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Duplicate

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

PERU

PROJECT PAPER

RURAL WATER SYSTEMS & ENVIRONMENTAL SANITATION

AID/LAC/P-062

Project Number: 527-0221
Loan Number: 527-L-074

UNCLASSIFIED

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	Amendment Number _____	DOCUMENT CODE 3
2. COUNTRY/ENTITY PERU		3. PROJECT NUMBER 527-0221		
4. BUREAU/OFFICE LA		5. PROJECT TITLE (maximum 60 characters) Rural Water Systems & Environmental Sanitation		
6. PROJECT ASSISTANCE COMPLETION DATE (PACD) MM DD YY 9 30 81 5		7. ESTIMATED DATE OF OBLIGATION (Under "B." below, enter 1, 2, 3, or 4) A. Initial FY 81 0 B. Quarter 4 C. Final FY 83		

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

A. FUNDING SOURCE	FIRST FY 80			LIFE OF PROJECT		
	B. FX	C. L/C	D. Total	E. FX	F. L/C	G. Total
AID Appropriated Total	2,661	2,339	5,000	3,034	2,466	5,500
(Grant)	()	()	()	(373)	(127)	(500)
(Loan)	(2,661)	(2,339)	(5,000)	(2,661)	(2,339)	(5,000)
Other U.S.						
1. Host Country		154	154		2,600	2,600
2. Other Donor(s)						
TOTALS	2,661	2,533	5,194	3,034	5,066	8,100

9. SCHEDULE OF AID FUNDING (\$000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	C. PRIMARY TECH CODE		D. OBLIGATIONS TO DATE		E. AMOUNT APPROVED THIS ACTION		F. LIFE OF PROJECT	
		1. Grant	2. Loan	1. Grant	2. Loan	1. Grant	2. Loan	1. Grant	2. Loan
(1) HE	500	540	540				5,000	500	5,000
(2)									
(3)									
(4)									
TOTALS							5,000	500	5,000

10. SECONDARY TECHNICAL CODES (maximum 6 codes of 3 positions each)
 545 560

11. SECONDARY PURPOSE CODE
 510

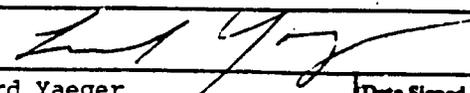
12. SPECIAL CONCERNS CODES (maximum 7 codes of 4 positions each)
 A. Code BR DEL
 B. Amount

13. PROJECT PURPOSE (maximum 480 characters)
 To provide potable water and latrine services and health education to communities in selected regions of the sierra and high jungle.

14. SCHEDULED EVALUATIONS
 Interim MM YY 01 82 MM YY 01 84 Final MM YY 09 85

15. SOURCE/ORIGIN OF GOODS AND SERVICES
 000 941 Local Other (Specify) 935

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

17. APPROVED BY Signature  Title Leonard Yaeger Director USAID/Peru	Date Signed MM DD YY 09 22 80	18. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION MM DD YY 10 01 80
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financed by A.I.D. under the Grant portion of the Project shall have their source and origin in Peru or in the United States, except as A.I.D. may otherwise agree in writing. Ocean shipping financed by A.I.D. under the Grant portion of the Project shall, except as A.I.D. may otherwise agree in writing, be financed only on flag vessels of the United States.

c. Condition Precedent to Initial Disbursement (Loan and Grant)

Prior to any disbursement or to the issuance of commitment documents under the Project Agreement, Peru shall furnish, in form and substance satisfactory to A.I.D., a statement giving evidence of the designation of one person at the Ministry of Health Central level and one person in each of the first three health regions selected for Project activities to coordinate all Project activities within their respective areas of responsibility and for maintaining contact with the A.I.D. Project Manager.

d. Conditions Precedent to Initial Disbursement (Loan Only)

Prior to any disbursement, or to the issuance of commitment documents under the Project Agreement, for the Loan-financed portion of the Project, Peru shall furnish in form and substance satisfactory to A.I.D.:

1) an implementation plan for the five-year life of the Project, including a detailed implementation plan for the first year, for the first three health regions selected for Project activities. It will also describe the selection criteria to be used for choosing sub-projects in all the health regions where Project activities will take place;

2) a financial plan for the five-year life of the Project, which shall include a detailed financial plan for the first year of Project activities;

3) a typical staffing plan for the health regions for the five-year life of the Project, including a detailed staffing plan for the first year for the first three health regions selected for Project activities.

e. Condition Precedent to Disbursement for Commodity Procurement (Loan Only)

Prior to any disbursement, or to the issuance of any commitment documents under the Project Agreement, for commodity procurement, Peru shall furnish, in form and substance satisfactory to A.I.D., a commodity procurement plan for the life of the Project which includes a detailed list of the commodities needed in the first year of the Project.

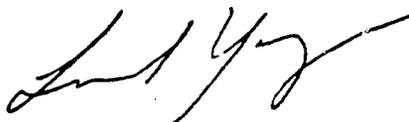
f. Covenants

Peru shall covenant that, except as A.I.D. may otherwise agree in writing:

1) the Government of Peru will provide, during the life of the Project and after the Project is completed, budgetary support to the Ministry of Health and its Directorate of Sanitation Engineering at a level adequate to continue the system of regular maintenance of facilities established under the Project and adequate to cover any costs of maintenance which have not been covered by the beneficiary communities under the Project.

2) any community selected for water facilities under the Project will be included in its health region's primary health plan.

3) all communities selected as beneficiaries under the Project will be located in the six health regions selected for project activities.



Leonard Yaeger
Director
USAID/Peru

Date: 9/22/80

RURAL WATER SYSTEMS AND ENVIRONMENTAL SANITATION

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Part I. PROJECT SUMMARY AND RECOMMENDATIONS

A. Face Sheet (attached)

B. Recommendations

It is recommended that a loan of \$5,000,000 and a grant of \$500,000 be authorized to the Government of Peru to assist in the development of a project for Rural Water Systems and Environmental Sanitation with disbursement over a four-year period beginning in the fourth quarter of FY 1980 and ending in FY 1983.

C. Summary Project Description

The serious health problems of the population in Peru -- high incidence of disease, high mortality rates and severe malnutrition -- are even more acute in the target areas for the proposed Project; the sierra and high jungle. Particularly with regard to children, the figures are sobering: during the period 1970-75, mortality rates in rural areas were twice those of urban areas. Approximately 50% of the total deaths in rural areas occur in children under 5 years of age, due primarily to infectious and parasitic diseases which could be controlled by vaccines and simple environmental sanitation measures. Nutritional deficiencies are related to the principal cause of death in approximately 60% of the total deaths of children under five years of age. About one-third of pregnant women show nutritional anemias. Thus, malnutrition, due in large part to inadequate environmental sanitation, exacerbates the problem of disease which, in turn, contributes to malnutrition through the inability to absorb and utilize nutrients.

The MOH is responsible for providing potable water services to rural communities of less than 2,000 inhabitants, but GOP resources have been insufficient to provide adequate coverage. In rural areas, an estimated 78% of the population lack potable water; 98.7% of the households lack house connections to functioning potable water systems; and 98.4% of the households have no bathroom facilities.^{1/}

Nutritional levels in rural areas are poor due to combined effects of inadequate food consumption and frequent infection, especially gastro-intestinal diseases. In recent years, due to the economic crisis affecting the country, these levels have deteriorated even more, especially in the lower income strata. One of the dominant nutritional problems is that of gastro-intestinal diseases in children under three years of age, who are seldom reached by existing programs. Thus, reduction of the high levels of gastro-intestinal diseases is a high priority area for improving the health situation.

GOP funds available for these activities are limited and clearly insufficient given the magnitude of the problem. In order to address

1/ 1970 Census Date - updated.

this problem, the Ministry of Health has sought external financing for assistance in meeting the need for potable water in rural areas. To this end, the Ministry began a national potable water project for coastal, sierra and jungle communities of 500 to 2,000 inhabitants, funded by IDB and others. However, the needs of a significant number of communities, including those with fewer than 500 inhabitants, have been left unattended. GOP counterpart and A.I.D. funds available from the Primary Health Project will not provide sufficient additional resources to affect this problem significantly. As a result, A.I.D. is proposing to give additional support to the provision of potable water and environmental sanitation to these smaller communities and to the integration of primary health and environmental sanitation activities.

The general health sector goal to which this and other Mission assistance programs are being directed is to improve the health and well-being of the rural poor. The Project will contribute to the accomplishment of this objective by addressing one of the major constraints to improved health status: the lack of adequate potable water and waste disposal facilities in rural areas.

The purpose of the Project is to provide potable water systems, latrines and health education to 420 communities of approximately 500 inhabitants each in selected regions of the sierra and high jungle. These regions will include Cuzco, Junin, and Cajamarca initially, with the other three to be chosen once project implementation begins. A sub-purpose is to integrate these activities into the primary health programs in those rural communities. The design focuses on the implementation of gravity-fed systems with household connections and latrine installation as well as the exploration of alternative approaches to providing cost-effective potable water systems to small communities. The Project will assist the MOH in its effort to improve the planning and design phases of project implementation as well as system maintenance. Another sub-purpose is to strengthen the infrastructure of the Regional Health Offices by promoting the creation of an environmental sanitation team which would remain intact following the conclusion of the Project.

The Project includes seven major elements: 1) Rural Water Systems, 2) Latrines, 3) Community Participation, 4) Health Education, 5) Special Studies, 6) Training, and 7) Technical Assistance.

1. Rural Water Systems

In an effort to maximize utilization and minimize contamination, the design preference for water systems will be gravity-fed systems with household connections. Where no household connections are feasible, the preference will be for gravity-fed systems terminating at public taps. If no surface water is available and/or the community is highly dispersed, a limited number of hand-dug wells with hand pumps will be provided.

Chlorination will also be provided for systems requiring it. Where feasible, sanitary units with public showers and wash basins for laundry will be constructed.

2. Latrines

The construction of private latrines will be encouraged in communities where water systems are installed. Construction will be accompanied by a program of education and motivation to encourage latrine utilization. Public latrines will also be provided in Project communities in schools, health posts and other public buildings. A special study will be carried out in other communities already having latrines to assess utilization and maintenance patterns, attitudes toward them, etc., in order to improve implementation and effectiveness of this element.

3. Community Participation

Communities selected as Project sites will provide self-help labor and locally available materials for the construction of water systems and latrines. Each community will make a small monetary contribution based on its ability to pay for the construction of water systems and latrines. One or more community residents will be trained to operate and maintain the water system. The Project beneficiaries will pay monthly quotas to provide operating capital for the operation and maintenance of the system.

4. Health Education

To encourage proper utilization and maintenance of the water systems and latrines, continuing health education will be provided by the sanitation technicians and other health personnel. Additional materials for this purpose will be provided through the Primary Health Project.

5. Special Studies

In order to facilitate the implementation of system elements, a series of special studies are contemplated: the latrine study mentioned above; water-use survey to determine water-use behavioral patterns; a system efficacy study comparing the impact of various modes of service delivery on the prevalence of diarrheal disease; an examination of simplified treatment techniques; and experimentation with wells using selected alternative pumps.

6. Training

Training will be provided for sanitation technicians and supervisors on the regional level, and for community administrators and maintenance personnel on the community level.

SUMMARY FINANCIAL PLAN
(Thousands of U.S. Dollars)

<u>Investment Category</u>	<u>Loan</u>	<u>Grant</u>	<u>GOP</u>	<u>Community</u>	<u>Total</u>
1. <u>Construction</u>	3,600	-	250	450	4,300
2. <u>Vehicles and Equipment</u>	473	-	-	-	473
3. <u>Technical Assistance</u>	-	250	-	-	250
4. <u>Training and Education</u>	-	90	-	-	90
5. <u>Studies and Evaluation</u>	-	110	-	-	110
6. <u>Support Costs</u>	176	-	1,524	-	1,700
Total (1) to (6)	4,249	450	1,774	450	6,923
<u>Plus: Inflation and Contingencies</u> ^{2/}	751	50 ^{1/}	376	-	1,177
Grand Total	5,000	500	2,150	450	8,100
		68%	26%	6%	100%

1/ An inflation factor of 10% is included.

2/ An inflation and contingency factor of 1.9% has been estimated.

7. Technical Assistance

Approximately 35 months of technical assistance will be provided. Of this amount, 24 months will be used to provide a sanitation engineer to assist the various Regions in Project organization and planning the establishment of information and control systems, and other related activities. Five months of technical assistance will be provided to design and test various modes of maintenance procedures and six months will be provided to strengthen the community education and organization program.

D. Summary Financial Plan

The total cost of the Project is estimated to be US\$8,100,000 A.I.D. will contribute \$5,500,000, or 68% of total Project costs, in Loan and Grant funds. Loan funds (\$5,000,000) will finance the purchase of construction materials, vehicles, and equipment as well as limited support costs. Grant funds (\$500,000) will finance technical assistance, training, education, special studies, and evaluation. The GOP will provide \$2,150,000, or 26% of total costs, for construction materials, salaries, and operating expenses. Finally, the communities will contribute \$450,000 (6%) in cash and unskilled labor for the construction of the systems.

E. Summary Findings

The Project development committees has concluded that the Project is technically, economically, and administratively feasible and consistent with the development objectives of the GOP and those objectives set forth in USAID's CDSS document. These Project analyses are found in Section IV of the Project Paper.

F. USAID/Peru Project Development Committee

1. USAID Staff

Edward Kadunc	Capital Development
Mary Likar	Capital Development
César Espino	Capital Development
Enrique Schroth	Engineering Division
Helene Kaufman	Family Health Office
Genny Martínez	Family Health Office
Janet Ballantyne	Health, Education and Nutrition
John Davison	Controller
Robert Stickney	Consultant
George Wachtenheim	Capital Development
Steve Whitman	Regional Legal Advisor

2. TDY Assistance

John Holley	USAID/Bolivia
Gonzalo Medina	USAID/Bolivia

II. PROJECT DESCRIPTION

A. Background

1. Country Setting

Although Peru is the third largest country in South America, it is among those with the least arable land area per inhabitant--its population density per arable square kilometer is 476.2. The Andean mountains cross the country from north to south, separating it into three distinct regions which differ from each other in flora, fauna, climate and socio-cultural characteristics. These are coast, mountain and jungle. The coast represents 11.54% of the total area, with approximately 46% of the population. The mountain and jungle represent 26.83% and 61.63% of the area and 44.1% and 9.9% of the population, respectively. Peru's demographic growth shows increasing urbanization with a tendency for the population to concentrate in certain regions, particularly the Lima metropolitan area and a handful of other urban areas. The result has been a growing dichotomy between rural and urban, as well as between coast and sierra.

2. Project Rationale

Peru initiated its major activities in rural water systems in 1959 with the approval of Public Law 13997, Basic Rural Sanitation. This Supreme Resolution was designed to focus health sector resources on extending potable water to rural communities of less than 2,000 persons. The program was expanded through the years with the support of specially trained Peruvian environmental sanitation engineers and with technical and financial assistance from a variety of international advisors, including the Pan American Health Organization (PAHO), Inter-American Development Bank (IDB) and CARE.

The National Health Plan recently issued by the GOP assigns highest importance to Primary Health activities with special priority given to rural potable water systems and latrines which are included as an important component of the primary health activities. The newly elected civilian government has also indicated its strong desire to improve the health conditions of the rural population by increasing primary health activities, and has designated potable water supply as a priority area in this effort. Currently, however, the MOH's rural water program is implemented as a vertical program, giving little or no consideration to assuring that primary health activities, especially those of the promoters in the rural communities, are complemented through the provision of potable water and latrines. Thus, one of the objectives of this Project, in addition to providing the necessary funding to support construction of rural water and sanitation projects, is to promote its integration into the Primary Health Delivery System.

In order to accomplish these objectives, the proposed Project has been designed to expand the GOP's decentralized primary health strategy, which is also supported by the A.I.D.-financed Primary Health Project. Rather than segregate the potable water

activities, this Project will focus on promoting decentralization of functions and responsibilities to the Regional Health Office and coordination of the Project through the Regional Primary Health Group. The Project will aim at eliminating major supply, logistics and financial bottlenecks of the existing vertical program of the MOH both by decentralizing purchase of locally available materials, fiscal responsibility and design/implementation decision-making and by instituting improved planning and project implementation procedures. The Project will include a maximum of only six MOH Regional Health Offices, recognizing the funding limitations and the strengths and weaknesses of the administrative infrastructure of the various existing regions. The Project will provide an incentive for accelerating the decentralization of activities and the establishment of a regional infrastructure for the integration of potable water and sanitation into primary health.

The Project focuses on the rural poor in the sierra and high jungle, priority areas as outlined in the Mission's CDS and in GOP development plans. Simple gravity systems have been selected for utilization in a majority of these rural communities. In larger communities of approximately 300 - 500 inhabitants, gravity flow systems will include the standard model of identification and protection of clean water source as well as provision of a reservoir and community level supply with household connections. In smaller villages of 200 - 300, only the minimum system will be provided with neither reservoir nor household connections. Finally, in the smallest communities—those with less than 200 inhabitants—Project resources will be used to explore alternative approaches (for example, dug wells with pumps) to serve more difficult-to-reach, widely-dispersed populations.

3. Problem

The serious health problems of the population in Peru are even more acute in rural areas of the sierra and high jungle, the Project target areas. During the period 1970-75, for example, mortality rates in rural areas for infants was 158.2 per 1000 (compared to 73.6/1000 in urban areas) and for children under five was 53.4 per 1000 (compared to an urban rate of 24.4/1000)^{1/}. Approximately 50% of the total deaths in rural areas occur in children under 5 years of age. The principal causes of death are infectious and parasitic diseases which could be controlled by vaccines and simple environmental sanitation measures. Nutritional deficiencies are related to the principal cause of death in approximately 60% of the total deaths of children under five years of age. Likewise, 33% of pregnant women show nutritional anemias. Thus, malnutrition, due in large part to inadequate environmental sanitation, exacerbates the problem of disease which, in turn, contributes to malnutrition through the inability to absorb and utilize nutrients.

^{1/} Instituto Nacional de Estadística (INE), "El Niño en el Perú", Lima, 1979, pp. 49-50.

The MOH is responsible for providing potable water services to rural communities of less than 2,000 inhabitants. Larger communities are the responsibility of the Ministry of Housing. However, GOP resources are insufficient to provide support in either size range, as shown by the poor coverage to date: in rural areas an estimated 78% of the population lack potable water; 98.7% of the households lack house connections to functioning potable water systems; and 98.4% of the households have no bathroom facilities.^{1/}

Table II.A.1

WATER AND SANITARY WASTE DISPOSAL SITUATION

Rural and Urban Areas

Peru 1972

INDEX	RURAL	URBAN	NATIONAL AVERAGE
Percentage of houses without water supply	98.7	40.7	70.1
Percentage of houses without sanitary systems	98.4	53.4	72.9

Source: 1972 Census

Rural housing and basic sanitary conditions are generally poor. Almost all houses in rural areas lack domestic water and sanitary systems. At the same time, factors such as increasing use of insecticides and growing exploitation of mineral resources create contaminating agents--residual water, for example, which pollute the environment and create health hazards.

Poor nutritional status is an additional factor which contributes to poor health. Nutritional levels in rural areas are deficient due to combined effects of inadequate food consumption and frequent infection, especially gastro-intestinal diseases. In recent years, due to the economic crisis affecting the country, these levels have deteriorated even more, especially in the lower income strata. Average caloric consumption per day is under 2,000 calories per capita (ENCA projection for 1977). Foods consumed in rural areas are primarily potatoes (69%) plus cereals and

^{1/} 1970 Census Date - updated.

by-products (ENCA-1970-72). Consumption of animal products is very low. One of the dominant nutritional problems is that of gastro-intestinal diseases in children under three years of age, who are seldom reached by existing programs. Thus, reduction of the high levels of gastro-intestinal diseases is a high priority area for improving the health situation.

GOP funds available for these activities are limited and clearly insufficient given the magnitude of the problem. In order to address this problem, the Ministry of Health has sought external financing for assistance in meeting the need for potable water in rural areas. To this end, the Ministry began a national potable water project for coastal, sierra and jungle communities of 500 to 2,000 inhabitants. This project is financed by the IDB and negotiations are currently under way to fund a fourth phase, which would provide an additional 6.5 million dollars for four more years of project implementation (See Section II.C.3 for additional information on this and other related projects). Even with this additional funding, however, the needs of a significant number of communities, including those in the size range of most interest to A.I.D. (less than 500), will be left unattended. The small amount of GOP counterpart and A.I.D. funds available from the Primary Health Care Project to reach communities of approximately 500 inhabitants or fewer will not provide sufficient additional resources to affect the problem significantly. As a result, A.I.D. is proposing to give additional support to the provision of potable water and environmental sanitation to these smaller communities and to the integration of primary health and environmental sanitation activities. Other donors are unlikely to support these activities due to the relatively small size of the communities and the cost of extending services to these rural areas, and because A.I.D. is already significantly involved in the field of rural health.

B. Project Description

1. Goal and Purpose

The general health sector goal to which this and other Mission assistance programs are being directed is to improve the health and well-being of the rural poor. The Project will contribute to the accomplishment of the objective by addressing one of the major constraints to improved health status: the lack of adequate potable water and waste disposal facilities in rural areas.

The purpose of the Project is to provide potable water and latrine services and health education to communities in selected regions of the sierra and high jungle. These regions will include Cuzco, Junin, and Cajamarca initially, with the other three to be chosen once project implementation begins. The Project will also integrate these activities into the primary health programs in those rural communities, assist the MOH in its effort to resolve the serious operational and maintenance problems which currently affect a majority of the existing systems in rural communities, and to improve the planning, design and execution phases of project implementation. The latter will be accomplished through the

strengthening of the infrastructure of the Regional Health Offices by promoting the creation of an environmental sanitation team which will remain intact following the conclusion of the Project. This team will be able to carry out similar projects in a decentralized fashion, and supervise the maintenance of the existing systems. The Project design focuses on the implementation of gravity-fed systems with household connections and latrine installation as well as the exploration of alternative approaches to providing cost-effective potable water systems to small communities.

2. End-of-Project Status

At the end of the Project, the following conditions should exist indicating achievement of the Project purpose:

a) Decentralized regional environmental sanitation offices upgraded and operating in six regional health offices.

b) The Directorate of Sanitary Engineering (DSE) upgraded such that it has the ability to develop, implement and maintain rural potable water and sanitary systems, through increased human financial and material resources available as a result of the Project.

c) Training programs developed and implemented to assist the environmental sanitation technicians in carrying out community organization activities for construction and maintenance of community potable water systems.

d) Latrine utilization increased in the Project area as a result of information developed through the Project.

e) Health conditions and general well-being in the Project area improved as a result of increased availability of potable water.

3. Project Inputs

Loan-funded inputs for the Project include vehicles, equipment and materials. Included will be the purchase of six four-wheel-drive pick-up type vehicles, six dump trucks and a stock of spare parts for each of the six regional offices for transporting personnel, materials, equipment and supplies. Two four-wheel-drive vehicles will be purchased for the national office. In addition, up to 30 off-road type motorcycles and a stock of spare parts will be purchased for the environmental sanitation technicians located in the six regional offices for use in the community organization, system construction and maintenance aspects of the Project. The Loan will also fund limited travel costs for DSE personnel and operating and maintenance expenses for the vehicles. It will also finance simple portable water testing equipment for both field and office use, as well as training equipment and materials and a limited amount of engineering and office equipment for the regional offices. Plastic pipe and accessories for system construction as well as galvanized pipe and accessories for the household

connections, most of which will be imported, will also be purchased with Loan funds. Lastly, the cost of contracting skilled labor for system construction will be financed with Loan funds.

Grant funds will provide technical assistance in the areas of simplified chlorination systems, integration of activities supported under the Rural Health Project, system design, administrative systems, procurement, material and equipment control, simplified system maintenance procedures, and environmental sanitation education. Additionally, funds will be provided for short training programs for environmental sanitation engineers and technicians in community organization, material and equipment control, and system operation and maintenance. Studies related to sanitation and water usage, evaluation of impact on the health status, water treatment, and alternative water systems will also be carried out with Grant funds.

The MOH will finance support costs for technician and community training programs and vehicle operating expenses (gasoline, oil, and maintenance). It will also provide salaries and travel expenses for all Project personnel employed, except for local supervisors paid by the communities.

The communities involved in the Project will provide unskilled labor, and locally available materials such as rock, sand, and gravel for system construction. They will also make a small monetary contribution to cover the cost of system construction. The total community contribution, both monetary and in-kind, will generally be about 11% of the system construction costs. The community will also organize and manage an administrative system to operate and maintain the installed system.

4. Project Outputs

The following outputs will have been achieved at the end of the Project:

- a. Approximately 420 water systems functioning in communities of less than 500 inhabitants.
- b. Five environmental sanitation technicians in each Regional MOH office trained in community organization and system maintenance procedures.
- c. Staffed and equipped maintenance units existing in each regional MOH offices.
- d. Latrines in all communities served with potable water systems constructed by the Project.
- e. Community education regarding water and sanitary waste disposal carried out in all participating communities.

5. Project Design

Under the proposed Project, 420 communities of approximately 500 inhabitants or fewer in up to six health regions will be provided with potable water services. Low cost, easily maintained chlorinators will be incorporated into the larger systems where water testing demonstrates need. Where feasible, public sanitary units including basins for washing clothes, public taps and public showers will be constructed. Latrines will be included as a Project component to be constructed in public buildings such as schools, health posts, and community centers and for individual homes. Project activities will begin initially in the regions of Cajamarca, Junin and Cuzco. Up to three additional regions will be selected for Project implementation, one each year beginning in Year 2 (Annex II, Exhibit L contains an implementation plan). These additional regions will be selected by the MOH from Mission and MOH priority areas and will be subject to Mission approval. Due to the very widespread non-utilization which is currently experienced under other MOH Projects, a study will be carried out with Grant funds to determine what factors influence utilization and what changes in implementation strategy and community education activities would improve utilization. Grant funds will also finance the installation of experimental well systems in communities where gravity-fed systems are not feasible. Finally, institutional reinforcement through technical assistance, equipment and training will be provided for personnel at the regional level to assist in carrying out these activities.

a. Executing Agency

The Directorate of Sanitary Engineering (DSE) of the Ministry of Health will be responsible for Project implementation, as the GOP agency formally charged with carrying out potable water and environmental sanitation activities. The DSE has a national office which coordinates and executes national environment sanitation planning activities, major equipment and supply procurement, personnel and program administration, and the integration of environmental sanitation with other health activities of the Ministry. The latter function will be of particular importance in the coordination of this Project with the current Mission/MOH Primary Health Project.

Rather than increasing the central level DSE staff in order to implement the Project, a Project team will be assigned in each of the participating regional health offices. This team will be employed as permanent staff of those offices, and will be composed minimally of the personnel described in Annex II Exhibit G. This decentralized structure will greatly facilitate the Project promotion, execution and components, and will permit supervision of community education and evaluation activities, both during and after the Project.

b. System Design

(1) Potable Water Systems

DSE has developed a number of standard designs which, to the extent possible, utilize locally available materials, are labor-intensive in the construction phase, can be maintained easily, and are consistent with community size and water source availability. Four of these designs are described below:

Type I

This system is based on a surface source found at a sufficient elevation above the community such that gravity flow alone will have sufficient hydrostatic head to provide necessary pressure to the community for adequate water distribution. Intake, sedimentation and treatment facilities will be used in all cases where necessary. In addition, household connections will be favored and will be made to all houses in generally clustered areas. Public sanitary units may supplement household connections as well.

Type II

The principal difference between Type I and Type II systems is that, due to dispersion of the population, it will not be economically feasible to provide household connections to all families. In this case, household connections may be made where clusters of houses exist, but will be supplemented by additional public sanitary units or public taps serving the rest of the population.

Type III

This system consists of the same captation and distribution system as above, but ending in public sanitary units or public taps rather than household connections.

Type IV

Where a community is too small (generally under 200 inhabitants) to justify a distribution/treatment system, or where the no surface source of water is available, hand dug wells with hand pumps will be provided.

A gravity-fed system, from a protected or treated source with household connections is the preferred alternative for this Project, both for its relatively contamination-free design and for the convenience and increased usage which it permits. This configuration is favored over a system with public taps because of the lower risk of contamination, though public taps are obviously to be favored over the current usage of water from unprotected sources. However, since people not only draw water but also perhaps wash themselves, their animals, clothes and utensils at public taps, this alternative offers less assurances regarding secondary contamination. Thus, the need to transport water from public taps to be used for domestic purposes automatically limits the amount used for personal hygiene, and certain activities, such as the washing of clothes, will continue to take place in rivers and other sources, increasing somewhat the probability of infection. Moreover, there is the additional factor that a contaminated container may be used to transport water for home use. Easy accessibility to water which either alternative will provide, has been shown to lead to greater use which, when combined with proper instruction on the usage of water to reduce the risk of contamination, has an increased impact on improvement of health status and, thus, is an important benefit of the Project. An additional expected benefit related to household connections which is difficult to quantify is that community members will show a greater interest in properly maintaining a system that provides more individualized service. Therefore, the Project will put in as many household connections as feasible, supplemented by public taps or public sanitary units for those residents not easily reached. In this way, the risk of contamination will be minimized by both decreasing general access at each point of drawing and increasing the immediate access to all served by each tap. Where universal household connections are not feasible due to dispersion of the families, the preference will be to install Type II systems and to include household connections in at least the principal cluster of houses in the community. Where no housing clusters exist, but where the other conditions for a gravity-fed system are available, Type III systems will be installed in preference to wells. Where none of these systems are feasible, wells (Type IV) will be installed.

Although hand-dug and shallow hand-drilled, hand-pump wells are initially the cheapest systems to install on a per capita basis, the cost of adding household connections to an existing distribution system as the population grows is about the same per capita cost as installing additional hand pumps. Thus, wells will be constructed as an interim solution to the problem of potable water provision for very small villages with dispersed populations or villages which cannot afford to maintain a distribution system. In the longer run, the DSE will work with these communities so that eventually they will be able to adopt the preferred potable water systems, Type I or Type II.

(2) Latrines

Complementing the effectiveness of all water systems constructed under the Project will be the provision of public and private latrines in those same communities. Public latrines will be constructed in

all Project communities lacking them, and will be located in communal areas such as schools, medical posts, and public halls. Depending on the size of the community, they will either be pit privies or include septic tanks with discharge into leach fields. Private latrines will also be constructed in all project communities expressing an interest, and in general prior to providing household connections. Materials and molds will be provided by the MOH, while community members provide labor. However, to ensure both acceptability of design, maximum utilization, and proper maintenance, a special study will be carried out during the first year in communities of the Project regions where latrines have already been built to determine use, maintenance patterns and perceived utility. Further implementation of this component will be modified pending the results of this study described in Annex II Exhibit F. Additional support to this component will be provided through the Primary Health Project in the form of educational materials. Education and motivation in system use and maintenance will be provided by the sanitation technician, and is considered to be an essential component to stimulate successful behavioral change.

c. System Installation

As discussed below in Section II.B.5.g, the selection of systems to be constructed with Project funds will be based on several factors, including the absence of an existing potable water source, cost criteria, and community interest and enthusiasm, e.g. the willingness of the community to contribute voluntary work for the construction of the water system and latrines and to bear a small portion of the construction expenses.

Once the community has been selected and initial design has been completed, the first phase of the education program will begin, stressing community organization and the public health benefits of the water and latrine systems. The location and specifications for the public and private latrines will be clearly laid out by the sanitation technician^{1/}. As a rule, latrine construction will generally precede construction of the water system.

The sanitation technician will assist community water committees in the organization of voluntary labor for water system and latrine construction. This activity will be supported by Food for Work, contributed through the current Catholic Relief Service program. In addition, the technician will ensure that all materials and equipment are on-site prior to the construction phase. The regional engineering supervisor will accompany the delivery of materials in order to brief the technician on the design and execution of each sub-project. Approximately twice a month, a sanitation engineer will return to inspect the construction. Finally, when the sub-project is completed, the engineer will ensure that it has been completed in accordance with the design standards as originally established. Construction will take place in "priority clusters" to economize on the movement of personnel, equipment,

^{1/} For more detail on latrine specifications, see the Technical Analysis and Annex II Exhibit J.

and materials. The clustering of sub-projects will also permit the Project to capitalize on the interest generated in an area by the construction of a water system in one of the area's communities.

d. System Maintenance

Maintenance is viewed as a critical element of this program. In the early stages of project preparation and construction, community enthusiasm is virtually assured. However, such enthusiasm will undoubtedly wane over time. The community and/or implementing agency then will be left with the less dramatic and more difficult task of insuring proper system maintenance and operation. This more mundane task is difficult precisely because community interest is less acute. Mission experience indicates that it is far easier to get communities to contribute labor and materials to the construction of new facilities than it is to renovate or repair existing ones. Therefore, the maintenance component is being given considerable emphasis to avoid, to the extent possible, the construction of a series of potable water/sanitation sub-projects which deteriorate because of improper maintenance.

To improve the maintenance of systems constructed under the proposed program, a maintenance plan has been developed, based in part on the successful aspects of DSE's experience with system maintenance to date. In order to qualify for a water system under the program, a community water committee will be established in each Project site with the assistance of the sanitary technician. The committee will organize voluntary labor for system construction. More importantly, it will be responsible for the maintenance of the system, including the collection of maintenance fees. The committee will collect fees sufficient to pay for system operation and maintenance. Costs for maintenance per family per year for the four systems are estimated at \$14.40, \$10.00, \$2.00, and \$2.00, respectively. The fee per user will be established by DSE for each community and the system to be installed in each community will depend in part on the user's ability to pay the fee.

Prior to installation of the system, the committee will collect the first three months of the maintenance fee from each family. The collection of this fee will represent an initial commitment on the part of the community toward the maintenance of the system and will provide the community water committee with preliminary experience in fee collection. Additionally, the community will select a community maintenance supervisor to be responsible for the routine and preventive maintenance of the system, as well as for chlorination in systems where disinfection is required. As compensation for these tasks, he will receive a small monthly payment agreed upon by the community to be paid out of the maintenance fees.

The education program at the community level will focus, in part, on the maintenance aspect of the program. Community members will learn how to keep simple accounts for tariff collection; a small group of villagers, including the community maintenance supervisor,

will be instructed in basic maintenance techniques. Several community members will be selected for instruction in these tasks to ensure that specialized knowledge will be adequately disbursed in the community. The sanitation technician will be responsible for this component of the education program and will use prepared and pre-tested methods and procedures developed during the first year of the Project to assist the water committee in collecting tariffs and keeping simple but complete records of collection.

At the regional level, the sanitation technician supervisor will be responsible for coordinating the maintenance program. Technicians will be required to visit communities in their areas at least quarterly. During their inspection trip, the technicians will inspect the system, assist the community maintenance supervisor in carrying out necessary minor repairs and preventive maintenance, deliver sufficient chlorine (if necessary) to last until the next visit, ensure that tariffs are being collected, and assist the community maintenance supervisor with any problems he may have in carrying out assigned tasks.

The technicians will be required to use a kardex system to record all regular inspections and minor and major repairs. This system will encourage proper maintenance record control at the district and national level and will show that communities are visited every three months, that systems are regularly attended to, that the estimated cost of systems maintenance are roughly equal to community tariff charges, and that an adequate inventory of spare parts is on-hand for maintenance.

For the development of these system components, technical assistance will be provided to investigate past problems and develop and test technical and administrative mechanisms. This input is described in greater detail in Annex II Exhibit D.

e. Community Education

Community education will be an integral component of the project focusing on four general areas:

- 1) Motivation and organization of the community to receive sanitation services;
- 2) Continuing education to explain proper use of the water system and latrines;
- 3) Education specifically directed toward maintenance of the water systems and latrines;
- 4) General health education emphasizing the relationship between health, disease and environmental sanitation. This component will be integrated into the overall health education component of the Primary Health System.

These activities will be financed under the Grant portion of the Project, except that the educational materials for the second and fourth areas will be provided under the Primary Health Project. Guidance toward effective educational strategies will result from analysis of the latrines and water use studies described in Annex II Exhibit F, and the provision of technical assistance for this component is described in Annex II Exhibit D.

f. Information System

The Project Information System will take a variety of forms to serve different purposes, but all forms will complement one another, and in general will serve to monitor specific aspects of the Project and guide modifications during the life of the Project.

1) Managerial Control System

This system will provide general supervision and the on-going collection and analysis of information for purposes of Project control. Ultimately, it should include most of the normal administrative sub-systems found in any well-functioning organization, such as project accounting, inventory and logistic control, and preventive maintenance, which in this case includes inspection schedules for on-going construction and completed systems. Through means of these mechanisms, project inputs may be effectively measured, controlled, and thus modified if necessary. At present, most of these sub-systems are weak or non-existent; many will be improved, principally through the Primary Health Project and the decentralization of Project responsibility.

2) Special Studies

Each of the special studies outlined in Annex II Exhibit F will contribute valuable information regarding the Project and its objectives. In general, their implementation has been planned to foster appropriate Project modifications based on the research findings.

3) Health Survey

An important component of the Primary Health Project is a series of household surveys which will be used for Project monitoring and final evaluation purposes. This simplified household sample survey will include health, environmental sanitation, nutrition and population elements.

g. Site Selection

To ensure that resources are used efficiently, potential system sites will be screened in a three-step process. First, the regional office will screen all proposals and reject those which fail to meet minimum general criteria. Secondly, the office will rank the remaining proposals according to a quantitative scale. Finally, selection will be subject to a signed contract detailing the obligations of the community.

1) Eligibility Criteria

In order to qualify for consideration, a community submitting a proposal must fulfill the following minimum conditions:

- i) It must not have an adequate potable water source within reasonable access of the population to be served.
- ii) It must have an appropriate water source available.
- iii) The population to be served must be approximately 500 or less.
- iv) The community should be included in the Region's primary health plan.
- v) A strong community interest must exist among members who will benefit from the system. This interest will eventually be translated to include self-help construction and maintenance and the payment of monthly water fees, but for purposes of the proposal, a petition will be submitted, signed by the majority of heads of families, indicating their willingness to build and maintain the system as well as to pay the water fees established by their community water committee.

2) Selection Criteria

Proposals meeting the above specifications will then be rank ordered for priority within each system type, taking five additional criteria into consideration. The selection process will generally favor systems with household connections. A site visit will be necessary to inspect the potential water source, make a rough estimates on the costs of available options, and discuss feasibility and commitment with community leaders. The additional criteria are:

- i) The relative density of the population. Preference will be given to communities where a large segment of the population is fairly concentrated to facilitate construction of system Types I and II.
- ii) Technical feasibility and complexity. Preference will be given to project sites where the technical requirements are relatively simple.
- iii) The capacity of the community to pay for operating and maintenance costs of the intended system and to make the small monetary contribution required for system construction.
- iv) The estimated cost per capita of the population served for the type system contemplated. The cost will not generally exceed \$50 per capita.

v) The geographical proximity to other potential sites. Project sites will be focused in a limited geographical area during a given phase to facilitate supervision and logistics and to build on the interest generated by initial sub-project in the area.

3) Final Selection

The DSE will develop the specific final selection criteria. However, within the operational capacity of the region, the Project sites for each phase will be selected in the order of their ranking within each system type. Final selection will be contingent upon the signing of an agreement by the community water committee, specifying its commitment in terms of construction and maintenance labor, materials to be provided, and the amounts to be paid toward construction and in support of operating and maintenance costs.

h. Institution Building Aspects

In accordance with the GOP's policy to decentralize key services, the Project will help to strengthen the administrative and engineering capability of the six regions involved. In these regions, institution building efforts will complement similar inputs from the Primary Health Project, and will facilitate the emergence of a primary health care team approach integrating environmental sanitation with other areas of program emphasis. To this end, the environmental unit in each region will form part of the primary health team and will receive more adequate administrative support from its Regional Office. The DSE will, however, provide overall Project management, support, and technical assistance to the regions. In many respects, this support will represent in-service training of a team capable of developing and managing similar projects in the future as well as maintaining existing systems.

C. USAID Assistance Strategy

1. Relationship to Mission CDSS Strategy

The current Mission CDSS places major emphasis on extending the benefits of a low-cost health delivery system to the rural poor in the sierra and high jungle. The proposed Project, like the Mission's Primary Health Project, provides for that target group and target area. Access to a safe water source is among the most basic of human needs and thus this Project is of primary importance in fulfilling A.I.D.'s mandate to provide basic services to the poor. As emphasized in the Social Analysis below, extension of primary health care can only be maximized by concurrent provision of a safe, easily accessible water supply.

2. Relationship to Current Mission Programs

Other AID-financed projects in health, agriculture, education, family planning and housing are addressing important indirect causes of malnutrition and poor health in Peru. AID agricultural projects are designed to make credit available to small landholders, improve crop production, finance feeder road construction and small irrigation systems, and strengthen agricultural cooperatives and cooperative federations. The overall goal of these projects is improved productivity and increased farm family incomes in the high jungle and sierra. In addition, the Mission has provided grant financing for an experimental project on the coast using effluent for irrigation purposes and a pilot project in fresh water fisheries in the sierra. A closely related project is a pilot effort to extend village potable water systems, carried out under an OPG with CARE. Initial evaluation results indicate strong community support for the project and a substantial potential for improved health. (See Section II.C.3 below).

General education development projects receiving AID assistance seek to improve the economic opportunities of low-income Peruvians; one such project is a pre-school education pilot which will incorporate nutritional education for parents.

AID assistance to GOP family planning is designed to alleviate population pressure, which is recognized as a major obstacle to the achievement of general development goals and, most immediately, to health and nutrition goals.

P.L. 480 Title II

One of the principal AID activities in nutrition has been the P.L. 480 Title II Program which has been functioning since 1962. This program is currently conducting school feeding operations on a government to government basis and is coordinated through the joint efforts of MOH, MOE and ONAA (National Food Support Office) of Ministry of Agriculture and Food. It is now reaching 500,000 students nationwide, providing a daily supplement. Food for Work, Maternal-Child Health and other child feeding programs, conducted by three private voluntary agencies (CRS-Caritas, SAWS-OFASA, and CWS-OFASA, CWS-SEPAS) are currently reaching a total of 700,000 beneficiaries annually.

The Title II Program is meant to provide all beneficiaries with supportive nutrition as well as health education. At present, however, only a small percentage of the beneficiaries are receiving health education, because of staff and budgetary constraints in all of the participating agencies. Recently A.I.D. began providing assistance to PVOs through OPG funding which will help resolve the lack of financial support and facilitate nutrition and health education. A strong A.I.D. involvement in health and nutrition will complement the Title II effort and make it more effective.

3. Other Donor Activity

The other major donors working in the health sector include the Inter-American Development Bank (IDB), CARE, the Pan American Health Organization (PAHO), the UN Fund for Population Activities (UNFPA), and the World Bank (IBRD).

The IDB has concentrated its efforts on potable water and sewerage programs. In the fifteen-year period from 1960 to 1975, loans totalling \$9.5 million have been dispersed for rural water projects in communities of 500 - 2,000 inhabitants. The DSE was created primarily to carry out these projects and therefore much of the present Project design reflects this experience. The IDB is currently considering a fourth phase loan of \$6.5 million to construct additional systems. It is also participating in a parallel effort, providing urban water and sewerage systems; three loans totalling \$85.5 million have been channeled to this program.

CARE/Peru provides support for both centrally funded, A.I.D. health activities and for a special OPG potable water project with the ORDENOR-CENTRO. This latter project, begun in 1977, was designed to provide adequate and reliable supplies of potable water to approximately 20 communities and sewerage systems to four communities in the ORDENOR-CENTRO. As such, it has served as a pilot project for the currently proposed A.I.D. Project. Implementation of the CARE project has proceeded well. Cost of the Project per beneficiary was lower than originally estimated, permitting an expansion of the number of sub-projects to be implemented. Community organization and signing of contracts with each village to assure its participation has been carried out efficiently. The participation of ORDENOR-CENTRO in the preparation of feasibility studies and engineering designs has generally been adequate.

The UN Fund for Population Activities (UNFPA) has a project in Maternal Child Health/Family Planning, for which PAHO will provide technical assistance. This program may provide several millions of dollars in assistance over the next four years. The existing project of \$499,000 for 1980 has some of the same objectives as A.I.D.'s health strategy in Peru, namely to place strong emphasis on maternal child care and family planning as priority elements of a basic health program. The UNFPA project has some elements of decentralization, but presently its primary focus is at the centralized Ministry of Health level for planning and implementation. The AID health strategy supports Central Level MOH coordination and planning functions, but it is primarily focused on the regional level for implementation.

The UNFPA project generally deals with activities from the Ministry level down to the health centers while the primary focus of the two AID Projects will be to extend services beyond the health center into the community. Coordination among international donors is presently carried out in frequent discussion between Mission personnel, representatives of UNFPA and PAHO, and MOH Officials. Further sharing of reports and joint planning has been encouraged and will be improved under the new civilian government.

There is one World Bank (IBRD) financed water supply project, the goal of which is to extend water services to urban slums. The project totals \$8,800,000 and is concentrated in Lima.

The Governments of West Germany, Holland and the U.S.S.R. have provided bilateral support for the health sector. The Government of Holland has been involved since 1962, primarily in the development of rural potable water systems, and will develop approximately 35 systems in the sierra Region of Cuzco in 1981-2, thereby further reducing the operational capacity of that Regional Office to construct systems under this Project.

Other agencies such as Church World Service, and Catholic Relief Service-Caritas, have funded small projects related to food distribution and health care, and small community development projects. The World Food Program has been involved in food distribution through the local office of PAMI (Programa de Alimentación Materno Infantil).

III. PROJECT ANALYSIS

A. Administrative Feasibility

1. Institutional Background and Organization

The organization responsible for the planning and management of the Project is the Directorate of Sanitation Engineering (DSE) of the Ministry of Health. The DSE is comprised of five major divisions and the office of the Director. An organizational chart showing the various divisions of that Directorate and their interrelationship may be found in part 2 of Annex II, Exhibit B.

DSE's Director and Assistant Director are both sanitation engineers and are responsible for the overall functioning of the Directorate. The Directorate carries out the policies as established by the Minister of Health, and directs, coordinates, supervises and controls all of the resources and programs of the Directorate including those in the field. In this sense, it operates a vertical program, relatively independent from the other Directorates of the MOH. It is anticipated that prior to the initiation of Project activities the Directorate will be incorporated into the National Health Fund, a decentralized MOH agency whose director holds the equivalent rank of Vice Minister. This change should facilitate Project implementation, since the Fund, with its decentralized status, is not incumbered with many of the administrative regulations affecting the MOH and possesses its own funding sources.

The Programming and Evaluation Unit formulates and monitors long, medium and short-term plans, programs activities, evaluates results, and generally controls and manages the various projects. It thus carries out the immediate staff functions of the Directorate. Three Divisions --Projects, Works, and Preservation and Supervision of Services-- are responsible for the planning and execution of specific projects. The Projects Division formulates projects to enhance the environmental sanitation infrastructure of the rural areas, and carries out studies for special projects. The Works Division is responsible for directing, coordinating, and controlling the actual execution of those projects. It also is responsible for promoting community participation in the construction and administration of projects. Finally, the Division of Preservation and Supervision of Services provides supervision and technical assistance to the community groups responsible for water through the Environmental Sanitation offices of the health regions. These divisions are supported by an administrative unit which handles accounting, purchasing, storage and distribution of materials and equipment. This unit is also responsible for cost control and personnel.

The staff of the DSE presently includes 44 engineers, 15 environmental sanitation promoters and technicians, 49 technical auxiliaries, and nearly 200 additional support staff, detailed in Annex II, Exhibit G. Approximately 20 of the engineers along with some other staff are based in the field, but the majority of personnel are based in Lima. The engineers based in the field, however, are fully occupied by work originating through other existing projects, and in fact are utilized at

times to carry out additional activities for the Regional Health Offices. Additionally, at present, with the possible exception of secretaries, chauffeurs and administrative support, the Regional Offices do not have personnel to assign to the Project. In consonance with both MOH and Mission policies of strengthening the decentralization of all programs, implementation of the Project will actually be carried out by staff of the Regional Health Offices. For this reason, nearly all personnel contemplated under the Project must be hired to supplement existing personnel, and each regional office will be required to demonstrate an adequate staffing pattern prior to commencement of the Project in its Region.

Part 1 of Annex II, Exhibit B describes a number of the principal departments of the MOH, and their relationship to one another.

2. Administrative Analysis

The DSE has demonstrated its capacity to develop and manage similar projects through 15 years of experience designing and constructing rural sanitation projects throughout Peru. Two basic differences, however, distinguish this Project from previous DSE activities. These are: 1) The emphasis on strengthening the technical and administrative structure of the environmental sanitation units within the Regional Health Offices involved, as opposed to concentrating this function at the national level as is currently the case; and, 2) The focus of the Project in the communities at the lower end (generally less than 500) of the size range of the group that the MOH normally serves (from 500 to 2,000).

In the past, projects managed by the DSE have operated under a highly vertical organizational structure, that is, they have depended very little on the Regional Health Offices for administrative and technical support. Nor has there been much involvement on the part of the Regional Office in the development and/or execution of the projects. This vertical program structure did have the advantage of organizational simplicity and clarity of responsibility, but it lacked the ability to respond to local problems in a timely and efficient manner and provide programmatic strength at the regional level. Thus, a principal objective of the Project is to develop a technical infrastructure capable of carrying out similar projects in the future with only minimum guidance from the central level. These capabilities will not only facilitate the extension of this and similar projects, but will provide the basic infrastructure necessary to supervise the operation and maintenance of existing systems, thus protecting capital investments.

An additional benefit of the decentralization is a much enhanced integration of this Project with the Primary Health Project. Vertical implementation of this Project would make coordination extremely difficult but, as members of the Regional Health Office staff, the sanitation engineers assigned to the Project can be more easily integrated into the Primary Health Teams of their respective regions.

3. Project Implementation

In order to strengthen and institutionalize this decentralized focus, the Project will provide for the regionalization of the specific design and approval of system execution, maintenance, local procurement and supervision of rural sanitation activities. To accomplish this, DSE will be responsible for providing technical backstopping and supervision for the regional offices. Thus, DSE will develop model system designs for the regions, and will approve an annual implementation plan which identifies the communities selected by the health regions for participation under the Project. Engineers in the regional offices in turn will design each community water system based on site visits and specific community needs. The administrative and community organization procedures developed by DSE will also be used as models by the regions for sub-project activities. Major procurement of equipment, materials and supplies will be carried out by DSE, with most local procurement being the responsibility of each region utilizing Project funds provided directly to each region. In order to determine specific material and equipment requirements, a detailed procurement plan will be developed by the regions at the initiation of Project activities and will be updated by DSE based on yearly implementation plans developed by each region. These annual plans will be submitted to A.I.D. for review and approval.

To implement Project activities, the Project provides for the hiring of a basic environmental sanitation staff in each of the health regions. (This personnel is listed in Annex II, Exhibit G.) This personnel will be responsible for carrying out Project activities in the region and coordinating these with the primary health activities also under implementation in the region. Not all of the personnel required, however, will be new, since most regions already have some personnel, generally an engineer and one or two technicians. Thus, during the initial implemental phase of the Project the DSE and the health regions will identify which additional personnel are required and the regions will provide a plan for hiring the required additional staff.

The Project will be implemented in five phases, generally corresponding to calendar years. The first year (1981) will incorporate three regions of the sierra and high jungle into the Project, and each year thereafter, an additional region will be added to a total of six. During the first year of operation in any given region, approximately 10 water systems will be constructed. In the second and succeeding years, the full Project capacity of 20 systems will be implemented. This phased process in each region will allow a reasonable period for the region to develop its capacity to plan and implement systems without overloading it (See Annex II, Exhibit G for the implementation schedule).

Staffing has been planned in accordance with the Project implementation model described above. A Project team as described in Annex II, Exhibit G will be brought on to commence Project activities in each region as it enters the Project. This team will carry out most of the engineering requirements including design, technical supervision, and Project administration with support from the DSE at the central

level. At the conclusion of the Project, the Project teams in the Regional Offices will remain as permanent regional employees to supervise maintenance of the water systems and other water-related activities, as well as to carry on regular Ministry water projects.

4. Relationship to the Primary Health Project

Environmental sanitation is considered to be an essential component of the primary health system, complementing other preventive and simple curative service inputs in an effort to improve the health of the community. Integration provides significant advantages in terms of improved cost-effectiveness and administration, and avoidance of duplication. Thus, the Project representative from the health sector will be the Director Superior of the MOH who will be formally responsible for the coordination of both the present Project and the Primary Health Project. (If the DSE passes under the direction of the National Health Fund, this relationship will be slightly altered.) Moreover, the sector will name an operational level MOH official who will be responsible for routine coordination of the primary health and environmental sanitation project agreements. While the projects will be managed from separate organizational units in the MOH Central Ministry (see Annex II, Exhibit B), one member of the DSE will be assigned specific responsibility for coordination with Primary Health and will be a permanent member of the central level Primary Health Team.

The principal integration of Primary Health and Environmental Sanitation will take place at the regional level. Project staff will be administratively responsible to the Regional Health Director, and will, therefore, automatically become part of the health team. Specifically, the regional DSE director will be responsible for coordination with Primary Health Project activities. Significant advantages in terms of control and cost will result from this integration. Thus rather than develop the vertical programs which presently exist, many subsystems at the regional level will support both the Primary Health and Environmental Sanitation Services. A highly integrated Regional Team will strengthen the supervisory capability of the Regional Office, promoting more efficient use of scarce transportation and reducing duplication. This is particularly important in view of the limited travel resources and small technical staffs of the Regional Offices. Other components of Primary Health such as health education will also benefit from close integration resulting from sharing the limited capacity for material development, and the fact that, at the community level, the educational program will be mutually supportive, and in many instances, carried out by the same persons.

Health promoters/leaders on the community level will be responsible, under the direction of the sanitation technicians, for stimulating interest in environmental sanitation services, organizing the community to receive the Project, and carrying out educational efforts to encourage proper use of the services. The promoters will not, however, be directly involved in the actual maintenance of the facilities since such an activity could conflict with their primary role.

The community water committee involved in the establishment of the water and latrine systems will, in many cases, be essentially the same group directly responsible for Primary Health and other related community development efforts. With this focus at the community level, the integration at the regional level becomes even more important to ensure communication between the two levels.

The Primary Health Project has included approximately \$15,000 per region to be used in support of environmental programs, principally for environmental sanitation workshops including some small construction and maintenance activities, e.g., latrine molds and materials for improving and maintaining existing water sources. In addition, a widespread treatment for parasitic diseases is included as a major component of the Primary Health Project. When the antiparasite treatment is provided in conjunction with the installation and use of a potable water and latrine system, the prevalence of enteric diseases should be greatly diminished in these communities. The integrated implementation of the disease treatment and water system are critical to the success of both programs. Here again the basic objectives of both programs emerge clearly as being the same.

Further areas of mutual support are the Project components of technical assistance and special studies where nearly all specific inputs will complement efforts in Primary Health. An example is the impact study designed to measure the contribution of sanitation services in terms of reduced diarrheal disease when used in combination with health services. Likewise, technical assistance in both projects for planning and administrative inputs to the Regional offices will be directed toward strengthening the overall capability of those offices to manage their services and projects in general.

B. Financial Analysis

1. Financial Plan

The total cost of the Project is estimated to be US\$8,100,000 of which up to US\$5,500,000 will be contributed by A.I.D. through a Loan (\$5.0 million) and a Grant (\$0.5 million). The GOP will finance 26% of the total costs (\$2,150,000); the individual communities will provide \$450,000 (6% of total costs) in cash and in-kind contributions. See Tables III.B.1-3 showing Sources and Applications of Funds, Requirements of Foreign Exchange and Local Currency and Expected Disbursements by Year respectively.

Approximately 61% of total Project funds will finance construction materials, equipment, skilled and unskilled labor. The Project will also fund the purchase of vehicles, technical assistance, training, studies and budget support costs. A total of 35 work/months of U.S. technical assistance will be financed with Grant funds during the implementation of the Project. Annex II, Exhibits C, D, and E show, respectively, a list of construction materials, a list of vehicles, a detailed summary of the required technical assistance inputs and a summary of training.

It is expected that cumulative disbursements by the end of the third year of project implementation will amount to 71% with only 60% of time elapsed toward PACD.

TABLE III.B.1

SOURCES AND APPLICATION OF FUNDS

(Thousands of U.S. Dollars)

<u>Investment Category</u>	A.I.D		GOP	Community	Total
	<u>Loan</u>	<u>Grant</u>			
1. <u>Construction</u>					
-Equipment and Materials	3,000	-	250	150	3,400
-Labor					
-Skilled	600	-	-	-	600
-Unskilled	-	-	-	300	300
2. <u>Vehicles and Equipment</u>					
-Transportation	283	-	-	-	283
-Construction	30	-	-	-	30
-Engineering/Drafting	80	-	-	-	80
-Promotion	25	-	-	-	25
-Office	20	-	-	-	20
-Tools and Water Testers	35	-	-	-	35
3. <u>Technical Assistance</u>	-	250	-	-	250
4. <u>Training and Education</u>	-	90	-	-	90
5. <u>Studies and Evaluation</u>	-	110	-	-	110
6. <u>Support Costs</u>					
-Salaries	-	-	930	-	930
-Per diem and Travel	43	-	207	-	250
-Vehicle Operation and Maintenance	43	-	207	-	250
-Office Supplies and Space	-	-	100	-	100
-Warehouses	90	-	80	-	170
Total (1) to (6)	4,249	450	1,774	450	6,923
<u>Plus: Inflation and Contingencies</u> ^{2/}	751	50 ^{1/}	376	-	1,177
Grand Total	5,000	500	2,150	450	8,100
		68%	26%	6%	100%

^{1/} An inflation factor of 10% is included.

^{2/} An inflation and contingency factor of 19% has been estimated.

TABLE III.B.2

REQUIREMENTS OF FOREIGN EXCHANGE AND LOCAL CURRENCY
(Thousands of U.S. Dollars)

<u>Investment Category</u>	<u>Loan</u>		<u>Grant</u>		<u>GOP</u>	<u>Community</u>	<u>Total</u>
	<u>FX</u>	<u>LC</u>	<u>FX</u>	<u>LC</u>			
1. <u>Construction</u>							
-Equipment and Materials	1,945	1,055			300	150	3,400
-Labor							
-Skilled		600					600
-Unskilled						300	300
2. <u>Vehicles and Equipment</u>							
-Transportation	283						283
-Construction		30					30
-Engineering/Drafting		80					80
-Promotion	25						25
-Office		20					20
-Tools and Water Testers	10	25					35
3. <u>Technical Assistance</u>			250				250
4. <u>Training and Education</u>			30	60			90
5. <u>Studies and Evaluation</u>			53	57			110
6. <u>Support Costs</u>							
-Salaries					930		930
-Per diem and Travel		43			207		250
-Vehicle Operation and Maintenance		43			207		250
-Office Supplies and Space					100		100
-Warehouses		90			80		170
Total (1) to (6)	2,263	1,986	333	117	1,774	450	6,923
<u>Plus: Inflation and Contingencies</u>	398	353	40	10	376	-	1,177
Grand Total	2,661	2,339	373	127	2,150	450	8,100

TABLE III.B.3

EXPECTED DISBURSEMENTS BY YEAR
(Thousands of U.S. Dollars)

	<u>Year I</u>	<u>Year II</u>	<u>Year III</u>	<u>Year IV</u>	<u>Year V</u>	<u>Total</u>
1. <u>Construction</u>						
A.I.D.	1,729	185	980	500	206	3,600
GOP	18	42	54	65	71	250
Community	32	75	97	117	129	450
2. <u>Vehicles and Equipment</u>						
A.I.D.	324	-	149	-	-	473
3. <u>Technical Assistance</u>						
A.I.D.	96	60	46	48	-	250
4. <u>Training and Education</u>						
A.I.D.	14	30	21	15	10	90
5. <u>Studies and Evaluation</u>						
A.I.D.	40	15	25	-	30	110
6. <u>Support Costs</u>						
A.I.D.	91	55	15	15	-	176
GOP	154	220	330	380	440	1,524
Total (1) to (6)	2,498	682	1,717	1,140	886	6,923
<u>Plus: Inflation and Contingencies</u>	427	108	307	192	143	1,177
Grand Total	2,925	790	2,024	1,332	1,029	8,100

Table III.B.4

DSE - RECURRENT OPERATIONAL COSTS
(Millions of Soles)

	Base Year	Year I	Year II	Year III	Year IV	Year V	Year VI
<u>Without Project</u>							
I. DSE total operational costs	122.4	153.0	191.2	239.0	298.7	373.4	466.7
<u>With Project</u>							
II. DSE Additional operational Costs (Recurrent)		56.5	79.6	118.2	137.1	159.0	190.8
Percentage increase due to Project operational costs		a) 37%	a) 42%	49%	46%	43%	41%

a) A.I.D. will finance 75% for Year I and 50% for Year II of the estimated requirements for Travel and Per Diem and Vehicle Operation and Maintenance.

2. Recurrent Costs

During the past few years, the GOP fiscal austerity program did not allow operational budgets to increase so as to maximize potential project activity for most of its public sector entities. DSE budgetary allocations for the last three years were reduced to minimum operational levels to permit payment of salaries, utilities, social security transfers, vehicle operation and maintenance and office supplies. Peru is now slowly entering into an economic recovery phase and it is expected that national budgets will be freed, to a certain extent, from the harsh fiscal austerity of the last years and increased allocations, in real terms, are expected to occur during the next few years in the public sector budgets.

Table III.B.4. shows the operational recurrent costs of the DSE with and without the proposed Project. Extrapolation has been made, on a compound basis, of the DSE 1980 operational budget for the "without project situation" to reflect future activity of the DSE, as well as expected economic conditions of the country. This table shows that, in order to carry out the Project, the DSE will have to increase its operational budget for the first year of Project implementation by 37%, by 42% for Project year II and by 49% for year III. It is estimated that by the sixth year, following the Project's completion, the "with project" recurrent costs will still amount to 41% of the DSE "without project" operational budget. Given Peru's improving economic conditions, the additional recurrent costs required by the Project should be within the financial capability of the GOP.

C. Economic Analysis

1. Economic Rationale for the Project

The Project Team accepts the widely-held view of public health experts as well as international development specialists that the provision of safe water is of primary importance to public health and one of the most important activities that could be undertaken to improve the health of rural dwellers. Because of the difficulties in quantifying benefits such as improved public health, better hygiene practices, greater convenience and increased productivity, village water supplies are considered to belong to the realm of social sector benefits. It is universally accepted that if the benefits could be quantified accurately and meaningfully, the benefit/cost ratio would be an acceptable one.

Studies carried out in urban areas in Peru demonstrate that children under the age of one suffer an average of two diarrheal episodes per year while those between the ages of one and five can be expected to have at least one serious episode per year. No similar studies exist for rural areas, but it is safe to assume that the range is at least of the same magnitude, and probably greater. Using demographic indicators, we can predict that in a community of 350 population there will be at least 85 serious diarrheal episodes per year among children under five years old. If we further assume that approximately 30% of all diarrheal

episodes can be avoided through the provision of potable water, the result will be a net savings of approximately 25 episodes per year in children under five.

Aside from the obvious benefits accruing to reduced human suffering, we can also surmise that fewer nutrients will be lost as a result of simple malabsorption, and that therefore time and energy spent in actual food production will automatically be made more efficient. This rationale is particularly important for rural communities which exist on subsistence agriculture and thus are not normally able to produce greatly in excess of their minimum needs.

Furthermore, some savings will accrue to fewer expenditures for drugs which would otherwise be purchased (or supplied) through the Primary Health System. The actual cost of treatment varies between 200 soles and 2,000 soles or more, depending on the type of infection and the capacity and desire of the person to pay for treatment. If in a given year we avoid 25 episodes of diarrhea which would cost an average of 1,000 soles to treat, just in terms of drugs alone, the community would save approximately 25,000 soles or about \$83.00 per year at the current exchange rate.

Perhaps more telling, although impossible to quantify, is the saving of human life: at present, again using demographic figures, we can expect approximately 7,000 live births in the communities to be served by the Project. Given a rural infant mortality rate of 158.2, this translates to approximately 1,100 deaths from this group per year. If we can avoid only 10% of these deaths per year through the provision of potable water, this means a savings of 110 lives per year. At an average estimated cost per capita of \$40.00 for system installation, this savings in terms of human life would make this Project worth the investment many times over.

2. Cost Effectiveness of the Project

The primary objective of the Project is to provide potable water to rural communities. Thus, the ideal system will not only start from a pure source and/or include whatever treatment might be necessary, but will also eliminate as many potential sources of contamination as possible. Several systems were considered by the Project Team, including the gravity-fed system and wells with various types of pumps, among others. Cost-effectiveness of the different systems varied depending on the population distribution of the community. As result of this analysis four system variations were chosen for the Project: a gravity-fed system with household connections; a gravity-fed system combining household connections and public taps; a system of public taps only and a system using hand-dug wells.

In terms of improved access to water in small, dispersed communities, hand-dug wells often offer the least expensive alternative. But the technical feasibility of shallow wells is dependent upon topography; in mountainous or hilly terrain, such as in the sierra and high jungle, the water table is often too deep to permit the digging of shallow wells. Moreover, well-water is very susceptible to contamination

beginning at the source itself, through the mechanism used to draw it, and including the means used to transport it. Hand pumps normally used to pump well-water frequently break down, through stress and lack of maintenance, and as a result, residents open the well to draw water with a bucket or some other mechanism, increasing the risk of contamination through contact of the bucket and rope with the ground and area immediately surrounding the well. Thus, in terms of providing uncontaminated, potable water, the hand-dug wells are less trustworthy and, as a result, not as cost-effective. Well feasibility will be studied under this Project, but wells will be installed only in small communities with widely disbursed populations where no other system is financially and/or technically possible.

The gravity-fed system with household connections was chosen as the preferred system for this Project because of its proven effectiveness, technical feasibility, minimal maintenance requirements and relatively low cost. In terms of improving health, its relatively contamination-free design makes it the most desirable of the available systems. In terms of user convenience as a factor in improving hygiene, a system with household connections is also preferable since easy access to water increases the likelihood that the water will be used for cooking, washing fruits and vegetables, washing clothes and bathing.

Three variations of this system will be constructed, depending upon the population distribution of the community. Insofar as possible, systems with household connections will be constructed, generally in those communities with relatively concentrated populations. For those communities with semi-concentrated populations, household connections will be provided insofar as is practical with public taps or sanitary units installed in central locations to serve the more widely dispersed families. In this way, the risk of contamination will be minimized by both decreasing general access at each point of drawing and increasing the immediate access to all served by each tap or unit. For communities with widely dispersed populations, public taps or sanitary units alone will be provided. In the case of small, dispersed communities which either have no source of surface water or are unable to afford the operating and maintenance costs of a distribution and treatment system, hand-dug wells with hand pumps will be provided as an interim system until such time as increased population, and thus increased concentration, make installation of a gravity-fed system economically feasible.

3. Analysis of Cost Data for Various System Types

In order to establish a reasonable per capita cost for installation of these water systems, the Project Team examined costs of other potable water projects, including the CARE, IDB, and PAHO projects. Because of the economies of scale that can be achieved when constructing large water systems for communities with populations between 500 and 2,000, we estimate that the average per capita cost of this project will be between 20% and 30% higher than the per capita costs of the other projects.

Table III.C.1

<u>WATER SYSTEM COST DATA</u> ^{1/}		
Type of System	Cost Per Capita ^{2/}	System Operating and Maintenance Cost Per Family Per Year
I. Gravity-fed ^{3/} with household connections	\$40.00	\$14.40
II. Gravity-fed mixed system with some household connections and some public taps	\$36.40	\$10.90 ^{4/}
III. Gravity-fed with public taps	\$20.50	\$7.40
IV. Hand-dug wells with hand pumps	\$13.50	\$5.05

^{1/} Based on calculations on Annex II, Exhibit H.2.

^{2/} Based on an average of 350 inhabitants/community, including administration costs.

^{3/} Cost given for gravity-fed systems is the average for spring-fed and surface water gravity-flow systems. Surface water systems are approximately \$2/inhabitant more expensive than spring-fed systems because surface water must be purified by means of a chlorination treatment.

^{4/} This cost is estimated by taking the average of the operating and maintenance costs for system types I and III.

Based on the technical analysis of the system and its costs, the projected per capita cost for a gravity-flow system with household connections is \$40. For a mixed system with some household connections and some public taps, the cost is estimated at \$36.40/inhabitant. A system with only public taps will cost approximately \$20.50/inhabitant. For a system of hand-dug wells with hand pumps, the cost is calculated to be \$13.50/inhabitant. These estimates are based on an average of 350 inhabitants/community. Costs cited are averages for both spring-fed and surface water gravity-flow systems. Surface water systems cost approximately \$2 more per inhabitant because surface water must be purified. (For calculations, see Annex II, Exhibit H.2.)

In order to establish some guidelines for system selection, we have taken the projected cost for the system with household connections, calculated to be \$40, and added 25% to allow for variation in system construction costs to arrive at a figure of \$50 as the maximum per capita cost for the Project. This cost is felt to be reasonable both for this A.I.D.-financed Project and future GOP projects replicating this one. Operating and maintenance cost for the system with household connections is calculated to be \$14.40 per family per year, while for the mixed system it is approximately \$10.90 per family per year. For the gravity system with public taps, this cost is \$7.40 and for hand-dug wells, it is estimated to be \$5.05 per family per year. The communities to be selected for installation of water systems will have indicated their willingness to pay for system maintenance as a condition of their agreement with the MOH Regional Office. However, maintenance costs for the two systems with household connections may not be affordable to some of the community residents. Each community will establish its own system of fee collection and rates will be adjusted based on ability of the user to pay. Payment of some amount by each family is necessary to ensure both system maintenance as well as the participation and interest of all community members. (See calculations in Annex II, Exhibit K.)

D. Social Analysis

1. Project Beneficiaries

One-third of the population of Peru lives in rural areas. Most of these rural dwellers are subsistence farmers in the sierra and high jungle and only a very small percentage now has access to potable water. This Project will benefit those inhabitants of small rural communities in six regions of the sierra and high jungle which are not currently served by any of the national potable water programs. About 420 of these communities generally with fewer than 500 inhabitants are targeted. Given an average population of 350, the total number of beneficiaries will be 147,000, or about 24,500 families.

Within the target group, there are both Indian and estizo communities. Both are characterized by high incidence of disease; deteriorating nutritional levels; low levels of knowledge about basic health and hygienic procedures; inadequate access to basic health services; and insufficient access to basic infrastructure such as

potable water and sewerage. With the exception of traditional healers, curative and preventive medicine are largely absent. In addition, the prevalence of disease contributes to the low nutritional levels since the presence of diarrheal diseases inhibits absorption of nutrients, completing a vicious circle of disease and malnutrition.

Inadequate housing in the target areas is another problem, particularly in the sierra where lack of light and ventilation in dwellings as well as overcrowded conditions and the sharing of houses with farm animals at night contribute to major health problems. Personal hygiene is essentially neglected by the members of the target group, due to lack of health and hygiene education, lack of access to potable water and sanitary waste disposal facilities, and, particularly in the sierra, due to the cold climate.

Contamination of the traditional water source is a crucial factor affecting basic health and it is to a large extent dependent upon personal hygiene habits. The water source--usually a river or stream--provides water not only for drinking and cooking but also for such activities as washing clothes and bathing which contaminate the water unless that water needed for household uses is drawn upstream. Besides human contamination of water, erosion in the mountains and hills can muddy the water, making filtering desirable if not necessary.

2. Impact on the Target Group

USAID/Peru has undertaken, in its Primary Health Project, to provide basic health services to the target group. The proposed potable water project would complement the primary health program by providing the basic infrastructure necessary to improve public health: potable water systems and sanitary waste disposal facilities. Without the provision of safe water, the impact of the Primary Health Project on the target group cannot be maximized.

Numerous epidemiological studies have identified contaminated water as the principal agent in the transmission of typhoid, cholera, and bacillary dysentery. Lack of safe water for drinking and washing is also a factor in the spread of other diarrheal diseases, currently the single most important group in Peru as in most of the developing world, responsible for most deaths in children under five. Numerous other diseases, including hepatitis, are also linked to poor water supply. While it is difficult to predict with any accuracy the precise effect improved water supply has on sickness and death, experience has demonstrated that the incidence of parasitic and enteric diseases will decline considerably. With improved health, family outlays for curative medical services will decrease. In addition, general well-being will improve--a benefit to which economic value is difficult to apply.

Besides minimizing transmission of waterborne diseases, a safe water supply has other benefits. Particularly in the case of household connections, the convenience of a water system combined with educational measures will improve personal hygiene while saving the time and energy spent fetching water for other activities. Further benefits

which may result from the Project are increases in productivity in two ways. First, access to a water supply will increase work output through improved health by reducing absenteeism. Secondly, an improved village water supply could be important in the development of small village industries, such as rudimentary food processing or cloth dyeing.

3. Role of Women

Women will benefit from this project in a variety of ways. Beneficial impact on health will be particularly significant for pregnant and lactating women, who experience a high prevalence of disease and malnutrition which is dangerous both for the mother's health and well-being and for that of her unborn or infant children. Secondly, women will benefit from the increased convenience of a safe, accessible water supply, since women are the ones responsible for cooking, washing clothes and bathing small children. Thirdly, women with access to a safe and abundant water supply will be able to undertake such activities as a family gardens, small-scale production of garden crops for marketing and rudimentary food processing.

Finally, women have a large role to play in the social acceptability of the water system and particularly of the latrines. The health habits of the entire family are dependent upon the women in the family and the educational and promotional strategies contemplated under the Project will be directed at women so that they become the promoters of changed attitudes toward public health and personal hygiene.

4. Social Acceptability

a. Sanitary Habits

Visits to target area communities reveal that the primary water source for those communities not served with a potable water system is a nearby stream, river, or spring. Water is either carried home in earthen jugs or used directly from the source. With the exception of the springs, all sources of water are contaminated. Thus, food, if cleaned, is washed in contaminated water; the washing of hands before meals is not commonly practiced; latrines are almost non-existent; and frequent bathing is rare.

One study, carried out by CARE/Peru in analyzing its potable water project, states that deficient hygiene practices were universal in the areas in which CARE is working. Yet when questioned directly about sanitary practices, most respondents stated that they bathed frequently and washed their hands before eating. But, for example, when children were undressed for examination, their underclothes, clothes, and even sweaters were sewn closed and were completely dirty to the point of being stiff and difficult to remove. Thus, evidence indicates that people bathe only rarely and wash clothes even less frequently. It appears that, even though many in the community—especially the young—are aware of correct sanitary practices, they neglect to use them. Such long-standing habits are difficult to change. Therefore, the education component of the project has been designed not

only to expose the community to good health practices, but also to stress the negative health impact of not following those practices.

b. Community Interest

When questioned, authorities and residents of the communities alike name the provision of water facilities as a very high priority. The Ministry of Health reports a back-log of requests for the construction of water systems. Communities have indicated their willingness to supply labor, local materials, land, and, to the extent possible, money for the construction of those systems. Selection criteria for the Project have been established so as to permit a ranking of communities based on their willingness to participate in construction among other criteria (See Section II.B.5.g.).

c. Self-Help Aspects

Many other development projects which have not involved community participation have generally been viewed as works of the Government—which should subsequently be maintained by the Government. Particularly in the smaller communities, a communal effort in the construction of a project which will benefit all is a long-standing tradition. Thus, we see community participation as essential to the project, both for construction of the system and for maintenance as well. To increase participation, Food for Work will be contributed to the Project through the current Catholic Relief Service program.

E. Technical Analysis

1. Technical Capability of the MOH/DSE

Since 1962, the Directorate of Sanitation Engineering of the Ministry of Health has been in charge of carrying out programs for the installation and supply of water and sewage systems in rural communities of fewer than 2,000 inhabitants.

The agreements drawn up for this type of project between the Government of Peru and the Inter-American Development Bank (IDB) since 1964 and other smaller programs promoted by CARE, UNICEF and other organizations, show a total to date of more than a thousand potable water systems installed. This figure gives a clear idea of the experience and technical capability acquired by this directorate of the Ministry through the institutional development of the DSE mainly due to the IDB agreements.

Although their technical capability is adequate for the purposes of this Project, it is concentrated in the central offices in Lima, thus neglecting the peripheral areas, especially with regard to studies and designs at local level and the assistance required for the operation and maintenance of the finished systems.

Greater decentralization is needed for the study and design activities. A small, permanent work team in each Region will therefore be provided to ensure continuity in planning, studies, design, construction, promotion, community education, as well as to assist in the operation and maintenance of the systems. However, due to the fact that the majority of these regional teams must be hired as new employees, they will likely have less technical experience than existing DSE personnel, and therefore will require considerable support from the DSE, particularly in the early stages of work in each Region.

The Project and Study Division of the DSE has to date carried out all study and design work associated with the IDB program. The decision to decentralize many of these activities will lead not only to a more effective use of time and resources required for the activities, but will also facilitate adjustments which arise before and during execution of the systems.

2. Feasibility of Selected Technologies

As described in section 5b of the Project Description, four general system types are contemplated:

- I. Gravity-fed systems including household connections.
- II. Gravity-fed systems including some household connections supplemented by public taps.
- III. Gravity-fed systems terminating in public taps.
- IV. Hand-dug wells with hand-pumps.

As noted earlier, these gravity-fed systems are the most desirable for the selected areas, but this does not exclude the possibility of using variations such as the digging of wells in conjunction with hand or wind pumps, or the use of electric or other fuel-driven pumps, where the source of water lies at a lower level than the community it is to serve.

As can be seen from the types of works mentioned, the intention is to use surface sources or springs. Spring water needs no treatment as long as it is adequately protected on its route to final use from the spring. In the case of surface sources, adequate steps should be taken to see that water intake is at a spot where least contamination will occur. Wherever the conditions of terrain and source permit, filter galleries should be constructed, principally in order to improve the physical characteristics of the water; otherwise a home-made filter should be installed. In all cases where bacteriological tests show contamination of the water, the installation of simple chlorine-dosing mechanisms will be carried out. If, for economic reasons or difficulties in the supply of chlorine, the use of such mechanisms is not feasible, intensive sanitary education campaigns should be launched in order to persuade each family to use alternative methods.

The various types of systems described, will consist of the following principal components:

- a. Water intake system consisting of a concrete box which takes in the spring water under cover. Where surface sources allow, intake will take place through a filter gallery or alternatively by means of a dike, with intake through the bottom or the side.
- b. Water lines using piping of minimum 1" diameter.
- c. Reservoir (in cases where the minimum volume warrants).
- d. Distribution network with pipes of minimum 1" diameter.
- e. Household connections in the case of concentrated communities.
- f. Some household connections, public taps and some sanitary units, in the case of semi-concentrated communities. Sanitary units consist of full installations with 2 public taps, 2 showers and washing sinks. (See Annex II Exhibit J.)
- g. Public taps or dug wells with hand-pumps in the case of dispersed communities.

As a complement to the water supply, a latrine will generally be installed in each dwelling consisting basically of a hole 1.80 m deep and 0.8 m x 0.8 m. wide a surrounding collar for support of 1.00 m. x 1.00 m. (Turkish type) and a shed of mud brick (adobe) or locally available material with a corrugated tin roof.

3. System Design

Once a locality has been selected, the respective field studies will be carried out, followed by the designing of the systems. These designs will be governed by specific parameters derived from the adaptation of design standards for larger conventional systems currently in use by the DSE in its programs with the IDB for communities of 500 - 1000 inhabitants.

Some of the more important parameters for the various types of systems under consideration for the Project, are as follows:

Rate of Supply: Between 30 and 80 litres per inhabitant per day, depending on the type of system and the climate predominating in the locality.

Conduits: Preferential use should be made of PVC tubing with a minimum diameter of 1".

Distribution Network: Again PVC piping should be used with minimum diameters of 3/4". The maximum pressure to be 50 m. (5 Kg/) and the minimum 10 m. (1Kg/).

Reservoirs: These are calculated for 25% - 35% of the average daily consumption, depending on type of system. In these few cases involving pumping, the daily length of time for pumping would be taken into account.

Duration: Generally the systems are designed to last for 20 years, excepting the pumps (if used) which would last 10 years.

Treatment: In the cases where the bacteriological quality of the water and the economic circumstances of the community recommend or permit, some kind of water treatment, this should normally be carried out by disinfection, using simple and cheap dosing mechanisms which are easy to operate and maintain. This is in addition to any possible filtering of the water (should this be necessary) by means of filter galleries at the source intake or by means of home-made filters.

4. System Construction, Operation and Maintenance

Once a specific project is approved and after the community sets up its community water committee, the agreement between the Ministry of Health and the committee is signed for the execution of the work. This agreement will describe the costs involved in operating and maintaining the system, and the way in which these will be contributed by the members of the community. The construction technique to be used in this Project will generally be the most simplified and will be based on the DSE's experience with programmes carried out previously in the rural areas and on the contribution of community labor. This experience shows that it is advantageous to combine the labor resources and supplies from the government and the community in order to achieve the Project's goals.

The Loan will provide all the specialized materials (PVC piping and accessories, galvanized piping and bronze accessories, cement, reinforcement steel, corrugated roofing, anti-corrosive paints, cleaning agents, glues, finishing products for the tanks, pumping sheds and sanitary fixtures, such as metal covers, corrugated bars, metal window frames, etc.) the electrical, fuel-driven or hand-operated pumps if required and water treatment equipment and supplies. The communities will supply non-specialized materials (stone, sand, aggregate, adobe, brick, timber) which if not available locally, will be brought in by the Government.

In previous years, the DSE experimented by contracting for the construction of the systems to be built, but this proved unsatisfactory, primarily because the system of using community labor, especially non-skilled labor, prevented synchronization of this co-operation with the general contractor's work on the job. As a result, several drawbacks arose from this situation which resulted in the rejection of this procedure. Consequently, the system of force account by the DSE was adopted, being more easily tied in with the work shared with community. This direct administration procedure will therefore be employed in this Project, using the technical and auxiliary personnel to be provided by the Regional Health Offices to supervise the construction and to contract

for the skilled labor and materials required.

Skilled labor will be fund by the Loan and the non-skilled provided by the communities themselves. Likewise, the Government will cover all costs for administration, technical direction, studies and projects and logistical back-up.

The administration, operation and maintenance of the completed systems will be in charge of a community water committee previously set up by the DSE technician and the community for this purpose. This committee will oversee the correct handling of the forms and documents controlling the movement of funds deriving from tariffs, registrations, fines, donations or any other type of income or expenditures which arise. It will also appoint an employee to be in charge of operating the system and maintaining it in good condition. Likewise, he will be in charge of any repairs which might be required of the various system components and, in general, take care of the units which require permanent maintenance. These committees will be governed by a set of regulations jointly established the DSE technician and the community and will include service charges, which will be communicated to the users. The administrative boards will also be supplied with the types of registers required to control correctly all funds and, in general, administer the system adequately.

The communities members will undertake to pay monthly user fees based on a per family benefitted charge. This monthly tariff will be developed by the community and the DSE technician on the basis of each individual community's economic situation. This tariff should at least cover the minimum administrative costs required for the system, including a minimum salary for the operator, and the administrator's supplies for the operation and water treatment (if necessary) and a small margin for repairs and modifications of the units as required. In any case, this monthly tariff should not exceed the value of the average daily wage in the locality. The division of DSE in charge of maintenance and supervision of the systems will be entrusted with the coordinating of these activities, which in turn will be controlled and supervised at construction level by the sanitation technicians.

In order to guarantee the correct functioning of the community water committees, training courses for their members will be held dealing with the general aspects of the systems and with their responsibilities as administrators of the water service. The DSE, through its division for maintenance and supervision of the systems, will schedule periodic visits (at least every 3 months) by its sanitation technicians, in order to observe the way in which the water supply service is being run, to check if the tariffs are being paid regularly according to the tariff schedule, and to see that the registers and other control documentation are being kept correctly and, in general, give any assistance required by the committees.

IV. IMPLEMENTATION ARRANGEMENTS

A. Schedule of Major Events

The five-year duration of the Project has been divided into five phases corresponding to calendar years. (See Annex II, Exhibit L for a more detailed implementation plan).

During the first year, a number of simultaneous activities will take place. After initial Conditions Precedent are met, a planning seminar will be held to establish the framework for the development of regional operational plans for the first three regions of the Project. This approach to the program planning process was carried out under the AID-financed Primary Health Project and has proved useful in assuring sound coordination and joint programming at the Central and Regional levels.

The culmination of the regional planning process will be the selection of sub-project sites in the first three health regions for design and construction of water systems during year one of Project implementation. In those communities selected for immediate implementation, the Project will begin to organize the self-help component of each sub-project through the formation of a village water committee. This activity is critical to the success of each sub-project and important in enhancing the committee's role in the community. Construction will begin at each site when all the components mentioned above are in place. It is estimated that the actual construction time for each system will take about three months. The second group of three health regions will be brought into the Project in years 2, 3 and 4.

Vehicles required for the first three health regions will be ordered as soon as possible, as well as 30-50% of the construction materials and supplies. Subsequent vehicle purchase and material procurement will be processed in periodic purchases as required by Project implementation progress.

B. Procurement and Disbursement Procedures

Of the \$5,500,000 Grant and Loan amount, approximately \$3,000,000 is budgeted for the foreign currency cost of technical assistance and procurement of equipment and materials as shown in the summary financial plan. Given the limited staff resources available to the Ministry of Health to implement this Project and its lack of experience in this area, the Mission is making an exception to the country contracting policy as set forth in PD-68 and all procurement of goods and services will be performed by USAID. During the implementation of this and other projects with MOH, the Mission will be working with MOH staff to begin developing the contracting capabilities required for the Ministry to administer and implement similar projects in the future. At present, it is anticipated that the source, origin and nationality

for technical assistance, equipment and materials to be purchased with foreign currency will be the U.S., with the exception of those materials to be used in the first year of construction which will be procured locally until off-shore orders begin to arrive, and the technical assistance which may be provided by a third country national.

For local currency costs (approximately \$2,500,000), it is presently planned that A.I.D. will make disbursements for local Project costs directly to the regions with approval of the MOH central level. The exception will be for purchase of basic equipment and/or large quantities of materials which will be purchased centrally based on consolidated equipment and material requirements. Disbursements will be made on an advance basis with liquidation of previous advances required prior to the granting of a subsequent advance. Details of the advance and liquidation procedures will be worked out with central and regional personnel after the signing of the Agreement and subsequently confirmed in Implementation Letter N°1.

For the loan-financed procurement of up to 30 motorcycles, the following justification is provided. The Borrower will procure up to 30 Honda Trailbike motorcycles (125-130 cc) for use by the sanitation technicians visiting project sites in outlying rural areas where largely unpaved access roads are in poor condition and long distances necessitate some form of motorized transportation. The low-g geared Honda Trailbikes are necessary to achieve the objectives under the Project. Further, the only make of small motorcycles (less than 250 cc) with spare parts and maintenance facilities available in the Project areas is Honda of Japan. Given the rugged terrain, vehicles are regularly in need of spare parts and maintenance services. Honda has established a local assembly plant for its motorcycles. However, essentially all components of these trailbikes are imported from Japan and thus the motorcycles are certified by SER/COM as originating in Japan. In addition, the locally assembled trailbike would cost approximately \$400.00 more per unit than the same model imported Japan CIF. It is, therefore, necessary that a proprietary procurement waiver be granted to allow for direct importation from Honda Japan and a Code 935 (Special Free World) country (Japan).

C. Project Approval Procedures

Authority to approve the Project will be delegated to the Mission Director by AID/Washington. The Mission's Project Committee, consisting of representatives of the Capital Development and Family Health Divisions, as well as the Development Resources Office, the Controller's Office, the Health, Education and Nutrition Office and the Regional Legal Advisor, will review the Project and recommend its approval to the Director.

Signing of the Project Agreement will take place in mid-September 1980.

D. USAID Monitoring Requirements

Monitoring will be exercised by a USAID Project Committee with the following responsibilities:

1. Project Management - The Project Manager for the Project will be assigned from the Mission's Health, Education and Nutrition Office. The Project Manager will work closely with DSE, other MOH Departments, and the technical advisors to ensure that provisions of the A.I.D. Project Agreement and Implementation Letters are met. The Project Manager will be assisted by the Mission Project Committee and will work closely with the Project Manager of the Primary Health Loan so as to assure complementary implementation and close coordination of both Mission-funded Projects.

2. Joint Reviews - Joint reviews to be held periodically will be an essential feature of Project Implementation. The reviews will be undertaken by A.I.D. and the GOP.

3. The Evaluation Officer from the Program Office will assist in coordinating periodic evaluations.

4. The Mission Controller will review disbursement and reimbursement requests for conformity with A.I.D. regulations and will ensure that adequate financial controls are followed.

5. Additional Mission offices, such as the Executive Office and RLA, will be called upon as appropriate.

The following reports will be required to assist the Mission in monitoring the Project:

1. A quarterly report from the DSE Management Division on activities and counterpart expenditures completed and projections of activities and counterpart expenditures for the next quarter.

2. DSE will develop an annual implementation plan which will include a projection of Project activities for the coming year in addition to an annual operating budget which will include inter alia GOP counterpart allocation and A.I.D. local currency requirements.

E. Conditions, Covenants, and Negotiating Status

To assure successful implementation of the Project, the MOH must have met certain critical administrative and fiscal requirements prior to disbursement of AID funds.

1. Condition Precedent to Initial Disbursement (Loan and Grant)

Prior to any disbursement or to the issuance of commitment documents under the Project Agreement, Peru shall furnish, in form and substance satisfactory to A.I.D., a statement giving evidence of the

designation of one person at the Ministry of Health Central level and one person in each of the first three health regions selected for Project activities as responsible for coordinating all Project activities within their respective areas of responsibility and for maintaining contact with the A.I.D. Project Manager.

2. Condition Precedent to Initial Disbursement (Loan Only)

Prior to any disbursement, or to the issuance of commitment documents under the Project Agreement, for the Loan-financed portion of the Project, Peru shall furnish in form and substance satisfactory to A.I.D.:

a) an implementation plan for the five-year life of the Project, including a detailed implementation plan for the first year. This plan will identify the first three health regions selected for Project activities and will describe the selection criteria to be used for choosing sub-projects in all the health regions where Project activities will take place;

b) a financial plan for the five-year life of the Project, which shall include a detailed financial plan for the first year of Project activities;

c) a typical staffing plan for the health region for the five-year life of the Project, including a detailed staffing plan for the first year for the first three health regions selected for Project activities.

3. Condition Precedent to Disbursement for Commodity Procurement (Loan Only)

Prior to any disbursement, or to the issuance of any commitment documents under the Project Agreement, for commodity procurement, Peru shall furnish, in form and substance satisfactory to A.I.D., a commodity procurement plan for the life of the Project which includes a detailed list of the commodities needed in the first year of the Project.

4. Covenants

Peru shall covenant that, except as A.I.D. may otherwise agree in writing:

a) the Government of Peru will provide, during the life of the Project and after the Project is completed, budgetary support to the Ministry of Health and its Department of Sanitation Engineering at a level adequate to continue the system of regular maintenance of facilities established under the Project and adequate to cover any costs of maintenance which have not been covered by the beneficiary communities under the Project.

b) any community selected for water facilities under the Project will be included in its health region's primary health plan.

c) all communities selected as beneficiaries under the Project will be located in the six health regions selected for Project activities.

5. Negotiating Status

The proposed project has been developed by the USAID in collaboration with MOH personnel, in support of the GOP's National Water Provision Plan for rural communities. The Minister and the Director of Sanitation Engineering actively support the program. There are no outstanding negotiation issues. In the judgement of the Mission, the Project is ready for formal approval and implementation.

F. Evaluation Plan

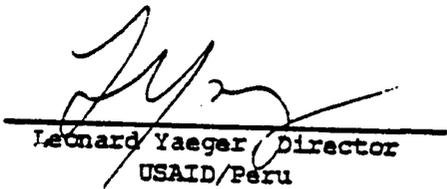
Joint MOH and AID evaluations will be carried out periodically. In addition to checking the evaluation indicators suggested in the Project Logical framework, the evaluations will look at the relevance and effectiveness of the equipment, the technical assistance and the effectiveness of Project inter-agency coordination and management mechanisms established.

Although the Project Agreement should be signed by September 30, 1980 disbursements are not likely to begin until FY 81. Therefore, the first evaluation is not scheduled until August 1981. Between signing and this first evaluation, the Mission will be monitoring progress towards meeting CPs and Project implementation; AID/W will be kept informed through Quarterly Project Reports.

ANNEX I
EXHIBIT A

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

I, Leonard Yaeger, the principal officer of the Agency for International Development in Peru, having taken into account among other factors, the maintenance and utilization of projects in Peru previously financed or assisted by the United States, do hereby certify that in my judgement Peru has both the financial capability and human resources capability to effectively maintain and utilize the proposed Project: RURAL WATER SYSTEMS FOR THE SIERRA.



Leonard Yaeger, Director
USAID/Peru



MINISTERIO DE ECOLOGIA Y FINANZAS

ANNEX I
EXHIBIT B
Page 1 of 2

Lima, 26 OCT. 1980

OFICIO N° 4795-80-EF/75.02

Señor
Leonard Yaeger
Director de la
Agencia para el Desarrollo
Internacional -AID -
Presente

Tengo el agrado de dirigirme a usted, para manifestarle que es de interés prioritario del Gobierno Peruano, contribuir a mejorar las condiciones de saneamiento básico de las comunidades rurales de la Sierra y Ceja de Selva del Perú a efecto de complementar el "Plan Nacional de Apoyo a la Atención Primaria de Salud" y conseguir un impacto positivo en la salud de las comunidades incluidas en el mencionado Plan.

En mérito de estas consideraciones me permito presentarle la presente solicitud de financiamiento de un proyecto para proporcionar sistemas de agua potable y de disposición de excretas, efectivos y de bajo costo a aproximadamente 400 comunidades rurales de la sierra y/o ceja de selva, comprendidas en el rango de los 200 a 500 habitantes.

El monto total del Proyecto se estima en US\$ 7'740,000, de los cuales el Gobierno Peruano aportaría la suma de US\$ 2'240,000.00 en salarios, viáticos, combustible y mantenimiento de vehículos, y la Agencia para el Desarrollo Internacional -AID- aportaría US\$ 5'000,000.00 en calidad de préstamo con los que se financiarían los costos de los materiales, vehículos y equipo necesario para la construcción de los sistemas; y US\$ 500,000.00 en calidad de donación que financiarían los costos de la Asistencia Técnica, capacitación y los estudios a realizarse.



MINISTERIO DE ECONOMIA Y FINANZAS

ANNEX I
EXHIBIT B
Page 2 of 2

2.-

En lo que respecta a las condiciones financieras del préstamo, consideramos que éste debe ser a largo plazo (mínimo de 25 años con 10 años de gracia) y con términos concesionales (2% de interés para el período de gracia y 3% durante el pago del principal).

Reiterándole el interés del Gobierno Peruano de realizar este proyecto y esperando una respuesta favorable a la presente solicitud, hago propicia la oportunidad para expresarle los sentimientos de mi mayor consideración.

Atentamente,

Manuel Ulloa-Eliás
Ministro de Economía, Finanzas y
Comercio

financed by A.I.D. under the Grant portion of the Project shall have their source and origin in Peru or in the United States, except as A.I.D. may otherwise agree in writing. Ocean shipping financed by A.I.D. under the Grant portion of the Project shall, except as A.I.D. may otherwise agree in writing, be financed only on flag vessels of the United States.

c. Condition Precedent to Initial Disbursement (Loan and Grant)

Prior to any disbursement or to the issuance of commitment documents under the Project Agreement, Peru shall furnish, in form and substance satisfactory to A.I.D., a statement giving evidence of the designation of one person at the Ministry of Health Central level and one person in each of the first three health regions selected for Project activities to coordinate all Project activities within their respective areas of responsibility and for maintaining contact with the A.I.D. Project Manager.

d. Conditions Precedent to Initial Disbursement (Loan Only)

Prior to any disbursement, or to the issuance of commitment documents under the Project Agreement, for the Loan-financed portion of the Project, Peru shall furnish in form and substance satisfactory to A.I.D.:

1) an implementation plan for the five-year life of the Project, including a detailed implementation plan for the first year, for the first three health regions selected for Project activities. It will also describe the selection criteria to be used for choosing sub-projects in all the health regions where Project activities will take place;

2) a financial plan for the five-year life of the Project, which shall include a detailed financial plan for the first year of Project activities;

3) a typical staffing plan for the health regions for the five-year life of the Project, including a detailed staffing plan for the first year for the first three health regions selected for Project activities.

e. Condition Precedent to Disbursement for Commodity Procurement (Loan Only)

Prior to any disbursement, or to the issuance of any commitment documents under the Project Agreement, for commodity procurement, Peru shall furnish, in form and substance satisfactory to A.I.D., a commodity procurement plan for the life of the Project which includes a detailed list of the commodities needed in the first year of the Project.

f. Covenants

Peru shall covenant that, except as A.I.D. may otherwise agree in writing:

1) the Government of Peru will provide, during the life of the Project and after the Project is completed, budgetary support to the Ministry of Health and its Directorate of Sanitation Engineering at a level adequate to continue the system of regular maintenance of facilities established under the Project and adequate to cover any costs of maintenance which have not been covered by the beneficiary communities under the Project.

2) any community selected for water facilities under the Project will be included in its health region's primary health plan.

3) all communities selected as beneficiaries under the Project will be located in the six health regions selected for project activities.



Leonard Yaeger
Director
USAID/Peru

Date: 9/22/80

6C(1) - COUNTRY CHECKLIST

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

A. GENERAL CRITERIA FOR COUNTRY ELIGIBILITY

1. FAA Sec. 116. Can it be demonstrated that contemplated assistance will directly benefit the needy? If not, has the Department of State determined that this government has engaged in a consistent pattern of gross violations of internationally recognized human rights? Yes

2. FAA Sec. 481. Has it been determined that the government of recipient country has failed to take adequate steps to prevent narcotics drugs and other controlled substances (as defined by the Comprehensive Drug Abuse Prevention and Control Act of 1970) produced or processed, in whole or in part, in such country, or transported through such country, from being sold illegally within the jurisdiction of such country to U.S. Government personnel or their dependents, or from entering the United States unlawfully? The GOP has taken such measures as are within its capacity to control narcotics traffic and is cooperating with U.S. efforts to eliminate production and trade in narcotics.

3. FAA Sec. 620(b). If assistance is to a government, has the Secretary of State determined that it is not controlled by the international Communist movement? Yes

4. FAA Sec. 620(c). If assistance is to 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) debt is not denied or contested by such government? No known instance.

5. FAA Sec. 620(e)(1). If assistance is to a government, has it (including government agencies or subdivisions) taken any action which has the effect of nationalizing, expropriating, or otherwise seizing ownership or control of property of U.S. citizens or entities beneficially owned by them without taking steps to discharge its obligations toward such citizens or entities? The GOP is fully aware of USG requirements for prompt adequate and effective compensation regarding expropriation of U.S. investments. To date there have been several expropriation claims settled to the satisfaction of both Governments, including Marcona Mining Company's claim in September 1976 and the Gulf Oil Corp. claim very recently.

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6. FAA Sec. 620(a), 620(f); FY 79 App. Act, Sec. 108, 114 and 606. Is recipient country a Communist country? Will assistance be provided to the Socialist Republic of Vietnam, Cambodia, Laos, Cuba, Uganda, Mozambique, or Angola? No.
7. FAA Sec. 620(1). Is recipient country in any way involved in (a) subversion of, or military aggression against, the United States or any country receiving U.S. assistance, or (b) the planning of such subversion or aggression? No.
8. FAA Sec. 620 (j). Has the country permitted, or failed to take adequate measures to prevent, the damage or destruction, by mob action, of U.S. property? No.
9. FAA Sec. 620(1). If the country has failed to ~~institute~~ the Investment guaranty program for the specific risks of expropriation, convertibility or confiscation, has the AID Administrator within the past year considered denying assistance to such government for this reason? Information not available at Mission.
10. FAA Sec. 620(o); Fishermen's Protective Act of 1967, as amended, Sec. 5. If country has seized, or imposed any penalty or sanction against, any U.S. fishing activities in international waters:
 a. has any deduction required by the Fishermen's Protective Act been made?
 b. has complete denial of assistance been considered by AID Administrator?
 Information not available at Mission.
11. FAA Sec. 620; FY 79 App. Act, Sec. 603.
 (a) Is the government of the recipient country in default for more than 6 months on interest or principal of any AID loan to the country?
 (b) Is country in default exceeding one year on interest or principal on U.S. loan under program for which App. Act appropriates funds? No.
12. FAA Sec. 620(s). If contemplated assistance is development loan or from Economic Support Fund, has the Administrator taken into account the percentage of the country's budget which is for military expenditures, the amount of foreign exchange spent on military equipment and the Yes.

A.12.

amount spent for the purchase of sophisticated weapons systems? (An affirmative answer may refer to the record of the annual "Taking Into Consideration" memo: "Yes, as reported in annual report on implementation of Sec. 620(s)."
This report is prepared at time of approval by the Administrator of the Operational Year Budget and can be the basis for an affirmative answer during the fiscal year unless significant changes in circumstances occur.)

13. FAA Sec. 620(t). Has the country severed diplomatic relations with the United States? If so, have they been resumed and have new bilateral assistance agreements been negotiated and entered into since such resumption? No.

14. FAA Sec. 620(u). What is the payment status of the country's U.N. obligations? If the country is in arrears, were such arrearages taken into account by the AID Administrator in determining the current AID Operational Year Budget? Information nto available at Mission.

15. FAA Sec. 620A, FY 79 App. Act, Sec. 607. Has the country granted sanctuary from prosecution to any individual or group which has committed an act of international terrorism? No.

16. FAA Sec. 666. Does the country object, on basis of race, religion, national origin or sex, to the presence of any officer or employee of the U.S. there to carry out economic development program under FAA? No.

17. FAA Sec. 669, 670. Has the country, after August 3, 1977, delivered or received nuclear enrichment or reprocessing equipment, materials, or technology, without specified arrangements or safeguards? Has it detonated a nuclear device after August 3, 1977, although not a "nuclear-weapon State" under the nonproliferation treaty? No.

B. FUNDING CRITERIA FOR COUNTRY ELIGIBILITY

1. Development Assistance Country Criteria

a. FAA Sec. 102(b)(4). Have criteria been established and taken into account to assess commitment progress of country in effectively involving the poor in development, on such indexes as: (1) increase in agricultural productivity through small-farm labor intensive agriculture, (2) reduced infant mortality, (3) control of population growth, (4) equality of income distribution, (5) reduction of unemployment, and (6) increased literacy? Yes

B.1.

b. FAA Sec. 104(d)(1). If appropriate, is this development (including Sahel) activity designed to build motivation for smaller families through modification of economic and social conditions supportive of the desire for large families in programs such as education in and out of school, nutrition, disease control, maternal and child health services, agricultural production, rural development, and assistance to urban poor? Yes.

2. Economic Support Fund Country Criteria N.A.

a. FAA Sec. 5028. Has the country engaged in a consistent pattern of gross violations of internationally recognized human rights?

b. FAA Sec. 533(b). Will assistance under the Southern Africa program be provided to Mozambique, Angola, Tanzania, or Zambia? If so, has President determined (and reported to the Congress) that such assistance will further U.S. foreign policy interests?

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?

d. FY 79 App. Act, Sec. 113. Will assistance be provided for the purpose of aiding directly the efforts of the government of such country to repress the legitimate rights of the population of such country contrary to the Universal Declaration of Human Rights?

e. FAA Sec. 6208. Will security supporting assistance be furnished to Argentina after September 30, 1978?

SC(2) - PROJECT CHECKLIST

Listed below are statutory criteria applicable generally to projects with FAA funds and project criteria applicable to individual fund sources: Development Assistance (with a subcategory for criteria applicable only to loans); and Economic Support Fund.

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

A. GENERAL CRITERIA FOR PROJECT

1. FY 79 App. Act Unnumbered; FAA Sec. 653 (b); Sec. 634A. (a) Describe how Committees on Appropriations of Senate and House have been or will be notified concerning the project; (b) Is assistance within (Operational Year Budget) country or international organization allocation reported to Congress (or not more than \$1 million over that figure)?
 - (a) Congressional notification sent Sept. 5, 1980.
 - (b) Yes.

2. FAA Sec. 611(a)(1). Prior to obligation in excess of \$100,000, will there be (a) engineering, financial, and 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

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

4. FAA Sec. 611(b); FY 79 App. Act Sec. 101. If for water or water-related land resource construction, has project met the standards and criteria as per the Principles and Standards for Planning Water and Related Land Resources dated October 25, 1973?
 - N.A.

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

6. FAA Sec. 209. Is project susceptible of 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.

A.

7. FAA Sec. 601(a). Information and conclusions whether project will encourage efforts of the country to: (a) increase the flow of international trade; (b) foster private initiative and competition; (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 conclusion 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).

Equipment, major supplies, and technical assistance will be procured from the United States.

9. FAA Sec. 612(b); Sec. 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 to meet the cost of contractual and other services.

Peru is providing counterpart funds that will be used in part for the procurement of local services.

10. FAA Sec. 612(d). Does the U.S. own excess foreign currency of the country and, if so, what arrangements have been made for its release?

No.

11. FAA Sec. 631(e). Will the project utilize competitive selection procedures for the awarding of contracts, except where applicable procurement rules allow otherwise?

Yes.

12. FY 79 App. Act Sec. 608. 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.

FUNDING CRITERIA FOR PROJECT

1. Development Assistance Project Criteria

a. FAA Sec. 102(b); 111; 113; 281a. Extent to which activity will (a) effectively involve the poor in development, by extending access to economy at local level, increasing labor-intensive production and the use of appropriate technology, spreading investment out from cities to small towns and rural areas, and insuring wide participation of the poor in the benefits of development on a sustained

The project will improve the health and general well-being of the poor in Peru and supports the help efforts of rural communities in Peru.

8.1.a.

basis, using the appropriate U.S. institutions; (b) help develop cooperatives, especially by technical assistance, to assist rural and urban poor to help themselves toward better life, and otherwise encourage democratic private and local governmental institutions; (c) support the self-help efforts of developing countries; (d) promote the participation of women in the national economies of developing countries and the improvement of women's status; and (e) utilize and encourage regional cooperation by developing countries?

b. FAA Sec. 103, 103A, 104, 105, 106, 107.
 Is assistance being made available: (include only applicable paragraph which corresponds to source of funds used. If more than one fund source is used for project, include relevant paragraph for each fund source.)

The project will provide access to potable water which will improve the health of the rural poor.

(1) [103] for agriculture, rural development or nutrition; if so, extent to which activity is specifically designed to increase productivity and income of rural poor; [103A] if for agricultural research, is full account taken of needs of small farmers;

(2) [104] for population planning under sec. 104(b) or health under sec. 104(-); if so, extent to which activity emphasizes low-cost, integrated delivery systems for health, nutrition and family planning for the poorest people, with particular attention to the needs of mothers and young children, using paramedical and auxiliary medical personnel, clinics and health posts, commercial distribution systems and other modes of community research.

(3) [105] for education, public administration, or human resources development; if so, extent to which activity strengthens nonformal education, makes formal education more relevant, especially for rural families and urban poor, or strengthens management capability of institutions enabling the poor to participate in development;

(4) [106] for technical assistance, energy, research, reconstruction, and selected development problems; if so, extent activity is:

(i) technical cooperation and development, especially with U.S. private and voluntary, or regional and international development, organizations;

(ii) to help alleviate energy problems;

(iii) research into, and evaluation of, economic development processes and techniques;

(iv) reconstruction after natural or manmade disaster;

8.1.b.(4).

(v) for special development program, and to enable proper utilization of earlier U.S. infrastructure, etc., assistance;

(vi) for programs of urban development, especially small labor-intensive enterprises, marketing systems, and financial or other institutions to help urban poor participate in economic and social development.

c. [107] Is appropriate effort placed on use of appropriate technology? Yes.

d. FAA Sec. 110(a). Will the recipient country provide at least 25% of the costs of the program, project, or activity with respect to which the assistance is to be furnished (or has the latter cost-sharing requirement been waived for a "relatively least-developed" country)? Yes.

e. FAA Sec. 110(b). Will grant capital assistance be disbursed for project over more than 3 years? If so, has justification satisfactory to the Congress been made, and efforts for other financing, or is the recipient country "relatively least developed"? The grant assistance under the Project is not capital assistance.

f. 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 and political processes essential to self-government. The project will support the decentralization of sanitation activities to the regional level and will use technical and para-technical personnel

g. FAA Sec. 122(b). Does the activity give reasonable promise of contributing to the development of economic resources, or to the increase or productive capacities and self-sustaining economic growth? Yes, through the improvement of health in rural areas.

2. Development Assistance Project Criteria (Loans Only)

a. FAA Sec. 122(b). Information and conclusion on capacity of the country to repay the loan, including reasonableness of repayment prospects. Peru has the capacity to repay this loan.

b. FAA Sec. 620(d). If assistance is for any productive enterprise which will compete in the U.S. with U.S. enterprise, is there an agreement by the recipient country to prevent export to the U.S. of more than 20% of the enterprise's annual production during the life of the loan? The assistance is not for any productive enterprise which will compete in the U.S. with U.S. enterprise.

AND NUMBER	3, App SC(2)	PLANS NO. / ed.	1:32	EFFECTIVE DATE	June 7, 1979	PAGE NO.	5C(2)-5
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B.

3. Project Criteria Solely for Economic Support Fund

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

b. FAA Sec. 533. Will assistance under this chapter be used for military, or paramilitary activities? N.A.

5C(3) - STANDARD ITEM CHECKLIST

Listed below are statutory items which normally will be covered routinely in those provisions of an assistance agreement dealing with its implementation, or covered in the agreement by imposing limits on certain uses of funds.

These items are arranged under the general headings of (A) Procurement, (B) Construction, and (C) Other Restrictions.

A. Procurement

1. FAA Sec. 602. Are there arrangements to permit U.S. small business to participate equitably in the furnishing of goods and services financed? The Project will have such arrangements.
2. FAA Sec. 604(a). Will all commodity procurement financed be from the U.S. except as otherwise determined by the President or under delegation from him? Yes
3. FAA Sec. 604(d). If the cooperating country discriminates against U.S. marine insurance companies, will agreement require that marine insurance be placed in the United States on commodities financed? Yes
4. FAA Sec. 604(e). If offshore procurement of agricultural commodity or product is to be financed, is there provision against such procurement when the domestic price of such commodity is less than parity? N.A.
5. FAA Sec. 608(a). Will U.S. Government excess personal property be utilized wherever practicable in lieu of the procurement of new items? Yes
6. FAA Sec. 603. (a) Compliance with requirement in section 901(b) of the Merchant Marine Act of 1936, as amended, that at least 50 per centum of the gross tonnage of commodities (computed separately for dry bulk carriers, dry cargo liners, and tankers) financed shall be transported on privately owned U.S.-flag commercial vessels to the extent that such vessels are available at fair and reasonable rates. The Project Agreement will so provide.
7. FAA Sec. 621. If technical assistance is financed, will such assistance be furnished to the fullest extent practicable as goods and professional and other services from private enterprise on a contract basis? If the Yes.

A.7.

facilities of other Federal agencies will be utilized, are they particularly suitable, not competitive with private enterprise, and made available without undue interference with domestic programs?

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

Yes.

9. FY 79 App. Act Sec. 105. Does the contract for procurement contain a provision authorizing the termination of such contract for the convenience of the United States?

All contracts for procurement to which the United States is a party will contain such a provision.

B. Construction

1. FAA Sec. 601(d). If a capital (e.g., construction) project, are engineering and professional services of U.S. firms and their affiliates to be used to the maximum extent consistent with the national interest?

Yes.

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

Yes.

3. FAA Sec. 620(k). If for construction of productive enterprise, will aggregate value of assistance to be furnished by the United States not exceed \$100 million?

N.A.

C. Other Restrictions

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

Yes.

2. FAA Sec. 301(d). If fund is established solely by U.S. contributions and administered by an international organization, does Comptroller General have audit rights?

N.A.

3. FAA Sec. 627(h). Do arrangements preclude promoting or assisting the foreign aid projects or activities of Communist-bloc countries, contrary to the best interests of the United States?

Arrangements will preclude such promotion or assistance.

4. FAA Sec. 635(1). Is financing not permitted to be used, without waiver, for purchase, long-term lease, or exchange of motor vehicle manufactured outside the United States, or guaranty of such transaction?

Vehicles will be procured from the United States, except as source, origin requirements are waived.

AMMENDMENT 3, App 5C(3)	PAGE NO. 3:12	EFFECTIVE DATE June 7, 1979	PAGE NO. 5C(3)-3
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5. Will arrangements preclude use of financing:
- a. FAA Sec. 104(f). To pay for performance of abortions or to motivate or coerce persons to practice abortions, to pay for performance of involuntary sterilization, or to coerce or provide financial incentive to any person to undergo sterilization? Yes.
 - b. FAA Sec. 620(g). To compensate owners for expropriated nationalized property? Yes.
 - c. FAA Sec. 660. To finance police training or other law enforcement assistance, except for narcotics programs? Yes.
 - d. FAA Sec. 662. For CIA activities? Yes.
 - e. FY 79 App. Act Sec. 104. To pay pensions, etc., for military personnel? Yes.
 - f. FY 79 App. Act Sec. 106. To pay U.N. assessments? Yes.
 - g. FY 79 App. Act Sec. 107. To carry out provisions of FAA sections 209(d) and 251(h)? (Transfer of FAA funds to multilateral organizations for lending.) Yes.
 - h. FY 79 App. Act Sec. 112. To finance the export of nuclear equipment, fuel, or technology or to train foreign nations in nuclear fields? Yes.
 - i. FY 79 App. Act Sec. 601. To be used for publicity on propaganda purposes within United States not authorized by the Congress? Yes.

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FORM

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FM SECSTATE WASHDC
TO AMEMBASSY LIMA PRIORITY 2249

ACTION: AID-3
INFO AND FOR CL/R

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STATE 182391

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E.O. 12365:1/A

TAGS:

ACTION:	<i>HEW</i>
Date:	<i>1/80</i>
	<i>CO</i>
	<i>DL</i>
	<i>8</i>

182391

SUBJECT: DAEC REVIEW OF PERU RURAL WATER SYSTEMS FOR THE SIERRA PID

1. SUBJECT PID WAS REVIEWED AND APPROVED BY THE DAEC ON JUNE 6, 1983. THE MISSION WILL BE GIVEN PROJECT APPROVAL AUTHORITY IF FY 83 FUNDING BECOMES AVAILABLE. THE FOLLOWING GUIDANCE IS PROVIDED FOR PP PREPARATION.

2. REPLICATION: PROSPECTS APPEAR LIMITED FOR CONTINUED REPLICATION OF RURAL ENVIRONMENTAL SANITATION SYSTEMS BY THE GOP DUE TO PROJECTED FISCAL CONSTRAINTS DURING THE NEXT 5 - 10 YEARS. THE ECONOMIC ANALYSIS SHOULD EXAMINE THE GOP'S CAPACITY, BOTH TECHNICAL AND FINANCIAL, TO REPLICATE THE PROJECT AND CONSIDERATION SHOULD BE GIVEN TO: AMORTIZING AT LEAST PART OF THE CAPITAL COSTS, AS WELL AS THE MAINTENANCE OR OPERATING COSTS, OF RURAL HOUSEHOLD CONNECTIONS THROUGH MONTHLY USERS FEES AFFORDABLE BY THE BENEFICIARIES; OR TO USING LONG-TERM LOW INTEREST LOANS TO FINANCE THE CONSTRUCTION COSTS. IN ORDER TO REDUCE CAPITAL COSTS, AN ALTERNATIVE DESIGN TO INDIVIDUAL HOUSEHOLD CONNECTIONS WOULD BE PUBLIC CONNECTIONS FOR USE BY SEVERAL HOUSEHOLDS; WHICH WOULD BE MORE EASILY REPLICATED IN LIGHT OF SCARCE GOP RESOURCES.

3. TARGET GROUP AFFORDABILITY: THE FINANCIAL ANALYSIS SHOULD ADDRESS THE ISSUE OF THE COMMUNITY'S ABILITY TO PAY FOR MAINTENANCE COSTS, AND POSSIBLE AMORTIZATION OF AT LEAST SOME OF THE CAPITAL COSTS, OF THE WATER SYSTEMS. IT IS SUGGESTED THAT A REPRESENTATIVE SURVEY OF PROJECT BENEFICIARIES BE CONDUCTED DURING INTENSIVE REVIEW TO DETERMINE THEIR ABILITY TO PAY MONTHLY FEES AND TO MANAGE REVOLVING FUNDS FOR MAINTENANCE. FURTHERMORE, SYSTEMS MAINTENANCE COSTS SHOULD BE IDENTIFIED FOR EACH SYSTEM DESIGN, E.G. CHLORINATION SYSTEMS MAINTENANCE, FLUSHING SYSTEMS MAINTENANCE, ETC.

4. DECENTRALIZATION STRATEGY: GIVEN THE PROBLEMS ENCOUNTERED UNDER THE CENTRALIZED IDB-FINANCED RURAL WATER PROJECTS, CONCERN WAS EXPRESSED THAT THE DECENTRALIZATION STRATEGY OUTLINED IN THE PID MAY NOT BE ENOUGH, IN ITSELF, TO OVERCOME OBSTACLES TO IMPLEMENTATION. THE PP SHOULD CLEARLY DEFINE THE NATURE AND EXTENT OF THE DECENTRALIZATION APPROACH, INCLUDING DISCUSSION OF LINES OF AUTHORITY AND RELATIONSHIPS BETWEEN THE MOH REGIONAL OFFICES AND HEADQUARTERS; STAFFING CONSIDERATIONS; MANAGEMENT REQUIREMENTS; AND, SPECIFICALLY, THE CAPACITY OF THE REGIONAL OFFICES TO PLAN, EXECUTE AND MAINTAIN RURAL WATER AND SANITATION SYSTEMS. THE ROLE OF THE MOH'S SANITARY ENGINEERING OFFICE IN LIMA IN PROCUREMENT OF CONSTRUCTION SUPPLIES, PERSONNEL ASSIGNMENTS, PROJECT FEASIBILITY STUDIES, AND TRAINING SHOULD BE DESCRIBED AND ASSISTANCE UNDER THE PROJECT TO THE CENTRAL OFFICE SHOULD BE PROVIDED BY THE PROJECT IF REQUIRED.

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ANNEX I
EXHIBIT
Page 2 o

5. CRITERIA FOR VILLAGE SELECTION: CRITERIA SUCH AS DIARRHEAL DISEASE PREVALENCE IDENTIFIED BY THE PRIMARY HEALTH PROJECTS AS WELL AS THE DEGREE OF COMMUNITY INTEREST TO BE EXPRESSED THROUGH COMMUNITY PARTICIPATION IN CONSTRUCTION AND MAINTENANCE SHOULD BE USED TO SELECT THE VILLAGES UNDER THE RURAL SANITATION PROJECT. THE MISSION SHOULD ALSO CONSIDER METHODS FOR IDENTIFYING WHETHER CONTINUED COMMUNITY PARTICIPATION AFTER THE SYSTEMS HAVE BEEN INSTALLED IS LIKELY.

6. LATRINES: THE PID DOES NOT INCLUDE THE CONSTRUCTION OF LATRINES FOR INDIVIDUAL FAMILY USE BECAUSE OF THE VAST UNDERUTILIZATION OF EXISTING FAMILY LATRINES IN THE SIERRA. THE MISSION SHOULD CONSIDER DESIGNING AND IMPLEMENTING A SURVEY DURING INTENSIVE REVIEW TO DETERMINE THE REASONS FOR NON-UTILIZATION OF LATRINES IN THE SIERRA AND FOR IDENTIFYING PREFERENCES FOR LATRINE LOCATION (DISTANCE FROM HOUSE) DESIGN MOST DESIRED (PRIVATE PIT, SHARED PIT,

FACILITY USE AND PERSONAL HYGIENE IN GENERAL. THE MISSION IS REFERRED TO A SIMILAR SURVEY CONDUCTED IN GUATEMALA IN 1977 AS PART OF THE HEALTH SECTOR ASSESSMENT (COPY HAND-CARRIED TO MISSION BY BALLENTYNE). THE INCORPORATION OF LATRINES FOR FAMILY USE IN THE PROJECT SHOULD BE CONSIDERED BASED UPON THE SURVEY RESULTS AND PROJECT COSTS ALLOCATED ACCORDINGLY. AT A MINIMUM, THE PROJECT SHOULD INCLUDE A HEALTH EDUCATION PROGRAM TO ENSURE USE OF EXISTING FAMILY LATRINE FACILITIES BY RURAL DWELLERS.

7. TRAINING: LINKAGES BETWEEN TRAINING NEEDS IN THE RURAL WATER PROJECT AND TRAINING ACTIVITIES IN THE PRIMARY HEALTH PROJECT SHOULD BE DISCUSSED. THE EXTENT TO WHICH TRAINING WILL BE PROVIDED TO NON PERSONNEL AS WELL AS TO COMMUNITIES SHOULD BE DELINEATED IN THE PP.

8. PROCUREMENT PLAN - A DETAILED PROCUREMENT PLAN WILL BE AN ESSENTIAL ELEMENT OF THE PP, IN LIGHT OF THE FACT 93 PER CENT OF A.I.D. RESOURCES WILL FINANCE COMMODITIES. THE PLAN SHOULD PROVIDE A COMPLETE SCHEDULE OF LOGISTICS, OUTLINING THE SEQUENCE OF EVENTS FROM PURCHASE THRU UTILIZATION OF ALL COMMODITIES.

9. CONSULTANCY SERVICES: SPECIFIC NEEDS FOR ENGINEERING AND OTHER CONSULTANCY SERVICES SHOULD BE DETERMINED DURING INTENSIVE REVIEW AND AID/VA ASSISTANCE REQUESTED, IF DESIRABLE. AN EXAMPLE OF ENGINEERING DESIGN ISSUES TO BE EXAMINED INVOLVES PROVISION OR EXCLUSION OF RESERVOIRS FOR COMMUNITIES OF 500 OR FEWER PERSONS. FACTORS, SUCH AS VOLUME OF WATER SOURCE, DEMAND, AND TYPE OF SANITATION SYSTEM, WHICH ARE MORE CRITICAL THAN COMMUNITY SIZE, SHOULD BE CONSIDERED.

10. INITIAL ENVIRONMENTAL EXAMINATION: THE MISSION IS REQUESTED TO REVISE THE IEE TO CLARIFY PLANS FOR ADDRESSING THE PROBLEM OF WASTE WATER DISCHARGE FROM SITES INVOLVING HOUSEHOLD CONNECTIONS. THIS SHOULD INCLUDE A DESCRIPTION OF TECHNOLOGIES LIKELY TO BE EMPLOYED, ANALYTICAL METHODS TO BE USED, AND STANDARDS AND CRITERIA TO BE APPLIED. CHRISTOPHER BT

UNCLASSIFIED

LAC/DR-IEE-80-34

ENVIRONMENTAL THRESHOLD DECISION

Location : Peru
Project Title : Environmental Sanitation, 527-0221
Funding : FY 80 - Loan \$5.0 million
 - Grant \$0.5 million
Life of Project: Four and one-half years

Mission Recommendation:

Based on the Initial Environmental Examination, the Mission has concluded that the project will not have a significant effect on the human environment and therefore recommends a Negative Determination.

The Development Assistance Executive Committee of the Bureau for Latin America and the Caribbean has reviewed the Initial Environmental Examination for this project and concurs in the Mission's recommendation for a Negative Determination.

AA/LAC Decision:

Pursuant to the authority vested in the Assistant Administrator for Latin America and the Caribbean under Title 22, Part 216.4a, Environmental Procedures, and based upon the above recommendation, I hereby determine that the proposed project is not an action which will have a significant effect on the human environment, and therefore, is not an action for which an Environmental Impact Statement or an Environmental Assessment will be required.

Edward W. Conroy
Assistant Administrator for
Latin America and the Caribbean

Aug 14, 1980
Date

Clearances:

LAC/DR:Environmental Advisor:ROtto C. Otto
DAEC Chairman:MBrown MBrown

INITIAL ENVIRONMENTAL EXAMINATION

Project Location : Peru
Project Title : Environmental Sanitation
Funding : FY-80 Loan \$5.0 million
Grant \$0.5 million
Life of Project : 4 1/2 years
IEE Prepared by : Enrique Schroth
Engineering and Implementation Division
USAID/Peru
Date : May 9, 1980

Environmental Action Recommended:

The USAID/Peru Project Committee has undertaken a complete Initial Environmental Examination (IEE) of the project environmental impacts and has arrived at a recommendation for a NEGATIVE DETERMINATION.

Concurrence:

I have reviewed the Initial Environmental Examination for the Environmental Sanitation Project and concur in the recommendation.



Leonard Yaeger, Director
USAID/Peru

AA/LA Decision:

Based upon the Development Assistance Executive Committee review of the Project Identification Document, including the Initial Environmental Examination for the Environmental Project, I approve the Threshold Decision for a NEGATIVE DETERMINATION.

Assistance Administration for
Latin America

INITIAL ENVIRONMENTAL EXAMINATION

I. Examination of Nature, Scope and Magnitude of Environmental Impacts:

a) Project Description:

The Rural Sanitation Project will provide support to up to six Health Regions for the introduction into communities of the Sierra, of simple, gravity fed, potable water systems and community latrines. These same communities are designated for primary health services coverage under the A.I.D. financed project "Extension of Integrated Primary Health".

Thus, the proposed Rural Sanitation Project will provide for the implementation of a self-help construction program of potable water supply which compliments the community level primary health care activities of the A.I.D. financed Primary Health Project. It will permit expansion of the environmental sanitation component planned under the Primary Health Loan, to include potable water systems, community latrines and health education. These activities will complement the health activities to be carried out by the promoters and empirical nurse-midwives under the Health Loan by assuring increased access to a safe water supply and improved environmental sanitation.

Each community level project will be designed, implemented and maintained with the support of a multi-disciplinary technical team composed of members from the office of sanitary engineering/environmental sanitation and primary health in the Regional Health Sector Office, with technical advice and guidance from the Central Ministry. The project is designed to complement the water systems developed through regular Ministry programs, the CARE CFG Project and the Inter-American Development Bank (IDB) sponsored project.

Project funds will be used to purchase US plastic pipe, fittings and minimal equipment. There will be also a component of technical assistance.

b) Identification and Evaluation of Environmental Impacts:

The project's possible environmental effects have been carefully reviewed following the order established in the Impact Identification and Evaluation Form.

- 2 -

It has been concluded that the project will not have any significant impact regarding the change of the character or the use of the land or causing irreversible or inefficient commitments of natural resources.

The project interventions will preserve water quality without adversely affecting the ecological balance. The projects' impacts on health and on cultural and socio-economic patterns will be very positive. In general, the project will improve the health of the low income rural people, their personal hygiene and the sanitary conditions of their food. The reduction of mortality and disease rates will in turn produce beneficial economic effects by reducing expenditures on medicines and generally increasing the productivity.

II. IMPACT IDENTIFICATION AND EVALUATION FORM

Impact Areas and Sub-areas

Impact Identification and Evaluation^{1/}

A. LAND USE

- 1. Changing the character of the land through
 - a. Increasing the population ----- L
 - b. Extracting natural resources ----- N
 - c. Land clearing ----- N
 - d. Changing soil productivity capacity ----- N
- 2. Altering natural defenses ----- N
- 3. Foreclosing important uses ----- N
- 4. Jeopardizing man or his works ----- N
- 5. Other factors
 - eg. ecological balance of land to be used; ----- N

B. WATER QUALITY

- 1. Physical state of water ----- (positive)--- M
- 2. Chemical and biological states ----- (positive)--- M
- 3. Ecological balance ----- N
- 4. Other factors ----- N

C. ATMOSPHERE

- 1. Air additives ----- N
- 2. Air pollution ----- N
- 3. Noise pollution ----- N
- 4. Other factors -- None ----- N

D. NATURAL RESOURCES

- 1. Diversion, altered use of water --- (positive)----- M
- 2. Irreversible, inefficient commitments ----- N
- 3. Other factors---- None ----- N

^{1/} Following symbols are used: N - No environmental impact
 L - Little environmental impact
 M - Moderate environmental impact
 H - High environmental impact
 U - Unknown environmental impact

Impact Areas and Sub-areas

Impact Identification
 and Evaluation

E. CULTURAL AND SOCICECONOMIC

- 1. Altering physical symbols ----- N
- 2. Changes of cultural traditions --(positive)----- M
- 3. Changes in population -----(positive)----- M
- 4. Other factors:
 - Community Development ----- L

F. HEALTH

- 1. Changing a natural environment ----- N
- 2. Eliminating an ecosystem ----- N
- 3. Other factors:
 - Improved General Health Conditions----- H
 - Others -- None ----- N

G. GENERAL

- 1. International impacts ----- N
- 2. Controversial impacts ----- N
- 3. Larger program impacts ----- N
- 4. Other factors --- None ----- N

H. OTHER POSSIBLE IMPACT (not listed above)

- None ----- N

III. Discussion of Impacts:

A. Land Use:

The most significant project activity will be the provision of piped potable water to rural settlements already established. This will not produce any adverse changes in the use of the land.

- 1.a. Population Increase: Since the project will improve livability conditions in the rural settlements, a minor increase in population may be expected.
- 1.b. Extraction of Natural Resources: Small quantities of concrete aggregates will be used on concrete structures, the effect of their extraction on the character of the land will not be significant.
- 1.c. Land Clearing: Pipe installations will not involve any significant land clearing. At the most, some minor interferences with agriculture work
- 1.d. Changing Soil Character: The nature of the soil will not be affected by any of the projects
2. Alteration of Natural Defense: No relevant impact.
3. Foreclosing Important Uses: Projects will not introduce changes in present use of the land.
4. Danger to man or his works: Project sites will be evaluated to make sure that they will not be subjected to landslides, floods, erosion, etc.

B. Water Quality:

1. Physical State of Water: The project will only include projects in areas in which the availability of water has been proven and where there is no danger of irreversible depletion of scarce water resources.
2. Chemical and Biological States: Project users will benefit from water of higher quality than that of the presently used. Open water supply sources will have chlorination treatment. Otherwise, intakes will be sealed. Underground distribution system will also be free of pollution.

3. Ecological Balance: Water projects will only be implemented in areas where adequate water resources are available, consequently the ecological balance will not be significantly affected.

4. Sewage Disposal: There is a potential danger of a negative environmental impacts caused by inadequate sewage disposal solutions. Each sub-project will be independently analyzed.

C. Atmospheric Impacts:

Since no significant traffic generation will result from the project, there will be minimal increase on air pollution noise level or air contaminating.

D. Natural Resources: Water consumption will be minimal due to the small size of the communities. It will not affect the underground table level in a significant fashion.

E. Cultural and Socio Economic Impacts:

Water availability will reduce the cost and time spent on satisfying vital needs or even performing domestic chores. The project will also create the conditions for the establishment and growth of community development activities. Finally, improving living conditions on rural communities will help to reduce irrigation to the seriously overburdened main cities.

F. Health Impacts:

The provision of potable water will create an environment conducive to improve health conditions. The incidence of gastro intestinal diseases related to drinking contaminated water will be significantly reduced. The project will also encourage personal hygiene and a more sanitary food preparation.

H. Other Impacts:

No other environmental impacts or controversial environmental issues are foreseen in relation to any of the proposed project activities.

IV. Recommendation for Environmental Action:

Based on the careful review and assessment of the possible environmental impacts, the project committee recommends a Threshold Decision for a NEGATIVE DETERMINATION.

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ACTION: AID-2
INFO AMB DCM CHR/k

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PP RJESLM
DE RUEHC #8867 2530603
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D 090522Z SEP 80
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TO AMEMBASSY LIMA PRIORITY 5989
BT
UNCLAS STATE 233867

ANNEX I
EXHIBIT G
Page 1 of 2

AIDAC

F.O. 12065:N/A

TAGS:

SUBJECT: CONGRESSIONAL NOTIFICATION FOR RURAL WATER
SYSTEMS FOR THE SIERRA (PROJ. NO. 527-0221)

SUBJECT NOTIFICATION SUBMITTED TO CONGRESS ON SEPTEMBER 5,
1980 UNDER ABOVE TITLE. EXPIRATION DATE FOR 15 DAY
NOTIFICATION PERIOD IS SEPTEMBER 20, 1980. MJSKIE
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#8867

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BT
UNCLAS STATE 250014

ACTION ~~APD-2~~

AIDAC

INFO AHB DCA CHR

E.O. 12065: N/A

TAGS:

SUBJECT: RURAL WATER SYSTEMS FOR THE SIERRA (NO. 527-U221)
PROJECT APPROVAL AUTHORITY

AAA/LAC DELEGATES AUTHORITY TO MISSION DIRECTOR TO AUTHCRIZE
SUBJECT PROJECT FOR DOLS 5.5 MILLION LOP COSTS. WE UNDER-
STAND MISSION WILL SIGN PROJECT AGREEMENT FOR DOLS 5 MILLION
IN FY 1980 ANDREMAINDER IN FY 1981 WHEN ADDITIONAL FUNDING
BECOMES AVAILABLE.

ADVICE OF ALLOTMENT WAS CABLED TO MISSION ON 9/16/80. MUSKIE

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#0014

ACTION: PROG (FILES) CD

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ANNEX I
EXHIBIT H

ACTION ~~AID-2~~
INFO AMB DCM CHR

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OE RJEHC #7157 2610306
ZNR JUUUU ZZH
J 160144Z SEP 80
FM SECSTATE WASHDC
TO AMEMBASSY LIMA IMMEDIATE 5930
BT
UNCLAS STATE 247157

ADM AID

E.O. 12065: N/A

TAGS:

SUBJECT: ALLOTMENT OF FY 1980 LOAN FUNDS

1. ADVICE OF ALLTMENT NUMBER 1 ISSUED TO AA/LAC UNDER APPROPRIATION 72-119/01021.9 ALLOTMENT 968-65-527-00-68-01 IN AMOUNT DOLLARS 5,000,000 FOR PROJECT 0221, RURAL WATER SYSTEMS FOR THE SIERRA (LOAN 527-U-074).
 2. CONGRESSIONAL NOTIFICATION EXPIRES SEPTEMBER 19, 1980. OBLIGATION MAY NOT BE INCURRED UNTIL SEPTEMBER 20, 1980.
 3. ADVISE DATE LOAN AGREEMENT EXECUTED. MUSKIE
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ACTION: PROG (FILES)

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PROJECT DESIGN SUMMARY

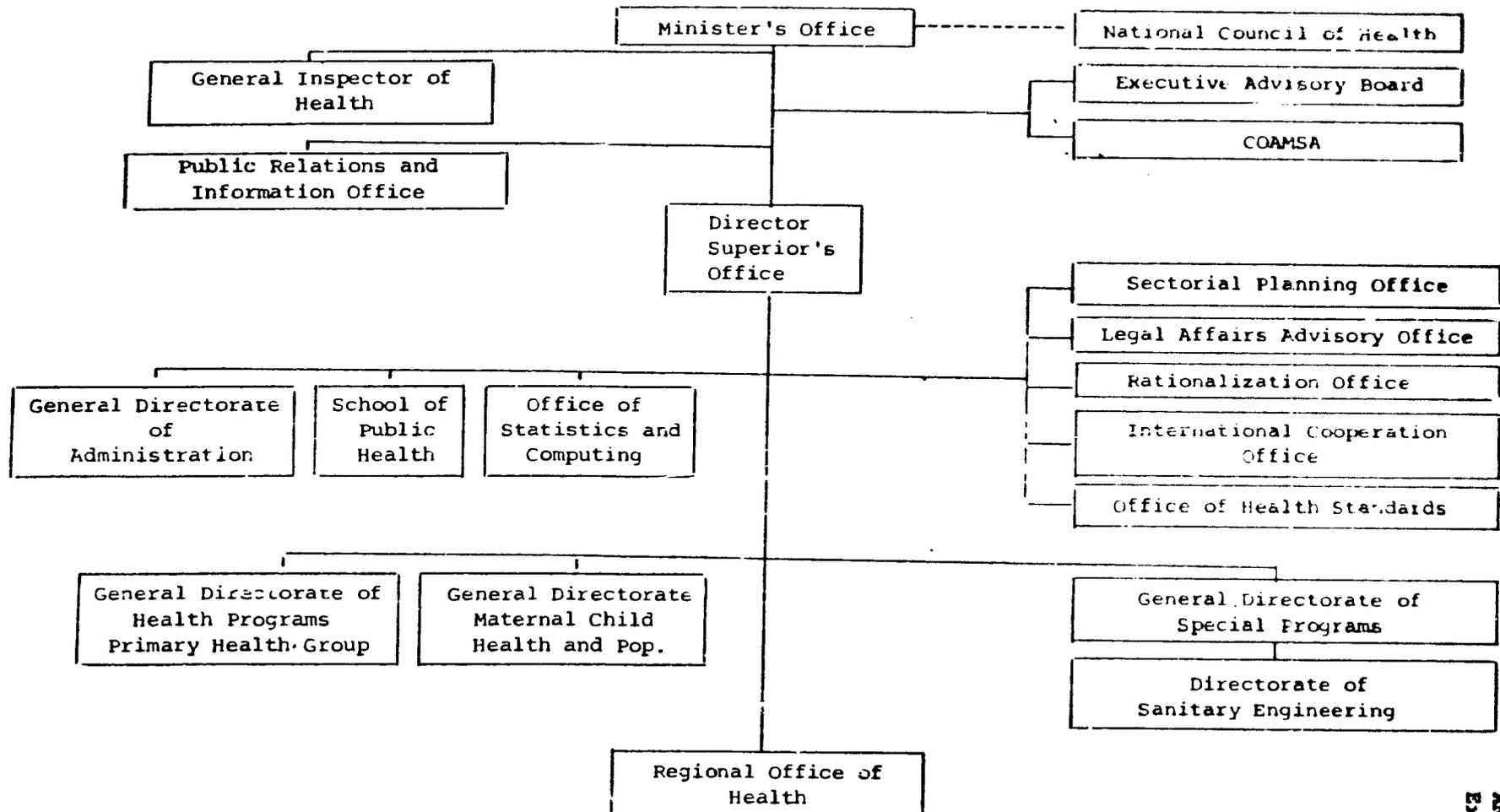
Project Title / Number: RURAL WATER SYSTEMS AND ENVIRONMENTAL
SANITATION - 527-0221

LOGICAL FRAMEWORK

Life of Project:
From FY 1980 to FY 1985
Total U.S. Funding \$3,500,000
Date prepared: 9/18/80

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS																												
<p>Program or Sector Goal: The broader objective to which this project contributes To improve the health and well-being of the rural poor.</p>	<p>Measures of Goal Achievement: infant mortality reduced by 20%</p>	<ul style="list-style-type: none"> - National annual reports - Primary Health household surveys - Regional semi-annual reports - Health post records - Final project evaluation 	<p>Assumptions for achieving goal targets: - GOP will continue support of health and environmental sanitation services to rural and marginal urban areas.</p>																												
<p>Project Purpose: To provide potable water systems, latrines and health education to rural communities in selected regions of the sierra and high jungle.</p>	<p>Conditions that will indicate purpose has been achieved: End of project status. a) Decentralized regional environmental sanitation offices upgraded and operating in six regional health offices. b) The Directorate of Sanitation Engineering (DSE) upgraded such that it has the ability to develop, implement and maintain rural potable water and sanitary systems, through increased human financial and material resources available as a result of the project. c) Training programs developed and implemented to assist the environmental sanitation technicians in carrying out community organization activities for construction and maintenance of community potable water systems. d) Latrine utilization increased in the Project area as a result of information developed through the Project. e) Health conditions and general well-being in the Project area improved as a result of increased availability of potable water.</p>	<p>For (a) to (e):</p> <ul style="list-style-type: none"> - DSE environmental sanitation plan - List of trained personnel kept at the DSE - Training programs implemented - Primary Health household surveys - Regional semi-annual reports - Health post records - Final Project evaluation 	<p>Assumptions for achieving purpose: - The GOP favors the decentralization of the environmental sanitation activities of the DSE. - A core of MCH/DSE technicians are appointed to work in the Project. - Technical assistance available on a timely basis. - Trained technicians continue working for the MCH once the pilot project is completed.</p>																												
<p>Outputs: 1. Potable water systems installed and operating. 2. Latrines installed and operational. 3. Community education regarding water and sanitary waste carried out. 4. Environmental sanitation technicians trained in community organization and maintenance procedures. 5. Maintenance unit staffed and equipped. 6. Technical assistance in project design, implementation, and maintenance provided.</p>	<p>Magnitude of Outputs: 1. 420 water systems operating in communities under 500 in 6 regions. 2. Approximately 7,000 private and 600 public latrines. 3. 420 education campaigns conducted in communities by Primary Health promoters. 4. 5 technicians per region trained. 5. 1 unit per region. 6. 35 work-months.</p>	<p>For (1) to (6): Information system reports Routine Project monitoring Mid-term evaluations</p>	<p>Assumptions for achieving outputs: Commodities and services procured in a timely fashion.</p>																												
<p>Inputs: 1. AID Loan Funds a. Construction equipment and materials. b. Skilled labor c. Vehicles and equipment d. Support costs e. Inflation and contingencies 2. AID Grant Funds a. Technical Assistance b. Training and education c. Studies and evaluation d. Inflation and contingencies 3. GOP Funds a. Construction equipment b. Salaries and operating costs c. Inflation and contingencies 4. Communities a. Materials b. Labor</p>	<p>Implementation Target (Type and Quantity)</p> <table border="0"> <tr> <td>1. \$ 5,000,000</td> <td>a. \$3,000,000</td> </tr> <tr> <td></td> <td>b. 600,000</td> </tr> <tr> <td></td> <td>c. 473,000</td> </tr> <tr> <td></td> <td>d. 176,000</td> </tr> <tr> <td></td> <td>e. 751,000</td> </tr> <tr> <td>2. \$ 500,000</td> <td>a. \$ 250,000</td> </tr> <tr> <td></td> <td>b. 90,000</td> </tr> <tr> <td></td> <td>c. 110,000</td> </tr> <tr> <td></td> <td>d. 50,000</td> </tr> <tr> <td>3. \$ 2,150,000</td> <td>a. \$ 250,000</td> </tr> <tr> <td></td> <td>b. 1,574,000</td> </tr> <tr> <td></td> <td>c. 376,000</td> </tr> <tr> <td>4. \$ 450,000</td> <td>a. \$ 150,000</td> </tr> <tr> <td></td> <td>b. 300,000</td> </tr> </table>	1. \$ 5,000,000	a. \$3,000,000		b. 600,000		c. 473,000		d. 176,000		e. 751,000	2. \$ 500,000	a. \$ 250,000		b. 90,000		c. 110,000		d. 50,000	3. \$ 2,150,000	a. \$ 250,000		b. 1,574,000		c. 376,000	4. \$ 450,000	a. \$ 150,000		b. 300,000	<p>AID disbursement records GOP records</p>	<p>Assumptions for providing inputs: AID and GOP appropriate funds for the Project.</p>
1. \$ 5,000,000	a. \$3,000,000																														
	b. 600,000																														
	c. 473,000																														
	d. 176,000																														
	e. 751,000																														
2. \$ 500,000	a. \$ 250,000																														
	b. 90,000																														
	c. 110,000																														
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	b. 1,574,000																														
	c. 376,000																														
4. \$ 450,000	a. \$ 150,000																														
	b. 300,000																														

STRUCTURAL ORGANIZATION CHART OF THE
 MINISTRY OF HEALTH
 PERU - 1979

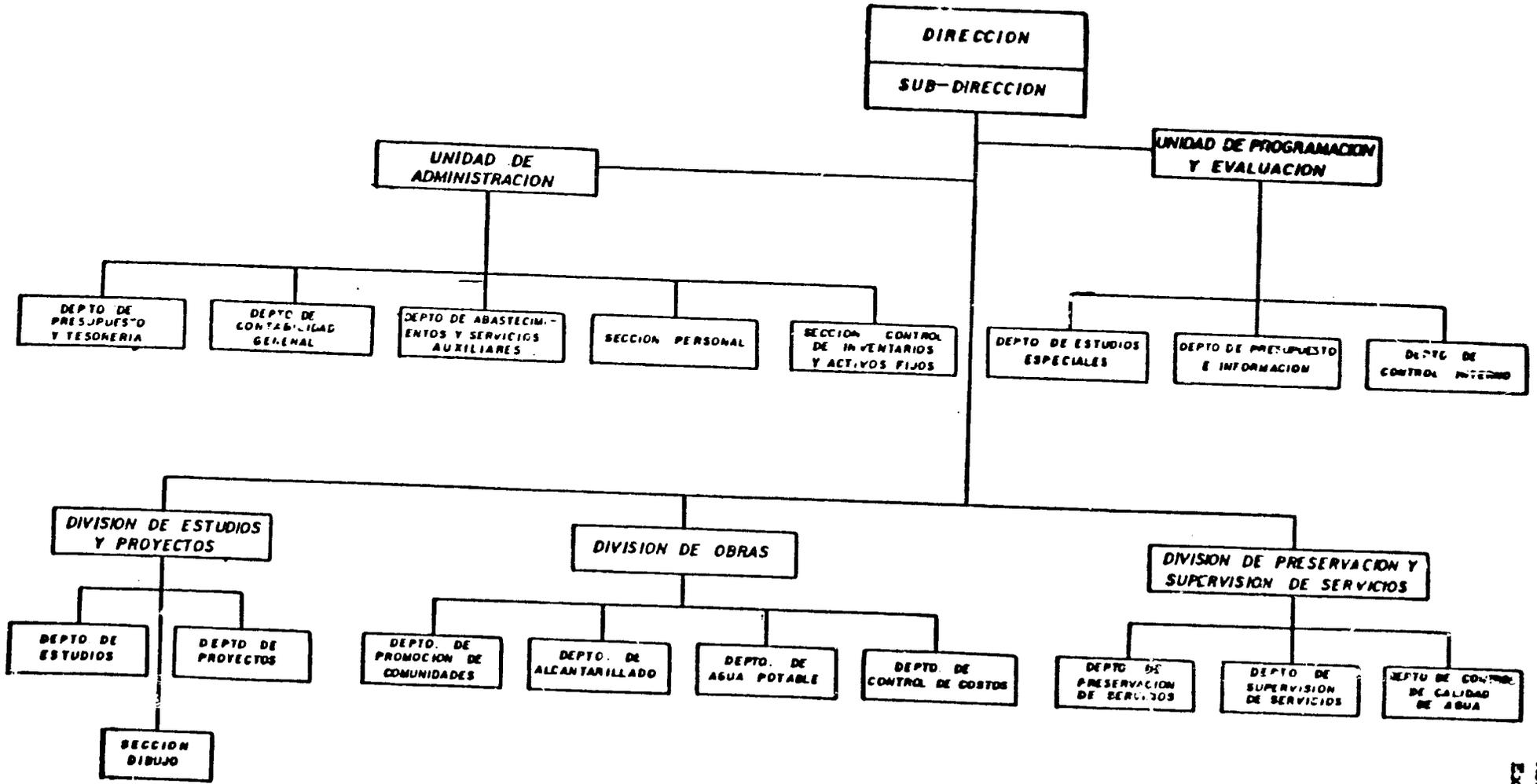


DESCENTRALIZED OPERATIONAL
 TECHNICAL FUNCTIONS

SUPPORT AND ADVISORY
 SERVICES

MANAGEMENTS FUNCTIONS

DIRECCION DE INGENIERIA SANITARIA
ORGANIGRAMA ESTRUCTURAL



LIST OF MATERIALS AND EQUIPMENT

1. Construction of Systems and Latrines:
 - a) PVC pipe
 - b) F°G° pipe
 - c) PVC fittings
 - d) F°G° and bronze fittings
 - e) Steel for reinforcement
 - f) Cement
 - g) Equipment and pumping elements
 - h) Equipment or elements or treatment
 - i) Specialized labor
 - j) Unskilled labor
 - k) Sand, rocks, gravel, lumber, etc.
 - l) Miscellaneous (galvanized corrugated sheets, paint, cleaning fluids, glue, metal covers, metal frames, glass, wire, nails)
2. Support
 - a) Transportation equipment: 8 four-wheel-drive pick-up trucks, 6 dump trucks, and 30 motorcycles.
 - b) Engineering & drawing equipment: transits, levels, drawing tables and materials.
 - c) Audiovisual equipment: vehicle equipped with slide and movie projectors, sound equipment, microphones, tape recorders, power generator, educational material, and miscellaneous materials.
 - d) Construction equipment: cement mixers and miscellaneous equipment.
 - e) Tools for workshops, project sites, masonry, and carpentry.
 - f) Portable laboratory equipment for on-site bacteria analysis.
 - g) Manual drilling equipment for well digging.

TECHNICAL ASSISTANCE

Approximately 35 months of technical assistance will be financed by the Project Grant. This resource will be used to enhance Project delivery in three areas: planning and administration, maintenance, and sanitation education.

a) Planning and Administration

Approximately 24 months of technical assistance will be provided to insure adequate Project development in the six Project Regions. The focus will be on insuring the adequacy of the initial planning process, assisting in estimating and ordering materials for both local and foreign procurement, assisting in the development of a satisfactory supervisory system, and where possible assisting to improve the administrative mechanisms of the Project.

These activities will be particularly critical during the first year of the Project, especially given the decentralized nature of implementation and the possible problems which could result from the organizational separation between the DSE and the Regional Offices.

The proposed technical assistance is envisaged in three blocks, the first being 18 months to cover initial Project development and entry of the first four Regions; and two later blocks of three months each specifically to facilitate integration of the other two Regions into the Project, and help them with their planning.

b) Maintenance

In most existing systems in Peru, maintenance has been a problem, and without this important component the utility of the original investment of effort and capital has often been nearly eliminated. In order to avoid similar results in the future, technical assistance will be provided to specifically focus on past problems in maintenance, and from that experience suggest and test technical and/or administrative modifications to improve this component.

This effort will be divided into two blocks. The first will include a diagnosis as to the specific cause of past maintenance problems. On the basis of that diagnosis, the consultant will develop one or more alternatives in the form of manuals which can be used by the community steering committees for managing a successful maintenance program. A course will then be organized to teach both the system procedures and the method of introduction to the environmental technicians who will eventually be responsible for monitoring the maintenance program. It is estimated that this entire process will take approximately 3 months.

The second phase will take place approximately two years later and consist in an evaluation of the installed system(s) and in modifying the existing manual(s). This phase will take an estimated two months for a total of 5 months for the maintenance component.

c) Environmental Sanitation Education

For the program to achieve its intended results, a very strong educational component must be implemented. In addition to community motivation/organization and maintenance training, much attention must be placed on education to change critical behavioral patterns which otherwise will minimize the effectiveness of the installed water systems and latrines. Latrines, for example, have generally fallen into disuse in other areas.

The initial phase of technical assistance in this area will be to work with MOH staff to determine in which areas technical assistance in environmental sanitation education would be most valuable. This effort will draw on the findings of the latrine and water use studies. Examples of areas of potential input are the development of the environmental sanitation component for training manuals, improvement of the technical capacity to produce audio-visual materials and investigation and implementation of systems of mass communication.

Including the initial planning, six months of technical assistance will be provided for this important component.

TRAINING

- a) In country training: To conduct lectures and seminars on the following subjects:
1. Short courses for sanitation technicians.
 2. Short courses for operators.
 3. Short courses for administration committees.
 4. Short courses on administration, operation and maintenance for engineers.
 5. Short courses on community development for personnel in charge of the community organization and promotion.
 6. Seminars and refreshing courses on the project.
- b) Third country training: To attend courses and seminars related to basic rural sanitation programs and observation trips to visit similar programs in Latin American countries.

SPECIAL STUDIES

Five special studies are envisaged within the project to complement other activities and provide evaluatory information.

a) Latrine Study

In order to determine the efficacy and cost-effectiveness of latrines, particularly in conjunction with water systems, a study of 1 1/2 work-months will be carried out to determine: defecation habits, attitudes toward latrines, their utilization and maintenance, and recommend specific courses for future project direction in this area. This study will be contracted to a PVO to be carried out during the first year of the project in communities of the Project regions where latrines have been previously constructed. The results will then suggest program modifications for actual Project sites.

b) Water Use Study

To complete the picture of water system efficacy, it will be important to know understand the attitudes of community members toward water and its provision and used. A questionnaire will be developed and administered to a sample of six communities, two in each project region approximately one year following introduction of the new systems. The questionnaire will seek to answer such things as perceptions as to the relationship of water to disease, use and perceptions as to the relationship of water to disease, use and perception of the new system, water utilization, etc. It is estimated that this study should take about 6 work-weeks including design, data collection, and analysis. Because of the close relation between these two studies, it may be useful to combine them if possible.

c) System Efficacy Study

The most important objective of this Project is to improve the health of the communities affected by reducing the incidence of water-borne diseases. The purpose of this study is to determine the impact of the provision of environmental services on the communities. Ideally, this would be done through extensive medical and laboratory examinations in each of the selected communities, but the difficulty of logistics and maintenance of laboratory samples precludes this option. While disease specific diagnosis and measurement will be difficult, the impact of specific invention combinations over time may be inferred through the number of diarrheal episodes.

The first step will be to carry out a baseline study with respect to diarrheal episodes in the communities selected for the study. Simultaneously, it must be insured that the health information system is functioning in those communities. While the latter will probably not yield accurate data relating to the incidence of disease, it will

provide important data as to the seasonality for which confounding factors might be alleviated.

Communities in the project areas will be matched and then later re-surveyed to determine the effects of specific interventions or combinations of interventions. The survey will include communities under the following conditions:

- 1) Those including primary care services, a water system and latrines;
- 2) Those including primary care services and a water system only;
- 3) Those including primary care services and latrines only;
- 4) Those including primary care services but lacking environmental services;
- 5) Those without either primary care or environmental services.

The efficacy and effectiveness of environmental services might be further determined by identifying those systems carrying out regular and efficient chlorination as opposed to those where chlorination as an intervention has not been consistent. At least three communities in each of the Phase I Project areas should be studied for each set of interventions, making a total of at least 45 communities.

Each of the identified communities would be surveyed three times: once at the beginning of the project; once immediately following introduction of the water system and massive disease treatment; and once approximately two years later.

The study will be done under contract. The contracted organization will be responsible for study design, training of the health promoters who would actually carry out the data collection, supervision of the data collection, tabulation of results, and analysis.

It is estimated that over the life of the study, approximately 6 work-months of professional time will be required in addition to travel, material cost, tabulation, and computer time. The results of this study will complement those for the latrine study, along with other evaluation efforts, and will guide future policy decisions.

d) Simplified Treatment Mechanisms

One of the critical elements of a successful water program is regular treatment of the water in doses which are neither too great nor insufficient. Absence of treatment may result in the provision

of non-potable water rendering the system ineffective in terms of fomenting better health. Achievement of this objective has typically been very difficult, particularly in the rural areas. As a result, the MOH has generally turned to chlorine injection systems which automatically control the amount of chlorine put in the water, but which require relative sophisticated and expensive equipment which may also be subject to maintenance problems.

The purpose of this study will be to seek out alternative methods of providing adequate treatment, preferably using appropriate technology and local materials. The study will be divided into two phases: introducing several model systems (1 month), and after a reasonable interval another 2 weeks to evaluate their effectiveness.

e) Well Experimentation

The purpose of this study will be to examine the alternative technologies for providing potable water in rural communities where gravity-fed systems are not technically feasible. The selection of the most appropriate alternative depends upon a number of factors, including the hydrological characteristics of the area, the magnitude and spatial distribution of population in the community, and the amount of funds available. In the case of small communities (less than 200 inhabitants) that do not have a nearby source of water suitable for a gravity system but do have an acceptable ground-water source (e.g., in terms of purity, proximity, and ease of drilling), the alternatives are wells with one of the following types of pumps:

- 1) Pump with motor (electric, gasoline, or diesel).
- 2) Wind or water-driven pump (windmill, hydraulic ram, etc.)
- 3) Animal-powered pump.
4. Human-powered pump (called "hand pump", although some utilize the foot).

When cost is the dominant factor, the hand pump is generally the best alternative because it is far less expensive than the others with respect to both initial cost and operating expenses. However, for the purpose of this study, selected alternative pumps will be tried on an experimental basis to determine their technical and economic feasibility as well as their reliability in terms of operation and maintenance.

OCCUPATIONAL DISTRIBUTION OF PERSONNEL

1. DSE Personnel

At present the staffing of the DSE consists of:

44 Engineers
3 Accountants
1 Health Educator
1 Economist
1 Biologist
10 Sanitation Promoters and Technicians
49 Assistant Technicians
8 Draftsmen
17 Administrative Assistants
28 Secretaries
35 Drivers
94 Skilled Workers
12 Service Workers

Most of this staff are based in Lima, and all are presently engaged in full-time activities. Technical staff will, however, provide Project management and the technical support necessary.

2. Regional Staff

At present the Regional Health Offices do not have sufficient personnel to carry out the Project. While in some cases they may have a sanitation engineer and/or several sanitation technicians on their staffs, these people are fully engaged in other activities, including the promotion and implementation of other water projects.

As a pre-condition to the utilization of Project resources in a given Region, that Regional Office will be required to demonstrate

the full-time assignment of the minimal staff felt capable of successfully implementing the Project. That minimal staff will normally consist of:

- 1 Sanitation Engineer (head of team)
- 1 Sanitation Engineer for Studies and Designs
- 1 Topography Specialist
- 1 Engineering Draftsmen
- 5 Sanitation Technicians
- 2 Secretaries
- 3 Chauffeurs
- 2 Skilled laborers
- 2 Unskilled laborers
- 1 Storekeeper
- 1 Accounting or Administrative Auxiliary
- 2 Watch people

PLAN NACIONAL DE AGUA POTABLE RURAL RECURSOS HUMANOS

ANNEX II
EXHIBIT G
Page 3 of 3



ITEMIZED ESTIMATED COSTS OF MATERIALS

<u>I. Construction of Systems and Latrines:</u>	Total Cost US\$
a) PVC pipe	1,940,000
b) F°G° pipe	100,000
c) PVC fittings	192,000
d) F°G° and bronze fittings	140,000
e) Reinforcing Steel	134,000
f) Cement	154,000
g) Equipment and pumping elements	120,000
h) Equipment or elements for treatment	120,000
i) Skilled Labor	600,000
j) Unskilled labor (community members)	300,000
k) Sand, rocks, gravel, lumber, etc.	<u>400,000</u>
	4,300,000
<u>II. Supplies:</u>	
a) Transportation equipment	283,000
b) Engineering and drawing equipment	80,000
c) Audiovisual equipment (vehicle)	25,000
d) Construction equipment	30,000
e) Office equipment	20,000
f) Tools	25,000
g) Laboratory equipment (portable)	5,000
h) Drilling Equipment (portable)	<u>5,000</u>
	473,000

<u>III. Technical Assistance</u>	Total Cost US\$
a) Long Term	
1. Organizing, planning, information, control for assistance at a regional level - 24 work-months	192,000
b) Short Term	
1. Maintenance and operation - 5 w/m	40,000
2. Sanitary education promotion - 6 w/m	<u>48,000</u>
35 work-months	280,000
 <u>IV. Training</u>	
a) In Country Training: To conduct lectures and seminars on the following subjects:	
1. Short courses for sanitation technicians	
2. Short courses for system operators	
3. Short courses for administration committees.	
4. Short courses in administration, operation and maintenance for engineers	
5. Short courses on community development for personnel in charge of the community organization and promotion	
6. Seminars and refreshing courses on different topics of the Project	70,000
b) Third Country Training: To attend courses and seminars related to basic rural sanitation programs and observation trips to visit similar programs in Latin American countries	<u>30,000</u>
Total	100,000

<u>V. Studies and Evaluation:</u>	Total Cost US\$
1. Studies on appropriate technologies for treatment systems and pumping in rural communities	25,000
2. Use of the latrine and water in the rural area	15,000
3. Evaluation and results	70,000
4. Process evaluation	<u>10,000</u>
Total	120,000
<u>VI. Logistic Support and Costs:</u>	
a) Salaries, wages, social benefits	930,000
b) Per Diem and travel costs	250,000
c) Repair, operation and maintenance of vehicles	250,000
d) Office supplies	100,000
e) Construction and/or adequation of sanitary workshops and warehouses	<u>170,000</u>
Total	1,700,000

COST BY TYPE OF SYSTEM (US\$)

200-500 inhabitants (average 350 inhabitants or 60 households)

(US\$ 1 = 300 Soles)
 Sept. 5, 1980

Type I Gravity system with household connections

<u>Unit</u>	<u>GOP</u>	<u>Community</u>	<u>Loan</u>	<u>Total</u>
A) Intake	\$ 77	\$103	\$ 720	\$ 900
B) Conduction (1 km - 2")	210	284	2,472	2,966
C) Reservoir (10 m ³)	63	87	850	1,000
D) Distribution network (2 km - 1 1/1")	150	210	2,700	2,060
E) Household connections (.60)	<u>72</u>	<u>96</u>	<u>2,232</u>	<u>2,400</u>
	\$572	\$780	\$8,974	\$10,326
35% administrative costs	<u>3,674</u>			<u>3,674</u>
	\$4,246			\$14,000

Cost per inhabitant (without
 administration) = $\frac{\$10,326}{350}$ = US\$29.50

Cost per inhabitant (with
 administration) = $\frac{14,000}{350}$ = US\$40.00

Type II Gravity System with sanitary units and 50% household connections

<u>Unit</u>	<u>GOP</u>	<u>Community</u>	<u>Loan</u>	<u>Total</u>
A) Intake	\$ 77	\$103	\$ 720	\$ 900
B) Conduction (1 km. - 1 1/2")	115	156	1,496	1,767
C) Reservoir (10 m ³)	63	87	850	1,000
D) Distribution network (1.5 km - 1")	84	115	1,327	1,526
E) Sanitary Units (3 units)	145	200	2,655	3,000
F) Household connections (50% - 30)	<u>36</u>	<u>48</u>	<u>1,116</u>	<u>1,200</u>
	\$520	\$709	\$8,164	\$9,393
35% administrative costs	<u>3,342</u>			<u>3,342</u>
	\$3,862			\$12,735
Cost per inhabitant (without administration)	= $\frac{\$9,393}{350}$ = US\$26.85			
Cost per inhabitant (With administration)	= $\frac{\$12,735}{350}$ = US\$36.40			

Type III Gravity system - stand pipe public connection

<u>Unit</u>	<u>GOP</u>	<u>Community</u>	<u>Loan</u>	<u>Total</u>
A) Intake	\$ 77	\$103	\$ 720	\$ 900
B) Conduction (1 km - 1")	73	94	1,023	1,190
C) Reservoir (10 m ³)	63	87	850	1,000
D) Distribution network (1.5 km - 1")	60	88	1,385	1,533
E) Stand pipe public connection (5)	<u>20</u>	<u>27</u>	<u>620</u>	<u>667</u>
	\$293	\$399	\$4,598	\$5,290

35% administrative costs $\frac{1,882}{\$2,175}$ $\frac{1,882}{\$7,172}$

Cost by inhabitant
 (without administration) = $\frac{\$5,290}{350}$ = US\$15.10

Cost by inhabitant
 (with administration) = $\frac{\$7,172}{350}$ = US\$20.50

Type IV Hand-dug well with manual pump (12 housing units - 72 inhabitants)

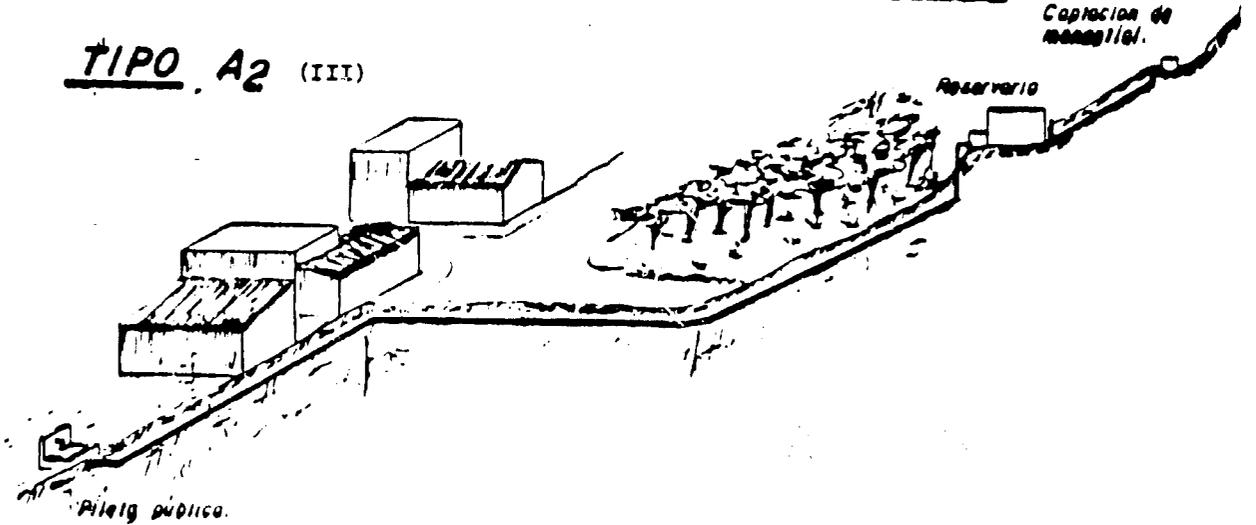
<u>Unit</u>	<u>GOP</u>	<u>Community</u>	<u>Loan</u>	<u>Total</u>
A) Digging	-	\$100	-	\$100
B) Interior walls with cement or masonry lining	35	35	280	350
C) Pump	<u>-</u>	<u>-</u>	<u>250</u>	<u>250</u>
	35	135	530	\$700
15% administrative costs	<u>105</u>	<u>-</u>	<u>-</u>	<u>105</u>
	140	135	530	\$805

Cost/inhabitant (without administration) = $\frac{\$700}{72}$ = US\$9.70

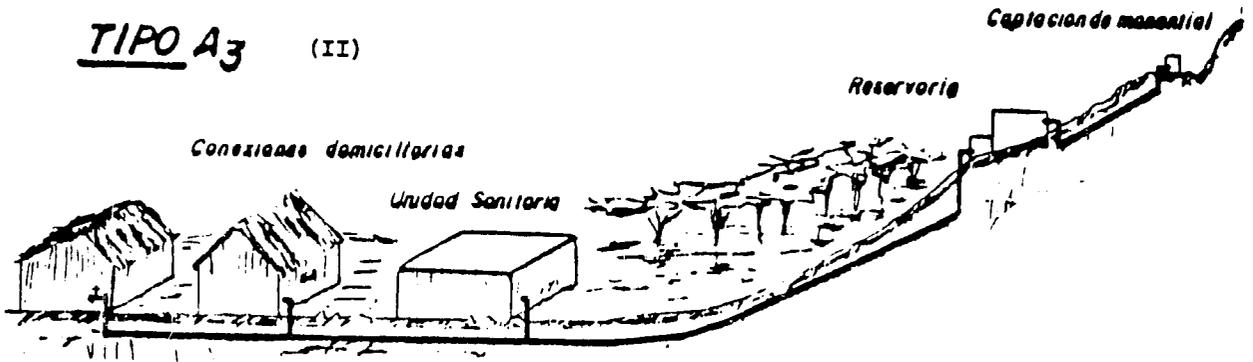
Cost/inhabitant (with administration) = $\frac{\$805}{72}$ = US\$11.20

DIFERENTES TIPOS DE SISTEMAS

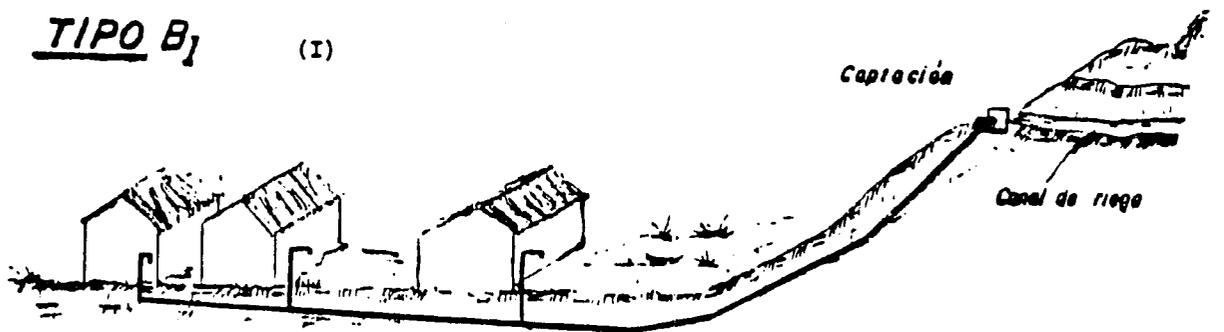
TIPO A₂ (III)



TIPO A₃ (II)



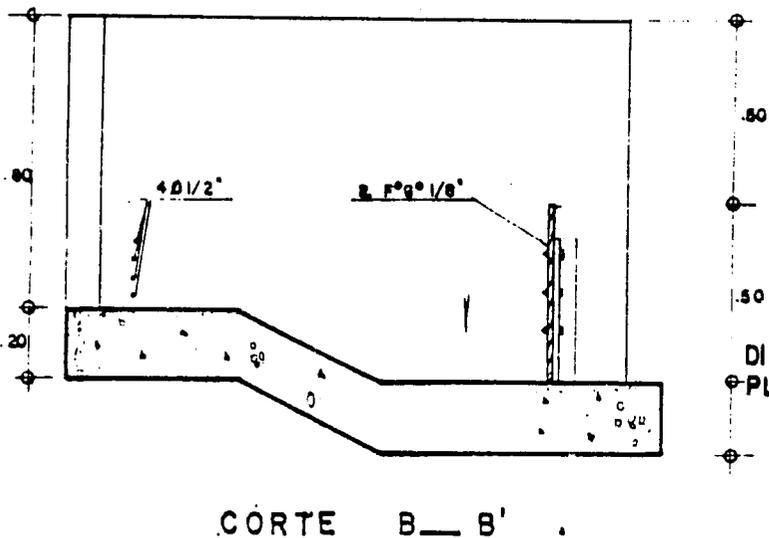
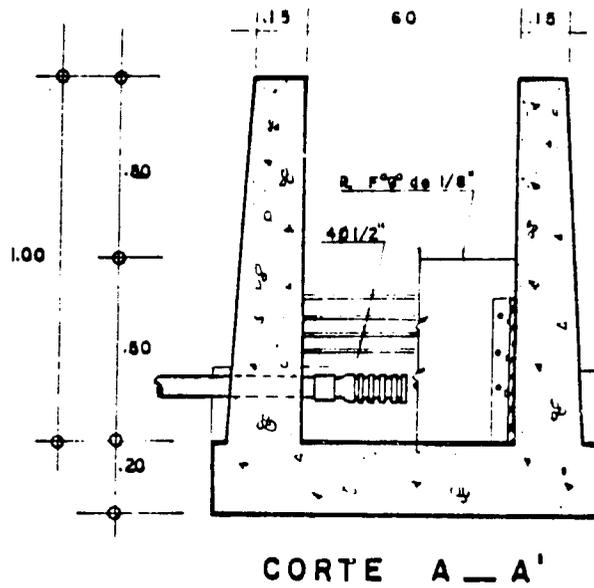
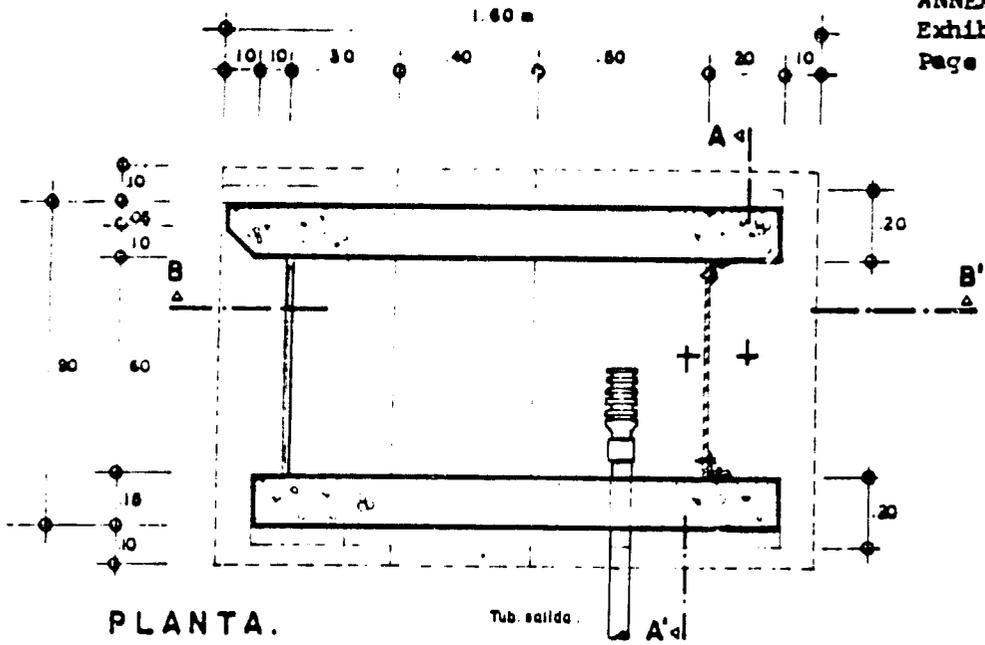
TIPO B₁ (I)



MINISTERIO DE SALUD

Dirección General de Programas Especiales de Salud
Dirección de Ingeniería Sanitaria

Proyecto : A.I.D.



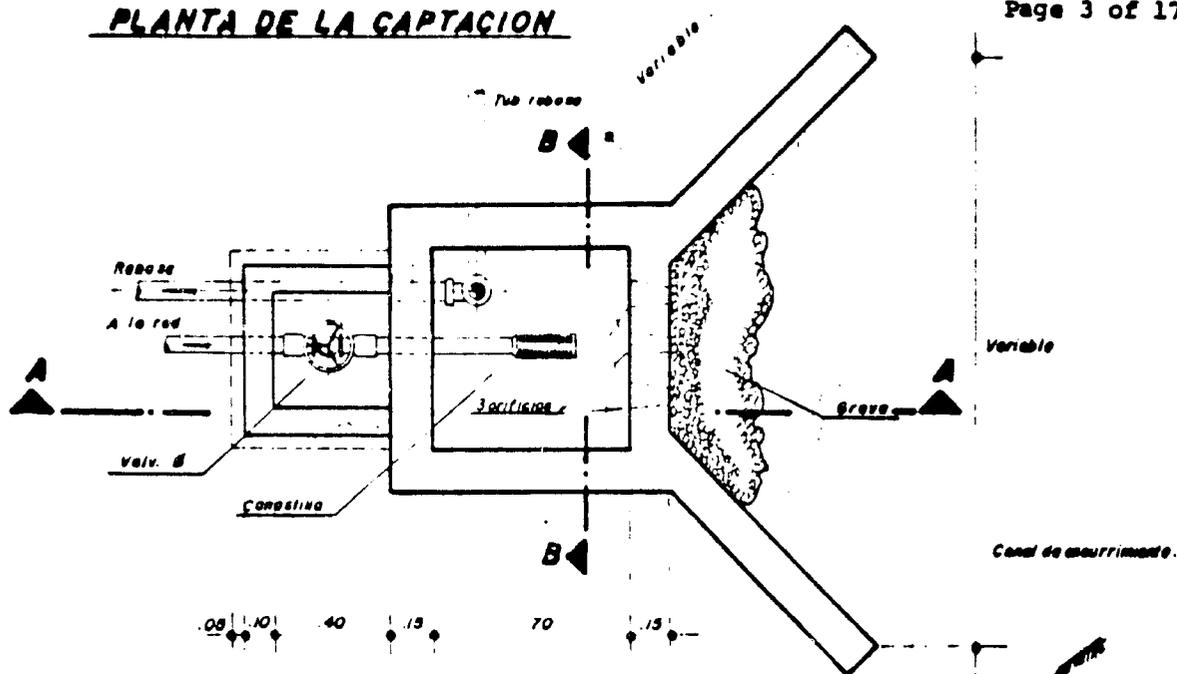
CAPTACION EN
RIACHUELOS
 Escala : 1 / 20

MINISTERIO DE SALUD
 DIRECCION DE INGENIERIA SANITARIA.
 PLAN NACIONAL DE AGUA POTABLE RURAL
 PROYECTO - A I D

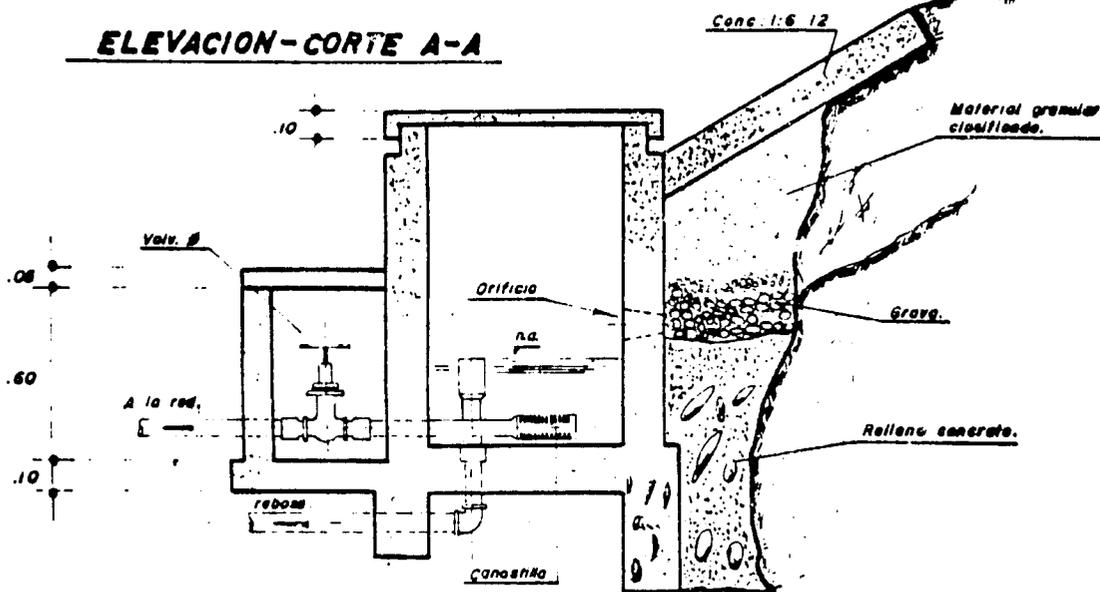
CAPTACION DE LADERA

ANEX II
Exhibit J
Page 3 of 17 pages

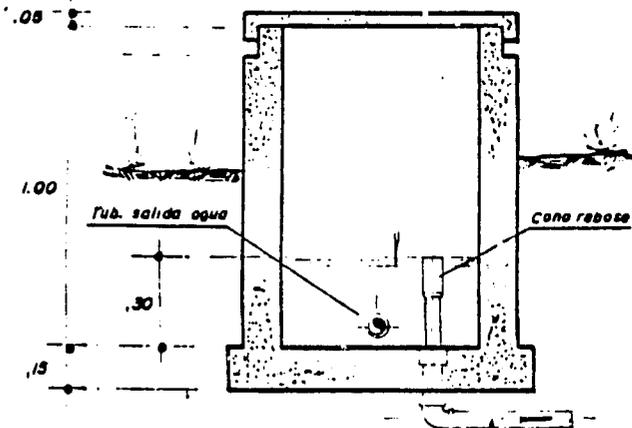
PLANTA DE LA CAPTACION



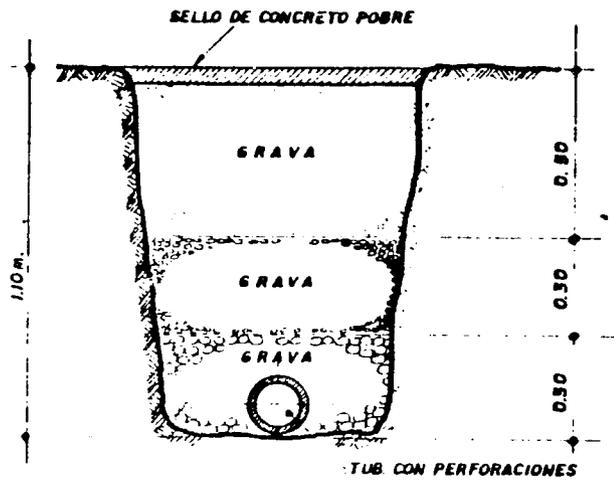
ELEVACION-CORTE A-A



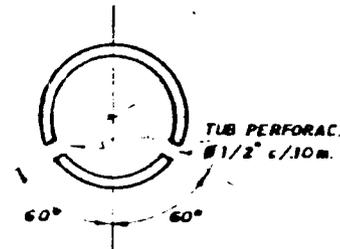
ELEVACION-CORTE B-B



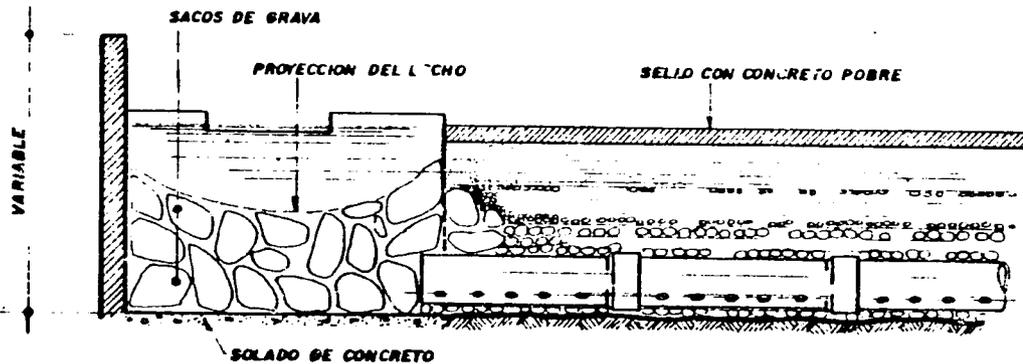
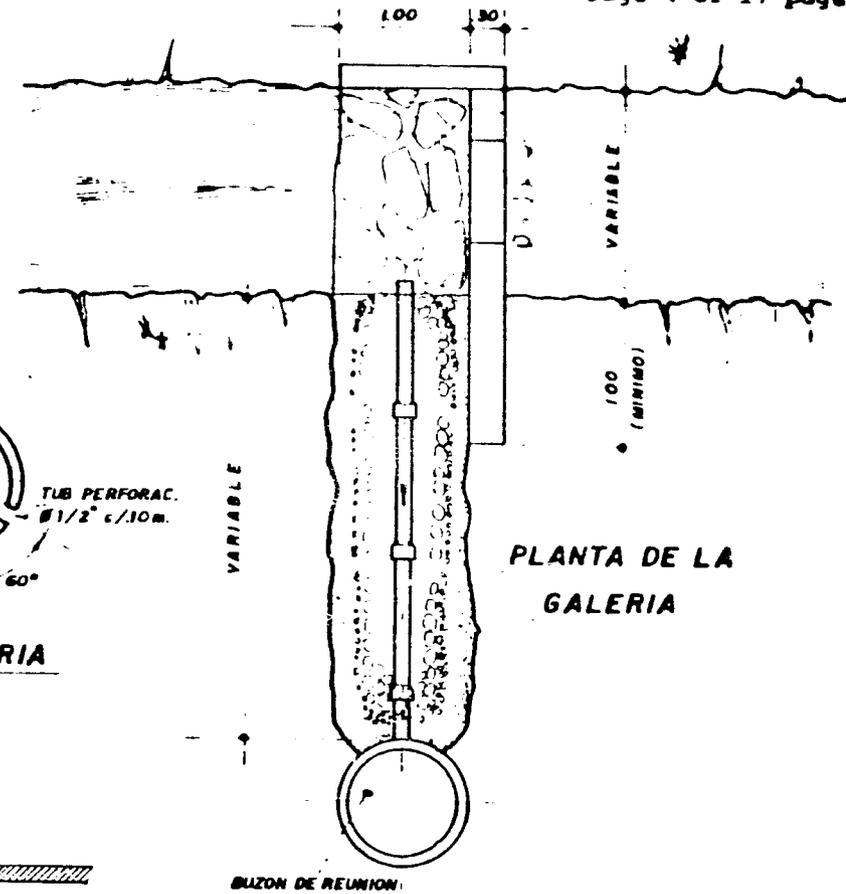
MINISTERIO DE SALUD
 Dirección General de Programas Especiales de Salud
 Dirección de Ingeniería Sanitaria
 Proyecto: A. I. D.



CORTE TRANSVERSAL - GALERIA



DETALLE TUBERIA PERFORADA

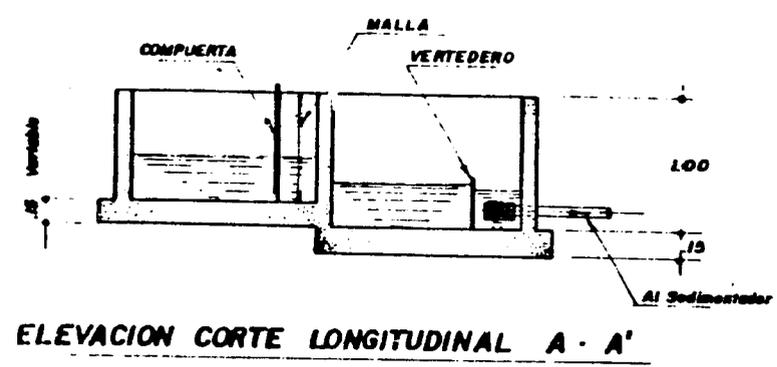
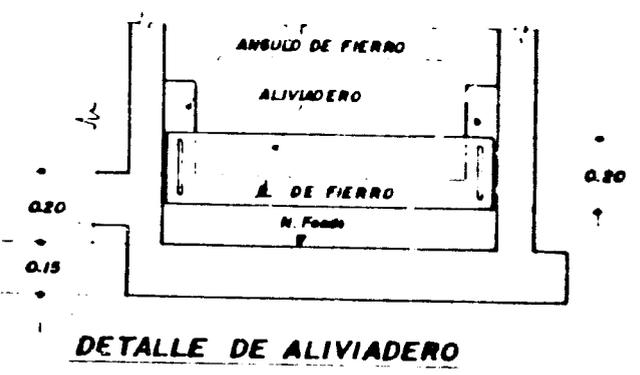
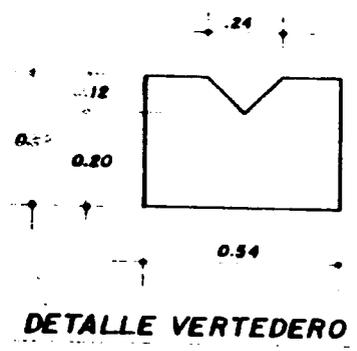
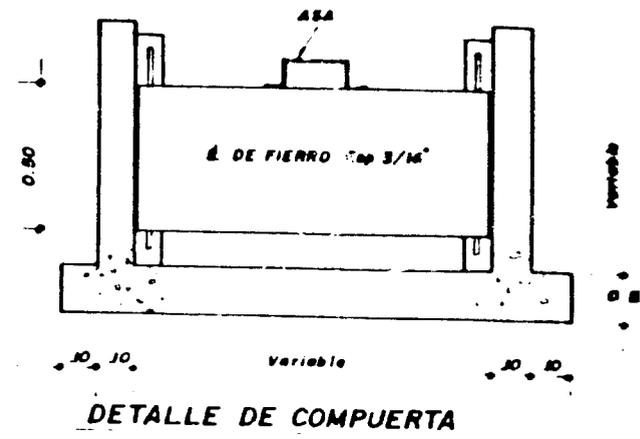
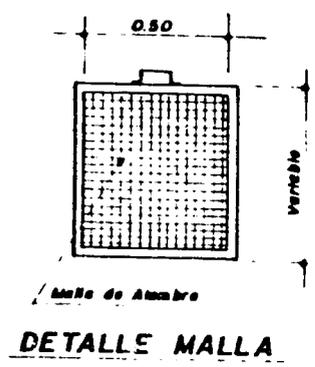
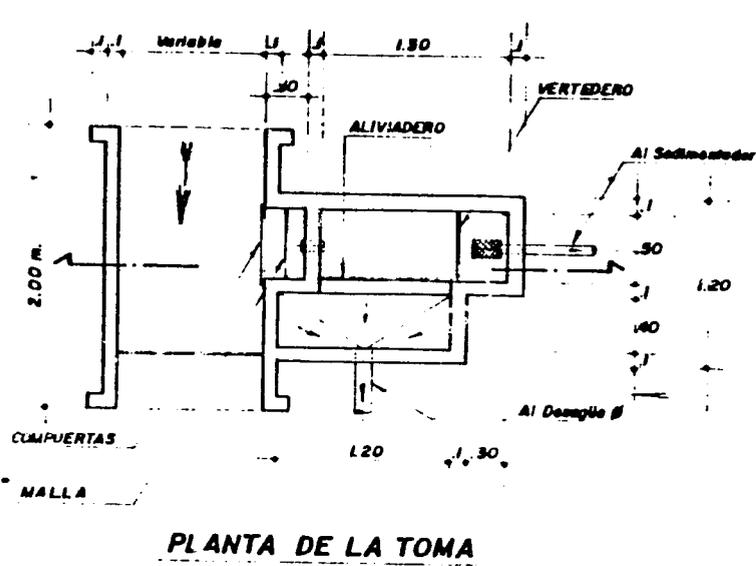


CORTE LONGITUDINAL DE GALERIA

MINISTERIO DE SALUD
 DIRECCION DE INGENIERIA SANITARIA
 PLAN NACIONAL DE AGUA POTABLE RURAL

PROYECTO AID

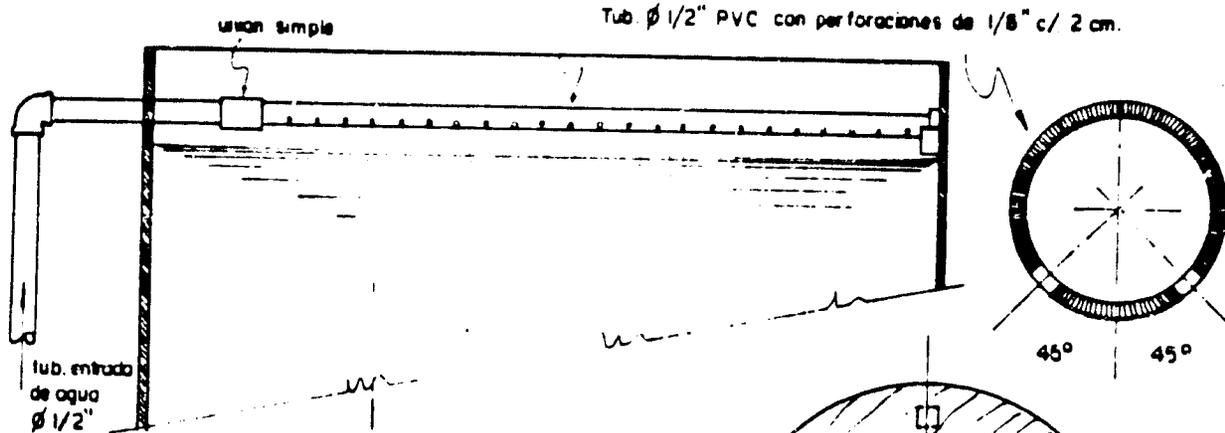
Titulo: Filtro Incorporado a Galería Filtrante



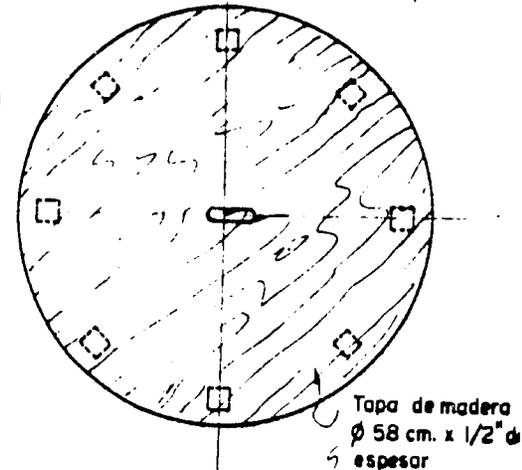
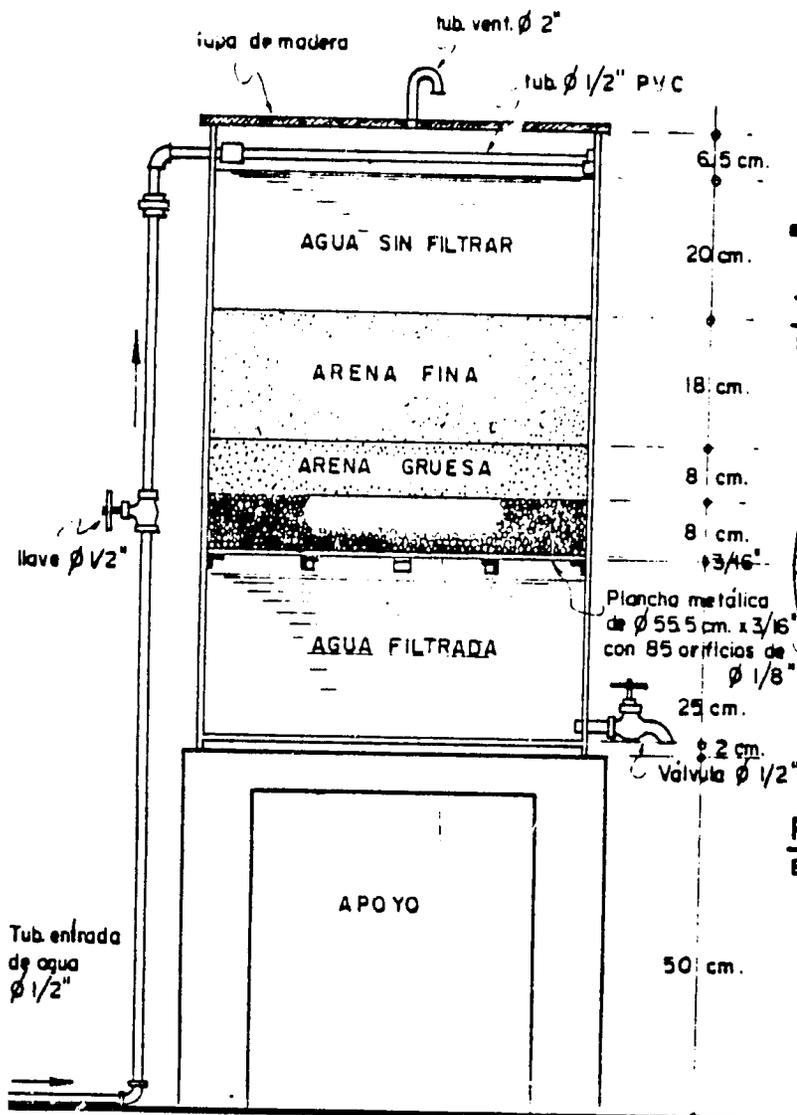
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 DIRECCION DE INGENIERIA SANITARIA
 PLAN NACIONAL DE AGUA POTABLE RURAL

PROYECTO AID
 Titulo: Captación de un Canal

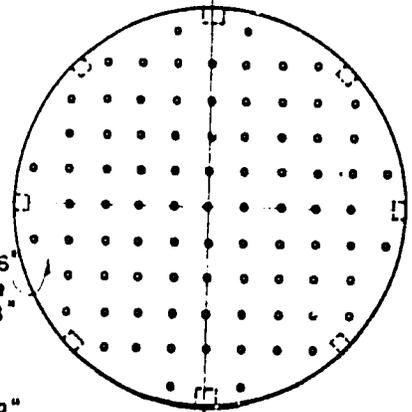
FILTRO DOMESTICO



DETALLE TUBERIA DE REPARTICION EN EL CILINDRO
 ESCALA 1:5



TAPA DE MADERA
 ESC. 1:10

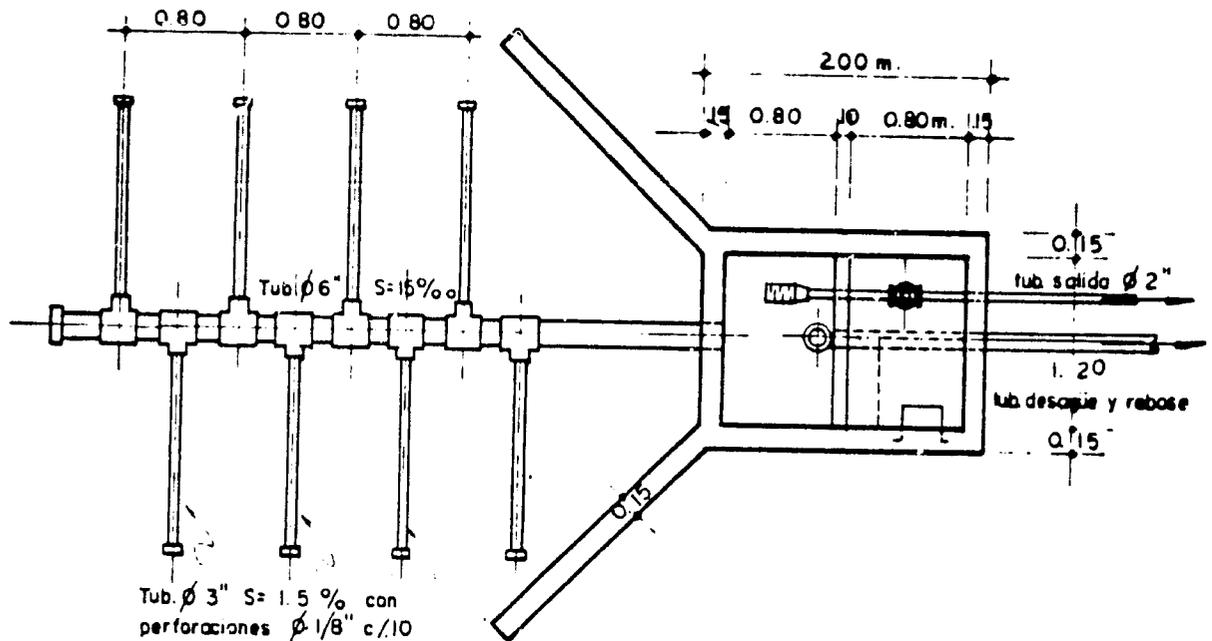


PLANCHA METALICA
 ESCALA 1:10

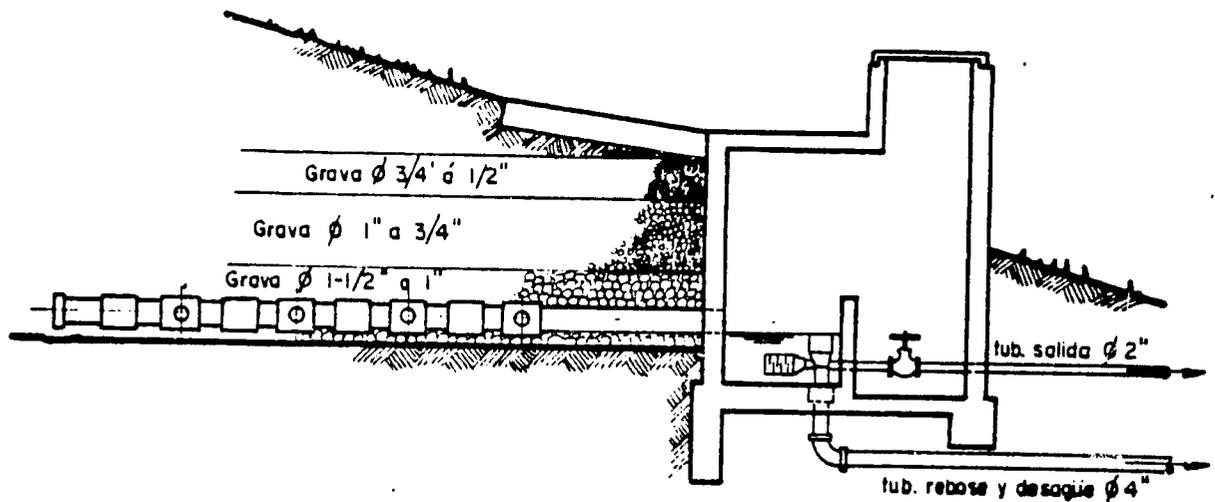
MINISTERIO DE SALUD
 DIRECCION DE INGENIERIA SANITARIA
 PLAN NACIONAL
 DE AGUA POTABLE RURAL
PROYECTO - AID

CAPTACION MANANTIAL DE AFLORAMIENTO DIFUSO - DETALLE

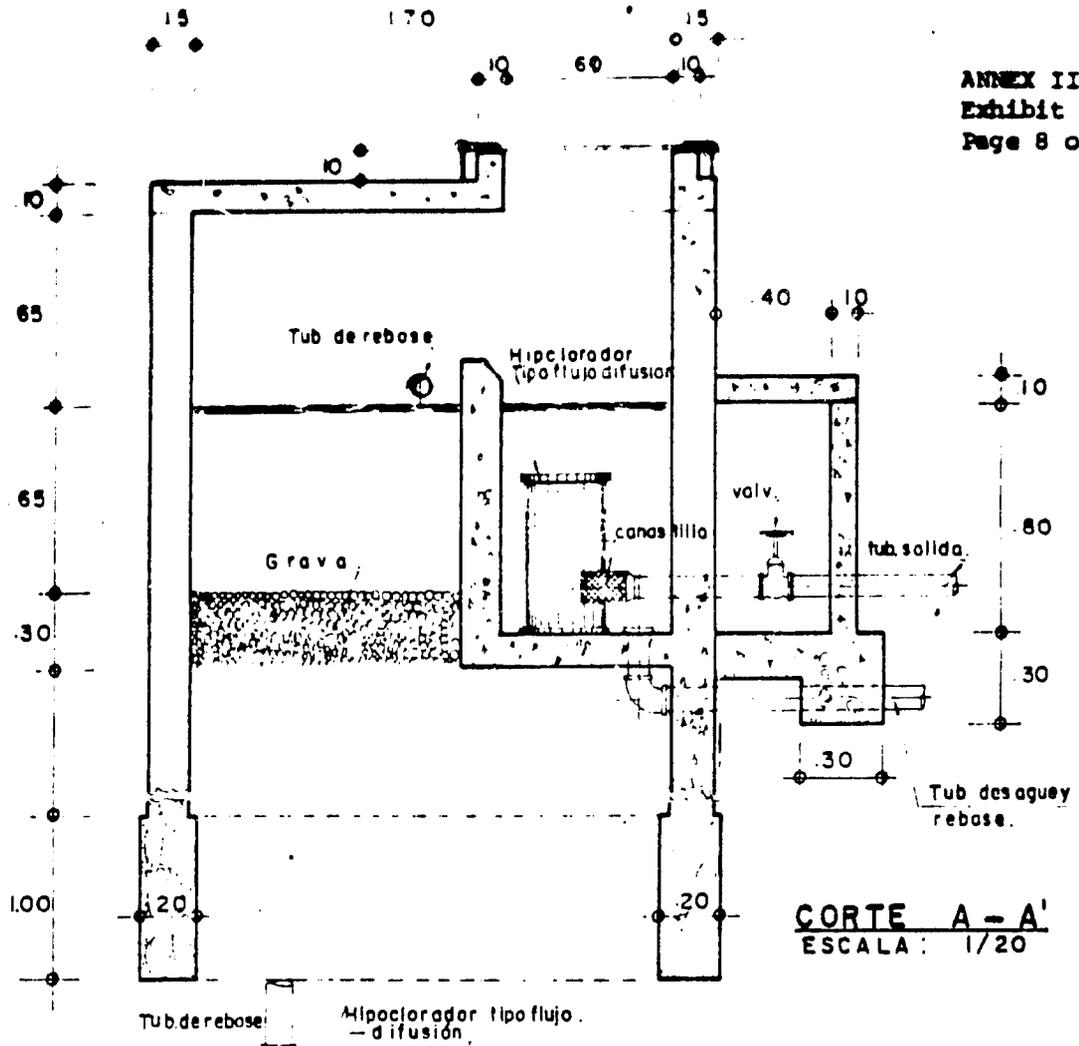
ANEX II - Exhibit J
Page 7 of 17 pages



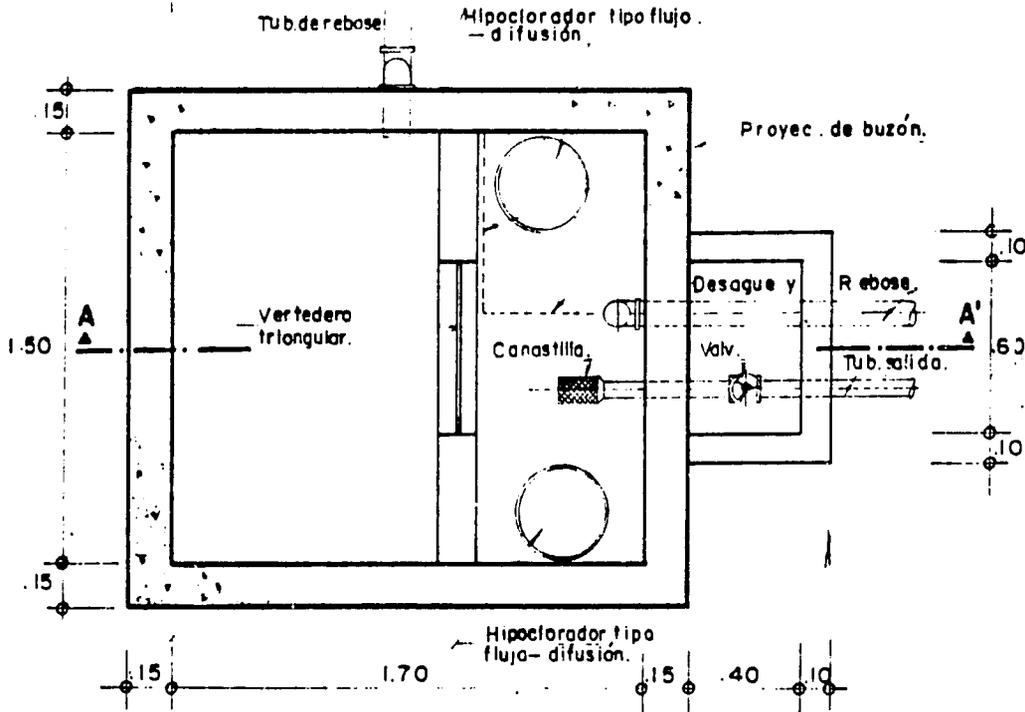
PLANTA CAPTACION DEL MANANTIAL DE AFLORAMIENTO
ESCALA 1:50



ELEVACION CORTE LONGITUDINAL DE LA CAPTACION
ESCALA 1:50



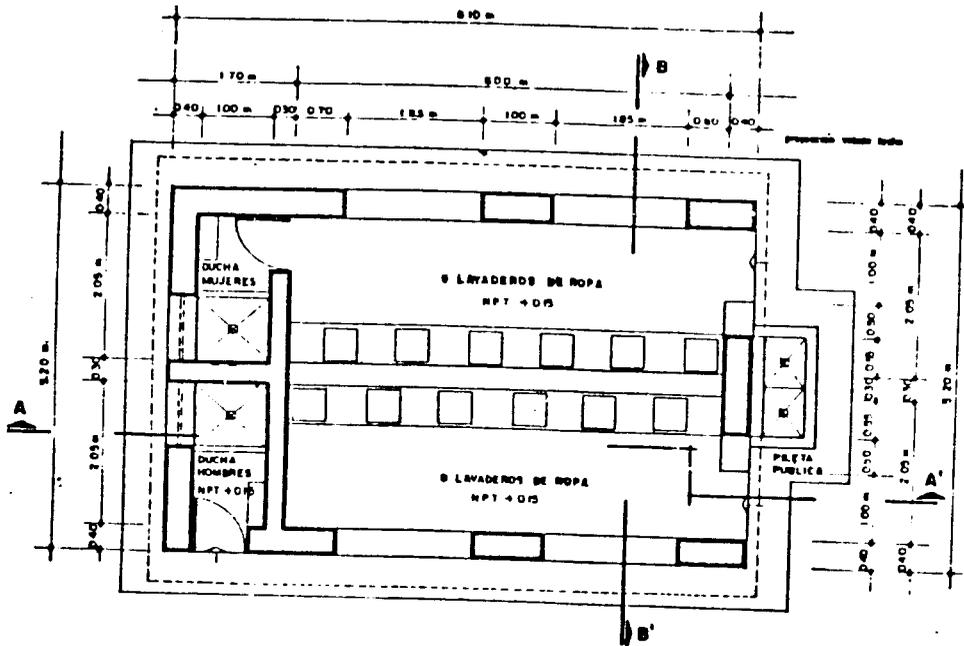
CORTE A - A'
 ESCALA: 1/20



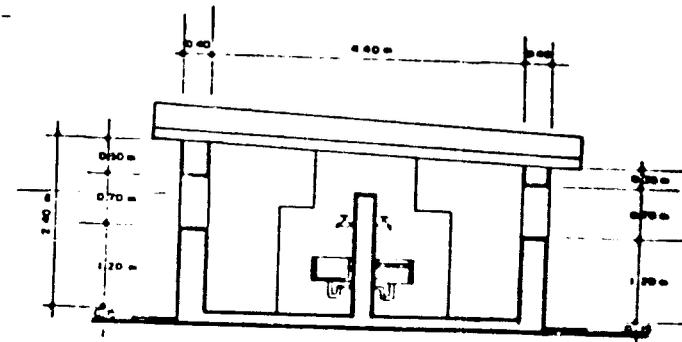
PLANTA. ESCALA: 1/20

**CAJA DE CAPTACION
 AFLORAMIENTO POR
 POR FONDO (HIPOCLORADOR)**

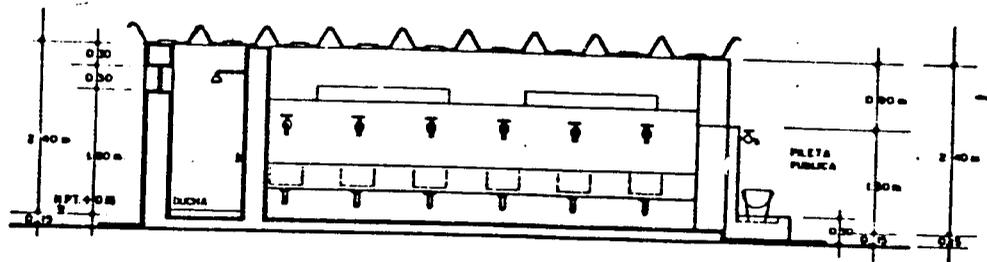
**MINISTERIO DE SALUD
 DIRECCION DE INGENIERIA SANITARIA
 PLAN NACIONAL DE AGUA POTABLE RURAL.
 PROYECTO - AID**



PLANTA DE DISTRIBUCION
 ESCALA 1/50



ELEVACION CORTE B-B'
 ESCALA 1/50

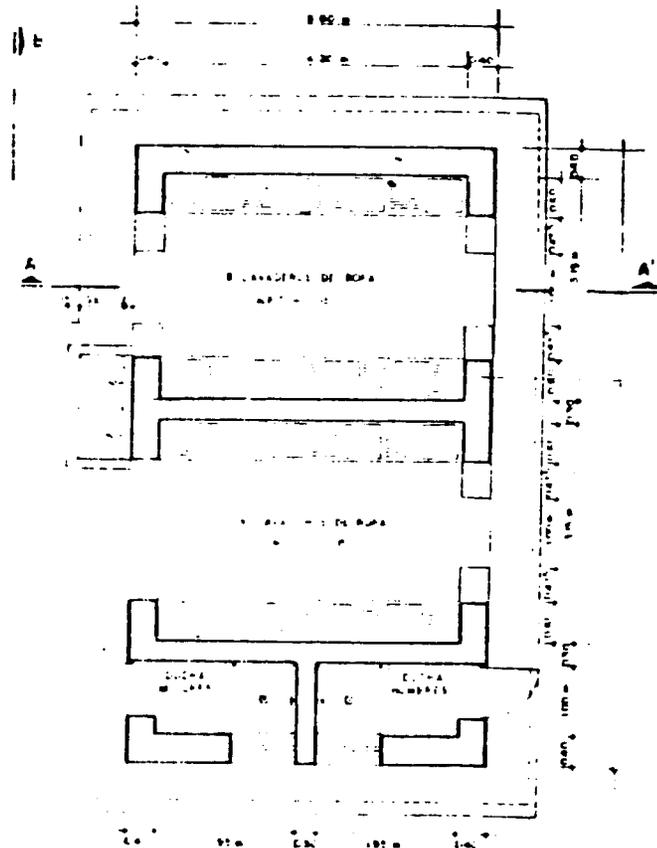


ELEVACION CORTE A-A'
 ESCALA 1/50

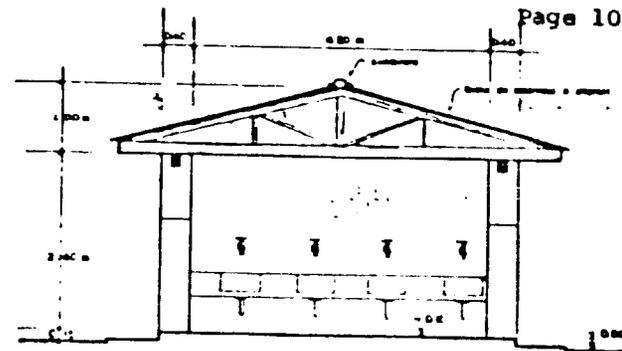
MINISTERIO DE SALUD

*Direccion General de Programas Especiales de Salud
 Direccion de Ingenieria Sanitaria*

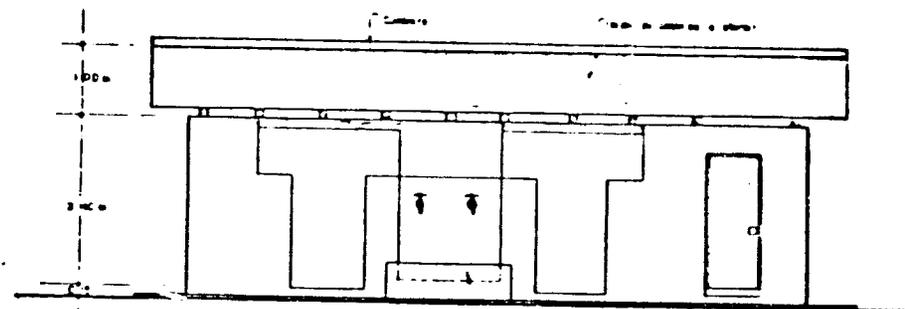
Proyecto : A. I. B.



PLANTA DE DISTRIBUCION
 ESCALA: 1/50



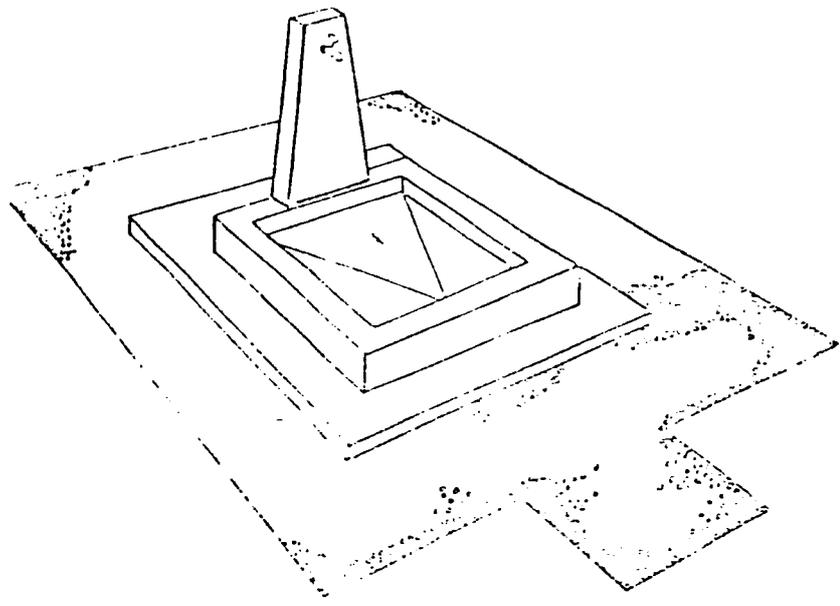
ELEVACION CORTE A-A'
 ESCALA: 1/50



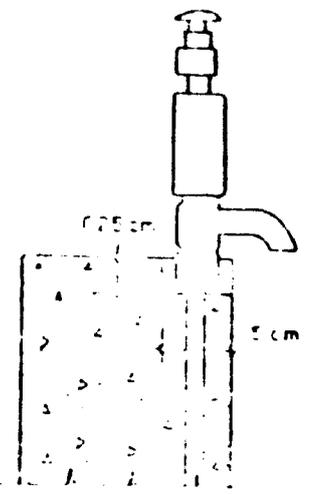
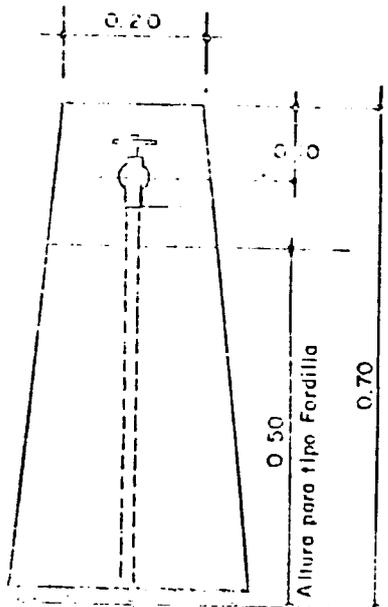
ELEVACION VISTA B-B'
 ESCALA: 1/50

MINISTERIO DE SALUD
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 Direccion de Ingenieria Sanitaria
 Proyecto : A. J. B.

NOTA - EN CASO DE USAR VALVULA TIPO TUBERIA LA ALTURA DEL MURO SERA DE 0.50 Y SE INSTALARA CONFORME AL DETALLE "A" QUE SE MUESTRA SI EN EL LUGAR EXISTEN CANALETAS DE DESAGUE LA TUBERIA IRA DIRECTAMENTE A LA CANALETA Y NO SE HARA POZO DE FENOLACION.

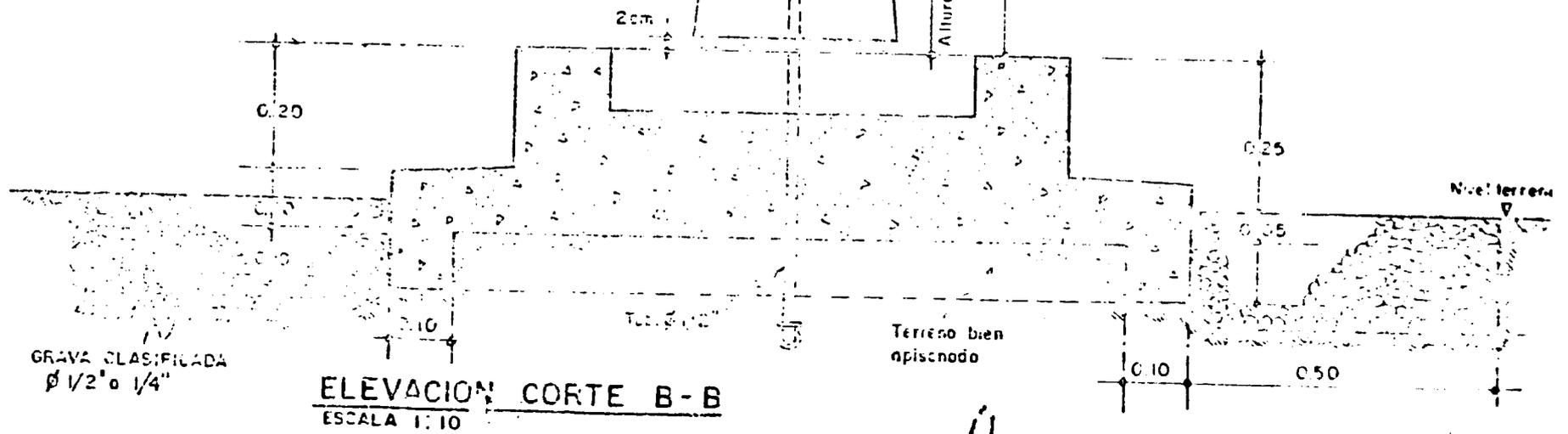


VISTA EN PERSPECTIVA



DETALLE VALVULA TIPO FORDILLA
Escala 1:5

PILETA PUBLICA TIPO

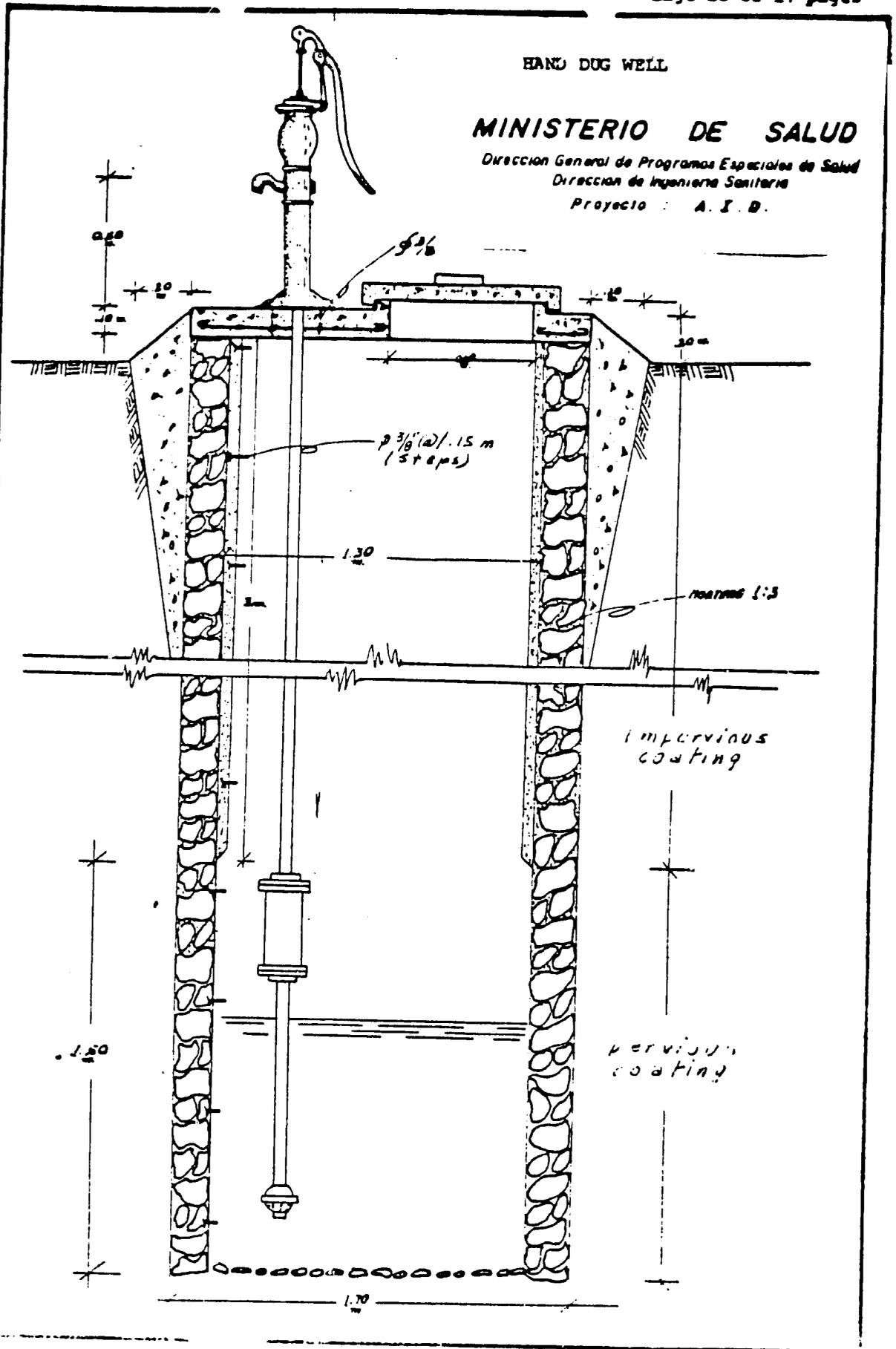


ELEVACION CORTE B-B
ESCALA 1:10

GRAVA CLASIFICADA
Ø 1/2" o 1/4"

Terreno bien apisonado

Nivel terreno



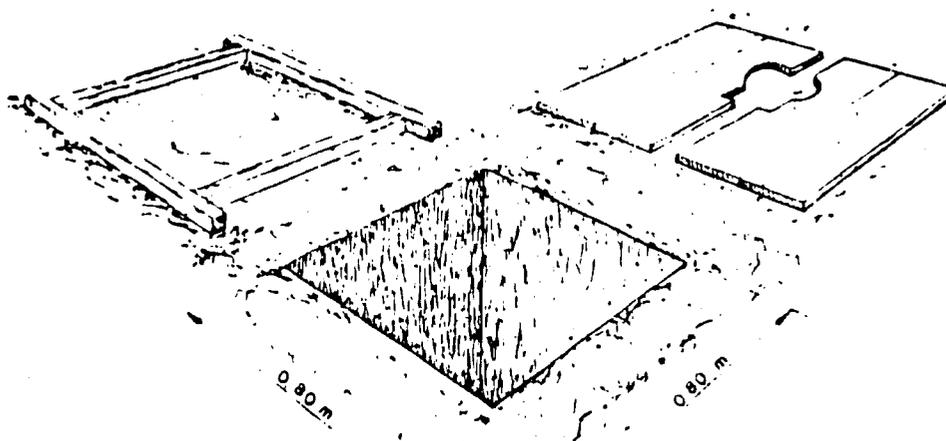
¿ Qué es la Letrina Sanitaria ?

ES UN LUGAR APROPIADO DONDE SE DEPOSITAN LOS EXCREMENTOS O DEPOSICIONES HUMANAS, PARA QUE LOS MICROBIOS QUEDEN ENCARCELADOS Y NO CONTAGIEN ENFERMEDADES.

¿ Cómo se construye ?

SE HACE UN HUECO U HOYO DE OCHENTA CENTIMETROS POR CADA LADO Y HASTA DOS METROS DE FONDO.

COMO VEREMOS EN LOS SIGUIENTES DIBUJOS :



MINISTERIO DE SALUD

*Dirección General de Programas Especiales de Salud
Dirección de Ingeniería Sanitaria*

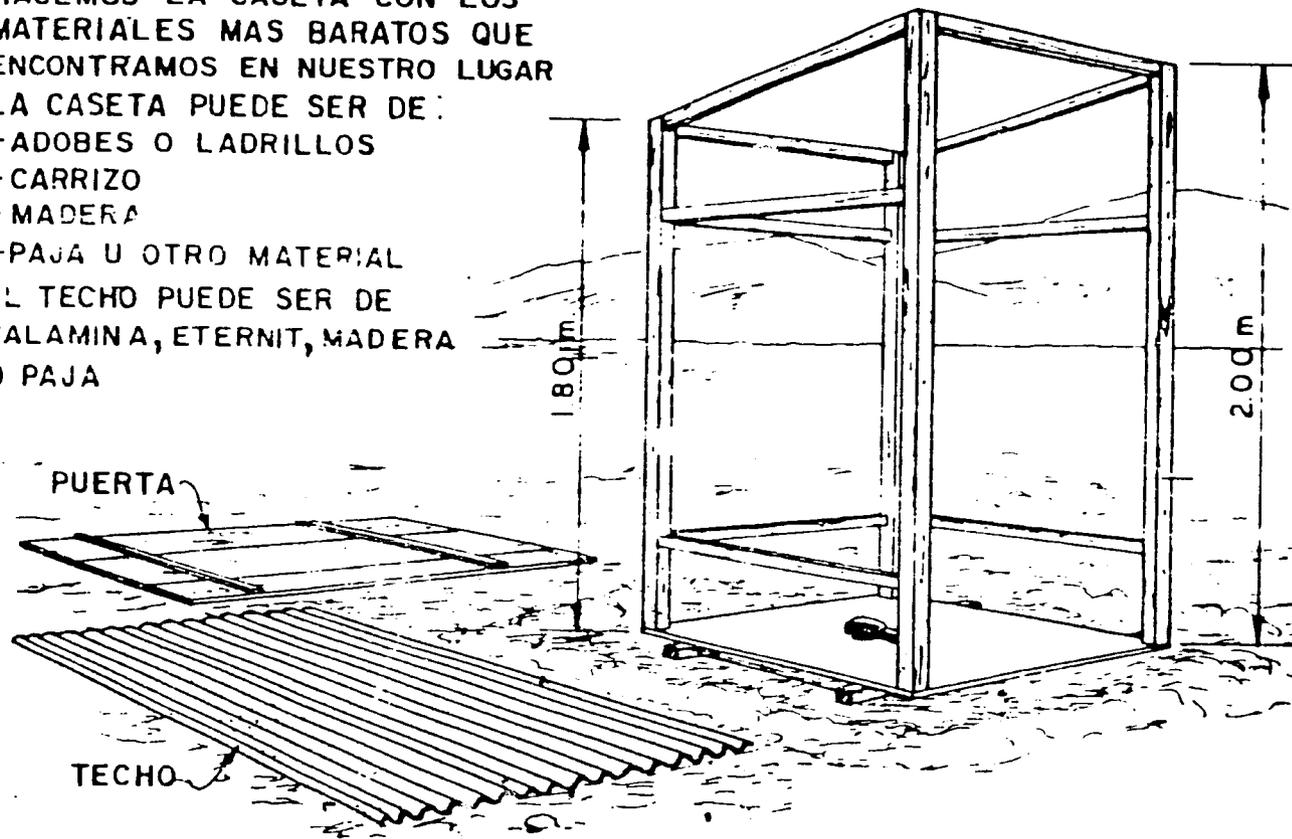
Proyecto : A. I. D.

HACEMOS LA CASETA CON LOS
MATERIALES MAS BARATOS QUE
ENCONTRAMOS EN NUESTRO LUGAR

LA CASETA PUEDE SER DE :

- ADOBES O LADRILLOS
- CARRIZO
- MADERA
- PAJA U OTRO MATERIAL

EL TECHO PUEDE SER DE
CALAMINA, ETERNIT, MADERA
O PAJA



MINISTERIO DE SALUD

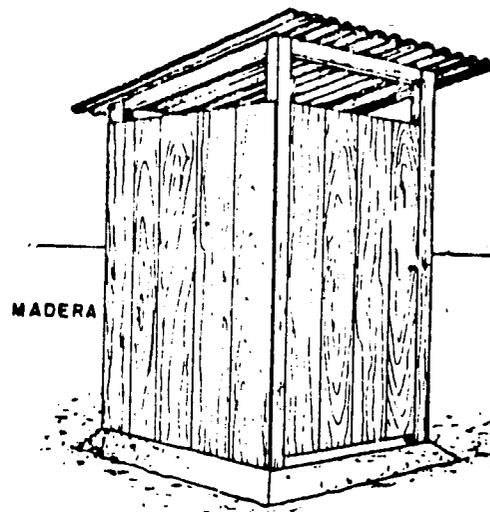
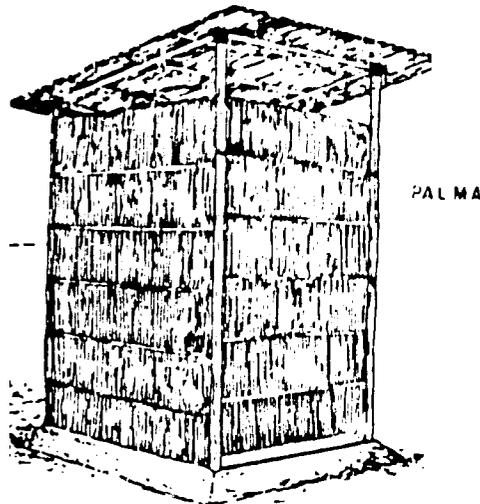
*Dirección General de Programas Especiales de Salud
Dirección de Ingeniería Sanitaria*



MINISTERIO DE SALUD

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Dirección de Ingeniería Sanitaria*

LETRINAS CONSTRUIDAS DE DIFERENTE MATERIAL



MINISTERIO DE SALUD

*Dirección General de Programas Especiales de Salud
Dirección de Ingeniería Sanitaria*

Proyecto : A. I. D.

WATER SYSTEM COST DATA

MAINTENANCE COST FOR THE GRAVITY-FED SYSTEM WITH HOUSEHOLD CONNECTIONS (I

1. LOCATION: (A Rural Area) 2. DEPARTMENT: _____
3. Type of System: Gravity without treatment plant
4. Population Data: 350 inhabitants
60 household connections
5. Monthly consumption per household: 14.4 M³
6. Total Monthly consumption: 777.6 M³
7. Cost of production - items considered (US \$)

7.1. Administration

Manager's salary	(\$ 12.00)	
Office supplies	(\$ 2.00)	
Miscellaneous	(\$ 2.50)	
Sub-Total		\$ 16.50

7.2. Operation

Operator's salary	(\$ 15.00)	
Purchase of chemical products		
Gas and oil		
Miscellaneous	(\$ 3.00)	
Sub-Total		\$ 18.00

7.3. Maintenance

Skilled technical personnel wages	(\$ 13.00)	
Spare parts	(\$ 10.00)	
Sub-Total		<u>\$ 23.00</u>

Carry Forward: \$ 57.50

Carried Forward \$ 57.50

7.4. Depreciation (Considered by MOH as
only 16% of the total cost)

Total cost of the system (I) \$14,146

Life of Project: 20 years (240 months)

Total cost: $\frac{\$14,146}{240} = \59.00

16% of \$ 59.00 \$ 9.50

Total: \$ 67.00

8. Cost of water per M³ $\frac{\$67.00}{777.6 \text{ M}^3} = 0.086/\text{M}^3$

9. Estimated Cost per house
per month: $\$0.086/\text{M}^3 \times 14.4\text{M}^3 = \$ 1.20$

10. Consumption cost per home
per year \$14.40

(Exchange rate: S/. 300. per one US\$)

Carried Forward: \$ 36.00

7.4. Depreciation (considered by MOH as only
5% of the total cost)

Total cost of the system (III) \$ 6,083

Life of Project: 20 years (240 months)

Total cost per month: $\frac{\$ 6.083}{240} = \$ 25.34$

5% of \$25.34

\$ 1.26

Total Cost: \$ 37.26

8. Cost of Water Per M^3 : $\frac{\$37.26}{420 M^3} = \$0.088/M^3$
9. Estimated Cost: $\$0.088/M^3 \times 84 M^3 = \7.39
10. Consumption cost per public tap
per month \$7.40
11. Consumption Cost per public tap
per year \$88.70
12. Consumption cost per family
per year \$7.40

Carried forward \$ 4.70

5.4. Depreciation (Considered by MOH as only 5%
of the total cost)

Total cost of the system (IV) \$805

Life of project: 10 years (120 months)

Total cost per month: $\frac{\$805}{120} = \$ 6.70$

5% of \$ 6.7

\$ 0.35

6. Estimated Cost per month:

\$ 5.05

7. Consumption cost per pump per year

\$60.60

8. Consumption cost per family per year

\$ 5.05

PROJECT SCHEDULE

The continuous cycle of project implementation is dictated to a considerable degree by the existence in the Project regions of the rainy season -- generally between December and May -- during which time, construction is difficult if not impossible. All other activities are, therefore, centered on this limitation. For the sake of clarity, the five-year duration has been divided into five phases which generally correspond to calendar years. The major activities of each phase are graphically portrayed in Diagrams 1 and 2 of Annex II Exhibit L.

Planning

The Project will begin with a planning seminar programmed for the first half of December of 1980. At this seminar, the framework will be established for the production of Regional Operational Plans for the first three regions of the Project. This approach to the program planning process was carried out under the AID-financed Primary Health Project and has proved useful in assuring sound coordination and joint programming at the central and regional levels.

The regional planning process will include the selection of sub-project sites for the first year of Project implementation. In those communities selected for immediate implementation, the environmental sanitation technicians will begin to organize the self-help component of the sub-project. This activity is critical to the success of the Project and important in enhancing the technicians' role in the communities. Although it appears to be abbreviated on Diagram 2, in reality it will be continuous through completion of the construction.

System Construction

Construction will begin at each site when all the sub-project components are in place. It is estimated that the actual construction time for each system to be included in any given phase must be completed by the end of September at the latest to ensure completion of construction prior to commencement of the rainy season. Vehicles and supplies required for the first three health regions will be ordered as soon as possible to facilitate early arrival. Trucks to transport materials must arrive by June in order not to delay construction.

In order to apply workable maintenance systems to the new water systems, it is important to establish as many maintenance systems with appropriate models as possible during Phases I and II in order to assess their results well before the end of the Project. In practice, this process may begin as soon as funds are available for disbursements.

A goal of ten installed water systems has been set for each Region in its first year. In the second year, that goal has been increased to 20

as the Project Team will be present and organized, and will have had a series of pilot experiences in its first year. Also, it is anticipated that the planning and selection process will be much shorter.

Regions entering the Project during each phase will follow the format described in Diagram 2 of Annex II, Exhibit L, which differs from later stages primarily due to the longer planning process, and the probable need for the DSE to provide more technical and administrative guidance and assistance. Diagram 2 describes in general terms the flow of activities expected in Phases 2-4 with Phase 5 differing only in the exclusion of activities 19-20, 20-21, 21-23, and 19-25. At this point all six Regions should be fully operational.

Procurement

As with the Primary Health Project (527-U-072) major procurement under the Project will be carried out directly by A.I.D. This decision was reached based on the large volume of imported material, equipment and supplies required, the varied range of material required, the highly technical specifications involved and lack of previous Ministry experience in the area of procurement. An additional factor considered is that fairly rapid procurement of initial commodities will be required in order to complete Project activities within the five year planned implementation period.

Major material and equipment procurement will be through international offering. Initial procurement activities will be assisted by short-term TA and will be focused on developing a general, time-phased procurement plan for the life of Project, as well as detailed specific procurement requirements for the first year (The development of the plan is a C.P. to initial loan disbursement). The plan will be divided into: 1) immediate procurement to be carried out locally for the purchase of pipe, accessories, other construction materials and a minimum amount of office and support equipment; and, 2) international procurement for the purchase of 30% to 50% of all of the piping and accessories and vehicles, office and implementation equipment for the national level and four of the 6 health regions. International procurement for the remaining vehicles, equipment and a majority of the materials and supplies for regions 5 and 6 will be accomplished in year 3. All remaining materials and supplies will be procured in year 4. Loan procurement of other Project inputs for such items as cement, reinforcing steel, tools and other miscellaneous items will be by accomplished by DSE and for the regions throughout the Project implementation period using standardized A.I.D. approved local procurement procedures. T.A. required for the Project will be procured directly by A.I.D. based on DSE and A.I.D. mutual agreement as to the timing and quantity of the assistance needed.

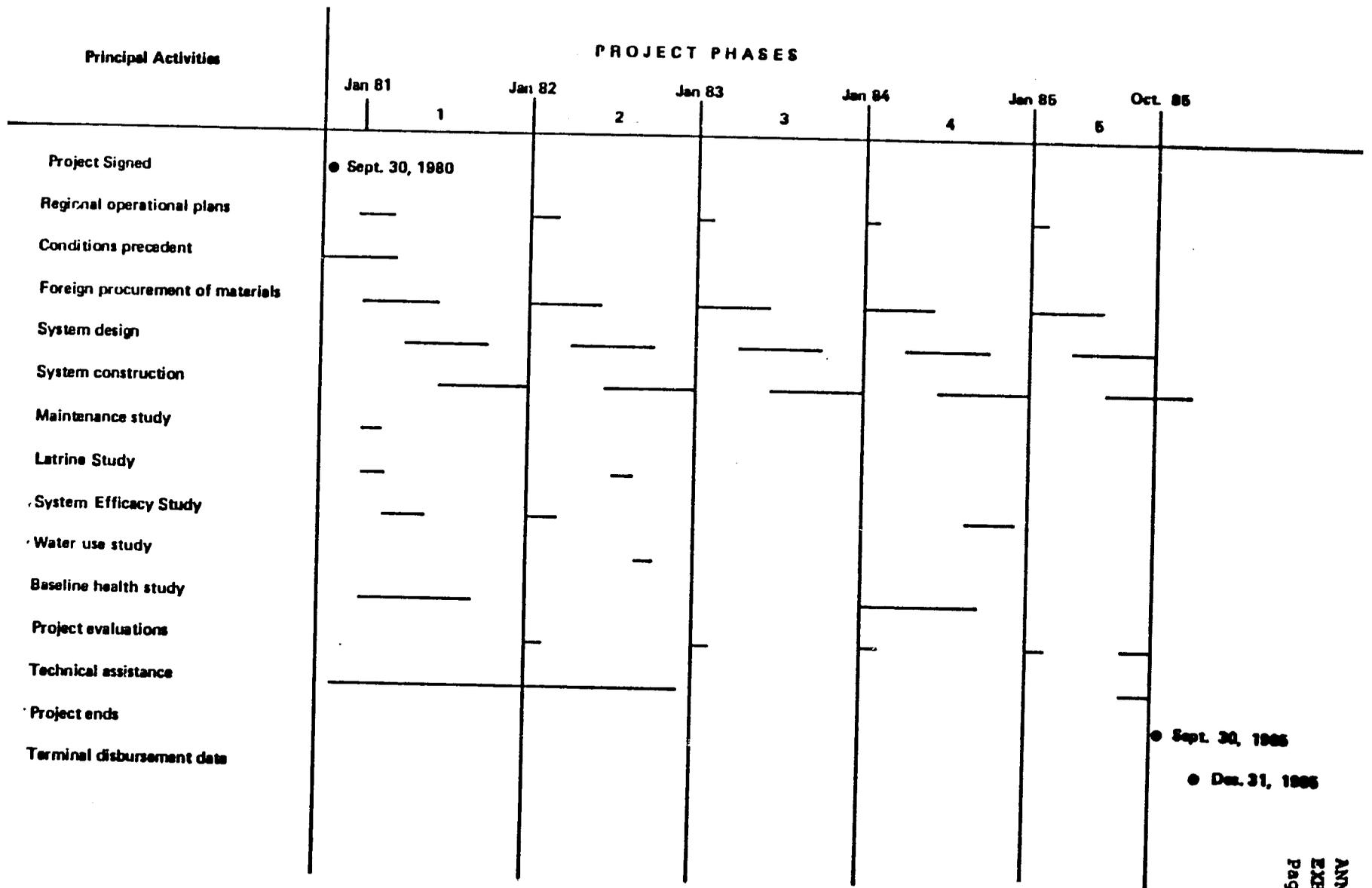
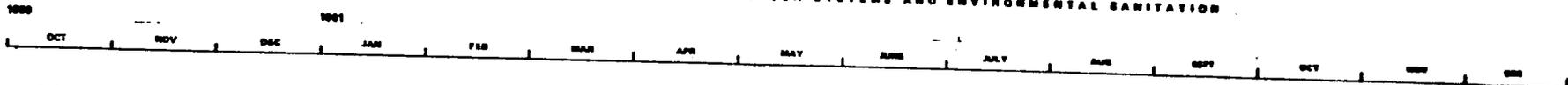
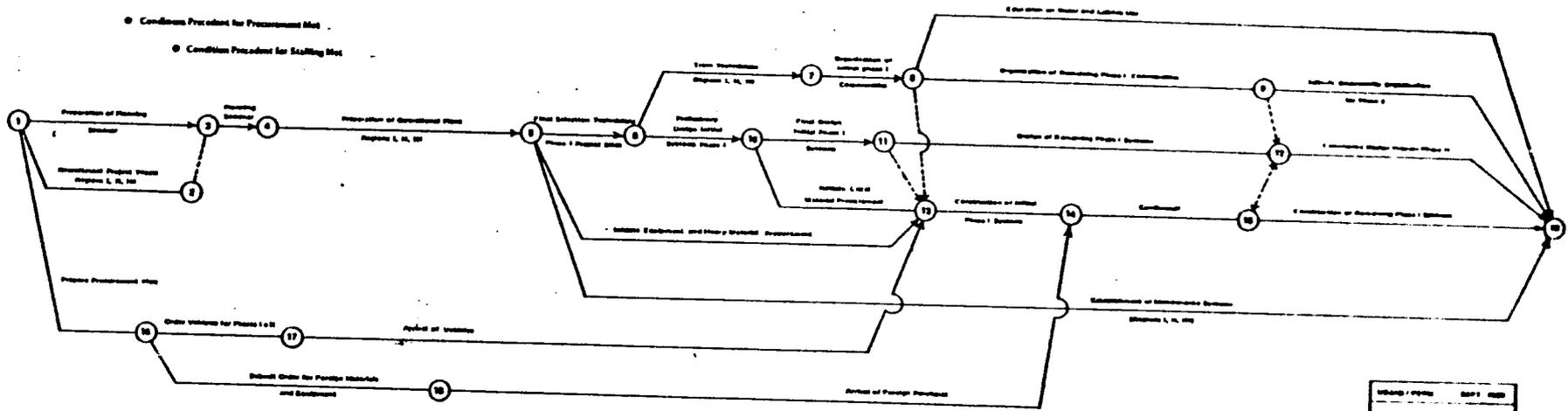


DIAGRAM 1

GENERAL PROJECT PLAN PHASE II RURAL WATER SYSTEMS AND ENVIRONMENTAL SANITATION



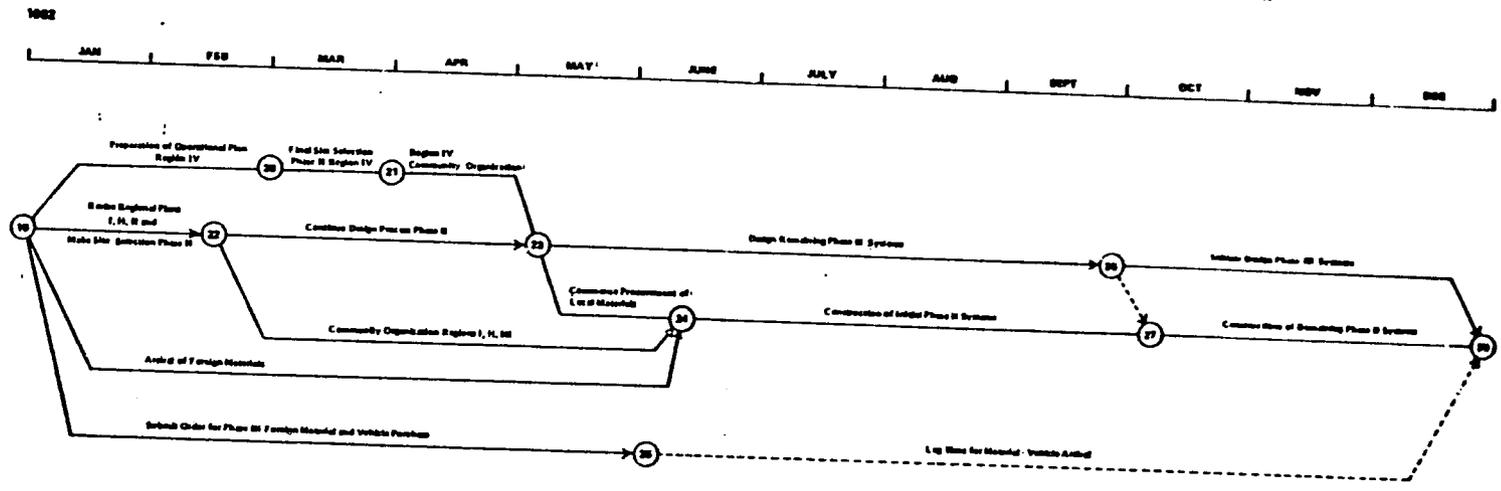
- Project Agreement Signed
- Conditions Precedent for Procurement Met
- Conditions Precedent for Staffing Met



ISSUED / REVISED	DATE
ANNEX II / SCHEDULE L	

DIAGRAM 2

GENERAL PROJECT PLAN PHASE II RURAL WATER SYSTEMS AND ENVIRONMENTAL SANITATION



Engineering Requirements

<u>Year</u>	<u>Number of Regions Involved</u>	<u>Systems/Region</u>	<u>Total Systems</u>	<u>Engineering^{1/} Design Time (days)</u>	<u>Engineering^{2/} Supervision Time (day)</u>	<u>Total Days Engineering Time Required</u>	<u>Minimum^{3/} Number of Engineers</u>
81	3	10	30	330	180	510	3
82	4	3/20 1/10	70	770	420	1,190	7
83	5	4/20 1/10	90	990	560	1,550	9
84	6	5/20 1/10	110	1,210	660	1,870	11
85	6	20	120	1,320	720	2,040	12
			<u>420</u>				

1/ Estimated at an average of 11 days per system.

2/ Estimated at an average of 6 days per system.

3/ Total days ÷ 180, the approximate number of days available per engineer during the 9 month design/construction season.



MINISTERIO DE SALUD

ANNEX II
EXHIBIT N

RELACION DE DEPARTAMENTOS CON EL MAYOR NUMERO DE
CENTROS POBLADOS DENTRO DEL RANGO POBLACIONAL DE 200 A 499
HABITANTES

	N° de Centros Poblados	N° de Solicitudes por atender.
1.- Cajamarca	993	72
2.- Puno	536	88
3.- Cuzco	487	119
4.- Ancash	477	80
5.- Piura	457	51
6.- Junín	407	159
7.- La Libertad	403	31
8.- Lima	367	134
9.- Loreto	348	24
10.- Ayacucho	336	117
11.- Huánuco	332	57
12.- San Martín	111	13
13.- Ica	121	26

Lima, 6 de Agosto de 1980.

CB/gr.