advisor	(1)	\$180,000/yr	Years 2,3,4
Health Education Advisor	(1)	\$180,000/yr	Years 2,3,4

(Note: Year 1 is Calendar 1988 and Year 6 is 1993.)

Equipment -- AID with FX, all in Year 1:

Computers (2) \$3,000 ea.
Typewriters (2) \$1,000 ea.
Furniture, office \$5,000
Vehicles (4) \$15,000 ea.
Research and Evaluation Studies, AID with FX for:
Studies to be determined Years 2, 3, 4, 5, 6

Component 4, Contract Personnel (Sub-national):

All personnel and technical assistance for this component are covered by GOB's LC funding.

Component 5, TACS:

The TACS advisor will be contracted under a special AID agreement and appears as technical assistance within the Project. It will be a Participating Agency Services Agreement (PASA) with the Center for Disease Control.

Component 6, Information, Education, and Communication (All levels):
(All AID, FY)

Technical Assistance:

Local health educators (3) \$80,000 total Most in Years
2, 3, 4
Local health advisors (3) \$144,000 total Most in Years
2, 3, 4
Health Education Advisor \$180,00/yr Parts of Years
1, 2, 3, 4, 5 (3 year equivalent)
Various expatriate
specialists (short-term) \$540,000 total Most in Years 2, 3, 4

Equipment:

4 wheel dr. vehicle
(Jeep, Bronco II, Elazer,
Jimmy) (1) \$19,000 Year 1
IBM XT or compatible
computers, printers, and
color monitor (2) \$ 3,500 ea. Year 1
Software (various
programs, et) for
computer (1 set) \$ 4,000/set Year 1
Audiovisual equipment (11) \$ 1,273 ea. Year 2
Motorcycle (11), Honda \$ 2,000 ea. Year 2
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Training:

30-day courses (5) \$30,000 ea. 1 in each of
Years 2, 3, 4, 5, 6

Social Communication:

Combination of media expenses, materials, etc. -- to be specified during implementation, with very small costs in Year 1 and total annual costs of \$65,000 to \$ 290,000 in other years.

Research and Evaluation:

Various studies to be determined, with annual costs of \$10,000 to \$20,000 in all years.

Component 7, Water Supply and Sanitation (All levels):

Procurement for this component can best be planned through use of the following summary data provided by the PP team's water supply and sanitation specialist on: number of water supply and sanitation systems planned per year; their average unit -- per system -- costs; certain "budget details"; and itemized "unit cost estimates" for each type of system (See the tables and related information that follow.) Except for a limited amount of materials and supplies covered by GOB through cash and in-kind community contributions, all purchases are supported by AID. AID expenditures are: fully in LC for personnel, technical assistance, and training; and divided about 85%/15% between FX and LC for materials and supplies and for equipment.

Year 1 out of five on the specialist's summary data was originally assumed to fall mostly in the first of six calendar years of the Project (that is, in calendar 1988), but planned expenditures (reflected in the budget) were then pushed somewhat back in time. Moreover, the operating schedule might very well be delayed further in actual implementation, so final timing of procurement will depend on decisions by implementing officials rather than the PP team. In all likelihood, necessary procurement dates, especially for equipment and material, will prove to be later than the specialist's schedule would indicate.

WATER SUPPLY AND SANITATION WORKING PLAN

1. Number of Districts

	1	2	3	4	5	Total
<u>Year</u>	<u>in-cum.</u>	<u>in-cum.</u>	<u>in-cum.</u>	<u>in-cum.</u>	<u>in-cum.</u>	<u>Districts/Yrs.</u>
La Paz	1 - 1	0 - 1	1 - 2	0 - 2	0 - 2	8
Cochabamba	1 - 1	1 - 2	1 - 3	0 - 3	0 - 3	12
Sa. Cruz	1 - 1	1 - 2	1 - 3	0 - 3	0 - 3	12
Total	3	5	8	8	8	32

2. WS/S Number of Systems per Year

<u>Year</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>Cumulative</u>	
<u>LA PAZ</u>							
Gravity Sytms.		3	4	7	8	7	29
Pumping Sytms.		2	2	4	5	5	18
Shallow wells/Hp.		160	160	260	260	260	1,100
Excreta Disp.		600	700	1,400	1,500	1,600	5,800
<u>COCHABAMBA</u>							
Gravity Sytms		4	8	8	10	9	39
Pumping Sytms.		1	3	3	5	5	17
Shallow wells/Hp.		-	5	5	5	5	20
Excreta Disp.		500	900	900	1,100	1,200	4,600
<u>SANTA CRUZ</u>							
Gravity Sytms.		5	9	10	12	12	48
Pumping Sytms.		-	2	2	2	1	1
Shallow wells/Hp.		1	3	6	6	6	22
Excreta Disp.		500	1,000	1,000	1,200	1,100	4,800

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WATER AND SANITATION SYSTEMS COST

1. Average Unit Costs (\$) (2)

<u>Component</u>	<u>La Paz</u>	<u>Cochabamba</u>	<u>Sta. Cruz</u>
Gravity Systems	15.6	18.5	21.0
Pumping Systems	18.1	28.2	27.5
Shallow wells/Hand pump	0.5	0.5	0.5
Excreta Disposal	0.040	0.055	0.055

2. Number of WS/S Systems

<u>Component</u>	<u>La Paz</u>	<u>Cochabamba</u>	<u>Sta. Cruz</u>	<u>Total</u>
Gravity Systems	29	39	48	116
Pumping Systems	18	17	7	42
Shallow wells/Hand pump	1,100	20	22	1,142
Excreta Disposal	5,800	4,600	4,800	15,200

3. Project Cost (\$) (1)

<u>Component</u>	<u>La Paz</u>	<u>Cochabamba</u>	<u>Sta. Cruz</u>	<u>Total</u>
Gravity Systems	452.4	721.5	1,008.0	2,181.9
Pumping Systems	325.8	479.4	192.5	997.7
Shallow wells/Hand pump	550.0	10.0	11.0	571.0
Excreta Disposal	232.0	253.0	264.0	749.0
TOTAL	1,560.2	1,463.9	1,475.5	4,499.6

(1) Costs include community participation (15%), in kind.

(2) Costs do not include contingencies and inflation

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WS/S BUDGET DETAIL

<u>1. Cost of Proposed Project</u>	<u>Total Cost (\$000)</u>
Studies and Design (include water source analysis)	450.0
Operating expenses (include promotion, skilled labor, personnel, training workshops)	675.0
158 WS Systems (include community participation)	1,483.0
1,142 shallow wells (include community participation)	571.0
15,200 water sealed latrines and pit latrines (include com. partc.)	421.0
Tools and Equipment (include vehicles)	900.0
TOTAL	4,500.0
<u>2. Transportation and Equipment Estimates</u> (Cost included above)	
3 Pick-up 4 x 4 Trucks, 3/4 T. each (one for each S.U./D.S.A. WS/S Unit)	40.5
3 Dual 4x4 Trucks 3 T. each (one for each S.U./D.S.A.-WS/S Unit)	90.0
9 Motorcycles, 185-200 c.c. (3 for each S.U./D.S.A.-WS/S Unit)	22.5
3 Drilling machines (one for each S.U./D.S.A.-WS/S Unit)	120.0
<u>3. Training</u> (Cost included above)	
- Design & Construction:	Short course of two weeks duration each for U.S./D.S.A-WS/S Units. One each in years 1, 2 and 3, at \$10,000 per course.
- Promotion:	Short term workshops, two weeks duration each for 12 Sanitation Technicians and 6 Promoters. One at year 1 and other at year 3, at \$8,000 per course.
- O & M:	Short term workshops, two weeks each for U.S.A.-WS/S Unit Sanitation Technicians and Promoters, as Trainees, at year 4, at \$8,000 for the total.
- Administration and Operation:	3 day workshops for 158 Water Administration, Juntas and/or cooperatives, and one week workshops on operation and maintenance procedures, for 158 water system operators, at \$8,000 for the total.

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4. Personnel (Cost included in above)

To solve one of the major constraints of Regional Offices, it would be necessary to employ some additional field personnel. Based on the information available, one sanitation technician could be hired for each district, 8 at a cost of \$ 72,000 for 5 years. These people would need to be trained before starting working. Also, it would be necessary to contract skilled personnel for the WS/S construction. The quality and quantity of such personnel should be decided during the implementation period.

The proposed budget include funds for regular supervision to be made by D.A.A. and Executive Unit officials and field personnel. Evaluation on a scheduled basis will be done taking into consideration the basic parameters generally used to evaluate WS/S systems.

5. Private and/or P.V.O.s (Technical Assistance)

In some cases, the workload of the construction component could be high for the Sanitary Units through the D.S.A. In such cases, it may be necessary to contract for the professional services of private companies or to encourage and support some P.V.O.s to do the field work. This could be the case in La Paz where about 1,100 shallow wells and 5,800 water sealed latrines will be built. Santa Cruz also may do some work through P.V.O.s existing in the area and/or obtain the cooperation of CORDECRUZ whose experience and willingness to collaborate with S.U. is well known.

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UNIT COST ESTIMATES IN \$

<u>Hand Dug Well</u>	<u>Quantity</u>	<u>Total Cost</u>	<u>Comm. Part.</u>	<u>Grand Total</u>
1. Hand pump	1	225		225.0
2. Galv. pipe (1 1/4" x 20')	3	30		30.0
3. Steel bar (7/16" x 20')	3	19.5		19.5
4. Couplings 7/162	6	9		9.0
5. Rebar (3/8" x 20')	3	3.75		3.75
6. Cement (bags)	16	32.0		30.4
7. Tiewire (lbs)	4	1.2		1.2
8. Bolts 1/2" x 3"	9	5.4		5.4
9. Teflon (Roll)	0.25	0.25		0.25
10. Valve 1 1/4"	1	7.50		7.50
11. Bricks or Blocks	300	30.0		30.0
12. Metallic cover	1	20.0		20.0
13. Sand & Gravel (local)			15.0	15.0
14. Local hand labor to dig & build the well			100.0	100.0

TOTAL		382.6	115.0	500.0

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UNIT COST ESTIMATES IN \$

<u>Hand Bored Well</u>	<u>Quantity</u>	<u>Total Cost</u>	<u>Comm. Part.</u>	<u>Grand Total</u>
1. Hand pump	1	225.0		225.0
2. Galv. pipe (1 1/4" x 20')	3	30.0		30.0
3. Steel bar (7/16" x 20')	3	19.5		19.5
4. Coupling 7/16"	3	3.0		3.0
5. Natts 1/2" x 3"	9	5.4		5.4
6. Valve	1	15.0		15.0
7. PCV pipe 4" x 20'	3	30.0		30.0
8. Cement bags	6	12.0		12.0
9. Sand & Gravel (local)			8.0	8.0
10. Hand labor (local)			100.0	100.0
TOTAL		339.9	108.0	447.0
				500.0

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UNIT COST ESTIMATES IN \$

Gravity Typical Water System (600 people)

	<u>Total</u> <u>Cost</u>	<u>Commun.</u> <u>Particip.</u>	<u>Grand</u> <u>Total</u>
1. Design	2,000.0		2,000.0
2. Cement	400.0		400.0
3. Pipe & Accessories	6,400.0		6,400.0
4. Rebars	600.0		600.0
5. Tools & Equipment	550.0		500.0
6. Skilled labor	2,500.0		2,500.0
7. Water catchment	250.0		250.0
8. Chlorinator	80.0		80.0
9. Storage tank	800.0		800.0
10. 120 household connections	2,400.0		2,400.0
11. Local materials		300.0	300.0
12. Local hand labor		2,800.0	2,800.0
13. Transportation of materials	500.0		500.0
TOTAL	16,480.0	3,100.0	19,580.0

UNIT COST ESTIMATES IN \$

<u>A. Water Seal Latrine</u>		<u>Quantity</u>	<u>Total Cost</u>	<u>Comm. Partic.</u>	<u>Grand Total</u>
1.	"Campesino" bowl	1	4.0		4.0
2.	Cement (bags)	2	4.0		4.0
3.	Rebar (1/2" x 30")	1	1.2		1.2
4.	Roofing sheet	2	4.0		4.0
5.	3" PVC pipe x 8'	1	2.8		2.8
6.	Local materials			8.0	8.0
7.	Local hand labor			18.0	18.0
8.	Skilled labor		12.0		12.0
			<u>28.0</u>	<u>26.0</u>	<u>54.0</u>
<u>B. Improved Pit Latrine</u>		<u>Quantity</u>	<u>Total Cost</u>	<u>Commun. Partic.</u>	<u>Grand Total</u>
1.	Cement	2	4.0		4.0
2.	Rebar (1/2" x 30')	1	1.2		1.2
3.	Roofing sheet	2	4.0		4.0
4.	Seat	1	1.5		1.5
5.	Walls & door (mt2)	7.4	5.0		5.0
6.	4" PVC pipe x 8'	1	3.0		3.0
7.	Local labor			10.0	10.0
8.	Skilled labor (platform)		7.0		7.0
			<u>25.7</u>	<u>10.0</u>	<u>35.7</u>

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RESEARCH AND STUDIES

The Project will support a small operational research activity to be administered by the Project Management Office. The Management Office will accept proposals from persons of the Districts Sanitary Units and Central levels involved in the Project to conduct studies which will support achievement of the Project objectives. A fund of \$200,000 has been budgeted for this purpose. Based on an estimated average cost of \$5,000 to \$10,000, approximately thirty studies will be undertaken. Several studies which were proposed during the Project design process are described briefly below to illustrate the type of studies which may be supported.

1. Goiter

The Medical Director of Santa Cruz District III has some findings that need further proof and explanation. In infants he found goiter of levels 1a and 1b with a percentage of 90% of the total population (infant) appeared by palpation. Over time this level of goiter descended to 65-70% among children and adolescents. It is believed that this fact does not have a logical explanation and the investigator wishes to initiate a study with laboratory techniques and larger number of children.

This study can be an asset for the Goiter National Campaign. Funds will be required to pay Laboratory tests, (at least certain percentage). He would also require bibliography and Technical Assistance. The work itself may be performed by District personnel

2. Intestinal Parasites.

Santa Cruz District III staff have noticed that the use of Mebendazol, in campaigns of deparasitation, changes the type of parasites. Before the ingestion of Mebendazol, children had macro-parasites (ascarides, giarda, etc.) and on later examinations they had amoebas (micro-parasites). This fact worries physicians, since these micro-parasites appear to the staff to be more aggressive and produce more complications.

However, this fact has not been described before, and information is not available in any bibliography. Further investigation is needed. They also need funds for Laboratory Tests and Bibliographical Research. An investigator in Public Health is also needed.

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3. Cost-effectiveness Analysis of Immunizations

Estimates of costs of immunizations could be made and compared with results of coverage surveys, and of morbidity and mortality studies when available, in order to estimate and interpret the cost per fully vaccinated child and, when available, cost per case and death averted through immunizations.

Study elements of costs and coverage can be compiled in a first phase, occurring after about two years in the first districts of the Project. National level data (e.g., on costs) obviously will be involved. Near the end of the Project, the scope of the cost-coverage analyses can be extended to the other districts and perhaps roughly generalized for the nation; in addition, if morbidity-mortality impact estimates have been made by epidemiologists, cost-impact analysis (e.g., in terms of cost per death averted) can be done.

4. Private Sources of Financial Support for Health

Descriptions (in qualitative and quantitative terms) will be made of the form and extent of non-governmental sources of financial support successfully exploited during the Project, interpretations of factors in success (or failure), and predictions of future prospects for these sources will be attempted; the most likely sources are community contributions -- in-kind and in cash -- for water supply and/or sanitation services and payments for drugs through the use of revolving funds, (e.g., in District III of Santa Cruz). This study will be best done near the end of the project when maximum information on experience is available. Study information should be obtained from all project locales, but intensive description and interpretation will be applied only to the few most important sources (and their sites).

5. Immunization Component:

Several studies could be contemplated including:

- Effect of different education programs on the acceptance of vaccination.
- Lameness surveys to ascertain rates of poliomyelitis.
- Surveillance studies of measles in urban areas vs. estimates of rural areas.

6. Diarrheal diseases:

(Some studies which might be considered)

- Effect of supplying water on incidence of diarrheal diseases
- Assessment of mothers' and health workers' knowledge of the treatment of diarrheal diseases on the incidence of dehydration, severe cases, death from diarrheal diseases.
- Assessment of effect of any new methodologies in distribution on the incidence of dehydration in diarrhea

-Epidemiological study on etiologies of diarrheal disease, on effect of campaigns to treat parasites. Note small study done in Samaipata suggesting increased incidence of amoebiasis after treatment for roundworms.

- Study to determine if shigella is important.

7. ARI:

- An initial study to determine the etiology of ARI in different areas of the country.

- Changes in incidence of severe pneumonias and deaths from ARI secondary to improving accessibility to treatment, for example, providing promoters with antibiotics for treatment of severe ARIs.

- Studies on inappropriate use of antibiotics, also cost studies on use of antibiotics, cough medicines, analgesics, related to different levels of prescribers. Hypothesis: Auxiliary nurse and promoter, using protocols, give better care than physician. (Same kind of study would apply to diarrheal diseases).

- Study of referral patterns to maximize quality of care (same could be done for diarrheal diseases).

8. Other Illnesses Affecting Child Survival:

- Studies to define extent of certain illnesses in child and maternal population: malaria, Chagas, neonatal tetanus, e.g.

9. Studies Involving Economic Factors:

- Drug studies involving treatment of ARI and DD.

- Fee-for-service models: barrier to care?

- Promoter costs/benefits in treating/referring ARI and DD cases

- Costs/benefits of supervision; relative costs of different methods of supervision.

10. Studies on Community Aspects of Child Survival:

- The importance of decision-making on part of mothers: how this influences care, or the decision to seek care

- Community involvement: does better care result?

11. Nutritional Studies:

- Any number of these would be feasible: incidence, effect of growth monitoring, incidence of Vitamin A deficiency (is it a problem in Bolivia?), etc.

12. Peri-natal Care:

- Decreased complications of pregnancy with monitoring of pregnancies by promoters and/or auxiliary nurses?

- Studies designed to assess the incidence of fetal wastage in Bolivia.

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COST ESTIMATES

This annex provides the details on the estimation of the costs found in the Project budget. This provides a detailed extension of Budget Tables III and IV found in the "Cost Estimate and Financial Plan" section of the P.P.; it includes, among other data, three tabulations called Tables N-1, N-2 and N-3. Those emphasize the cost elements of each of the Project's eight components (sets of activities). The cost details that follow are organized in terms of those components. Where year numbers are given they are based on a classification in which "Year 1" refers to calendar 1988, and so forth through "Year 6" -- 1993.

Component 1, EPI - Immunizations (National):

Budgeting for the national EPI program was done before the P.P. team began its work. The share of the cost total to be covered by AID has been included in the budget of this Project, but its determination was not within the scope of the team's work. Reference is made to this component's budget found in Tables N-1 and N-2. National EPI program officials can provide information on their methods of calculating the budgetary costs for AID that are found in those tables.

Component 2, Control of Diarrhea (National):

This component covers part of an on-going program of diarrheal disease control that includes the distribution of ORS packets. AID funds totalling \$1,500,00 have been included in the Project budget, although the exact pattern of expenditures cannot be determined yet. Preliminary estimates, subject to change as new experience is accumulated, show the following costs (all AID-FX):

Materials and Supplies (including shipping):		
ORS Packets 13 million	\$0.10 ea.	\$1,300,000 total
Years 2, 3, 4, 5, 6		
Research and Evaluation:		
Evaluation 1		\$ 200,000 Year 2

Component 3, Executive Office of Project:

Personnel (GOB - LC):		
Executive Director	\$30,000/yr	\$ 150,000 All years
(5 full equivalent)		
Administrator	\$18,000/yr	\$ 90,000 All years
(5 full equivalent)		
Health Educator	\$18,000/yr	\$ 90,000 All years

	(5 full equivalent)		
years	W&S Engineer	\$18,000/yr	\$ 90,000 All
	(5 full equivalent)		
years	Secretaries (2)	\$ 5,000/yr	\$ 50,000 All
	(5 full equivalent)		
years	Drivers (3)	\$ 4,000/yr	\$ 60,000 All
	(5 full equivalent)		
years	Nutritionist	\$18,000/yr	\$ 90,000 All
	(5 full equivalent)		
	<u>Personnel Total</u>		<u>\$ 620,000</u>
	Technical Assistance (AID-FX):		
2,3,4	Public Health Advisor	\$180,000/yr	\$ 540,000 Years
	(Cost includes all benefits and support.)		
2,3,4,	Health Education Advisor	\$180,000/yr	\$ 540,000 Years
	<u>T.A. Total</u>		<u>\$1,080,000</u>
	Materials and Supplies (GOB-LC):		
years	Office Supplies (misc.)	\$25,000/yr	\$ 125,000 All
	(5 equivalent)		
	Other Operating Costs (GOB-LC):		
years	Travel	\$8,000/yr	\$ 40,000 All
years	Per diems	\$22,000/yr	\$ 110,000 All
	(5 equivalent)		
years	Telephone & misc.	\$ 3,000/yr	\$ 15,000 All
	(5 equivalent)		
	<u>Other Total</u>		<u>\$ 165,000</u>

Equipment (AID-FX):

Computers (2)	\$ 3,000 ea.	6,000 Year 1
Typewriter (2)	\$ 1,000 ea.	2,000 Year 1
Furniture	\$ 5,000 set	5,000 Year 1
Vehicles (4)	\$15,000 ea.	60,000 Year 2
Equipment <u>Total</u>		<u>\$ 73,000</u>

Research and Evaluation (AID-FX):

Mid-term evaluation		50,000 Year 3
Final evaluation		130,000 Year 6
Studies (2) -- Details to be Determined \$10,000 ea.		200,000 yr 4,5,6
Research & Evaluation <u>Total</u>		<u>\$ 380,000</u>
Inflation and Contingencies <u>Total</u>		<u>\$ 284,000</u>

Component 4, Contract Personnel (Sub-national):

Personnel (GOB-IC):

Sanitarians (55)	\$848/yr	\$116,575 Yrs. 2, 3, 4, 5, 6 (2-5 equiv.)
W&S Technicians (11)	\$852/yr	\$ 23,425 Yrs. 2, 2, 4, 5, 6 (2-5 equiv.)

Technical Assistance -- Department Level (GOB-LC):

Misc. (Rounding)		\$ 400
P.F. Advisors (3)	\$24,000/yr	\$288,000 Yrs 2,3,4,5,
Health Educ. Advisors (3)	\$9,600/yr	\$115,200 Yrs 2,3,4,5
Administrators (3)	\$9,600/yr	\$115,200 Yrs 2,3,4,5
W&S Engineers (3)	\$12,000/yr	\$144,000 Yrs 2,3,4,5
Nutritionists (3)	\$9,600/yr	\$115,200 Yrs 2,3,4,5
T. A. <u>Total</u>		<u>\$778,000</u>
Inflation and Contingencies <u>Total</u>		<u>\$133,000</u>

Component 5, TACS:

TACS Advisor	\$180,000/yr	\$ 900,000 All years
(5 equiv.)		
Inflation and Contingencies <u>Total</u>		<u>\$ 104,000</u>

Component 6, IEC (All levels): (AID)

Technical Assistance: (FX)

Local Health Educators (3)	\$9,000/yr	
(rounded)		\$ 80,000 Yrs 2,3,4
Local Health Advisors (6)	\$8,000/yr	\$ 144,000 Yrs 2,3,4
Health Education Advisor	\$180,000/yr	\$ 540,000 Yrs 1,2,3,
4,5, (3 equiv.)		
T.A. <u>Total</u>		<u>\$ 764,000</u>

Other Operating Costs: (FX)

Various expenses, including transportation --
 Details to be specified during Project
 implementation

Total cost: \$ 83,000 All years

Equipment: (FX)

4 wheel drive vehicle, Jeep, Bronco II,
 Balzer, Jimmy \$19,000 ea. \$ 19,000 Year 1

IBM XT or compatible computers,
 printers and color monitors
 (2) \$3,500/set \$ 7,000 Year 1

Software for computer (1) \$4,000/set \$ 4,000 Year 1

Audiovisual equipment (11) \$1,273/set \$ 14,000 Year 2

Motorcycles (11) (Honda 185 cc)
 \$2,000 ea. \$ 22,000 Year 2

Equipment Total \$ 56,000

Training: (LC)

Courses for field level people
 (5 courses, about 60 persons
 per course, for 20 days
 each) \$30,000/course Total \$ 150,000
 Years 2, 3, 4, 5, 6

Social Communication: (LC)

Combination of media population
 expenses, including for radio
 sports, soap operas, other radio
 use and TV programs -- Details
 of content and costs to be
 provided during Project implementa-
 tion by Health Education

Advisor Total Cost \$ 1,000,000 All years

Research and Evaluation: (FX)

Initial survey and continuing
 evaluative studies -- to be
 specified during implementa-
 tion Total Cost \$ 70,000 All years

Inflation & Contingencies Total \$ 194,000

Component 7, Water Supply and Sanitation (All levels):

Budgeting for this component can best be planned through use of the following summary data provided by the P.P. team's water supply and sanitation specialist on: number of water supply and sanitation systems planned per year; their average unit -- per system -- costs; certain "budget details"; and itemized "unit cost estimates" for each type of system. (See the tables and related information that follow.) Except for

a limited amount of materials and supplies covered by COB through cash and in-kind community contribution, all purchases are supported by AID. AID expenditures are: fully in LC for personnel, technical assistance, and training; and divided about 85%/15% between FX and LC for materials and supplies and for equipment.

Year 1 out of five on the specialist's summary of dates was originally assumed to fall mostly in the first of six calendar years of the Project (that is, in calendar 1988), but planned expenditures were then pushed somewhat back in time. Moreover, the operating schedule might very well be delayed further in actual implementation, so final timing of procurement will depend on decisions by implementing officials rather than the P.P. team. In all likelihood, necessary budgeting dates, especially for equipment and material, will prove to be later than the specialist's schedule would indicate.

WATER SUPPLY AND SANITATION WORKING PLAN

1. Number of Districts

<u>Year</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>Total</u>
	<u>in-cum.</u>	<u>in-cum.</u>	<u>in-cum.</u>	<u>in-cum.</u>	<u>in-cum.</u>	<u>Districts/Yrs.</u>
La Paz	1 - 1	0 - 1	1 - 2	0 - 2	0 - 2	8
Cochabamba	1 - 1	1 - 2	1 - 3	0 - 3	0 - 3	12
Sta. Cruz	1 - 1	1 - 2	1 - 3	0 - 3	0 - 3	12
Total	3	5	8	8	8	32

2. WS/S Number of Systems per Year

<u>Year</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>Cumulative</u>
<u>LA PAZ</u>						
Gravity Sytms.	3	4	7	8	7	29
Pumping Sytms.	2	2	4	5	5	18
Shallow wells/Hp.	160	160	260	260	260	1,100
Excreta Disp.	600	700	1,400	1,500	1,600	5,800
<u>COCHABAMBA</u>						
Gravity Sytms	4	3	8	10	9	39
Pumping Sytms.	1	3	3	5	5	17
Shallow wells/Hp.	-	5	5	5	5	20
Excreta Disp.	500	900	900	1,100	1,200	4,600
<u>SANTA CRUZ</u>						
Gravity Sytms.	5	9	10	12	12	48
Pumping Sytms.	-	2	2	2	1	1
Shallow wells/Hp.	1	3	6	6	6	22
Excreta Disp.	500	1,000	1,000	1,200	1,100	4,800

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WATER AND SANITATION SYSTEMS COST

1. Average Unit Costs (\$.000) (2)

<u>Component</u>	<u>La Paz</u>	<u>Cochabamba</u>	<u>Sta. Cruz</u>
Gravity Systems	15.6	18.5	21.0
Pumping Systems	18.1	28.2	27.5
Shallow wells/Hand pump	0.5	0.5	0.5
Excreta Disposal	0.040	0.055	0.055

2. Number of US/S Systems

<u>Component</u>	<u>La Paz</u>	<u>Cochabamba</u>	<u>Sta. Cruz</u>	<u>Total</u>
Gravity Systems	29	39	48	116
Pumping Systems	13	17	7	42
Shallow wells/Hand pump	1,100	20	22	1,142
Excreta Disposal	5,800	4,600	4,800	15,200

3. Project Cost (\$.000) (1)

<u>Component</u>	<u>La Paz</u>	<u>Cochabamba</u>	<u>Sta. Cruz</u>	<u>Total</u>
Gravity Systems	452.4	721.5	1,008.0	2,181.9
Pumping Systems	325.8	479.4	192.5	997.7
Shallow wells/Hand pump	550.0	10.0	11.0	571.0
Excreta Disposal	232.0	253.0	264.0	749.0
TOTAL	1,560.2	1,463.9	1,475.5	4,499.6

(1) Costs include community participation (15%), in kind.

(2) Costs do not include contingencies and inflation

WS/S BUDGET DETAIL

<u>1. Cost of Proposed Project</u>	<u>Total Cost (\$000)</u>
Studies and Design (include water source analysis)	450.0
Operating expenses (include promotion, skilled labor, personnel, training workshops)	675.0
185 , Systems (include community participation)	1,483.0
1,142 shallow wells (include community participation)	571.0
15,200 water sealed latrines and pit latrines (include com. parte.)	421.0
Tools and Equipment (include vehicles)	900.0
TOTAL	4,500.0

2. Transportation and Equipment Estimates (Cost included above)

3 Pick-up 4 x 4 Trucks, 3/4 T. each (one for each U.S./D.S.A. WS/S Unit)	40.5
3 Dual 4x4 Trucks 3 T. each (one for each U.S./D.S.A.-WS/S Unit)	90.0
9 Motorcycles, 185-200 c.c. (3 for each U.S./D.S.A.-WS/S Unit)	22.5
3 Drilling machines (one for each U.S./D.S.A.-WS/S Unit)	120.0
TOTAL.	273.0

3. Training (Cost included above)

-Design & Construction:

Short course of two weeks duration each for U.S./D.S.A-WS/S Units. One each in years 1, 2 and 3, at \$10,000 per course.

- **Promotion:** Short term workshops, two weeks duration each for 12 Sanitation Technicians and 6 Promoters. One at year 1 and other at year 3, at \$8,000 per course.
- **O & M:** Short term workshops, two weeks each for U.S.A.-WS/S Unit Sanitation Technicians and Promoters, as Trainees, at year 4, at \$8,000 for the total.
- **Administration and Operation:** 3 day workshops for 158 Water Administration, Juntas and/or cooperatives, and one week workshops on operation and maintenance procedures, for 158 water system operators, at \$8,000 for the total.

4. Personnel (Cost included in above)

To solve one of the major constraints of Regional Offices, it would be necessary to employ some additional field personnel. Based on the information available, one sanitation technician could be hired for each district, 8 at a cost of \$ 72,000 for 5 years. These people would need to be trained before starting working. Also, it would be necessary to contract skilled personnel for the WS/S construction. The quality and quantity of such personnel should be decided during the implementation period.

The proposed budgets include funds for regular supervision to be made by D.A.A. and Executive Unit officials and field personnel. Evaluation on a scheduled basis will be done taking into consideration the basic parameters generally used to evaluate WS/S systems.

5. Private and/or P.V.O.s (Technical Assistance)

In some cases, the workload of the construction component could be high for the Sanitary Units through the D.S.A. In such cases, it may be necessary to contract for the professional services of private companies or to encourage and support some P.V.O.s to do the field work. This could be the case in La Paz where about 1,100 shallow wells and 5,800 water sealed latrines will be built. Santa Cruz also may do some work through P.V.O.s existing in the area and/or obtain the cooperation of CORDECRUZ whose experience and willingness to collaborate with S.U. is well known.

UNIT COST ESTIMATES IN \$

<u>Hand Dug Well</u>	<u>Quantity</u>	<u>Total Cost</u>	<u>Comm. Part.</u>	<u>Grand Total</u>
1. Hand pump	1	225		225.0
2. Galv. pipe (1 1/4" x 20')	3	30		30.0
3. Steel bar (7/16" x 20')	3	19.5		19.5
4. Couplings 7/162	6	9		9.0
5. Rebar (3/8" x 20')	3	3.75		3.75
6. Cement (bags)	16	32.0		30.4
7. Tiewire (lbs)	4	1.2		1.2
8. Bolts 1/2" x 3"	9	5.4		5.4
9. Teflon (Roll)	0.25	0.25		0.25
10. Valve 1 1/4"	1	7.50		7.50
11. Bricks or Blocks	300	30.0		30.0
12. Metallic cover	1	20.0		20.0
13. Sand & Gravel (local)			15.0	15.0
14. Local hand labor to dig & build the well			100.0	100.0

TOTAL		383.6	115.0	500.0

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<u>UNIT COST ESTIMATES IN \$</u>				
<u>Hand Bored Well</u>	<u>Quantity</u>	<u>Total Cost</u>	<u>Comm. Part.</u>	<u>Grand Total</u>
1. Hand pump	1	225.0		225.0
2. Galv. pipe (1 1/4" x 20')	3	30.0		30.0
3. Steel bar (7/16" x 20')	3	19.5		19.5
4. Coupling 7/16"	3	3.0		3.0
5. Batts 1/2" x 3'	9	5.4		5.4
6. Valve	1	15.0		15.0
7. PCV pipe 4" x 20'	3	30.0		30.0
8. Cement bags	6	12.0		12.0
9. Sand & Gravel (local)			8.0	8.0
10. Hand labor (local)			100.0	100.0
TOTAL		339.9	108.0	447.0
				500.0

UNIT COST ESTIMATES IN \$
Gravity Typical Water System (600 people)

	<u>Total</u> <u>Cost</u>	<u>Commun.</u> <u>Particip.</u>	<u>Grand</u> <u>Total</u>
1. Design	2,000.0		2,000.0
2. Cement	400.0		400.0
3. Pipe & Accessories	6,400.0		6,400.0
4. Rebars	600.0		600.0
5. Tools & Equipment	550.0		500.0
6. Skilled labor	2,500.0		2,500.0
7. Water catchment	250.0		250.0
8. Chlorinator	80.0		80.0
9. Storage tank	800.0		800.0
10. 120 household connections	2,400.0		2,400.0
11. Local materials		300.0	300.0
12. Local hand labor		2,800.0	2,800.0
13. Transportation of materials	500.0		500.0
TOTAL	<u>16,430.0</u>	<u>3,100.0</u>	<u>19,580.0</u>

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UNIT COST ESTIMATES IN \$

<u>A. Water Seal Latrine</u>		<u>Quantity</u>	<u>Total Cost</u>	<u>Comm. Partic.</u>	<u>Grand Total</u>
1.	"Campesino" bowl	1	4.0		4.0
2.	Cement (bags)	2	4.0		4.0
3.	Rebar (1/2" x 30")	1	1.2		1.2
4.	Roofing sheet	2	4.0		4.0
5.	3" PVC pipe x 8'	1	2.8		2.8
6.	Local materials			8.0	8.0
7.	Local hand labor			18.0	18.0
8.	Skilled labor		12.0		12.0
			<u>28.0</u>	<u>26.0</u>	<u>54.0</u>
<u>B. Improved Pit Latrine</u>		<u>Quantity</u>	<u>Total Cost</u>	<u>Commun. Partic.</u>	<u>Grand Total</u>
1.	Cement	2	4.0		4.0
2.	Rebar (1/2" x 30')	1	1.2		1.2
3.	Roofing sheet	2	4.0		4.0
4.	Seat	1	1.5		1.5
5.	Walls & door (mt ²)	7.4	5.0		5.0
6.	4" PVC pipe x 8'	1	3.0		3.0
7.	Local labor			10.0	10.0
8.	Skilled labor (platform)		7.0		7.0
			<u>25.7</u>	<u>16.0</u>	<u>35.7</u>

Component 8, Child Survival (All levels):

Personnel (GOB - LC):			
Auxiliary Nurses	<u>Total</u>	\$ 118,800	All years
Social Visitors	<u>Total</u>	\$ 71,760	
Administrators	<u>Total</u>	\$ 39,600	
Physicians	<u>Total</u>	\$ 36,000	
Drivers	<u>Total</u>	\$ 62,840	
Personnel	<u>Total</u>	\$ 320,000	
Materials and Supplies:			
Materials for building postas (GOB-LC)	<u>Total</u>	\$ 66,000	
Supplies for each program (AID-FX): All yrs. wth little in first two. (See Annex L in Procurement for details.)			
Nutrition	<u>Total</u>	\$ 562,100	
ARI	<u>Total</u>	\$ 396,500	
Malaria & Chagas		\$ 40,000	
Tuberculosis		\$ 90,000	
Materials and Supplies	<u>Total</u>	\$1,154,600	
Other Operating Costs: All years but least in years 1 and 6			
Maintenance (AID-FX)	<u>Total</u>	\$ 197,000	
Maintenance (GOB-LC)	<u>Total</u>	\$ 197,000	
Other (GOB-LC):			
Viaticos, all levels	<u>Total</u>	\$ 319,000	
Gasoline		\$ 175,000	
Other Operating Costs	<u>Total</u>	\$ 888,300	
Equipment:			
Program-related (AID-FX): All years except year 6; little in year 1			
Neonatal	<u>Total</u>	\$ 24,000	
Malaria & Chagas	<u>Total</u>	\$ 10,000	
Tuberculosis	<u>Total</u>	\$ 10,000	
Miscellaneous	<u>Total</u>	\$ 125,700	
Information	<u>Total</u>	\$ 60,600	
Vehicles (AID-FX)	<u>Total</u>	\$ 414,000	
Other (AID-LC)	<u>Total</u>	\$ 124,700	
Equipment	<u>Total</u>	\$ 769,000	
Buildings (GOB-LC):			
Storage houses (11) \$8,000ea.	<u>Total</u>	\$ 88,000	
Buildings	<u>Total</u>	\$ 88,000	
Training (GOB-LC): All years			
General Training:			
Promoters	<u>Total</u>	\$ 603,200	
Auxiliary Nurses	<u>Total</u>	\$ 135,000	
Physicians	<u>Total</u>	\$ 43,200	
Teams	<u>Total</u>	\$ 39,600	
Trainers	<u>Total</u>	\$ 100,000	
Courses:			

Auxiliary Nurses (long) Total	\$	44,000
Auxiliary Nurses (short) Total	\$	36,000
Public Health (becas) Total	\$	56,000
Administrators Total	\$	4,500
Staticians Total	\$	4,500
TBAs Total	\$	80,000
Training <u>Total</u>		\$1,146,000
Research and Evaluation:		
Baseline survey (GOB-LC)	\$	82,500 Year 1
Final survey (AID-FX)	\$	82,500 Year 2
Small studies (GOB-LC) all other years	\$	50,000 None in yr.1;
Small studies (AID-FX) all other years	\$	50,000 None in yr 1;
Research & Evaluation <u>Total</u>	\$	<u>265,000</u>
Inflation and Contingencies <u>Total</u>	\$	<u>636,000</u>

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ANNEX O

INITIAL ENVIRONMENTAL EXAMINATION

1. BASIC PROJECT DATA

PROJECT LOCATION : BOLIVIA

PROJECT TITLE : COMMUNITY AND CHILD HEALTH

PROJECT NUMBER : 511-0594

FUNDING : FY 88 \$ 2.7 million
FY 89 \$ 3.0 million

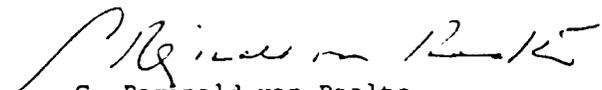
LIFE OF PROJECT : \$ 15.0 million

IEE PREPARED BY : Raymond F. Victurine
Environmental Officer
USAID/Bolivia

DATE PREPARED : January 20, 1988

RECOMMENDATION FOR THRESHOLD DECISION

USAID/Bolivia finds that this project is not a major action which will have a significant negative effect on the human environment and therefore is an action for which neither an Environmental Impact Statement nor an Environmental Assessment will be required. A negative determination is recommended.


G. Reginald van Raalte
Director USAID/Bolivia

Date: 11 FEB '88

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IMPACT IDENTIFICATION AND EVALUATION

NOTE: The following symbols have been used:

N	<u>No</u> environmental impact	U	<u>Unknown</u> environmental impact
L	<u>Little</u> environmental impact	+	<u>Beneficial</u> impact
M	<u>Moderate</u> environmental impact	-	<u>Negative</u> impact
H	<u>High</u> environmental impact		

A. Land Use

1. Changing the character of the land through:

a.	Increasing the population	L +
b.	Extracting natural resources	N
c.	Land cleaning	N
2.	Altering natural defenses	N
3.	Foreclosing important uses	N
4.	Jeopardizing man or his works	N
5.	Other factors	N

B. Water Quality

1.	Physical state of water	L +
2.	Chemical and biological states	N
3.	Ecological balance	N
4.	Other factors	N

C. Atmospheric

1.	Air additives	N
2.	Air pollution	N
3.	Noise pollution	N
4.	Other factors	N

D. Natural Resources

1.	Diversion, altered use of water	M +
2.	Irreversible, Inefficient commitments	N
3.	Other factors	N

E. Cultural

1.	Altering physical symbols	N
2.	Dilution of cultural traditions	N
3.	Other factors	L +

F. Socioeconomic

- | | |
|--|-----|
| 1. Changes in economic/employment patterns | M + |
| 2. Changes in population | N |
| 3. Changes in cultural patterns | N |
| 4. Other factors | N |

G. Health

- | | |
|---|-----|
| 1. Changing a natural environment | L + |
| 2. Eliminating an ecosystem element | N |
| 3. Other factors (improve basic health) | M + |

H. General

- | | |
|---------------------------|---|
| 1. International impacts | N |
| 2. Controversial impacts | N |
| 3. Larger program impacts | N |
| 4. Other factors | N |

I. Other Possible Impacts

- | | |
|--------------------------------------|---|
| 1. Introduction of new plant species | N |
| 2. Agricultural Chemicals | N |
| 3. Other factors | |
| Minimize pesticide use | N |

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STATE 224799

AID AMB DCM ECON

REC'D 7/14

VZCZCLP0140

OO RUEHLP

DE RUEHC #4799 1951906

ZNR UUUUU 22H

O 131906Z JUL 88

FM SECSTATE WASHDC

TO RUEHLP/AMEMBASSY LA PAZ IMMEDIATE 6050

RUEHPE/AMEMBASSY LIMA 0397

BT

UNCLAS STATE 224799

ACTION: PD&I

INFO: D/DD

LOC: 256 199
13 JUL 88 1906
CN: 28910
CHRG: AID
DIST: AIDE

AIDAC LA PAZ FOR MCINTYRE, LIMA FOR REMS SA, H. CLARK

E.O. 12356: N/A

TAGS:

SUBJECT: IEE FOR BOLIVIA COMMUNITY AND CHILD HEALTH
PROJECT (511-0594)

EXO
HHR
ARD
CONT
RF 3
SF
C

REF: LA PAZ 7750

REPLY DUE 7/18

1. REQUEST FOR NEGATIVE DETERMINATION FOR IEE FOR
SUBJECT PROJECT APPROVED BY DEPUTY ENVIRONMENTAL OFFICER
ON JULY 11, 1988.

ACTION TKN

2. COPY OF APPROVED IEE (NUMBER 88-20) BEING POUCHED TO
MISSION FOR INCLUSION IN PROJECT FILES. WHITEHEAD

BT
#4799

NNNN

UNCLASSIFIED

STATE 224799

Project Development
and Implementation
- 14 JUL 1988 -

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