

UNCLASSIFIED

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

ECUADOR

PROJECT PAPER

INTEGRATED RURAL HEALTH DELIVERY SYSTEM

AID/LAC/P-379

Loan Number: 318-U-040
Project Number: 318-0015

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 518 - ECUADOR		3. PROJECT NUMBER 518-0015		
4. BUREAU/OFFICE LAC		5. PROJECT TITLE (maximum 40 characters) Integrated Rural Health Delivery System		
6. PROJECT ASSISTANCE COMPLETION DATE (PACD) MM DD YY 1 2 3 1 8 6		7. ESTIMATED DATE OF OBLIGATION (Under 'B.' below, enter 1, 2, 3, or 4) A. Initial FY <u>81</u> B. Quarter <u>4</u> C. Final FY <u>84</u>		

8. COSTS (\$000 OR EQUIVALENT \$1 = 25 Sucres)

A. FUNDING SOURCE	FIRST FY <u>81</u>			LIFE OF PROJECT		
	B. FX	C. L/C	D. Total	E. FX	F. L/C	G. Total
AID Appropriated Total						
(Grant)	(200)	(-)	(200)	(900)	(100)	(1,000)
(Loan)	(1,000)	(2,000)	(3,000)	(1,300)	(4,700)	(6,000)
Other U.S.						
1. Wash Project - 5 p/m	-	-	-	40	-	-
2						
Host Country	0	0	0		7,000	7,000
Other Donor(s)	-	-	-		-	-
TOTALS	1,200	2,000	3,200	2,240	11,800	14,040

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	534	510	510	0	0	1,000	6,000	1,000	6,000
(2)									
(3)									
(4)									
TOTALS				0	0	1,000	6,000	1,000	6,000

10. SECONDARY TECHNICAL CODES (maximum 6 codes of 3 positions each)				11. SECONDARY PURPOSE CODE	
541	545	562	570		
12. SPECIAL CONCERNS CODES (maximum 7 codes of 4 positions each)					
A. Code					
B. Amount					

13. PROJECT PURPOSE (maximum 480 characters)

To develop a model low cost health delivery system in three IRD areas which can be replicated nationwide

14. SCHEDULED EVALUATIONS Interim MM YY MM YY Final MM YY 8 2 8 3 84 8 6	15. SOURCE/ORIGIN OF GOODS AND SERVICES <input type="checkbox"/> 000 <input checked="" type="checkbox"/> 941 <input type="checkbox"/> Local <input type="checkbox"/> Other (Specify) _____
--	---

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

17. APPROVED BY _____ Director, USAID/Ecuador	Date Signed MM DD YY 016 219 811	18. DATE DOCUMENT RECEIVED IN AIDAW, OR FOR AIDAW DOCUMENTS, DATE OF DISTRIBUTION MM DD YY
---	--	---

UNITED STATES INTERNATIONAL DEVELOPMENT COOPERATION AGENCY
AGENCY FOR INTERNATIONAL DEVELOPMENT
WASHINGTON D C 20523

PROJECT AUTHORIZATION

Name of Country: Ecuador
Name of Project: Integrated Rural Health Delivery System
Number of Project: 518-0015
Loan Number: 518-U-040

1. Pursuant to Section 104 of the Foreign Assistance Act of 1961, as amended, I hereby authorize the Integrated Rural Health Delivery System project for Ecuador involving planned obligations of not to exceed Six Million United States Dollars (\$6,000,000) in loan funds ("Loan") and One Million United States Dollars (\$1,000,000) in grant fund ("Grant") over a four (4) year period from the date of authorization, subject to the availability of funds in accordance with the A.I.D. OYB/allotment process, to help in financing foreign exchange and local currency costs for the project.

2. The project ("Project") consists of cooperating with the Government of Ecuador (GOE) in its program of developing an Integrated Rural Health Delivery System model by (i) assisting GOE efforts to strengthen its institutional capabilities to plan, manage, support and replicate an integrated rural health delivery system, (ii) carrying out primary health care, water supply/sanitation and nutrition improvement activities in three Integrated Rural Development (IRD) areas to demonstrate the effectiveness of the model and (iii) introducing small scale replication activities into other IRD areas.

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

a. Interest Rate and Terms of Repayment

The GOE shall repay the Loan to A.I.D. in U.S. Dollars within twenty-five (25) years from the date of first disbursement of the Loan, including a grace period of not to exceed ten (10) years. The GOE shall pay to A.I.D. in U.S. Dollars interest from the date of first disbursement of the Loan at the rate of (i) two percent (2%) per annum during the first ten (10) years, and (ii) three percent (3%) per annum thereafter, on the outstanding disbursed balance of the Loan and on any due and unpaid interest accrued thereon.

b. Source and Origin of Goods and Services (Loan)

Goods and services, except for ocean shipping, financed by A.I.D. under the Loan shall have their source and origin in Ecuador or in countries included in A.I.D. Geographic Code 941, except as A.I.D. may otherwise agree in writing. Ocean shipping financed by A.I.D. under the Loan shall be financed only on flag vessels of Ecuador or countries included in A.I.D. Geographic Code 941, except as A.I.D. may otherwise agree in writing.

c. Source and Origin of Goods and Services (Grant)

Goods and services, except for ocean shipping, financed by A.I.D. under the Grant shall have their source and origin in Ecuador 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 shall be financed only on flag vessels of the United States, except as A.I.D. may otherwise agree in writing.

d. Conditions Precedent to Disbursement

(1) Prior to any disbursement, or the issuance of any commitment documents under the Project Agreement, to finance those water supply and sanitation (WS/S) field activities to be carried out by the Ecuadorean Institute of Sanitary Works (IEOS), except for the procurement of vehicles and imported equipment, the GOE shall, except as A.I.D. may otherwise agree in writing, furnish, in form and substance satisfactory to A.I.D.:

(x) an executed agreement between IEOS and the Integrated Rural Development Secretariat (IRDS) describing a coordination and disbursement mechanism and a first year operational plan for carrying out such field activities, and

(y) evidence of the establishment of a coordination unit within IEOS.

(2) Prior to any disbursement, or the issuance of any commitment documents under the Project Agreement, to finance those primary health care field activities in each IRD area to be carried out by the Ministry of Health (MOH), except for the procurement of vehicles and imported equipment, the GOE shall, except as A.I.D. may otherwise agree in writing, furnish, in form and substance satisfactory to A.I.D.:

(x) an agreement between the MOH and the IRDS describing a coordination and disbursement mechanism and a first year operational plan for carrying out such field activities, and

(y) evidence that there has been designated and established for each such IRD area the position of area health chief and that an individual has been selected for each such position.

(3) Prior to any disbursement, or the issuance of any commitment documents under the Project Agreement, to finance nutrition activities of the Integrated Rural Development Secretariat (IRDS), other than for technical assistance and training, the GOE shall, except as A.I.D. may otherwise agree in writing, furnish, in form and substance satisfactory to A.I.D., selection criteria for the IRDS nutrition activities and a work plan and a budget for each such activity to be financed.

e. Covenant

The GOE shall covenant that, unless A.I.D. otherwise agrees in writing, it will cause the IEOS and the MOH, respectively, to update, on at least an annual basis, the operational plans referred to in Sections 3.d.(1) and (2) hereof.

f. Waivers

(1) A.I.D. nationality requirements are hereby waived in order to permit the procurement of Grant-financed technical assistance from suppliers whose nationality is in countries included in A.I.D. Geographic Code 941, in an amount not to exceed \$150,000.

(2) A.I.D. requirements on competition in the procurement of services, under host country contracting, are hereby waived in order to permit negotiation with the Universidad del Valle and its affiliates for Grant-financed technical assistance, in an amount not to exceed \$150,000.

(3) A.I.D. source and origin requirements are hereby waived in order to permit the procurement of up to ten (10) motorcycles, with a displacement of approximately 175 cc, and spare parts, from countries included in A.I.D. Geographic Code 899. In so waiving, I hereby certify that exclusion of procurement from Free World countries other than Ecuador and countries included in Code 941 would seriously impede attainment of U.S. foreign policy objectives and objectives of the foreign assistance program.

(4) A.I.D. requirements on competition in the procurement of goods, under host country contracting, are hereby waived in order to permit the procurement of handpumps from the National Polytechnical University in Ecuador, in an amount not to exceed \$200,000.



Acting Assistant Administrator
Bureau for Latin America
and the Caribbean

8/19/81

Date

Clearances:
GC/LAC:BVeret: 8/19/81 date 7/23/81
LAC/SA:RLindsay: 8/19/81 date 7/23/81
LAC/DR:MBrown: 8/19/81 date 7/23/81

GC/LAC:GMWinter: 8/19/81 date 7/14/81

INTEGRATED RURAL HEALTH DELIVERY

PROJECT PAPER

	<u>Page</u>
SUMMARY AND RECOMMENDATIONS	i
A. Introduction and Overview	i
B. Background and Conceptual Framework	iii
C. Project Description	iv
1. Institution Building Activities	v
2. Field Level Demonstration Activities	vi
D. GOE Coordinating and Implementing Entities	vii
1. Coordinating Entities (NHC and IRDS)	vii
2. Implementing Entities (MOH and IEOS)	viii
E. Summary Financial Plan	viii
F. Issues	ix
G. Project Development Committee	xiv
H. Recommendations	xiv
I. BACKGROUND AND JUSTIFICATION	1
A. Analytic Framework	1
B. Rural Health Problems in Ecuador	1
C. Constraints to Solving Rural Health Problems	2
1. Lack of Institutional Response	3
2. Inappropriate Technologies	3
3. Financial Constraints	3
4. Socio-Cultural Constraints	4
D. GOE Policies and Programs	4
1. Decentralized National Health System	5
2. Extension of Services	5
3. Community Participacion and Education	6
E. Other Donor Activities	7
F. USAID Country Development Strategy	10
II. DETAILED PROJECT DESCRIPTION	13
A. Project Goal, Purpose, and Strategy	13
B. Institution Building Activities	15
1. Introduction	15
2. National Health Council (NHC)	15
3. Ministry of Health (MOH)	18

	<u>Page</u>
4. Ecuadorean Institute of Sanitary Works (IEOS)	21
5. Integrated Rural Development Secretariat (IRDS)	26
C. Field Level Demonstration Activities	28
1. Primary Health Care (PHC)	28
2. Water Supply and Sanitation	35
3. Nutrition	38
III. PROJECT ANALYSIS	
A. Technical and Engineering Analysis	43
1. Feasibility of Institution Building Techniques	43
2. Feasibility of Field Activities	44
B. Institutional and Administrative Analysis	56
1. National Health Council (NHC)	56
2. Ministry of Health (MOH)	57
3. Ecuadorean Institute of Sanitary Works (IEOS)	61
4. Integrated Rural Development Secretariat (IRDS)	63
C. Economic Analysis Summary	67
1. Economic Analysis Methodology	67
2. Economic Analysis Results	67
D. Financial Analysis	70
1. Financial Plan and Cost Estimates	70
2. A.I.D. Disbursement Procedures	70
3. GOE Contribution and Recurring Cost Analysis	72
4. USAID Conclusions	74
E. Socio-Cultural Feasibility	75
F. Environmental Concerns	76
IV. IMPLEMENTATION PLANNING	77
A. Implementation Arrangements	77
1. Timetable	
2. Administrative Arrangements and USAID Monitoring	78
3. Procurement Plan and Waiver Request	80
B. Evaluation Plan	86
1. Institution Building Activities	86
2. Field Demonstration Activities	87
3. Conditions and Covenants	88

HEALTH PP ANNEXES

- I. Standard Exhibits
 - A. Director's 611(e) Certification
 - B. DAEC Cable on PID Review
 - C. Statutory Checklist
 - D. Draft Loan Authorization
 - E. Letter of Application
- II. Logical Framework
- III. Time-Phased Implementation and Procurement Plan
- IV. Social Soundness Analysis
- V. Economic Exhibits
 - A. Economic Analysis
 - B. GOE Health Sector Budget
- VI. Water and Sanitation Institutional Exhibits
 - A. Detailed Institutional Analysis of IEOS
 - B. Water Administration Boards
 - C. Incentive Plan Proposal
- VII. Technical and Engineering Exhibits
 - A. Institution Building Activities--Detailed Cost Estimates
 1. National Health Council
 2. Ministry of Health
 3. IEOS
 - B. Field Activities--Detailed Cost Estimates
 1. Primary Health Care
 2. Water and Sanitation Facilities
 - C. Plans and Drawings
 1. Primary Health Care
 2. Water Supply and Sanitation
- VIII. Initial Environmental Determination

Selected List of Accronyms

CONADE	- National Development Council
CRS	- Catholic Relief Service
EPI	- Expanded Program of Immunization
GOE	- Government of Ecuador
IBRD	- International Bank for Reconstruction and Development
IDB	- Inter-American Development Bank
IEOS	- Ecuadorean Institute for Sanitary Works
IESS	- Ecuadorean Social Security Institute
ININMS	- Institute for Nutrition and Medical-Social Research
IRD	- Integrated Rural Development
IRDS	- Integrated Rural Development Secretariat
IRHDS	- Integrated Rural Health Delivery System
MAP	- Medical Assistance Programs International
MCH	- Maternal and Child Health
MOH	- Ministry of Health
NHC	- National Health Council
PAE	- Ecuador Food Program
PAHO	- Pan-American Health Organization
PHC	- Primary Health Care
UNDP	- United Nations Development Program
UNFPA	- United Nations Fund for Population Activities
WFP	- World Food Program
WS/S	- Water supply and sanitation

SUMMARY AND RECOMMENDATIONS

A. Introduction and Overview

The Government of newly installed President Hurtado remains committed to the major structural and social reforms which President Roldós initiated to confront Ecuador's widespread poverty and serious development problems. The Roldós Government concentrated its efforts on strengthening Ecuador's democratic system and developing the institutional framework for planning and implementing more effective development programs. As a first step, a National Development Council (CONADE) was established to better plan and coordinate GOE development activities. CONADE prepared a National Development Plan for 1980-84 that was approved in March, 1980 and calls for a major expansion in programs to meet the basic human needs of the sixty percent of the Ecuadorean population that is poor and unable to participate in the country's economic growth.

One of the Plan's highest priority programs is Integrated Rural Development (IRD). The Plan identifies seventeen area-specific IRD projects, covering a population of approximately 465,000, to be implemented by 1984. Through these projects, the GOE is concentrating domestic and international resources on the multisectoral and deeply rooted problems of the rural poor. The GOE is convinced that a carefully selected "critical mass" of complementary resources and services, provided by different ministries and delivered in an integrated manner, can move the rural poor into the mainstream of Ecuadorean society.

An Integrated Rural Development Secretariat (IRDS) and a complementary IRD Fund were established in October 1980 to organize, supervise, and evaluate the IRD program. Through the IRDS, the GOE expects to coordinate the activities of different ministries to develop and implement model IRD projects that can eventually be replicated nation-wide.

In FY 1980, A.I.D. approved a program to support these development objectives. The late President Roldós, then Vice President Hurtado and other high level GOE officials specifically requested that A.I.D. direct a major portion of its resources to IRD projects. The IRD approach closely parallels A.I.D.'s emphasis on assisting host country efforts that provide for the basic needs of the poor majority, and both USAID and the Country Team consider assistance to the IRD program to be the most important component in the renewed A.I.D. program in Ecuador.

USAID and the GOE jointly have developed three parameters for A.I.D. support to IRD. First, A.I.D. will assist the GOE to develop those coordination and implementation mechanisms that it feels are most suited to Ecuador. Second, A.I.D. field level support will be limited to IRD projects in the central sierra provinces of Chimborazo and Cotopaxi and to the coastal province of Manabí. (These provinces contain some of the poorest rural

areas in Ecuador.) Third, A.I.D. inputs will be phased into the IRD program over several fiscal years to facilitate their planning and implementation.

The first of these inputs was the Integrated Rural Development-Agriculture Project (Loan 518-L-038, Grant 518-0012) which was authorized in FY 1980 to improve agricultural production in three IRD Project areas. New inputs will be added in these same three areas in FY 1981/82 for: (1) Primary Health Care, Water Supply/Sanitation and Nutrition; (2) Forestry and Soil Conservation; and (3) Rural Housing funded as part of a HIG. Other inputs will follow in FY 1982/83 for (4) Rural Enterprises and Agroindustry Development to expand off-farm employment and (5) Rural Education. All A.I.D. support for the IRD program should be operational by the end of FY 1983, with only incremental loan/grant funding provided in subsequent years.

The project proposed herein will assist the GOE to develop an Integrated Rural Health Delivery System which will provide the government with a means to implement its rural health policies and facilitate health sector participation in Integrated Rural Development. By initiating this system within an IRD context, the GOE and USAID believe that activities from other sectors (agriculture, education, etc.) can be mobilized to complement health sectors activities, and vice-versa.

Through the development of this system, the project will assist the GOE to acquire the institutional capacity, the trained human resources, the management and logistical systems, and the low-cost technology necessary to expand the delivery of health services to the rural poor. The project will thus help fill the gap between Ecuador's strong commitment to this goal and its weak institutional and technological capacity to realize it on a large scale. This commitment was articulated by the late President Roldós in a speech to Andean Health Ministers subsequently published as an editorial in the second issue of WHO's new journal, World Health Forum. The President said that, despite good intentions. Ecuador's

"marginal populations continue to be stricken by diseases for which appropriate technology for control is known. This means we have not yet managed to bring health services to the places where they are most urgently required.

"Therefore, ... we stress the paramount importance of developing a sound plan for the extension of health services coverage. We want to see intentions and documents converted into permanent activities, for it is unjust for children to go on dying, or being infected with endemic gastroenteritis, or suffering from preventable diseases.

"We have inherited a health pattern that is classic in developing countries. Let us respond to the challenge by introducing essential changes in doctrine and methodology. Let us contribute to community organization, so that the community participates in the identification of its health problems and the quest for their solution. Let us give the highest priority to socioeconomically marginal groups. Let us intensify our concern for the most vulnerable groups, especially mothers and children. We should not wait for people to come to the health centers.

"We must go out to the community."

B. Background and Conceptual Framework

Activities in health, sanitation and potable water were the first major USG development efforts initiated in Ecuador. From 1942 to 1964, the U.S./Ecuadorean Public Health Servicio (funded largely through the Point IV legislation) functioned as the country's Ministry of Health and initiated many of Ecuador's first modern public health programs.* It began Ecuador's first systematic efforts to train health personnel; initiated campaigns against yaws, pinta, smallpox and malaria; planned and/or constructed most hospitals, health centers, and water and sanitation facilities built in the 1940s and 1950s and began a rural well drilling and latrine program. The Servicio also had dramatic impacts on institutional arrangements (in the health sector. It successfully established schools of nursing at the Central and Catholic Universities, formed the National Malaria Eradication Service and eventually led to the creation of the Ecuadorean Ministry of Health and its Sanitary Works Institute in the late 1960s.

However, during much of the 1960s and 1970s, these new health sector agencies did not receive sufficient support to continue the development initiated by the Servicio. During most of the 1960s and early 1970s, USG

* The health section of a 1967 evaluation of USG development programs in Ecuador concludes as follows: "Despite the fact that health conditions are far from perfect in Ecuador today, it is certain that they are better than when the Servicio began operations in 1942. Of all the Servicio operations, that of Public Health was most successful in generating national and local financial support for its activities. By the time of its termination, the GOE and local communities were providing all financing except the services of a U.S. Director. In view of the success of the Health Servicio it is rather surprising that USAID dropped all health programs with the exception of malaria control after the termination of the Servicio". (See Lekis Report on "USAID and Predecessor Agency Programs in Ecuador" for further details.)

bilateral development policy in Ecuador shifted away from its historic concern with health problems. As in many other LAC countries, the Alliance for Progress concentrated on projects to promote industrialization, construct infrastructure and housing, improve public administration, develop credit unions and cooperatives, and provide budget support for macroeconomic growth. Activities in health were almost exclusively limited to malaria control and the initiation of the country's first family planning programs. During the mid and late 1970s, political issues resulted in the phase-out of A.I.D.'s program in Ecuador, effectively eliminating the application of New Directions health programming in the country.

Thus, for the past fifteen years, Ecuadorean health institutions have received external assistance almost exclusively from multilateral development agencies, other bilateral donors, and PVOs. These efforts have emphasized the construction of high cost infrastructure (water/sewerage systems and health facilities, mostly in urban areas), the provision of hospital and health center equipment financed with export quasi-credits; and small scale technical assistance, training and other activities that were usually insufficient to have a significant impact on broader policy and institutional problems. Although each of these efforts addressed important health concern, their impact was limited by their fragmented, uncoordinated nature; their urban focus and their isolation from development efforts in other sectors.

What was needed in the 1970s, and continues to be necessary today, is a coordinated program of technical and limited capital assistance which fills gaps in other donor programs and strengthens the GOE's capacity to carry out relevant health sector policies as promulgated in the Development Plan. These policies include improving coordination among health sector agencies, promoting a decentralized health care delivery system utilizing low cost technologies, and encouraging better integration of health programs with development activities in other sectors.

The proposed project is designed to provide the type of pioneering, catalytic influence that U.S. assistance had in the Ecuadorean health sector in earlier years. With sufficient A.I.D. resources and close USAID monitoring, the 1980s can be as creative and significant a period in GOE/A.I.D. health programming as were the 1950s and early 1960s when USG development assistance led to the successful establishment of many of Ecuador's major health sector institutions.

C. Project Description

The development of an effective Integrated Rural Health Delivery System requires the creation of an institutional structure which is capable of delivering low cost health services to the rural poor. This objective will be achieved by strengthening Ecuador's health service delivery institutions and by introducing low cost technologies into the delivery

system. This project will finance improvements of institutional capacities to carry out development programs at the national, regional, and local levels as well as field level demonstration activities in low cost primary health care, water supply, sanitation and nutrition interventions in the same three IRD projects being assisted under the IRD-Agriculture loan/grant project. There will be as many as 120,000 direct beneficiaries of project activities. *

1. Institution Building Activities

Improvement of institutional capacities includes the support and strengthening of coordinating mechanisms at both the national and area levels viz. the National Health Council and the Integrated Rural Development Secretariat. The National Health Council, a recently created independent, inter-institutional coordinating institution for health sector activities which is headed by the Minister of Health, offers an unprecedented opportunity for better health planning and improved coordination among health sector institutions in Ecuador. The project will provide support to the NHC's secretariat to carry out policy and planning related studies in critical areas such as MOH/Social Security Campesino rural program coordination and primary health care planning.

The project will continue to support the Integrated Rural Development Secretariat in its role as the coordinating body for implementation of Integrated Rural Development activities. Funds for implementation of field activities in three IRD projects will be administered by the IRDS which will authorize the release to the implementing agencies in accordance with the terms of formal agreements between the IRDS and those institutions.

Institution building activities within the MOH will be specifically designed to implement the new integrated rural health delivery area model in which a new local (sub-provincial) level of health management will be employed in order to more effectively deliver services to rural areas which are generally congruent with the IRD projects boundaries. Area health chiefs who will be responsible for managing all health activities in the IRD area will be assigned to the three IRD projects. The project will finance training, studies, technical assistance and logistical support which will facilitate implementation of the IRDS model. In addition, small amounts of technical assistance, training, supply and logistical support will be allocated to the national and provincial level to support area level activities. (All provincial level activities financed under the project will be carried out in the three provinces where the three IRD projects are located).

Institution building within IEOS is designed to support implementation of a national program of small rural water and sanitation projects identified in the National Development Plan. Institution-building activities will strengthen IEOS capacity to design and implement low cost rural programs by: (a) developing a rural water supply and sanitation Coordination

* Primary care field activities will reach over 118,000, water and sanitation 62,000 and 33,000 respectively, and institutional development actions will benefit some 500 COE officials.

unit; (b) by strengthening provincial directorates and (c) by developing the capacity at the national and provincial level to test and install simple water and sewerage technologies such as hand pumps, latrines, water seal toilets, robodevices* and disinfection equipment in under-served rural areas.

2. Field Level Demonstration Activities

These are divided between (a) primary health care, (b) water supply and sanitation, and (c) nutrition. They are characterized as follows:

- They will be carried out in an IRD context;
- They will promote low cost interventions;
- They will be managed to effect a better balance between preventive and curative services; and
- They will emphasize community participation in their planning, implementation and evaluation.

(a) PHC activities will involve expanding the network of rural health facilities and personnel implementing a few priority prevention and treatment programs. While lack of physical infrastructure is not the principal health problem in rural areas, there are significant deficiencies in the existing network.

Therefore, a few health subcenters and a larger number of health posts will be built and equipped. In both cases, however, lower cost technologies, voluntary labor, and maximum use of other multi-service IRD facilities will be emphasized. A small amount of transportation and communication support for these facilities will also be provided.

Health promoters will be trained by the MOH and paid by their communities to extend primary health care services to more rural people. They will also improve the currently low utilization of health facilities by providing referrals to these facilities directly from the community. Existing health personnel, from auxiliary nurses through doctors and administrators, will receive in-service training in primary care delivery (including oral rehydration therapy) and management through grants to the MOH.

Diarrheal and communicable disease control, goiter control, supplementary feeding and health education are of particular concern and will receive special programmatic emphasis. As the leading cause of death in Ecuador, especially among infants, diarrheal diseases will be attacked

* Robodevices: A.I.D. developed, self sealing plastic (PVC) valves faucets, and well screens. They are cheap and virtually maintenance free.

through a special oral rehydration program in each IRD area. The project will assist the MOH to implement the national Expanded Program of Immunizations (EPI) in the three IRD projects; efforts in goiter control will be initiated in one of them. Health education will be emphasized in all A.I.D. supported primary care programs by providing audio-visual materials and health educator assistants.

(b) Water supply and Sanitation coverage in the three IRD projects will be increased from less than ten percent to nearly 50 percent of the rural population. Gravity flow systems will supply virtually all concentrated populations in the larger communities of Salcedo and Quimiag/ Penipe with potable water via household connections. The A.I.D. hand pump is currently in its initial production stages* and will be provided to dispersed population in all three IRD areas, especially Jipijapa. Latrines and water seal toilets will be installed in communities where water systems are constructed.

(c) Improvement of nutritional status will be promoted by several of the primary care and water supply sanitation activities described, e.g., diarrhea and goiter control, the provision of safe water, and surveillance and education efforts of the health promoters will be aimed at preventing or controlling malnutrition as well. In addition, the project will complement the food production and household extension activities of the IRD-Agriculture project in two ways. First, the MOH's supplemental feeding program for pregnant and lactating mothers and pre-school children will be improved through in-service training of staff. Second, pilot activities directed at increasing the availability of locally produced food will be carried out and evaluated in the three IRD projects.

D. GOE Coordinating and Implementing Entities

1. Coordinating Entities (NHC and IRDS)

Two governmental agencies are principally responsible for coordinating project activities. Within the health sector, the National Health Council (NHC) will provide policy guidance and coordination. The NHC will carry out analyses and studies on health issues and will be instrumental in updating the GOE's National Health Plan. The Integrated Rural Development Secretariat (IRDS) will coordinate, finance, and evaluate field activities. The IRDS will have a project director for each IRD project and will draw up written agreements with IEOS and the MOH for implementing field level activities. The IRDS will oversee the design of the pilot

The A.I.D. handpump is financed under a DSB funded contract between Georgia Tech. and the Polytechnic Institute. Robodevices are also being manufactured under this contract and will be employed in all water systems constructed under the project.

nutrition activities and will coordinate their implementation. It will also administer the minor construction of field health facilities in the three IRD projects.

2. Implementing Entities (MOH and IEOS)

The Minister of Health (MOH) will implement the institution building component for the health sector (principally training and technical assistance) and the primary health care (PHC) activities in the three IRD projects. The MOH will establish three new positions of area health chiefs who will work closely with the IRDS project unit and the MOH provincial chiefs in managing the implementation of PHC activities. The MOH will also draw on its research arm, the National Institute of Nutrition and Socio-Medical Research (ININMS) to participate in the studies and investigations.

The Ecuadorean Institute for Sanitary Works (IEOS) will construct or supervise the construction of all low cost rural water supply and sanitation systems in the IRD project. It will also carry out the institution building activities at national and provincial levels within IEOS. Other implementing entities include: (a) the Junta de Recursos Hidráulicos de Jipijapa, a canton level water authority or board, which will carry out the construction of shallow wells and the sanitation promotion activities in the coastal IRD project; (b) Provincial (and perhaps Municipal) Councils which will be contracted by IRDS for the construction of health subcenters and posts; and (c) local community organizations which will devote land and labor for much of the infrastructure requirements of the project and participate in the continuing process of problem identification, priority setting, definition of acceptable services and program evaluation.

E. Summary Financial Plan (US\$ 000)

	A. I. D.		HOST COUNTRY	TOTAL
	LOAN	GRANT		
<u>Project Components</u>				
<u>I. Institution Building</u>				
A. NHC	100	140	160	400
B. MOH	525	135	540	1,200
C. IEOS	950	450	1,400	2,800
C. IRDS	225	175	200	600
Subtotal	1,800	900	2,300	5,000
<u>II. Field Demonstration Activities</u>				
A. Primary Health Care	870	-	630	1,500
B. Water Supply/Sanitation	2,500	-	3,300	5,800
C. Nutrition	200	-	200	400
Subtotal	3,570	-	4,130	7,700
Contingencies	630	100	570	1,300
TOTAL	6,000	1,000	7,000	14,000

F. Issues

1. Donor Coordination

Because other donors are providing financial or technical assistance to the GOE for health, water and sanitation activities, coordination of A.I.D. financing is required. Other donor contribution will be essential to help replicate the investment aspects of the Integrated Rural Health Delivery System model on an expanded basis nation-wide. However, A.I.D. cannot program other donor resources; the fundamental coordination must come through the GOE programming process. Consequently, the A.I.D. project will finance mainly institution building and technology transfer activities which other donors cannot or will not finance but which are critical to the development of the Integrated Rural Health Delivery System model (including improved coordination at the national and field levels).

During the intensive review of the project, critical gaps in other donor assistance have been confirmed or identified. The lack of attention to sector planning, inadequate emphasis on strengthening the institutional structures of IEOS and the MOH, the need for a strengthened management capability at the area (micro-regional) level, and the development and field implementation of an integrated rural health delivery model are areas which are not being financed by other donors. The project addresses each of these gaps. Assistance to the NHC will be provided for improvement of national health sector planning and coordination. Extensive management training efforts within the MOH will concentrate on strengthening area level management. Implementation of the Integrated Rural Health Delivery Systems model in three IRD projects will provide the MOH with a replicable model to use in its decentralization efforts.

Specific issues which have been raised within the context of other donor coordination include other donor acceptance of the micro-regional approach, possible duplication of training efforts and the rationale for A.I.D. financed construction of health facilities.

Although other donors have not yet supported the micro-regional approach, regionalization, including the area or micro-regional management unit, is established GOE policy. This approach is clearly consistent with state of the art health management and merits A.I.D. support regardless of other donor support. In fact, lack of financial support by other donors at this level is a strong argument for A.I.D. involvement. By implementing an area level management model on a pilot basis, the A.I.D. financed project will demonstrate the feasibility of implementing such an approach in Ecuador to other donors.

The training financed by the UNFPA project and that financed by A.I.D. will be complementary. UNFPA will institute a national training program for nurse auxiliaries, promoters and midwives, however the number of personnel trained will be significantly less than is needed. The training under the A.I.D. project of these types of workers will be limited to specific IRD projects and will not duplicate UNFPA efforts.

Construction of health facilities under the A.I.D. project is included in order to demonstrate the feasibility of using much lower cost designs and construction techniques than are being built under the IDB financed project. The IDB project has been underway for more than two years, but invitations for bids have not yet been issued because of difficulties in identifying sites as a result of overly restrictive IDB site eligibility requirements e.g., an existing potable water supply, telephone installations, good access roads. These factors fully justify the construction of a limited number of health facilities as part of an IRHDS model to be implemented in three IRD projects.

2. School Feeding

The PID guidance cable raises concern over A.I.D. support of a school feeding component (See Annex I). The project proposes a small component for pilot activities to increase campesino access to foods that would improve nutritional status. A school feeding program, aimed at increasing the use of locally produced foods for school meals, could be tested out on a small scale under this component. The pilot, if undertaken, would be an attempt to identify a means of improving the cost effectiveness of the GOE's current school feeding program and to redirect some of the benefit-incidence by purchasing agricultural products from local campesino farmers.

Such an activity would be administered by the IRDS, but would have to involve the personnel and support from several ministries. The Ministry of Education would be involved because of the necessary use of its staff and facilities. The Ministry of Health should be involved in order to advise and assist on nutritional aspects of the effort and to participate in evaluation. Ministry of Agriculture technicians would have to be used with respect to the agriculture production requirements. The IRDS is the only entity that could take the initiative in an effort of this nature which cuts across the institutional boundaries of three ministries. In order to be able to elicit the active involvement of the ministries and the local communities, the IRDS should be able to pay some of the costs. Thus, the project provides the flexibility to fund community based school feeding (and other nutrition pilots) on a limited basis.

The school feeding activity is one of the illustrative elements under a nutrition pilot component. It would only be undertaken if warranted by further study and if the necessary inter-ministerial coordination would be achieved. Nevertheless, given the large (and poorly administered) GOE school feeding program, such a pilot effort could have significant inputs if it successfully demonstrates to GOE authorities that locally managed programs are more cost effective.

3. Relation of the Health and Family Planning Projects

The Family Planning and Integrated Rural Health Delivery Systems Projects have fundamentally different approaches to implementing field activities. The family Planning project is essentially program support

oriented while the IRHDS field activities, which are included within an Integrated Rural Development program, concentrate on specific areas. Consequently, coordination of field activities is not the relevant concern. Training activities, however, have been carefully planned to be complementary rather than duplicative. The Family Planning project training will focus on area health chiefs, nurse's auxiliaries, and health promoters. In addition, the support provided to the National Health Council under the Rural Health project should ultimately lead to more effective coordination of family planning efforts with the delivery of other primary health care services.

4. Distribution of Prescription Drugs and Contraceptives by Paramedical Personnel

This distribution of prescription drugs and contraceptives by paramedical personnel is highly controversial. The inclusion of prescription drugs in health promoter kits has been a source of conflict with physicians opposed to the promoter program. The distribution of contraceptives by paramedical personnel without a physician's prescription is not going to be politically or legally possible within the foreseeable future. Two approaches will be used to overcome these difficulties. At the policy level the NHC will carry out studies (to be partially financed with grant funds) on the issues of drug and contraceptive distribution by paramedical personnel. At the field implementation level, more outreach visits by physicians and improved integration of paramedical personnel into a coherent rural health delivery series model will greatly increase the number of patient referrals to physicians for curative and contraceptive services.

5. MOH-IESS Coordination

Both the Ministry of Health and the Ecuadorean Social Security Institute implement rural programs. In some geographic areas service delivery may be duplicated. The project addresses the issue of MOH-IESS in two ways. By providing support to the National Health Council, A.I.D. expects that this entity will become a sufficiently strong policy making body within a very few years and will then be able to rationalize and coordinate rural health service delivery at the national level. Issues of coordination exist with regard to geographic and functional distribution of service delivery efforts, uniformity of pay scales, advancement opportunities, service delivery norms, etc. The National Health Council has already assigned these tasks to a committee. A.I.D. funds will support the implementation of studies of these issues by the council. At the IRD project level, the IRD project units will assure adequate coordination of primary care delivery services. Indeed, the IRD context represents the first opportunity for institutional coordination at the local level and is prepared to assure that appropriate actions are taken to rationalize health service delivery within all IRD areas.

It is likely that these dual delivery systems will persist for some time. The interim solution, supported by this project, is for better

coordination at the national policy/resource allocation level and at field level of project design and programming. Over the medium term, Ecuador must begin asking whether it can afford to have two systems and, if not, be in a position to identify the relative advantages and disadvantages of both. The institution building focus of this project will contribute to the GOE's capacity to make appropriate health sector decisions in the future.

6. Replicability

A major issue which must be addressed is that of the project's replicability. Elements of this issue include: (1) the GOE's capacity to finance the project's primary care, water sanitation, and nutrition activities which constitute the fundamental elements of the Integrated Rural Health Delivery Systems (IRHDS) model on a large scale; (2) comparability of this IRHDS model with other similar health delivery models; (3) the GOE's administrative capacity to carry out these activities on a nation-wide basis; and (4) the receptivity of Ecuador's rural population toward these activities.

The GOE's capacity to finance the project's activities on a large scale is reviewed in the economic and GOE budget analyses in Annex V of the Project Paper. The findings of these analyses indicate that: (1) the per capita investment and operating cost for primary health care, water, and sanitation services provided through the project are substantially less than national averages and are affordable (see Annex V, Exhibit A) and (2) the costs of extending services to the rural target population identified as priority in the 1980-1984 National Development Plan, (i.e., the 17 IRD projects), are well within the budgetary parameters established in the Plan, even though investments in rural water and sanitation will be increased as a percentage of IEOS total budget. The amounts proposed in the Plan for these activities will cover a substantially larger group of beneficiaries than contemplated if the savings from improved management performance and lower cost technologies introduced in this project are also realized in the other IRD projects.

With regard to analyzing the comparability of the IRHDS model, USAID has reviewed numerous project descriptions of other A.I.D. financed health delivery models, viz.: the UPHA report "State of the Art of Delivering Low Health Services in Less Developed Countries"; the DSB/H sponsored "Tracking Report" on A.I.D. Sponsored Primary Health Care Projects Volume II Latin America; and the David Gwatkin et. al. monograph "Can Health and Nutrition Interventions Make a Difference". Two principal conclusions on comparability emerge from reviewing these reports. First, no two delivery system models are alike, which makes comparisons difficult except in general terms. For example, target populations range from 1,000 population to over 10 million, while the range of services offered is equally varied. Despite this situation, it is evident that the critical components of the IRHDS model as proposed in this project are totally consistent with mainline, state of the art designs for integrated delivery models - i.e., heavy reliance on community based health promoters, low cost water/sanitation

systems, decentralized management with emphasis on improved supervision, incorporation of the community at all stages of the project, and a rural poor target group.

The second conclusion relates to costs of the model. Here again one runs into problems of comparison, as each project has a differing mix of inputs and outputs. Exacerbating the cost comparability analyses are factors such as differing methods for analyzing different years of expenditures (thereby varying the effects of inflation on costs) and wide variations of purchasing power from country to country that are not necessarily reflected in exchange rates. Moreover, most of the studies reviewed simply do not address the issue of costs in any meaningful way. The one exception is Gwatkin, et. al.'s study which compares ten projects with wide coverage approaches to reducing infant and child mortality (two in Latin America). Even here, only seven projects provided cost information, (which are described as "impressionistic") and only one of these seven is in Latin America. The reported costs ranged from .50 to \$7.50 per capita, but were reported for periods in the early 1970's or even before. Thus, to calculate the per capita cost of the IRHDS model proposed herein, or to compare it with other models is not meaningful. There are differing denominators for certain inputs - i.e., not all population in any IRD will receive potable water, not all will be served by promoters, nor will investments in infrastructure be evenly distributed. What has been demonstrated in the economic and budget analyses cited above, is the affordability of costs as estimated thus far, and the significant decrease in costs per beneficiary despite expected major improvements in quantity and quality of services.

With respect to the institutional capacity element of the replicability issue, it is USAID's judgement that the existing capacity of the MOH and IEOS is not sufficient to establish or implement the IRHDS model nationally. Therefore, a substantial amount of project resources have been targeted to strengthening the institutional capabilities of these agencies so that they are in fact capable of replicating project field activities throughout rural Ecuador.

A final area of concern involves the acceptability of the new services by the intended beneficiaries. While the technologies of service delivery are feasible, there is an implicit assumption that a change from traditional to modern primary health care, sanitation, and nutrition practices will occur among target group members. To assure that these behavioral changes occur, the project concentrates substantial resources on training, education, and demonstration activities as well as increased community participation in order to enhance the social feasibility and, therefore, the replicability of project activities.

G. Project Development Committee

1. The Project Development Committee was composed of the following USAID Officers who were responsible for project design and drafting of the Project Paper, and/chaired by Dr. Farr and Mr. Fritz:

Dr. Kenneth Farr, Health Development Officer
Mr. Paul Fritz, Project Design and Implementation Officer
Mr. Jay Anderson, Assistant Health Development Officer (IDI)
Dr. Robert Jordan, Capital Projects Development Officer
Mr. Carlos Luzuriaga, Program Economist
Mr. Richard McClure, Controller

2. The following GOE personnel assisted the Project Development Committee in the development of the project:

Dr. Oswaldo Egas (CONADE) Lic. Jaime Arias (MOH-Cotopaxi)
Dr. Eduardo Navas (MOH) Ing. Marcelo Moreno
Dr. Edgar Moncayo (IRDS) Dr. Macías (MOH Manabí)
Arq. Rodrigo Moreno (IEOS) Dr. Gualberto Mariño (MOH-Chimborazo)
Ing. Luis Ambato (IEOS) Ing. César Jaramillo (IRDS)

3. The following consultants and AID/W--TDY personnel were especially helpful in preparing the Project Paper:

Ms. Elena Brineman, LAC/OR, Nutrition Advisor
Mr. Robert Emrey, Director of International Programs, AUDHA
Dr. Robert Maushamer, LAC/OR, Economist
Mr. Gonzalo Medina, Sanitary Engineer Consultant
Mr. Charles Pineo, Sanitary Engineer Consultant
Dr. Henry Van, Sanitary Engineer Consultant

4. The project was reviewed and approved by the following officers:

Mr. John A. Sanbrailo, Director, USAID/Ecuador
Mr. Angel M. Díaz, Assistant Director, USAID/Ecuador
Mr. Patricio Maldonado, Program Officer, USAID/Ecuador
Mr. Stephen Whitman, Regional Legal Advisor

H. Recommendation

The project proposed herein was designed by a team composed of professional from GOE institutions, USAID/Ecuador, AID/W, and private consulting organizations. As part of the design process, the Integrated Rural Health Delivery System and supporting mechanisms were worked out in detail, and specific field level activities were identified for implementation shortly after meeting the conditions precedent to disbursement. The project was reviewed and approved by a USAID Project Committee. Both the Project Development Team and the Reviewing and Approval Committee conclude

that the project and its components are technically, economically, socially, administratively, environmentally and financially sound and recommend that the project be approved by AID/W and that an A.I.D. loan for US\$6.0 million and a grant for US\$1.0 million be authorized.

I. BACKGROUND AND JUSTIFICATION

A. Analytic Framework

Ecuador's health problems, particularly in rural areas, are clearly a manifestation of the larger problem of poverty as a whole, the dimensions of which have been well documented in studies conducted by the GOE, A.I.D., and other international organizations. Some of these studies contain sections on health, nutrition, water and sanitation.* Other national health sector assessments and studies have been completed in recent years which describe the health sector in detail.** In addition to these national studies, provincial health offices have furnished USAID with more detailed information on the IRD areas where field activities will be implemented under the project.

B. Rural Health Problems in Ecuador

The reports noted above describe the seriousness of Ecuador's health problems, particularly among rural indigenous and low income population groups. Despite a higher rate of unreported deaths in rural areas, rural infant mortality sometimes exceeds 110/1000 live births. (The official national average is about 60/1000.) Nearly 50 percent of all mortality in Ecuador is in the 0-5 age group, even though this cohort constitutes only 16 percent of the national population. Overall death rates have averaged 40 percent higher in rural than in urban areas, but the actual difference is undoubtedly greater than official statistics indicate given the much greater under-reporting of deaths in rural areas. Diarrheal

* World Bank, Ecuador Development Problems and Prospects, Technical Annex II; GOE, National Development Council, Five Year Development Plan 1980-84; Interamerican Development Bank, Country Study, 1979.

** Ministerio de Salud, II Plan Quinquenal de Salud 1980-84; Pan American Health Organization and World Bank, Water Supply and Sanitation Sector Study, 1978; PAHO Consultants, Diagnóstico de la Administración de los Servicios de Salud del Ministerio de Salud Pública del Ecuador, Nov. 1980; MOH Health Facilities Inventory (Catastro de Salud) 1976-77. Other useful analyses conclude: American Public Health Association, Ecuador: A Health and Population Brief; Mauro Rivadeneira, Nutrición del Ecuador, 1980 (Consultant Report for USAID Ecuador); Kenneth Farr and Elena Brineman, Proposed Health/Nutrition/Population Strategy for USAID Ecuador, December 1979; Ministerio de Salud Pública, ININMS, Conocimientos, Actitudes y Prácticas en el Area Rural, 1979; Información sobre el Sector "Agua Potable y Alcantarillado" en Zonas Rurales y Urbanas Marginadas: Ecuador, 1979; IEOS, Datos sobre el Estado Actual del Programa de Saneamiento Rural, Ecuador, 1979; Wehman et. al, Environmental Health Strategy Statement, May 13, 1980; Ministerio de Salud Pública, Indicadores de Salud, 1979; AUPHA, Ecuador Health Management Assessment, 1981.

diseases are the major causes of death, especially among infants and children under five. These diseases, as well as respiratory infections (the second major source of morbidity and mortality), are largely preventable and easily controlled via an effective health care delivery system.

Malnutrition is a serious problem that is frequently exacerbated by diarrhea and communicable diseases. Although no comprehensive national nutrition data have been collected since the 1960's, special surveys and health facility records indicate that as many as 40 percent of the under five population suffers from some degree of protein calorie malnutrition. While rarely reported as a principal cause of death, reliable indicators of poor nutritional status include measles as the sixth leading cause of death and the extremely high rate of post-neonatal deaths in relation to neonatal deaths. Endemic goiter with resultant cretinism is a particularly persistent nutrition problem in parts of the sierra. Both insufficient utilization of iodized salt as well as heavy consumption of goitrogenic foods such as cauliflower are believed to be responsible.

The absence of potable water and sanitary waste disposal facilities in most of rural Ecuador is clearly a major contributing factor to much of the morbidity/mortality noted above. Only 10.3 percent of rural Ecuadorians have access to potable water, and a mere two percent have any form of sanitary excreta disposal. These rates are among the lowest in the Americas and have actually declined since the early 1970's due to population growth in excess of service expansion.

While an inhospitable, unsanitary environment and widespread poverty are the most important causes of ill health and early death in Ecuador, the behavioral characteristics of the population and the condition of the country's health services accentuate and complement these already difficult circumstances. Low levels of literacy among the rural poor, ignorance of the causes of disease and mistrust of modern medical personnel and facilities result in low utilization of services, even when they are reasonably accessible. Nationally, there are less than 0.4 medical consultations per capita per year in MOH facilities. Only one third of all pregnant women receive professional prenatal care, and only 20 percent of all births are attended by trained personnel. Only four percent of children from one to five years old receive any medical care at all.

C. Constraints to Solving Rural Health Problems

A major constraint to solving Ecuador's rural health problems, rural poverty, is being addressed through a series of interventions designed to raise rural productivity and incomes within an Integrated Rural Development framework. While alleviation of poverty is a necessary condition for a significant improvement in the health status of the rural population, it is not a sufficient condition. Action programs in rural primary health care, nutrition, water and sanitation are also required. Several major constraints limit the implementation of cost-

effective rural action programs. Specific constraints include the lack of an institutional capacity to implement rural programs, the utilization of technologies which are inappropriate for rural programs, limited financial resources, and socio-cultural constraints.

1. Lack of Institutional Response

Although the GOE's current health policies are increasingly sensitive to the needs of Ecuador's rural population, the traditional urban and curative orientation of past health sector programs has inhibited the development of primary care and of rural water and sanitation services in rural areas. The MOH and the Ecuadorean Social Security Institute (IESS) conduct separate, uncoordinated programs in rural areas, even though the need for intra-sectoral coordination will increase as both agencies expand their delivery systems during the 1980's. The Ecuadorean Institute for Sanitary Works (IEOS) operates a nearly vertical (and largely urban oriented) water and sanitation program with virtually no coordination between those efforts and other MOH primary care programs.

Neither the MOH nor IEOS has an adequate institutional mechanism for the delivery of rural services. Planning is ineffective and highly centralized. Information, logistics and supervisory systems are weak, particularly at the provincial level. In addition, the MOH is organized to provide services in fixed facilities, and lacks the capacity for community outreach. IEOS experiences many of these same planning/management problems.

2. Inappropriate Technologies

The institutional weaknesses described above are exacerbated by the widespread use of inappropriate technology where simpler, low cost approaches (especially in rural areas) would be more appropriate. The infrastructure currently being constructed is not cost-effective. IEOS's rural water/sewerage systems are over-designed and have high per capita construction costs. Systems designed to meet the needs of dispersed rural populations are practically non-existent. The MOH's rural health posts and subcenters cost more than twice as much as similar facilities in Guatemala.

3. Financial Constraints

High cost personnel and technologies, large, fixed operating expenses for health facilities, and the major expansion of the delivery system all contribute to rapidly rising GOE expenditures on health care. As Annex V, Exhibit B shows, expenditures by the MOH and other health agencies have risen rapidly since the mid-1970's. Preliminary figures for 1980 show expenditures of \$14.70 per capita and 6.1 percent of the Central Government budget going to health compared to \$7.20 per capita (at 1980 prices) and 2.6 percent in 1970. There are substantial increases by LDC standards and it is unlikely that they will continue in the future. This is a problem because, despite these increases, as much as 50 percent

of the rural population still has poor access to health services or no access at all. It is crucial, therefore, that a service delivery model emphasizing lower cost and higher productivity be developed and implemented quickly.

Based on current costs and technologies, the National Development Plan's goal of providing water supply/sanitation services to 30 percent of the population by 1984 will require an investment of \$450 million by IEOS and external donors. When the investment and recurrent costs implied by the construction of hundreds of new health facilities through IDB and bilateral loans are added to this total, it is obvious that limited resources will force the MOH either to adopt more cost-effective approaches to expanding coverage or place its own expansion plans in jeopardy.

4. Socio-Cultural Constraints

The formal health care delivery system fails to recognize the unique health attitudes, practices and problems of rural populations--especially those of Ecuador's large cultural and linguistic minorities. Within indigenous communities modern health facilities are widely viewed as alien institutions representing the values of the dominant hispanic culture. The socio-economic status of physicians epitomizes this "alien" culture, and many doctors have proven reluctant or unprepared to treat indigenous peoples.

Consequently, rural people are less likely to utilize available services and more likely to be ignored in identifying problems and establishing priorities for rural health systems. For example, community health committees are almost non-existent, and neither the location nor the construction of rural health facilities involve community decision-making or even voluntary labor except in rare instances. Concern for community involvement is usually expressed in lamenting the low utilization of services while virtually nothing is done to involve communities in a participatory mode to increase this utilization.

D. GOE Policies and Programs

GOE health policies and priorities as expressed in the National Development Plan indicate a clear perception of the major health problems and constraints identified above. The National Development Plan proposes to attack the fundamental problem of rural poverty by developing a new mechanism, integrated rural development, which will deliver resources to the rural poor in a more coherent, concentrated and integrated manner. Within this context the National Plan's health component emphasizes the need to: (1) create a decentralized National Health System to coordinate health activities and avoid resource duplication through joint planning; (2) extend services (especially water and sanitation services) to rural areas; and (3) organize community participation as a fundamental component of all health programs.

1. Decentralized National Health System

The National Health System will be directed by a National Health Council (NHC) composed of 13 representatives of public and private health agencies and chaired by the Minister of Health. The Council is to be the country's principal national health planning body* and is to coordinate the programs of the MOH, IESS, and other health agencies. The NHC was established by executive decree in 1980 and has recently received the political support to effectively initiate meaningful policy, planning, and sector coordination activities.

2. Extension of Services

a. Primary Health Care (PHC). The MOH is charged under the plan with providing services to 85 percent of the population.** Assisted by large inputs of external donor support beginning in the late 1970's, the MOH has embarked upon an ambitious program to increase the provision of primary health care services to the rural population. This program includes construction and equipping an extensive network of new health sub-centers and posts and greater utilization of paramedical personnel. Training for new auxiliary nurses and re-training of existing ones will complement this expansion.

The program's most significant outreach will be placement of 350 community based health promoters who will provide basic primary health care to 500-700 people each. They will be given two months training in basic first aid, maternal and child health, environmental and community development and will be supervised by the auxiliary nurse at the nearest health post. The promoter program will expand significantly the MOH's capacity to extend coverage of services to rural populations.

In addition to the MOH, both IESS and the Ministry of Defense also provide health services. IESS has a series of large urban hospital and health centers in addition to an autonomous campesino program with clinics serving about 100,000 people. Considerable expansion of the program is planned over the next five years. Ministry of Defense clinics attached to military bases provide health and family planning services to a small portion of nearby civilian populations.

b. Water Supply and Sanitation. Water supply and sanitation programs are largely the responsibility of IEOS, a semi-autonomous agency

* The PID identified the National Development Council (CONADE) as a possible planning agency. While CONADE will have a representative on the NHC, it is clear that the NHC will be the focus of political support for health planning.

** The MOH has established 65 percent of the population as an interim target.

of the MOH. IEOS has implemented several large urban projects but has barely begun to provide services to the 22,000 population centers with 500 people or less. Between 1976 and 1980, 131 rural water systems were built which serve 104,000 people but the 1980-1984 plan calls for construction of 400 rural systems providing services to at least 800,000 people.

c. Nutrition. In light of Ecuador's nutrition problems, the late President Roldós charged the IRDS with organizing an inter-sectoral task force to analyze the country's food problems and formulate a response within the framework of the National Development Plan. The IRDS was selected for this task because the GOE is convinced that the solution to Ecuador's nutrition problems lies largely in the campesino farm subsector where many of the malnourished are actually found and requires a departure from traditionally production oriented approaches to an integrated, multi-sectoral approach. The IRDS was considered the logical choice for addressing these concerns and is currently organizing a small, independent, multidisciplinary task force (five professionals, four researchers, and two support staff) known as PAE (Proyecto Alimenticio Ecuatoriano) for this purpose. The task force will draw on staff from the Ministry of Health and the Ministry of Agriculture. PAE has the following objectives: (i) to describe the Ecuadorean food system and identify problems inhibiting food production and distribution with emphasis on the role of campesino families in these processes; (ii) to formulate a food strategy for the 1980's with special emphasis on actions to be taken in 1982-1983; and (iii) to establish an information system to provide the data needed to continuously monitor the national food balance.

In addition to these IRD nutrition activities, the MOH operates a nationwide supplementary feeding program for pregnant and lactating mothers, children at risk (ages 0-2) and malnourished preschoolers. A food supplement called Leche-Avena, composed of PL-480 soy (15 percent), milk, currently donated by the EEC (15 percent), and oats from the World Food Program (70 percent), is blended in a MOH plant and distributed to some 150,000-200,000 people through MOH health facilities. The MOH plans to replace Leche-Avena with a new product based on locally grown rice and soy, increase individual rations, and significantly expand the number of beneficiaries over the next three years.

3. Community Participation and Education

Increased community participation is to permeate all levels and programs, including their administration and evaluation, and is to harmonize the communities' felt needs with official health programming. The integrated rural development structure will serve as the primary mechanism to mobilize community participation. Within the health sector such participation will be enhanced through special training for rural doctors; also, community health promoters and empirical midwives will be incorporated into the formal health delivery system.

Health education components are included in all of the GOE's primary care, nutrition and water/sanitation activities. The MOH alone has both a health education division and a social communication unit. IEOS and IESS also maintain education divisions. In addition, health education is a core component of training courses for a variety of personnel in both agencies. These resources are considerable, but health education in Ecuador has been characterized by poor coordination of these resources, failure to maintain audiovisual equipment and little emphasis on activities at the community level.

E. Other Donor Activities

Until the late 1970's Ecuador had not received substantial outside assistance in the health sector from either multilateral or bilateral sources. Even much of the assistance beginning in recent years has been and continues to be directed at feeding programs and water and sanitation, rather than health or medical care. The A.I.D. role in the sector during the 1960's and 1970's was limited to P.L. 480 programs, in sharp contrast to the U.S. Government role in the Servicio during the 1940's and 1950's as outlined earlier, or as in the population/FP field where USAID bilateral programs and A.I.D. funded intermediaries have been the leading source of external assistance. Although A.I.D. itself recently has not been active in the sector, there currently are over 30 Peace Corps health promoters and nurses, water program volunteers and health facilities construction volunteers.

Donors with major investments/grants in the health or health-related field include the Inter American Bank (IDB), UNDP Fund for Population Activities (UNFPA), the World Food Program (WFP), World Bank and the Pan American Health Organization (PAHO). A few PVO's, notably CARE, Catholic Relief Services, and MAP International are also contributing significant resources.

IDB has implemented several large water supply and sanitation loans for large and medium size cities through IEOS and municipal water authorities. These projects have encountered major delays, cost overruns, and multiple implementation problems. As a consequence of these institutional problems, IDB decided in early 1981 to postpone consideration of a major loan proposal to build 400 rural water systems.

In addition to water and sewerage infrastructure, IDB approved a \$9.5 million health facilities loan in 1978 to construct and equip 300 health posts and 70 subcenters. Organizational weaknesses in the MOH and IEOS, a lack of coordination between the entities and some fairly restrictive technical requirements imposed by IDB have delayed implementation. Moreover, the design standards agreed upon between IDB and IEOS will result in more costly structures than necessary. To date no construction has started. Approximately \$580,000 of the \$9.5 million IDB loan is financing technical assistance to help the MOH management problems, particularly at the provincial level.

Under this component PAHO is providing long and short term advisors in programming, health education, financial administration, and infrastructure maintenance. Additionally, PAHO executes programs under its own budget and also provides consulting services for health projects funded by UNFPA and UNDP. (Its own budget for 1980-1981 is US\$1.5 million). PAHO's major inputs are in the areas of communicable disease control, health services, human resources development and family health. Several full-time technicians are based in the country, including malaria specialists, physicians and a sanitary engineer. While PAHO can play a valuable role, it suffers from two important disadvantages which limit its ability to deal with the constraints identified above. One disadvantage is its lack of significant program resources to implement management improvement changes proposed by PAHO technicians. A second disadvantage is its position as a virtual employee of the MOH. This makes it difficult to urge GOE institutions to adopt new behavioral patterns. Finally, the program management assistance does not address management improvement needs below the province level.

Ecuador is a UNFPA priority country in Latin America. As such the GOE has received extensive financial support since 1976 for maternal and child health programs and population studies. This support will continue during 1981-1984 with a US\$2.8 million grant for training midwives, health auxiliaries, promoters and nurses; scholarships, medicines, and medical equipment; vehicles; and several MCH/Population studies. The human resource training programs financed by this UNFPA project, especially for auxiliaries and health promoters, are of great importance in terms of building a national primary health care system. While this assistance is directly relevant to appropriate staffing needs at the field level, it fails to address several management and planning constraints the MOH must overcome to make optimal use of these human resources trained under the UNFPA project.

External donor assistance in nutrition is mainly targeted at increasing food intake, especially for the most vulnerable group of children under five and pregnant and lactating women through supplementary feeding programs. The World Food Program (WFP), CARE and CRS (as well as the PL 480 Title II Program) have been providing food aid, equipment and technical assistance to the MOH's supplementary feeding program based on the locally manufactured food supplement Leche-Avena. WFP is providing rolled oats (70 percent of the mixture) under an agreement that will end in September 1982 and which will not be renewed. CARE meanwhile, through PL 480 Title II, provides the soy flour to the mixture, while milk is generally donated by the European Economic Community or occasionally purchased by the MOH. CRS imports soy fortified oats for the Leche-Avena project through PL 480 as well as other Title II commodities distributed through local church centers to school children and the elderly. Consultant, USAID, and A.I.D. audit reports on this feeding program point out its multiple problems, which have ranged from equipment failures to lack of trained staff to manage or implement the program. The most pervasive problem, however, is the dependence on imported food.

The IBRD has made exploratory missions to Ecuador in regard to health sector loans, but its role in health has been limited to small components of integrated rural development projects. While these are potentially important and clearly compatible with the GOE's IRD emphasis, thus far the emphasis has been on infrastructure only (as in the Tungurahua IRD project) with little concern for institution building, technology transfer, or lower cost, community based activities. The latest IBRD project approved for Quinindé and Puerto Ila-Chone, however, will begin to address at least the human resource needs at the local level and give greater community emphasis.

Bilateral assistance to Ecuador in the health sector has been and continues to be minimal. One important exception, in terms of impact more than value of resources provided, has been a \$225,000 grant from the British Overseas Development Ministry for community focused health communications, especially for maternal and child health. A social communication unit was established in the MOH, producing locally relevant education materials as well as important education activities in the community through organized community groups. Funding terminated in 1980 but the project is to be continued through UNFPA auspices.

A development loan from the West German Government for some \$6 million may be firmed up in the near future. Current planning calls for concentration in Loja and Zamora Provinces with rural water, sanitation and health posts and centers. However, in discussions with the USAID Health and Population Office during recent project development visits, German technicians concluded that significant institutional weaknesses in IEOS and the MOH exist, which may result in a scaling down of the scope of their assistance for construction.

The largest health PVO's in Ecuador in budgetary terms are CARE and CRS. Most of their effort is on feeding programs described earlier. In addition, CARE has a relatively large infrastructure activity, building rural water systems and health posts in collaboration with several GOE agencies, including the MOH, IESS and IEOS. These programs serve to supplement GOE efforts but, more importantly, provide models of lower cost facilities and systems. The CARE program has been supported with an OPG from USAID.

Another PVO, Vozandes Hospital, is providing important demonstration efforts and coverage in hard to reach areas. The Vozandes project is a collaborative one initiated in 1978 with the Medical Assistance Program (MAP) International, a U.S. PVO to which USAID has granted \$278,000 for training health promoters, and providing health education and basic water/sanitation in indigenous communities. The experiences of this activity are being drawn upon by the MOH and USAID in the design of the rural health project.

In sum, donor activities underway in health, water, and nutrition leave a number of important gaps in terms of addressing the constraints

previously identified. The GOE does not need more resources as badly as it needs to make better utilization of existing ones, domestic as well as external. The resources being provided by the other major donors simply will not bring about the institutional development required to implement the policy and program objectives of the National Development Plan nor do they adequately promote low cost technologies and approaches appropriate to the rural sector.

F. USAID Country Development Strategy

The renewed A.I.D. program in Ecuador is designed to assist the country to address some of its highest priority development problems: extensive rural and urban poverty, stagnating agricultural production, rapid population growth, growing environmental degradation, and the need to rationalize and increase energy resources.

As indicated in USAID's approved CDSS, institutional, technological, and human resources constraints most often limit Ecuador's ability to solve these problems. USAID's strategy is to strengthen Ecuadorean institutional and technical capacity so that the country can mobilize its own resources and direct them over an extended period of time towards solving its own problems.

In accordance with this strategy, USAID seeks to: (1) encourage changes in policies and resource allocation by assisting Ecuadorean institutions to better analyze complex policy and planning issues; (2) support technologies to increase Ecuador's capacity to meet the needs of its poor; and (3) strengthen progressive elements of the public and private sectors so that they can address better the country's critical development problems. Several priority areas for USAID support have emerged within this framework, beginning with conversations with late President Roldós in Washington shortly after his election and supplemented by a continuing dialogue with key GOE officials, including current President Hurtado in his former role as Vice-President and head of CONADE.

As a result of these conversations, the major share of USAID's resources are being used to assist Ecuador implement integrated multi-sectoral approaches for dealing with the multiple problems of the urban and rural poor. These approaches reflect the GOE's strong commitment to a growth-with-equity development strategy which closely parallels A.I.D.'s policy of supporting programs that meet the basic human needs of low income groups in both urban and rural areas.

In the urban sector, A.I.D. is assisting the GOE's Integrated Urban Development program to develop better mechanisms for addressing the problems of the urban poor. An FY 1980 HIG is financing the Solanda Low Cost Housing and Integrated Urban Development project in Quito. This project will provide 45,000 low cost housing units, physical and social infrastructure, community organization and employment generation. A

similar project for secondary cities and their surrounding rural areas is being developed for funding in FY 1982.

In the rural sector, which is receiving the bulk of A.I.D.'s development assistance, A.I.D. is assisting the GOE to make its new Integrated Rural Development Secretariat (IRDS) operational and to implement three of its seventeen integrated rural development (IRD) projects. These three project sites were selected in close collaboration with the GOE on the basis of poverty incidence, growth potential, availability of diagnostic studies, and lack of resources from other donors. USAID also wanted experience in both the sierra and coastal regions to facilitate replication of successful project elements nationwide. The GOE's strategy is based on its conviction that carefully selected resources and services provided by different ministries and agencies must be concentrated in specific geographic areas in order to break up Ecuador's centuries old patterns of rural poverty.

Two FY 1980 A.I.D. projects are assisting the IRD program to increase small farmer agricultural production and initiate campesino training and organization. In addition, USAID plans to develop Forestry/ Soil Conservation and Rural Enterprise Development Projects for FY 1982. While not directly a part of the IRD program, the Rural Technology Transfer (Title XII) Project, approved in FY 1980, will develop a mechanism within the National Science and Technology Council (CONACYT) for transferring technical resources from U.S. agricultural universities to Ecuador. Many of these resources may be drawn on to support agricultural production within IRD.

The FY 1981 health project proposed herein will support rural health, potable water/sanitation and nutrition activities in the same three IRD areas where USAID's agriculture and campesino training projects are being implemented. This health project will complement the production/ income objective of the agricultural project and draw on the campesino training project to disseminate information and technologies relating to health and nutrition improvement. In addition, the project is designed to support the provision of the decree establishing the IRDS which requires that: "the State's involvement in the process of integrated rural development must be based on the full participation of the beneficiaries in the phases of preparation, execution, and evaluation of the programs and projects." Finally, it will build on several smaller scale health initiatives already in progress, viz:

- the OPG's with MAP International and CARE described in the previous section;

- a contract with the Georgia Institute of Technology to assist in the local manufacture (on a pilot basis) of hand pumps and low maintenance/low cost well screens and faucets (robodevices) to be subsequently adopted by IEOS, Peace Corps, and PVOs through the provision of project loan funds;

- a grant to IEOS to evaluate its existing organization for the implementation of rural water and sanitation projects and to design alternative water/sanitation systems for rural areas; and

- a family planning grant to the MOH to develop teaching/service centers which will provide basic maternal and child health training to rural doctors and nurses working in the IRD projects.

In sum, the health activities to be supported under this project are key inputs to USAID's support of the IRD program as outlined in the CDSS. They represent the USAID's first non-agricultural contributions to IRD and, therefore, a serious test of the GOE's ability to achieve the institutional coordination required for a successful integrated rural development approach. Moreover, this project represents a test of USAID's ability to improve the capability of health sector institutions to respond to the needs of the rural poor including the use of more appropriate technology. Without them, USAID's basic strategy of phasing inputs into the IRD program would be jeopardized and its relationship with the GOE would be severely compromised.

Other major elements of the USAID's program similarly address the needs for institutional development and technology transfer. An FY 1980 Training for Development Grant provides technical assistance and training to improve the GOE's program for in-service training of public sector managers and administrators. The project will create a permanent capacity within the National Training System (NTS) of the National Bureau of Personnel (DNP) to train mid-level managers and administrators in various GOE ministries and agencies with emphasis on agriculture. Eventually, NTS will be able to assist selected entities strengthen their own training programs. The training activities under the proposed rural health project will carry out in-service training programs for health sector agencies, and therefore will have to be coordinated with NTS as the project progresses. Specifically, the experience and results of the MOH and IEOS in-service staff training efforts will be fed into the NTS for evaluation and comment.

The FY 1981 Alternative Energy Project will strengthen the national Energy Institute (INE), will make new energy related technology available, and will support local research for adapting these technologies to Ecuadorean circumstances. In addition, a centrally funded DSB/EY photovoltaic demonstration is being carried out under INE auspices to test the feasibility of using solar energy to provide power to health centers in remote areas.

II. DETAILED PROJECT DESCRIPTION

A. Project Goal, Purpose and Strategy

The project's goal is to improve the health of Ecuador's rural poor as measured by decreasing morbidity and mortality, especially among mothers and children under five. The project's purpose is to develop a model low cost health care delivery system which can function as an integral part of IRD projects and which can be replicated in other areas nation-wide. By the end of the project, this model system should be effectively providing three IRD projects with community based primary care services, water and sanitation services, and nutrition services. (These services, when combined with increased incomes and standard of living generated by USAID's IRD-Agriculture Project, should have even greater health effects than would be the case if they were implemented in isolation from efforts in other sectors). In addition, replication of the model system should be initiated in other areas of the country and national and provincial institutions should be planning the model's national replication.

The model will be based on an area (sub-provincial) services delivery system supported by a strengthened institutional capacity at the provincial and national levels. At the area level, the model consists of four major elements:

(1) A new level of health management. Area health chiefs will be assigned to the three IRD projects by the MOH. There are currently no managerial positions (other than for individual health facilities) below the provincial level and the posting of these area chiefs, who will be responsible for all health activities in their areas, will represent a significant step forward in decentralizing the delivery of services and the more effective supervision of field activities.

(2) Expanded primary care. This element will have a preventive rather than a curative focus. Health subcenters and health posts will be built, equipped, and staffed as required; community based paramedical personnel (e.g., health promoters and midwives) will be recruited and trained; priority PHC programs (e.g., diarrheal disease control, immunizations, maternal child care and health education) will be implemented; and community participation in the design and delivery of services will be increased.

(3) Water supply and sanitation. Water and sanitation projects which extend coverage to a significant portion of the target population will be implemented through a strengthened IEOS organization at the national and provincial levels.

(4) Nutrition activities. Training courses will be provided to improve area level capacity to operate an effective supplementary

feeding program, and activities proven to increase the availability of basic foods, will be undertaken.

Implementation of the model is intended to overcome constraints to solving rural health problems which are not being adequately addressed under existing institutional arrangements. Specifically, it will:

- Extend health services delivery and provide additional resources in high priority rural areas. These will be tailored to fit local needs. Current institutional mechanisms do not reach rural areas effectively.

- Promote the utilization of lower cost primary care services. The current system emphasizes high cost, curative services provided by physicians from urban areas who are not trained in preventive medicine and who often have limited knowledge of the socio-cultural background problems of their rural clientele.

- Rationalize health service delivery by coordinating efforts of health services institutions in geographic areas. Presently, the MOH and the IESS often provide duplicate services in the same geographic areas.

- Facilitate extension of low cost water and sanitation services by utilizing low cost technologies. To date, IEOS water and sanitation systems have stressed sophisticated, expensive designs which limits the provision of these services in rural areas and reduces the opportunities for community participation.

- Incorporate nutrition concerns in program design and implementation. Currently, supplementary feeding and diarrheal disease control are poorly managed and are not adjusted to meet local conditions; location specific nutrition programs (e.g., goiter control) are not implemented; and there is an absence of nutrition improvement strategies in the formulation of agricultural production programs.

- Decentralize decision-making responsibility and facilitate community participation in the decision-making and implementation process. The present system centralizes planning and management at the national level with a consequent lack of responsiveness to local concerns.

USAID's project strategy is to support the development and implementation of the model delivery system by: (1) strengthening GOE institutional capabilities to plan, manage, support and replicate the model at the local (IRD areas), provincial, and national levels; and (2) carrying out primary health care, water supply/sanitation and nutrition improvement activities in three IRD projects to demonstrate the effectiveness of the model.

USAID assistance is designed to operationalize the model by filling critical gaps in financing provided by other international donors.

The strategy consciously builds upon the inputs of other donors which, although much larger than USAID's, leave many gaps which must be filled in order for the model to become functional. Specifically, there is inadequate other donor support for: decentralization of health services and management responsibility to the local level; development of low cost rural water and sanitation technologies; improvement of IEOS rural WS/S delivery capability; and assistance for national health planning and sector resource coordination.

The institution building interventions are described in Section II.B; field activities are described in Section II.C.

B. Institution Building Activities

1. Introduction

Institution building activities will be undertaken to support and eventually replicate the area level model described previously. These activities will focus on program planning and coordination; technical, administrative and logistical support; and investigation, research and analysis aimed at better problem identification and program evaluation.

Four GOE institutions will be assisted: the National Health Council, the Ministry of Health, the Ecuadorean Institute of Sanitary Works, and the Integrated Rural Development Secretariat. Funding for these activities will total \$1,800,000 (30 percent of the project's loan funds and all the grant funds) for long and short term training, technical assistance, studies, and equipment. In addition, loan funds will finance the salary and support costs of three area health chiefs (one for each IRD project) since the early establishment of these positions is crucial to the implementation of the area model. The summary budget for these activities appears in the table on the following page.

2. National Health Council (NHC), Loan: \$100,000; Grant: \$140,000; Host Country: \$160,000

This component will develop a capacity in the newly established NHC to provide GOE leadership on national health policies and to coordinate health programs. The NHC will draw on project resources to help it promote workshops and studies on key health concerns. By demonstrating an ability to provide sound analysis of health sector problems, it is expected that by the end of the project GOE leaders regularly will look to the NHC for policy and program guidance on health matters. Since the chairperson of the NHC is the Minister of Health, or his representative, an effective and influential NHC also will enable the Ministry to effect greater coordination of health sector programs and policies, particularly those of IESS and IEOS.

The project will help the NHC to finance the costs of using Ecuadorean task forces, drawn from public entities, the university

Table 1

Summary Budget for Institution Building
(US\$000)

<u>Components</u>	<u>A.I.D.</u>		<u>Host Country</u>	<u>TOTAL</u>
	<u>Loan</u>	<u>Grant</u>		
<u>I. National Health Council</u>				
A. Studies and technical assistance	50	100	100	250
B. Travel, seminars, and workshops	30	40	30	100
C. Equipment and supplies	20	-	30	50
Subtotal	<u>100</u>	<u>140</u>	<u>160</u>	<u>400</u>
<u>II. Ministry of Health</u>				
A. Area level				
1. Consulting services	-	80	20	100
2. Vehicles and office equipment	50	-	90	140
3. Salaries	135	-	135	270
4. Training (additional area chiefs)	25	-	25	50
5. Training (doctors, nurse mid-wives, nurses auxiliaries)	120	20	80	220
B. Province level				
1. Training 6 Prov. chiefs (3 mos.)	25	-	25	50
2. Short term in-country mgt. courses	25	-	25	50
3. Technical assistance	-	35	-	35
C. National level				
1. Long term mgt. training. Masters Degree, 8 people	130	-	130	260
2. Executive seminars, Cali & Quito	15	-	10	25
Subtotal	<u>525</u>	<u>135</u>	<u>540</u>	<u>1,200</u>
<u>III. Ecuadorean Institute of Sanitary Works</u>				
A. Establishment of Rural WS/S Coordination Unit				
1. Sanitary engineer advisor	-	250	110	360
2. Long term training	160	-	100	260
3. Technology studies, evaluations and technical assistance	120	50	200	370
4. Vehicles, equipment and per diem	75	-	180	255
B. Improvement of Field Operations at Provincial level				
1. Training.				
a. Consultants, trainers and training equipment	95	75	80	250
b. In service training fund	160	-	40	200
2. Maintenance units	120	-	195	315
3. Field innovations.				
a. Incentive pay pilot plan	-	25	25	50
b. Para professional salaries, training and mobilization	20	50	320	390
4. Vehicles and equipment	200	-	150	350
Subtotal	<u>950</u>	<u>450</u>	<u>1,400</u>	<u>2,800</u>
<u>IV. Integrated Rural Development Secretariat</u>				
A. Technical Assistance				
1. Nutrition/Production Advisor	-	100	15	115
2. Short term consultants	-	50	10	60
B. Studies and Evaluations, including travel				
	100	25	100	325
C. Promotion of low cost technology replication				
	125	-	75	200
Subtotal	<u>225</u>	<u>175</u>	<u>200</u>	<u>600</u>
T O T A L	<u>1,800</u>	<u>900</u>	<u>2,300</u>	<u>5,000</u>

community and the private sector, to carry out major studies and analyses of key health concerns. Two of the initial studies already identified are: (i) the implication of the planned expansion of the IESS-Campesino program on the health system; and (ii) development of a national drug supply system. As many as eight other studies will be identified and carried out during the life of the project. Possible topics include: problems of decentralizing health administration; human resource needs assessments; cost effectiveness of supplemental feeding programs; drug and contraceptive distribution by paramedical personnel; and socio-cultural factors inhibiting the utilization of health services by indigenous populations; and methods for increasing community participation. Moreover, the NHC will also evaluate the impact of the low cost technologies to be demonstrated under the project.

The A.I.D. loan will provide \$50,000 towards the local costs of the task forces to be contracted for each study. The A.I.D. grant will finance approximately 12 person months of short term technical specialists with an estimated cost of \$100,000 to assist with the design of studies and analysis of the results. The host country contribution with an estimated value of \$100,000 will be in the form of GOE professional personnel assigned to the task forces and clerical and secretarial support.

This component of the project also will help the NHC carry out seminars and workshops which will bring the teaching faculties of Ecuador's four medical schools and senior officials of the MOH, IEOS and IESS together to identify key health issues and decide on appropriate ways to address them. Special attention will be given to the planning and execution of primary care programs and the economic efficiency and effectiveness of these programs relative to traditional service delivery models. These seminars will result in closer coordination between universities (the source of much of the sector's human resources) and operating agencies, and in a heightened sensitivity to the country's principal health problems (and cost-effective ways of addressing them) on the part of the universities.

The A.I.D. grant will provide \$40,000 to finance the participation of experts in the workshops and the international travel of Ecuadorean participants to visit successful primary care and health planning efforts in other countries. The loan will finance \$30,000 towards the local costs of organizing the workshops (e.g., in-country travel and per diem, publications of proceedings, etc.), with a matching NHC contribution in the form of management and logistic support for the workshops and seminars. In addition, the loan will finance \$20,000 worth of office equipment to support the work of the NHC (typewriters, reproduction equipment, audio-visual equipment, etc.). The estimated support for the GOE for supplies, materials, and office space is valued at \$30,000.

3. Ministry of Health (MOH), Loan: \$525,000; Grant: \$135,000;
Host Country: \$540,000

This component will strengthen the MOH at the national, provincial and local levels. Emphasis will be on the local level (i.e., the three IRD projects) with activities at the provincial and national levels focusing on support and replication of the local, area model, but including broad based management training in the planning and implementation of health programs as well.

a. Area level. The position of area health chief will be established by the MOH in the IRD projects of Salcedo, Quimiag-Penipe and Jipijapa, i.e., the same sites being assisted under the IRD-Agriculture project. Area chiefs will be responsible for all health activities in these areas and will serve as MOH's liason with the respective IRD project unit. Area chief responsibilities will include: integration of health activities into IRD program; supervision of all area health staff especially nursing staff; organization of in-service training, continuing medical education, and medical audit; supervision of referral, logistics, and communications systems; and preparation of budget and the allocation of funds to operating units. The area chiefs will be supervised technically by the provincial health chief and will receive logistical and administrative support and office space from the IRD project directors.

The establishment of these positions is crucial to the success of the area health delivery model. Therefore, to insure that qualified area chiefs will be available as soon as project implementation begins, PD&S funds are being used to send three prospective area chiefs to the Universidad del Valle in Cali, Colombia* for intensive, three month training courses in the planning, management and evaluation of primary health care programs. These courses will train the area chiefs to bring a public health (as opposed to medical) orientation to area operations and to improve the efficiency and effectiveness of area health services through better management of field activities and closer supervision and better training of health workers. They will also emphasize community participation in problem identification and resource allocation and will stress techniques for improving communication with the community. In addition, \$80,000 in grant funds will provide 12 person months of technical assistance for follow-up, in-service training and assistance in developing the area model.

* The Universidad del Valle offers one of Latin America's premier public health management programs with courses in primary health care which are the equal of any course taught in the U.S. It emphasizes multidisciplinary approaches, use of paraprofessionals and community participation. USAID and GOE officials visited the University during project design and found it ideally suited to the needs of the Ecuadorean health system. In addition, its proximity to Ecuador and the Spanish language curriculum make it an ideal choice for training area chiefs as well as other MOH personnel under this project.

To insure the timely establishment of these positions by the MOH, \$135,000 in loan funds will finance salaries and related costs (e.g., per diem) for the area chiefs in the three IRD projects, mostly in the initial years of project implementation after which the MOH will gradually assume all costs. Loan funds will also finance three utility vehicles for the area chiefs (\$35,000) as well as office renovation and equipment (\$15,000). Another \$25,000 of loan funds will be provided to send additional area chiefs to Cali during the second half of the project for the same three month course. This will facilitate replication of the area model in other IRD project areas and provide for possible turnover. Counterpart funding of \$245,000 will cover area chief salaries in the latter years of the project, vehicle operation and maintenance, and personnel to work with consultants.

The project will also finance a training program to develop a primary health care orientation among the health workers who report to the area chief. This in-service training will emphasize the basic preventive and promotive aspects generally lacking in medical and nursing school curricula. Some of these training needs will be met by the UNFPA project cited earlier and by USAID's proposed Family Planning project. UNFPA will finance a number of seminars, workshops, and courses on primary care for doctors, nurses, auxiliaries, and promoters. The Family Planning project will help establish four teaching/health centers in Quito and Guayaquil, where doctors, nurses and nurse midwives, as well as students in those same disciplines, will receive practical, on-the-job training in all aspects of maternal and child health, viz: prenatal delivery and postnatal care, immunizations, nutrition, disease control and prevention and family planning. The Family Planning component will be especially important since it is the most serious deficiency in the current training of these personnel. All training in these centers will be given by specially trained teams. This project will provide \$75,000 in loan funds to send 30-35 doctors, nurses and nurse midwives serving in the three IRD projects and their provincial level supervisors to eight-week sessions at these centers.

Additional training will be provided for auxiliary nurses in the three IRD projects since they were trained (often inadequately) in hospital oriented tasks rather than in primary care. USAID will draw on the experience of a pilot auxiliary training program recently developed with UNFPA funding by the Margaret Sanger Foundation, collaboratively with the MOH. The A.I.D. loan allocates \$45,000 to finance the attendance of approximately 30 existing and 10 new auxiliary nurses at rural health training courses. Consulting services for additional curriculum development and course evaluation will be financed with \$20,000 in grant funds. The host country contribution is estimated at \$80,000 to cover salaries of the trainees and MOH trainers and material preparation.

b. Province level. Since the area chief will be technically supervised by the provincial health office, the improvement of provincial management and planning capacity is important to the success of the area

model. It will also be an important resource for replicating the model in other areas. Accordingly, the project will fund two training packages.

The first will focus on analytical, organizational, and evaluative skills for the provincial health chiefs and their key staff. First, the provincial chiefs in Cotopaxi, Chimborazo, and Manabí (the locations of the three IRD projects) will receive the same three month course in Cali given to the area chiefs. These courses will be followed by short (8-10 day) in-country courses on problem identification and strategy development for the same provincial chiefs plus selected staff. Three additional provincial chiefs and staff will receive the same combination of courses during the second half of the project to facilitate replication of the area model in other provinces (Tungurahua and Guayas are possibilities) and to provide for any turnover due to promotions, etc. The second package will consist of short term, in-country modular courses of one to three weeks for other provincial staff in the three IRD provinces. These courses will stress administrative skills such as job design, organization unit design and coordination, as well as technical skills such as supply, logistics, information systems, statistics, purchasing and warehousing.

These training packages will be financed with \$50,000 in loan funds: \$25,000 for six courses in Cali and the balance for the subsistence costs of participants in the in-country courses. Consulting services to design and conduct the in-country programs will be funded with \$35,000 in grant funds. The GOE will contribute about \$75,000 to provide counterpart training personnel, supplies and salaries for trainees during the training period.

c. National level. Institution building components at the national level of the MOH are designed to complement the long term technical assistance being provided by PAHO under the IDB loan (i.e., administration and finance, decentralization to the provincial level of health services, health education and promotion of demand for health services, reporting systems, and community health nursing; short term advisory services in health facilities and equipment maintenance will also be provided). The principal gap that remains at the national level to be filled in this assistance is advanced training in health management and planning. Therefore, since this type of training is not available in Ecuador, \$130,000 in loan funds will be provided to send six employees of the Ministry of Health and two members of the health faculties of Ecuadorean Universities abroad for Master's level training. Six of these participants will attend the 18 month Health Administration program at the Universidad del Valle in Cali. The other two will be enrolled in programs in health planning and economic development similar to the one offered by the University of Michigan. (English language training will be provided as necessary). The GOE will contribute a matching amount for participants' salaries during the training period.

The project will also sponsor an executive seminar that will gather approximately ten high level MOH officials (and possibly

some key university faculty) to discuss health management and planning issues. The training will also be used to familiarize the MOH staff with the project and its objectives and to elicit their support of the area model. The first week of this seminar will be held at the Universidad del Valle with a subsequent week in Quito. The seminar will be financed with \$15,000 in loan funds with a GOE contribution of \$10,000 for participant salaries and logistical support for the follow-up work in Quito.

4. Ecuadorean Institute of Sanitary Works (IEOS), Loan: \$950,000; Grant: \$450,000; Host Country \$1,400,000

This component will assist IEOS to overcome ineffective organizational and managerial arrangements for implementing rural water and sanitation projects. It will also improve IEOS' capacity to test and replicate low cost WS/S technologies. Activities are planned at the national level of IEOS, which is responsible for planning, resource allocation and establishment of norms, and at the provincial level of IEOS which executes field activities. These institution building activities will provide an improved institutional capacity by improving coordination of rural WS/S programs, by facilitating the introduction of low cost designs and technologies and by transferring much of the responsibility for design, implementation and maintenance of rural WS/S projects to strengthened provincial directorates.

a. National level. The project will establish a rural water supply and sanitation coordination unit to coordinate rural activities and promote adoption of appropriate norms, standards, designs and technologies which will reduce costs of rural water systems. The coordination unit, which will directly respond to the Executive Director of IEOS, will unite currently disparate responsibilities for rural activities into one coherent program. The unit will coordinate and focus the planning, design, promotion, construction and maintenance of rural systems and will develop, and test alternative technologies and design modifications leading to cost reductions. It will also coordinate rural training and evaluation activities with the Technology and Evaluation Divisions of the Planning Directorate which are responsible for these activities. It will not, however, implement rural programs. Rather it will expedite the design and implementation of such programs through IEOS' existing bureaucratic structure. IEOS will staff the coordination unit with a chief, a deputy chief, an anthropologist, a health educator and clerical and secretarial personnel.

A.I.D. support for the coordination unit will be primarily in the form of technical assistance, long term training, studies, and equipment. Grant funds will provide the services of a sanitary engineer experienced in managing rural water and sanitation programs which utilize simple technologies and which emphasize health education. This advisor will work with IEOS to help establish and manage the coordination unit and will assist in developing and evaluating lower per capita cost

water and sanitation systems. Also, the advisor will promote, and, initially, help supervise the use of field level paraprofessional personnel to design and supervise construction of rural water systems. Finally, the advisor will assist IEOS to develop technical manuals, and to plan and implement training programs related to the design, construction and maintenance of rural water systems. The advisor will be provided through a PASA with the U.S. Public Health Service at a cost of \$250,000 for 36 months.

Long term training will include the staff of the coordination unit and other IEOS staff identified by the unit as instrumental in bringing about a more effective rural water and sanitation program. Long term training consists of master's level preparation for one health educator and for three IEOS engineers in planning, design and construction of low cost rural water supply and sanitation systems. For this purpose \$160,000 in loan funds are allocated based on an assumption of two years study at a U.S. university, including English. Cost savings may be achieved through training in third countries such as Colombia, in which case training will be provided for additional IEOS staff.

The development of the coordination unit also will be assisted through the financing of studies and field trials. These studies and field trials will test and evaluate specific low cost technologies to determine environmental and socio-economic acceptability and efficiency in a variety of situations, thereby enabling the coordination unit to make judgements and recommendations about wider applicability of the low cost technologies demonstrated under the field activities of this project; e.g., handpumps, flow regulators, robodevices, campesino toilets, etc. The loan will provide \$120,000 to cover the local costs (materials, supplies, contracts for technical services and construction, and travel and per diem of evaluation teams) and the grant will finance \$50,000 for short term consulting services of U.S. specialists to help with the technical appraisal of the results. * Five utility vehicles will be purchased with \$65,000 in loan funds to facilitate local transportation for the field studies and pilot field trials and to generally bring about closer contact and understanding of field problems (one of the vehicles will be assigned fulltime to the sanitary engineer advisor). Inadequate supervision and lack of contact between local and national level officials has been one of the most frequently cited reasons for the difficulties encountered in implementing IEOS rural programs. It is, therefore, vital

* In addition, two person months of technical assistance will be provided to this unit through the WASH project initiated by DSB/Health to evaluate IEOS' requirements for ADP equipment. Although the manual processing of all data and information has been recognized as a serious constraint to modernizing IEOS' overall performance, the precise ADP needs have not yet been identified. Therefore, A.I.D. will provide the technical assistance to analyze these needs to facilitate IEOS purchase with its own funds or perhaps with the assistance of another donor such as IDB.

that the coordination unit have the necessary mobility. Another \$10,000 of the loan will be used to procure office equipment for the coordinating unit (reproduction machine, desks, etc.).

The GOE will provide \$590,000 in counterpart funds to support the coordination unit. \$490,000 will cover staff salaries, supplies, operating expenses, vehicle maintenance and per diem. The remaining \$100,000 will finance salaries for those professionals receiving long term training.

b. Provincial level. Institutional development of IEOS at the provincial level is designed to permit field officers to play a greater role in the design, execution and maintenance of small rural projects. It will consist of: (1) in-service training; (2) establishment of a provincial level maintenance capability; (3) innovative efforts to bring about structural changes in IEOS field operations; and (4) filling critical equipment gaps in order to increase the efficiency of IEOS field staff .

(1) Training. The training under this component will be all short term and in-country. Training modules will be prepared which will be directed at improving performance of sanitary inspectors, health educators, engineers, promoters, system operators and administrative personnel, primarily at the provincial level, although training will also be provided to IEOS central headquarters staff and to representatives of other GOE and private voluntary organizations as appropriate. Training seminars will focus on topics such as project administration, community motivation, and the utilization of low cost water and sanitation technologies. The coordination unit will work closely with the training staff of IEOS in identifying the specific training needs and in developing the modules. The mid-level training course developed in the Caribbean by Carefoot and Austin will provide a partial basis for the course design. The A.I.D. grant will finance \$75,000 for approximately ten person months of short term consultants to identify specific training requirements, develop a detailed training plan, and to assist with course design and testing. The A.I.D. loan will finance \$20,000 for procurement of audio-visual equipment and other training materials while \$75,000 will be allocated to contract Ecuadorean and foreign health and sanitation training experts to supplement IEOS own training staff during the first years of the project. The Campesino Training Institute (supported by A.I.D. Grant 931-1054) is expected to provide training assistance to IEOS in areas such as human relations and community motivation. In addition, the A.I.D. loan will provide \$160,000 to establish a fund to help cover the local costs of in-country training, i.e., travel to the training site and per diem while in training. The host country contribution to the training activities amounts to \$120,000 of which \$80,000 covers the salary costs of IEOS trainers and participants and classroom facilities and materials for the short term in-country training, and \$40,000 represents IEOS' contribution to continue the training fund in the last year of the project.

(2) Maintenance. In addition to the training activities, IEOS will establish a two person maintenance unit in each of the three provinces where A.I.D. supported IRD projects are located. These units will work with the local Juntas de Agua to perform preventive maintenance and make emergency repairs on water systems, including aqueduct systems and handpumps. The WASH project will provide two person months of technical assistance to help establish these units and to evaluate their operation. Loan funds will finance the cost of three mobile repair shops which will be used by the units. The shops will be mounted on small trucks or vans adapted to accommodate the maintenance equipment. Spare parts and maintenance supplies will be included. The estimated costs for these items is \$120,000, but savings may be possible if U.S. excess property is available. The host country contribution of \$195,000 is for the salaries of the maintenance unit personnel and operating costs for the mobile shops.

(3) Field Innovations. Significant reductions in IEOS field costs can be achieved through appropriate measures. A principal constraint is that low salaries paid to professional engineers mean that they either move quickly to the private sector or take on additional work, given the ready market for engineers in the rural areas, in order to increase their earnings. Such moonlighting is common in many Latin American countries. The result is that problems of IEOS field projects do not receive the attention by experienced personnel needed for prompt solution. Thus, the construction time of WS/S projects often is double or triple reasonable expectations with resulting cost increases. The project will test two institutional innovations on a pilot basis which, if feasible, should ameliorate, though not eliminate, this constraint. The first is an incentive pay plan. The second is the utilization of paraprofessionals to carry out simple project design and construction supervision activities which are currently carried out by civil engineers.

The incentive pay plan, which will be tried on a pilot basis in either Chimborazo or Cotopaxi province, is similar to an incentive plan which was successfully used in Argentina's rural water supply program.* In essence, the plan will provide bonuses to all provincial personnel according to the percentage of pre-determined objectives completed within a specified time period. In addition a petty cash fund financed by IEOS, will be available to overcome potential bottlenecks caused by delays in the normal procurement process, or by lack of gasoline, per diem, etc.

* This was an IDB financed project in the 1970's. The PAHO Engineer who designed this scheme, recently served several years in Ecuador and developed a report on this plan as part of the project design effort. See Annex VI, Exhibit C.

The time required to build a small rural water system may be reduced from the current 12 to 18 months to six months using this incentive plan. The grant will provide \$25,000 to finance the pilot activity while IEOS will match this amount. WASH funds will be used to provide one person month of technical assistance which will evaluate the pilot program and study the feasibility of nation-wide implementation of an incentive plan. Should the incentive plan prove to be administrative-ly feasible on a national basis it would provide additional cash benefits to IEOS employees and thus enhance IEOS' ability to maintain qualified personnel on a fulltime basis. Successful application of the plan would also improve IEOS' capacity to implement rural programs and would actual-ly reduce the total cost per system built by cutting the time required to complete each one.

The second approach to alleviating the low salary con-straint is to utilize paraprofessional personnel. IEOS over-reliance on highly trained engineers to design and implement what should be rela-tively simple rural projects is symptomatic of an organization with the high cost technology bias earlier noted. The utilization of paraprofes-sionals such as those being trained by Agua del Pueblo in Guatemala will not only reduce IEOS' requirements for engineers but will also help to shift IEOS away from its dependence on high cost technology. IEOS will train and place at least ten paraprofessionals in Chimborazo and Coto-paxi provinces during the first year of the project.*

The A.I.D. grant will provide \$50,000 to cover the cost of intensive training of the ten paraprofessionals by Agua del Pueblo. The training will emphasize the design and construction of relatively simple, unsophisticated types of water systems appropriate to Ecuador. The A.I.D. loan will finance ten 175 cc motorcycles (including spare parts) at an estimated cost of \$20,000, to be used by the paraprofes-sionals. A source/origin waiver for motorcycles of Japanese manufacture has been included in Section IV. The estimated host country contribution is \$270,000 for the salary costs of the paraprofessionals and \$50,000 for the operation and maintenance of motorcycles.

(4) Vehicles and Equipment. A second major constraint on field level operations is lack of adequate logistical support for provincial level personnel. In order to overcome logistical bottlenecks IEOS provincial offices in Cotopaxi, Chimborazo and Manabí will receive the minimum amount of equipment and vehicles required to implement rural water supply and sanitation activities in the three IRD areas. Topogra-phy, drafting, water-testing and audio-visual equipment will allow provincial offices to design and more effectively promote rural projects while six four-wheel drive pick-ups and three 2 1/2 ton four wheel drive

* Manabí province is excluded because much of the WS/S activities there are not handled by IEOS. In the Jipijapa IRD area, water supply activ-ities will focus entirely on hand pumps and wells and will be implement-ed by the Junta de Recursos Hidráulicos de Jipijapa.

trucks will facilitate construction of the water and sanitation systems. Two pic'c-ups will be assigned to each of the IRD sites and will provide transportation of engineers, tools and limited amounts of materials. One truck will be assigned to each IRD project and will transport cement, pipe and other materials from storage depots to construction sites. The total cost of equipment, vehicles and spare parts procurement is \$200,000, all of which will be loan funded. The host country contribution of \$150,000 will cover vehicle operation and maintenance costs.

5. Integrated Rural Development Secretariat (IRDS), Loan: \$225,000; Grant: \$175,000; Host Country: \$200,000

This component will improve the IRDS' capacity to deal with health/nutrition concerns by providing resources to: (a) support the studies and analyses envisaged by the Ecuadorean Food and Nutrition Project (PAE) and (b) promote replication of those health activities found to be most cost effective in this project in other IRD areas.

a. PAE

The IRDS' sponsorship of the PAE provides a unique opportunity to address nutrition problems at the highest levels of the GOE (i.e., the Presidency) and from the multi-disciplinary perspective that these complex questions requires. Although the PAE is still in its formative stages, USAID believes that it is a potentially important force for moving nutrition concerns to the forefront of policy issues and has programmed project funds to facilitate its further development and to assist in the execution of its ambitious program.

One of the IRDS principal concerns is how to design agricultural interventions to increase production in ways that assure improved nutritional status. Therefore, the PAE initially will conduct studies of the relationships between production/distribution/consumption patterns and nutrition in the three IRD project areas. The results of these studies will be used to design agricultural/nutritional interventions to effect the desired improvements. Meanwhile, the PAE will collect baseline information on health/nutritional status in the same three areas to measure such changes subsequent to project implementation.*

The precise scope of studies to be undertaken is not available given the newness of the PAE. USAID expects to draw in technical assistance from DSB/N (e.g., the Nutrition Survey and Surveillance Project) to help develop the scopes of these studies and formulate the detailed implementation plan. In addition to specifying and scheduling

* Health and other interventions in the IRD areas will also improve health and nutritional status and the same baseline data will be used to measure the combined effects of both health and agricultural interventions.

studies to be conducted, this plan will define the role of ININMS and other GOE agencies in executing the studies identified.

PAE will utilize \$100,000 in loan funds to enter into agreements with ININMS, the Chimborazo Polytechnical University, and possibly other Ecuadorean research organizations to participate in the design and conduct of the studies. By supplementing their regular operating budgets with marginal costs necessary for this work (e.g., interviewers, transportation, per diem, and overtime), the PAE will be able to direct greater attention of these entities towards rural sector problems. Moreover, in the process, these same organizations will be developing their own capacity to carry out this type of research beyond the project period. An additional eight person months of short term technical assistance and one year advisor will be provided through \$150,000 in grant funds. The short term consulting services will assist in the design and/or analysis efforts requiring special expertise not locally available. The Nutrition Planning IQC will be one of the sources used to obtain the short term consultants. The long term advisor will concentrate specifically on the design, implementation and interpretation of the production/nutrition studies noted above. The IRDS will maintain close contact with the National Health Council in planning these studies to avoid overlap between the efforts of the NHC and the PAE. In addition to supporting specific studies to be executed by PAE, USAID will provide \$25,000 in grant funds for PAE staff and task force members international travel to observe rural nutrition programs in Mexico, Brazil, Chile, and/or Colombia and to attend conferences on the nutritional aspects of rural development. The GOE will contribute \$125,000 in the form of salaries for task force personnel and office space and logistic support for the long and short term consultants.

b. Replication of Appropriate Health Technologies

One of the project's principal objectives is the eventual replication of cost effective health measures throughout Ecuador. This objective will be achieved partly through provincial health chiefs' supervision (observation) of A.I.D. financed field activities in the three IRD projects, and by the technical assistance and training provided to the national level of the MOH and IEOS. In addition, the loan will provide the IRDS with \$125,000 to utilize the innovative, low cost technologies to be funded as field activities in the three A.I.D. assisted IRD projects in other IRD areas. It is especially important that these technologies be incorporated as soon as possible in other donor financed projects where external funding encourages high cost solutions. Illustrative uses of these funds are presented below.

(i) Handpumps (500 at \$150 each)	\$ 75,000
(ii) Plastic faucets (robovalves)	
5,000 at \$1.50	7,500
(iii) Campesino toilets (2,000 at \$15.00)*	30,000
(iv) Disinfection devices and oralyte	12,500
	<u>\$125,000</u>

* Estimated cost of toilet fixture, locally manufactured.

These funds will serve a vital function in overcoming the existing resistance to "sub-standard" facilities and technologies that is strong enough to preclude funding for these activities in regular budgets. (There is only one significant source of funding for light capital solutions to rural development problems in Ecuador: FODERUMA, the Central Bank's soft loan/grant window for marginal campesinos, which generally operates outside of IRD projects). This component, then, would provide the IRDS with an important and otherwise unavailable resource for replicating the low cost innovations provided by the project. The GOE will contribute \$75,000 in the form of salaries of personnel involved in the demonstrations and operating costs.

C. Field Level Demonstration Activities

Field activities will be supported to implement the model delivery system in three IRD projects: Salcedo and Quimiag-Penipe in the central sierra and Jipijapa on the coast. Although the model will be basically the same in for all these sites, the sierra has marked cultural and environmental differences relative to the coast, and it is crucial that the model be implemented in all three areas to provide sufficient experience for national replication.

The Social Soundness Analysis contained in Annex IV describes the project setting and target group with emphasis on health conditions. Additional descriptive material regarding agricultural activities of these areas is provided in USAID's Project Paper for IRD-Agriculture Project, Loan No. 518-T-038. Also, the Diagnósticos of Salcedo, Quimiag-Penipe and Jipijapa prepared by the GOE provides even greater detail; copies of all these are available in LAC/DR files.

1. Primary Health Care (PHC), A.I.D. Loan: \$870,000; Host Country: \$630,000

This component will finance a multifaceted program of primary health care supportive of the decentralized rural health delivery model and responsive to the need for more effective health services, within the three IRD projects. The objective of PHC activities of this project is to increase the health service coverage of the population by improving the services currently being offered, increasing the demand for and utilization of health care services, and providing for meaningful community participation. This objective will be achieved through: (a) support for community based primary care efforts; (b) special primary care programs addressing priority health problems in the IRD projects; and (c) filling of gaps in health infrastructure. These activities will be coordinated and managed by the new area chiefs being established for each of the three IRD projects.

a. Community based PHC Activities

One of the National Development Plan's principal objectives is to increase community involvement in development programs. In

health, this is best achieved by primary care programs which provide services most often needed by the community, delivered by community members and most readily adaptable to substantive community involvement. Accordingly, community based health promoters will be incorporated as a basic feature of the area delivery model to extend coverage to currently under-served rural populations. Promoters will be community based, part time, paid workers. They will have a high school education, eight weeks of formal training, will conduct extensive educational and prevention activities, and will provide limited curative services.

Within the IRD context, health promoters will serve as one of the specialized group of community contact agents described in USAID's IRD-Agricultural Paper (p. 19). They will work closely with these other contact agents affiliated with IRD projects. This collaboration will be important in conducting community surveys, organizational activities and educational programs. To the extent the promoters are campesinos, they may receive basic training in community organization and development that will be provided to campesinos by the Campesino Training Institute being assisted under a separate A.I.D. project. Equally important, in terms of coordination with the Institute, is the fact that the knowledge gained under this project about the rural population's nutrition and health practices and needs can be utilized by the Institute in developing its educational materials and programs.

Each promoter will be responsible for about 600 persons; this will increase system coverage in the three IRD projects by over 20,000 people. They will contact each member of their community two to three times a year - a substantial increase in the number of contacts between community members and trained health workers. Referrals to health facilities should increase substantially as a result of these contacts.

Health promoters will be technically supervised and re-supplied by an MOH auxiliary nurse at the nearest health post. Administratively, however, they will be responsible to a local community organization which will pay their salaries. These salaries will be paid from a monthly grant of 2,300 sucres from the MOH to participating communities. However, each community will decide for itself how this money will be spent. For example, if a promoter is highly valued or works longer hours, s/he may receive the entire 2,300 sucres. In other communities, part of the money might be set aside for medicines or supplies, health post construction, or some other need related to health. Preliminary studies indicate that 34 promoters are needed in the three IRD project areas: 10 in Salcedo, 12 in Quimiag-Penipe and 12 in Jipijapa. However, given the extreme importance of community recruitment and selection of promoters, final sites will be identified during project implementation. \$120,000 in loan funds will finance promoter training and salaries on a declining scale during the initial years of the project. Salaries will be increasingly assumed by a counterpart contribution of \$100,000 in the final years of the project.

In addition to health promoters the project will fund three other components to increase community involvement in primary care. These activities must be developed with the active involvement and participation of the communities. However, based on an understanding of community needs to date, the following three community based components have been identified as most representative of the activities to be financed: a traditional midwife training program, community botiquines (drugstores), and a school volunteer health promoter program. A total of \$60,000 of loan funds are allocated to support these activities. The GOE's counterpart contribution will total \$20,000.

(1) Midwives. Given the fact that most births continue to be attended by midwives, it is essential that the area model include this community health resource. Communities in the three IRD projects will be surveyed to discover the prevalence of traditional midwives, their popularity, and their interest in receiving training to upgrade their skills. Two week training courses (several per project area) emphasizing asepsis and antisepsis, family planning methods and the recognition and referral of high-risk pregnancies will be offered to communities where interest is sufficiently high. Community leaders will be expected to help locate midwives, provide training sites and help organize the courses. Each midwife will receive a kit containing basic supplies upon completing the course. Resupply will be through the botiquines described below. The loan will finance the travel and subsistence costs for up to 75 participants and their trainers, preparation of training materials and supplies. These costs are estimated at \$15,000 (exclusive of the kits, which are included in the equipment component described in Section c. below).

(2) Botiquines. Community run botiquines, attached to MOH health posts and subcenters, are extremely popular in the few places where established. They offer an effective solution to one of the MOH's most frequent logistical problems and causes of clients complaints: the inadequate supply of medicines. While it is important not to over-emphasize the curative aspects of health care services, world-wide experience in primary care programs has shown that if minimal demand for medicines is not met, the credibility of preventive efforts is considerably weakened.

The project therefore, will establish 40 botiquines in the three IRD projects. Generally, they will be in towns which have either a subcenter or a health post, but community participation in their operation will be emphasized. The community will appoint a local administrator (possibly a promoter). Where possible, the botiquín might be located in places other than inside the subcenter or health post. MOH personnel will train the administrator in how to keep records and dispense and reorder drugs. Drugs would not be issued without prescriptions issued at local MOH facilities.* The loan will provide \$30,000 for cabinets and display cases, minor construction or physical improvements, and an initial stock of equipment and supplies. The GOE will contribute \$10,000 for medicines and training for community leaders.

* Oral rehydration salts and other generally unrecognized over-the-counter drugs will not require a prescription.

(3) School Health Volunteers. A school health promoter program will be implemented on a pilot basis to extend outreach services by involving the schools in community health. Students will be trained to provide health promotion and sanitary education, as well as to refer patients, especially pregnant women and pre-school children, to MOH facilities for treatment. Each student will be responsible for a few families in his neighborhood and will be given an identification badge and referral coupons. They will periodically (e.g., biweekly) turn these into their teachers who will contact the local health auxiliary or doctor. Supervision of the program will be accomplished through periodic visits or health educators working with the IRD project who will also train teachers at the outset of the program.

Since this concept is untried and will require extensive cooperation between the MOH, the Ministry of Education and local teachers, it will not be implemented until the third year of the project. It will cost \$15,000 in loan funds for supplies/equipment and training/organization of teachers. The GOE will contribute \$5,000 for training personnel.

b. Primary Care Programs

Four special programs will be implemented or strengthened in each of the three IRD projects. These activities were selected on the basis of the severity and prevalence of health and disease problems. While all of these activities (except goiter control) are currently a part of the MOH's regular program, they either receive inadequate resources or they are implemented vertically rather than as part of an integrated delivery system. The project will provide the resources required to strengthen these priority programs and ensure their integration into the model delivery system.

(1) Diarrheal Diseases Control. Diarrheal diseases and accompanying acute dehydration are the leading causes of death in Ecuador, especially among infants and small children. While oral rehydration has proved effective in over 90 percent of all cases, it continues to be an underutilized technology. Intravenous rehydration is the usual method of treatment but is more costly (and therefore less accessible) and carries significant risk of hepatitis. Ecuador has recently initiated a national diarrheal disease control program using Oralyte rehydration salts; so far it is operating in only one of the three provinces with A.I.D. financed IRD projects, Chimborazo, but has not progressed beyond training seminars for doctors. A.I.D. will provide \$40,000 in loan funds for Oralyte, training and educational materials, technical assistance, and approximately 10 seminars for health personnel, teachers and community members to implement this program in all three IRD projects. Observational travel to other LDCs with successful programs will also be financed as part of this \$40,000 component. The MOH will contribute \$20,000 in the form of training staff, logistic support, and supervision.

(2) Immunization Program. Ecuadoreans continue to suffer from high rates of morbidity and mortality from diseases which can be

prevented by immunization. As part of WHO's world-wide effort to immunize all children against the common preventable diseases by 1990, the MOH has initiated an Expanded Program of Immunization (EPI) in twelve provinces over the last four years. EPI provides vaccination against polio, measles, diphtheria, pertussis (whooping cough), tetanus, and tuberculosis. However, the program to date has concentrated on provincial capitals and their urban fringes, and only a small minority of rural children have thus far been vaccinated. A.I.D. will provide \$30,000 in loan funds to finance needles and syringes, refrigerators and training to strengthen the program in the three IRD project areas. The MOH will contribute \$10,000 for vaccines and personnel. These measures, plus the utilization of promoters to administer vaccinations, should result in 80 percent coverage of children under five by the completion of the project.

(3) Goiter control. In the Quimiag-Penipe area, an extremely high prevalence of goiter and accompanying cretinism requires a comprehensive program of control and prevention. The project will finance two responses to this problem. First, a mass campaign providing iodized oil injections to persons 14 and under will be implemented. These injections will provide three to five years protection, during which time permanent solutions to the problem will be explored.* This campaign will be conducted by the MOH and will be coordinated with the Expanded Program of Immunizations. Second, USAID will support studies of how to increase the consumption of iodized salt and reduce the consumption of goitrogenic foods (e.g. cauliflower), the economic, physiological and cultural factors associated with goiter and the feasibility of iodization of food or water supplies (i.e., it may be possible to fortify food supplements with iodine). ININMS and the Chimborazo Polytechnical University will probably conduct these studies under contract with the IRDS. The mass campaign and the studies will be financed with \$40,000 in loan funds. The GOE will contribute \$25,000 in the form of salaries and laboratory analysis.

(4) Health Education. Health education will be an integral component of all primary care programs and a major function of health promoters as well. However, given the importance of educational efforts, additional education interventions are necessary to complement other education programs planned by various GOE agencies participating in IRD. In addition, the Campesino Training Institute will also communicate technical information to campesinos. Specifically, the Institute will help promote latrine construction by including convincing information on their desirability in its leadership training courses. The MOH will assign a special assistant health educator to each of the three IRD projects to design and supervise health education activities generally and advise the Institute on health education components of its training programs. While a full time educator assigned to an area the size of Salcedo or Quimiag-Penipe would not be economically feasible, it is feasible to add such a person to the provincial staff and assign him/her half time to the project. This would significantly improve the quality of local health education efforts (there is currently only one provincial

* A national salt iodization program exists but is apparently ineffective in this area. Injections will provide an immediate response while the iodization program is being improved/modified.

level educator in each IRD province who spends little time in the field) and strengthen the links between educational activities in health and other IRD projects. A.I.D. will provide three vehicles and audio-visual equipment for these educators. (See c. below). The MOH will contribute about \$55,000 in salaries for the time they will spend in the three IRD projects.

c. Infrastructure and Equipment

The project will fill critical gaps in the health infrastructure in the three IRD projects by constructing and equipping a modest number of subcenters and health posts, providing limited amounts of transportation and communication equipment, and renovating two training centers.

(1) Health posts and subcenters. The IDB is currently financing the construction of up to 70 health subcenters and 300 health posts throughout Ecuador. Some of the proposed sites are in the same provinces where the three A.I.D. supported IRD projects are located. After consultation with the IRDS and the MOH, USAID decided not to pursue IDB participation in these projects given the high costs of the facilities to be constructed under the IDB loan. Both the MOH and the IRDS have agreed to use USAID funds to demonstrate the adequacy of lower cost facilities. The IRDS will contract municipal boards to construct these facilities which, due to their simple design and emphasis on local materials and community labor, will cost about half as much as facilities normally constructed by IEOS. The IRDS will encourage IEOS' observation and comments during construction so that the advantages and disadvantages of this approach can be fully examined.

Seven new health posts and six subcenters will be constructed under the project. Three of the health posts will replace inadequate structures currently rented or borrowed by the MOH. Similarly, five of the subcenters will replace inadequate facilities. Based on estimated current costs of \$12,000 for health posts and \$27,000 for subcenters, a total of \$330,000 in loan funds and \$340,000 in counterpart (land, voluntary labor, salaries for new personnel) will be allocated to construct and staff these facilities. The subcenters will be 27 x 6 meters and will include a space for a physician's residence as well as offices, examination rooms and storage space. They will be pre-fabricated steel frame structures with asbestos cement (painted) roofs. Health posts will be of similar construction, but only 9 x 6 meters in size. In both cases the community will be responsible for constructing floors, walls, partitions, etc. and fencing off the land. (See Annex VII for detailed cost estimates and plans).

The project will equip all posts and subcenters constructed. In addition, the project will also equip the 12 multipurpose community centers funded under USAID's IRD-Agricultural project, thus permitting their use as health posts pending the construction of permanent

facilities by the MOH. This will include beds, desks, chairs, file cabinets, sterilizers, examination tables and storage lockers. (A complete equipment list, appears in Annex VII, Exhibit B, Table B.2). The loan will provide \$120,000 towards the local procurement of these items. An additional \$25,000 in loan funds will be provided to upgrade equipment at existing facilities in the three IRD projects. Finally, medical kits for midwives, promoters, auxiliaries and physicians will be procured at a cost of \$10,000 in loan funds. The GOE will contribute \$10,000 in drugs for all facilities constructed.

(2) Transportation and Communications. Four of the health posts to be established in community centers in Quimiag-Penipe will not be permanently staffed; rather they will be attended by an itinerant team operating on a regular schedule. The project will provide a carry-all type vehicle for this team. The assistant health educator for Chimborazo province will form part of the team and will share in the use of this vehicle while additional vehicles will be purchased for the educators in Cotopaxi and Manabí. A total of \$35,000 in loan funds will be provided to purchase these vehicles; the GOE will contribute \$30,000 for their operation.

Telecommunication links between health posts, subcenters and hospital health centers are nearly non-existent in the project areas, thus complicating administration, supervision and emergency referrals. Communications problems will increase with the addition of promoters to the system. Missionary groups working for 25 years in Ecuador have had success with portable radios and, in recent years, promoters trained under the USAID OPG with MAP have successfully utilized and maintained battery operated radios costing approximately \$650 each. Given the implications of establishing a large radio communications network within the MOH, a small scale test project will be funded. Radios will be provided to health promoters, health posts, subcenters, hospital health centers and area chiefs in the Salcedo and Jipijapa IRD projects. Quimiag-Penipe will serve as a control and will not receive radios. Some 45 radios will be loan funded at a cost of \$35,000, including installation. The evaluation of the effectiveness of the radios can be undertaken as one of the studies of the NHC.

(3) Training Facilities. Facilities in which to conduct training courses for health promoters, auxiliary nurses and other personnel are generally not available in rural areas, and space has to be rented in larger towns. To remedy this situation, the project will provide funds to renovate and furnish two old MOH hospitals in Bahía (Manabí Province) and Baños (20 minutes from the Quimiag-Penipe IRD area and one hour from Salcedo). Both hospitals have been replaced by newer structures and, with minimal remodeling, furnishing and equipping, could be converted into training centers. USAID will provide \$25,000 for refurbishing these facilities. The host country contribution is estimated at \$20,000 for the on-going maintenance and operation. These facilities will serve not only the training needs of the IRD projects but also those of large areas of

the coast and central sierra.

The summary budget for the primary health care component is provided in the table below.

Table 2
Primary Health Care
(US\$000)

<u>Activity</u>	<u>A.I.D. Loan</u>	<u>Host Country</u>	<u>Total</u>
A. Community Based PHC Activities			
1. Promoters	120	100	220
2. Other (e.g., midwives, botiquines volunteers)	60	20	80
Subtotal	180	120	300
B. PHC Programs			
1. Diarrheal disease control	40	20	60
2. Immunization program	30	10	40
3. Goiter control	40	25	65
4. Health education	-	55	55
Subtotal	110	110	220
C. Infrastructure and Equipment			
1. Health posts and subcenters			
a. Construction (includes 14% inflation)	330	340	670
b. Related equipment	155	10	165
2. Transportation and communications	70	30	100
3. Training centers	25	20	45
Subtotal	580	400	980
TOTAL	870	630	1,500

2. Water Supply and Sanitation A.I.D. Loan: \$2,500,000;
Host Country: \$3,300,000)

Rural water and sewerage activities to be undertaken under the project have two objectives. First, they will provide a significant portion of the population of the three IRD projects with access to water and sewerage facilities. Second, they will promote the adoption of the low cost technologies, revised system designs and streamlined institutional arrangements necessary for IEOS to install such facilities nationwide.

a. Water Supply

The project will fund two types of water supply systems: simple gravity flow aqueduct systems and wells with handpumps. Gravity systems will predominate in the sierra where springfed water sources at high elevations are common while wells and pumps will be installed in coastal areas. (Some wells and pumps will, however, be installed in the sierra while no gravity systems will be built on the coast.) The gravity

flow systems, which will use lower cost construction technologies than current systems, will be built using paraprofessionals to design and supervise construction of the systems. Community participation will play an important role in the construction of these systems. A.I.D. handpumps, designed by Battelle Institute and tested by Georgia Institute of Technology will be used in the installation of shallow wells. Detailed information on both gravity flow systems and handpumps, including cost analyses, is provided in the Technical Analysis (Section III.A and in Annex VII.)

In Salcedo, seven regional springfed gravity flow aqueduct systems will be built to serve 13 communities. Fifty excavated wells with handpumps will be installed in areas where systems are not feasible for technical or economic reasons - generally in communities with less than 150 people. Approximately 14,200 persons will be provided with potable water in the Salcedo IRD project.

In Quimiag-Penipe, nine new gravity flow systems serving 14 communities will be built. Eight will be springfed. The gravity systems to be built in Quimiag-Penipe will generally be smaller than those constructed in Salcedo, but will utilize the same general design. In addition, thirteen existing but inadequate or contaminated systems will be improved and/or expanded. These 22 systems will supply water to 9,400 residents of Quimiag-Penipe. Twenty hand-dug wells with handpumps will serve an additional 1,200.

In Jipijapa, only excavated wells with handpumps will be installed. Up to six hundred thirty wells serving almost 38,000 persons will be dug in 119 small rural communities. The larger population centers, including the cantonal capital and the parish cabeceras, either have rudimentary water systems or will begin constructing systems during 1981. The installation of the wells and handpumps will be coordinated through the Junta de Recursos Hidráulicos, an autonomous subregional entity concerned with all aspects of water usage in the cantons of Jipijapa and neighboring Pajan. The Junta as well as private groups, including campesino run cooperatives will implement the program.

About 49 percent of the end-of-project population (estimated at 126,600) of the three IRD projects will be provided with potable water under the project, up from seven percent at present. The total cost of providing these services (excluding adjustments for inflation) will be about \$2,458,000, of which A.I.D. will finance 50 percent, the GOE 30 percent and the communities 20 percent through labor or in-kind contributions. The average per capita cost in 1981 dollars will be about \$75 for gravity systems and \$22 for wells and handpumps.

b. Excreta Disposal Systems

The project will provide latrines and pour-flush, water seal toilets (bacinetes campesinos) in the three IRD Project areas. Both are individual dwelling solutions and the type to be used in any particular

community will depend on the degree of its development, and access to water. USAID estimates that 36 percent of excreta disposal units will be campesino toilets (which will be installed only where there are household water connections) while 64 percent will be improved pit latrines. (See the Technical Analysis for a description of both these systems).

Social feasibility assessments will be made in each community where construction of excreta disposal systems is proposed to determine the probable degree of acceptance of either latrines or campesino toilets. These facilities will be built only in communities where there is a high probability that they will be used. In all communities where sanitation systems are installed, intensive community education as to their importance will be conducted both before and after installation.

About 1,900 latrines and toilets will be installed in Salcedo, 500 in Quimiag-Penipe and 3,200 in Jipijapa over the life of project. Loan funding will be provided for slabs, toilets and other materials. Total cost for all 5,600 units will be \$1,170,000 of which USAID will provide 30 percent, the GOE 20 percent, (primarily for promotion and education) and the communities 50 percent in the form of voluntary labor and materials. Latrines will cost \$200 per unit while campesino toilets will cost \$230. (These costs include relatively high inputted costs for construction of wooden sheds. To the extent that sheds are built from less expensive materials such as cane, the cost will be much less.)

c. Community Participation in the Construction, Operation and Maintenance of Water and Sanitation Facilities

Community participation is a key element in the provision of water and sanitation as well as other services in all IRD projects. Although communities eligible for services have been identified and preliminary studies carried out, IEOS and the IRD project unit will sign agreements with those communities interested in obtaining water prior to final design and execution of the project. IEOS has developed standard agreements for this purpose which specify the roles and obligations of all parties in system construction, operation and maintenance. Based on these formal agreements, communities will establish Water Administration Boards (Juntas Administradoras de Agua) to coordinate community participation in system construction and to operate the systems and supervise the water use. These boards, which may be part of an existing community organization or newly established entities, have been successfully implemented in most rural systems built since 1979.

Annex VI, Exhibit B, discusses community water boards in more detail. Each community will provide at least 20 percent of the total cost of the facilities. Its contribution may be in the form of local materials, labor, land, transportation or cash. More importantly, community members will be expected to make major decisions about the type and location of water and sanitation facilities to be installed. IEOS will be responsible for obtaining non-local materials and equipment and for providing technical direction for projects implemented under a direct administration arrangement. Although certain specialized items such as

storage tanks, intakes, filters, etc., may be contracted out, most construction will be done by the communities. The operation and routine maintenance of the water systems will also be the responsibility of the communities through community water administration boards. The boards collect water tariffs, hire personnel to operate and perform routine maintenance on the systems and purchase supplies. They will also accumulate a financial reserve to pay for repairs or to finance system expansion.

d. Summary Budget for Water and Sanitation Field Activities

A summary budget for water and sanitation field activities is presented in the following table. More detailed breakdowns of expenditures for WS/S activities are presented in Annex VII.

TABLE 3
WS/S SUMMARY BUDGET (\$000)

<u>Component</u>	<u>A.I.D.</u>	<u>Host Country</u>	<u>Total</u>
I. Gravityfed Systems	1,170	1,170	2,340
II. Shallow wells/Handpumps	680	680	1,360
III. Excreta Disposal	<u>650</u>	<u>1,450</u>	<u>2,100</u>
TOTAL <u>1/</u>	2,500	3,300	5,800

1/ Includes inflation adjustment of 14 percent per year

2/ Includes community contribution

3. Nutrition, Loan: \$220,000; Host Country: \$220,000

Given the multi-sectoral origins of nutrition problems, the project will address this issue on several fronts. First, many of the primary care and water/sanitation activities described above are also important nutrition interventions. Clean water and an effective oral rehydration program will reduce the prevalence and severity of diarrheas -the principal infections inhibiting the body's efficient utilization of food. The goiter studies in Quimiag-Penipe will contribute to the eventual solution of one of the sierra's most glaring nutritional disorders. Nutrition will be emphasized in all health education activities as well. Second, the project will fund one component of USAID's short term strategy for supplementary feeding in Ecuador. The MOH's current Leche-Avena program is targeted on one of the most nutritionally vulnerable groups in Ecuador, and a more effective supplementary feeding program will improve the nutritional status of mothers and young children nationwide. Third, the project will fund pilot activities to be sponsored by the Ecuadorean Food and Nutrition Project (PAE) to increase the availability of nutritious foods in the three IRD project areas. These last two components are described in detail below.

The Leche-Avena program is the principal component of the MOH's efforts to improve nutrition in Ecuador. It is also an important means of attracting people to MOH facilities for health education, immunizations and other health services. The GOE has both short and long term

concerns regarding supplementary feeding in Ecuador. Over the short term, the MOH must improve the operation of the current program in the three IRD provinces. The principal problems in this regard are an extremely unreliable packing machine at the Ministry's processing plant which significantly retards production of Leche-Avena, a lack of vehicles to transport Leche-Avena from provincial capitals to local health facilities, lack of equipment for measuring height and weight and for health education, inadequate warehousing facilities, and poorly trained staff. A new packing machine provided through an OPG to CARE is currently awaiting installation. Three 2 1/2 ton trucks and anthropometric and educational equipment will be provided under a planned Food for Peace Outreach Grant to CARE and warehouses will be improved by the MOH. The loan will provide \$50,000 to develop and conduct training courses in Chimborazo, Cotopaxi and Manabí. These courses will subsequently be given by the MOH in other provinces.

Courses will be provided for all provincial and local level staff connected with the program in Chimborazo and Cotopaxi. In Manabí, with its considerably larger area and population, only provincial staff and local staff of the Jipijapa IRD project will be trained. Three 2-3 day courses each will be given in Chimborazo and Cotopaxi while one course will be given in Manabí. Topics covered will include program procedures and record keeping, proper use of equipment, storage and preparation of Leche-Avena and health education. Training costs to be covered by USAID are estimated as follows:

• Short term technical assistance (1 person/month) for curriculum development	\$7,000
• Preparation of training materials	6,000
• In-country transportation to training site (100 participants at \$20)	2,000
• Per diem during training (7 workshops x 2 days at \$25 x 100)	<u>35,000</u>
TOTAL A. I. D.	\$50,000

The GOE will contribute about \$35,000 for the costs of the MOH trainers, salaries of participants during their training, rental value of training facilities and improvements to warehouses.

These short term improvements are desirable in their own right but are also vital to the satisfactory evolution of a long term strategy for USAID support to supplementary feeding in Ecuador. Such a strategy is only partially formulated at present. On one hand, USAID intends to promote Ecuadorean self-sufficiency in supplementary food production by complementing Andean Pact assistance in the development of a replacement for Leche-Avena based on locally grown rice/soy and milk. A \$22,000 extension of CARE's food processing OPG has been requested for

this purpose. On the other hand, decisions must eventually be made on how (or indeed whether) to support the program after the new food is developed. Future GOE requests in this area are likely to relate to fairly substantial assistance in manufacturing and distributing the new food on a large scale; a thorough evaluation of the program will be necessary to inform these types of decisions. One of the NHC studies will be to conduct such an evaluation, possibly through ININMS. However, the program must be working properly for any evaluation to be valid.

This evaluation would focus on the program's operational effectiveness/efficiency (i.e., whether the product is reliably supplied to beneficiaries in a manner that makes the best use of available resources) and operational and nutritional efficacy (i.e., whether it is properly consumed by beneficiaries whose nutritional status improves as a result). The program's nutritional effectiveness/efficiency (i.e., whether the product is a nutritionally sound formulation relative to other formulations with differing costs) is discussed in the Technical and the Economic Analyses.

b. Pilot Activities to Improve Access to Basic Foods

The principal vehicle for expanding agricultural production and incomes in the three IRD projects is the previously approved agriculture project. However, the IRDS is concerned that increased production may not lead to improved nutrition in light of existing food marketing and distribution patterns. These problems will be more precisely defined by the production/distribution/nutrition studies to be conducted by the PAE; this component of the project will provide \$150,000 in loan funds to implement pilot activities expected to have nutrition impacts. The precise nature of these activities cannot be defined until the PAE effort is more advanced. However, an illustrative list is presented below. All of these activities will be implemented on a small scale (probably not more than \$25,000 per activity per area) and will not necessarily constitute definitive, comprehensive solutions to production-nutrition problems. They are intended as experiments to help the IRDS to develop the institutional capacity and processes for designing effective larger scale nutrition interventions in the future. The IRDS will involve other ministries and agencies as appropriate in the execution of these activities.

(1) Community managed outlets for basic foods

To the extent that production increases are marketed through existing intermediaries, it is reasonable to assume that these intermediaries will capture a share of the increased output. For example, many farmers are chronically short of cash for essential purchases and are forced to sell their crops to outside buyers before harvest and at low prices. This results in an exodus of food from poor communities and decreases the incomes available to campesinos to purchase food not grown on individual farms. One of the IRDS' concerns, therefore, is to increase the campesino's effective purchasing power by developing local purchasing/

marketing outlets for basic foods. These outlets would be about 25 m² in size and would be located in rural communities of less than 1,000 people where organized comunas are willing to assume administrative and operational participation of the Ministry of Social Welfare. They would sell food on a cash basis, but would also extend credit to community members considered credit-worthy by the comuna. Overdue and uncollectable accounts would be reimbursed from the comuna's own funds. Operating procedures would be established in written agreements between the comuna and the IRD project director.

Up to \$50,000 in loan funds would be used to construct eight of these outlets - e.g., four in Quimiag-Penipe and four in Jipijapa - and to provide an initial inventory. Foods not produced locally (iodized salt, fortified flour, noodles, oils, etc.) could be procured through ENPROVIT, Ecuador's public marketing chain for basic foods. This inventory would form the outlets' basic working capital; proceeds from sales would be used to replenish stocks. Local communities would provide about \$4,000 in land, voluntary labor and operating costs per outlet. The GOE would provide about \$80,000 in short term credit to set up a revolving fund with which comunas could lend money to community members for purchases pending the harvest and sale of their crops. (Some of these crops would be re-purchased by the outlets and stored at the local storage centers described below.) These centers would thus enable farmers to sell their crops at harvest (for more money) and still purchase sufficient food on credit in the meantime. Local incomes and the availability of food would increase as a result. Although Quimiag-Penipe is to receive five marketing centers under the agriculture project, these centers are intended to market produce in urban areas and do not duplicate the outlets described here. (Opportunities for integrating both sets of activities will be pursued during implementation. (e.g., it may be possible to distribute some agricultural inputs through the outlets.)

(2) Local Food processing and storage centers

Another factor restricting the availability of foods in rural areas is a shortage of storage and processing capacity necessary to reduce post-harvest losses. The IRDS has, therefore, proposed the construction of local facilities to process and store local produce. Approximately \$20,000 would be provided to construct and equip two such facilities. Communities would provide about \$4,000 in land, voluntary labor and operating cost for each. These facilities would be small (about 35 m²) and would be provided with basic equipment for drying, grinding, weighing, packaging and storing grains and legumes for local consumption. In Quimiag-Penipe (which borders on a major vegetable growing region and currently produces limited amounts of fruits and vegetables), the feasibility of small-scale canning (e.g., in glass jars) would be explored. Finally, the centers would serve as warehouses for storing bulk purchases of food made by the outlets described above. Farmers could sell to these outlets at a higher price than to outside buyers with high transportation costs, avoid post-harvest losses by selling directly and quickly to local outlets and contribute to a year long supply of locally produced foods in their commu-

nities through use of these facilities. The Ministry of Agriculture's (MAG) Campesino Development Division would be involved in the design and implementation of this activity.

(3) School feeding

Another way of improving the efficiency of local agricultural production and consumption would be to utilize local produce in the GOE's school feeding program. In Salcedo, for example, food is purchased in Latacunga and trucked into the area for distribution. While it would obviously be advantageous for local farmers to sell their produce directly to the GOE for this program, the Ministry of Education has preferred to deal with more established urban markets. \$25,000 provided through the IRDS to local education authorities in Salcedo and Jipijapa (total \$50,000) would finance a pilot program utilizing local production. Subsequent expansion of such a program could increase farmers' income considerably in these areas. The GOE would contribute about \$30,000 for supervisory and technical staff from the Ministries of Education, Health, and Agriculture and for cooking/serving facilities.

(4) Development of Local Weaning Foods

Approximately \$30,000 would be required in conjunction with central funds to procure technical assistance and related working capital to develop local weaning foods in several remote communities not served by the Leche-Avena program. This pilot would constitute an alternative for future support should the evaluation noted on indicate a change in USAID supplementary feeding strategy. In any event, since the MOH's regular supplementary feeding program will not serve the entire population for a number of years, development of local weaning foods could fill an important gap. The GOE would contribute approximately \$15,000 in technical assistance through ININMS and the MAG.

The above listing is not meant to be a comprehensive one. Additional activities are likely to be identified and added as implementation progresses. However, USAID considers it important to be able to provide the IRDS with minimal resources to begin implementation of innovative programs suggested by the PAE studies as a logical follow-on to its support for the development and execution of those same studies. For each activity the IRD would enter into an executing agreement with the Ministry or entity to carry out the work. The availability of long and short term technical assistance to the IRDS in the design and execution of these studies under the institution building component assures that the nutritional focus of each pilot activity will be well defined. Moreover, USAID prior approval of any pilot nutrition activity using more than \$25,000 of project funds will be required under the Project Agreement.

III. PROJECT ANALYSES

A. Technical and Engineering Analysis

The two major components of the project are analyzed in terms of technical feasibility of implementation: (1) techniques and approaches to the creation of institutional capacity within the MOH and IEOS; and (2) appropriateness and feasibility of the area model field activities in primary care, water and sanitation and nutrition.

1. Feasibility of Institution Building Techniques

Institutional development activities within the MOH will require the creation of an area level administrative capacity within the MOH structure. World health organizations such as WHO, PAHO, and leading health management consultants all recommend that day to day management of health services should be decentralized as far as possible. The current MOH structure is not effectively decentralized, even at the provincial level, while local level services are fragmented and personnel are inefficiently utilized. Creation of a full-time, qualified, administrative staff at the IRD project (area) level will enable much greater and more effective decentralization of planning, supervision, logistics support, data utilization and community participation. Decentralization is technically feasible provided that the area level be given adequate transportation, supplies, and support services as well as sufficient autonomy and responsibility for decision making in selected matters. The project contemplates these requirements and has made provision for the necessary vehicles, staffing, supplies, training, warehouse facilities and legal and administrative changes required. Even prior to project approval, three area chiefs are being trained (through PD&S funds) to begin organizing the area level administrative model in the three A.I.D. supported IRD projects. A proposal for changes in MOH administrative norms and regulations to further support the area model is currently being developed. Meanwhile, at the provincial level, technical assistance on the development of manuals, regulations, training needs, supervision, information systems, etc. is already being provided by PAHO to the MOH through a \$584,000 IDB grant.

Institutional development within IEOS is a major element of the entire project, representing \$1.3 million, or approximately 20 percent of all A.I.D. financed expenditures. The strengthening of the provincial offices as well as the creation of a rural WS/S coordination unit directly under the IEOS Executive Director, with authority to monitor and coordinate planning, design, construction and operations in the rural areas are both technically feasible. They will strengthen IEOS implementation capability and permit coordination of rural development

activities without the trauma of major reorganization. The PASA sanitary engineering advisor has competency in organizational matters as well as innovative field level implementation actions.

The work of the IEOS provincial level and the rural WS/S coordination unit's staff will be facilitated through a comprehensive training program for technical and professional staff at all levels. The innovative pilot incentive plan (See Annex VI, Exhibit C), will ensure higher staff morale, lower turnover, significant cost savings for IEOS by rapid execution of works, and a consequent increase in public support and confidence. It has been implemented in Argentina where it has been proven technically feasible. The provision of all the necessary ingredients of an improved implementation capability (i.e., adequate staffing levels, logistics support, a maintenance program, technology development and data processing support), will ensure that an effective rural WS/S program within IEOS is technically feasible.

2. Feasibility of Field Activities

a. Primary Health Care

The project will support the implementation of an Integrated Rural Health Delivery System model which will emphasize a primary health care (PHC) , approach to rural health problems. A.I.D.'s Health Policy calls for such an integrated health delivery approach (see A.I.D. Health Policy Paper, Feb. 1980). State of the Art studies of health delivery clearly support implementation of the PHC approach*. Key elements of the PHC approach are: (1) utilization of health paraprofessionals for increasing community outreach ; (2) incorporation of lower cost, more appropriate health service delivery technologies; and (3) low cost health facilities to facilitate access.

(1) Utilization of paramedical personnel

The stress on community outreach through the use of paramedical personnel with minimal training (such as the promoters empirical midwives and nurses to be trained in this project), to implement key elements of the PHC program is fully consistent with WHO's findings that some 60 percent of all health care problems of rural areas in developing countries can be adequately handled by an auxiliary or paramedical health worker with less than three months training. By achieving the health service coverage increases and morbidity/mortality reduction which are possible through the health promoters scheme, major changes in health status can be expected. In Colombia for example, more than 2.5 contacts/person per year using promoters has been readily achieved.

* See "Alma Alta Declarations on Primary Health Care," Alma Alta World Conference on PHC, 1978, sponsored by UNICEF and WHO, and WHO "Health for All by the Year 2000."

These paramedical personnel are intended to be an integral and essential component of the Integrated Rural Health Services Delivery System. Three elements may be identified which are critical to the successful utilization of paramedical personnel. These are: (1) acceptance by the community; (2) appropriate training and (3) substantial integration of the paramedical personnel into the health services delivery system.

Community acceptance will be achieved primarily by permitting the community to select community members for the paramedical posts. Suitable training programs for paramedical personnel, which have already been developed in a number of countries, can be adapted to Ecuador. Pilot programs in training of promoters, funded by UNFPA and by A.I.D. under the MAP OPG, and of nurses auxiliaries, funded by the Margaret Sanger Foundation, are currently being refined and will provide the basic curriculum for much of the paramedical training. The integration of the paramedical personnel into the delivery system is more difficult to achieve. It requires a clear understanding of their role by the paramedicals themselves and by their supervisors. It requires that physicians and other supervisory personnel have positive attitudes toward and accept the role of the paramedical personnel. The project, as well as the Family Planning and UNFPA projects, will devote substantial resources for training programs for health planners, provincial directors and area chiefs, which will include components on the role of paramedical personnel in the implementation of the IRHDS model.

The major alternative, i.e., the extension of health services through an expansion of the rural physicians program, has been demonstrated to be an inefficient means of health services delivery (See Social Soundness Analyses, Annex IV). It is much more expensive to implement (on a per contact basis) and, often, delivery of curative rather than preventive services is stressed. The utilization of paramedical personnel is a technically feasible and appropriate solution.

(2) Health Service Delivery Technologies

The principal technologies proposed for prevention, control and treatment to be implemented as part of the PHC model in the three IRD projects are appropriate responses for the major diseases in these areas, and can be administered by paramedical and auxiliary personnel. These technologies include immunizations against leading communicable diseases, diarrheal disease control through oral rehydration, a comprehensive goiter control program (the latter for Quimiag-Penipe), and health and nutrition education. Detailed estimates of costs have been made for carrying out these PHC programs (See Annex VII, Exhibit B.1).

All of the IRD projects will be incorporated into the national Expanded Program of Immunization (EPI). EPI is a world-wide WHO sponsored activity and includes comprehensive immunization against measles, diphtheria, pertusis, tetanus and tuberculosis. Training, vaccines, and essential cold chain components (i.e., refrigeration) are already contemplated in GOE plans. The project will ensure that the necessary resources to advance the program in the three IRD areas are in place.

A national Diarrheal Control Program has also begun and is based on the well tested methods of provision of oral rehydration via oralyte, a packaged product supplied by UNICEF. (Although a local rehydration solution prepared at home may also be feasible, the market for rehydration salts appears too small for local manufacture of such a product.) The project will ensure that local level staff in the IRD projects are adequately trained for participating in this program.

The technology for iodizing salt is already in place in Ecuador, but consumption of this salt is limited for economic and cultural reasons. This factor, combined with high consumption of goitrogens in foods, produces high rates of goiter and cretinism in some parts of the sierra. A massive campaign to administer iodized oil injections, which provide three to five years of protection, will be carried out in the Quimiag-Penipe area where endemic goiter is severe. This is the most cost-effective control technique for such areas according to a recent WHO technical report. During this period, studies of how to permanently increase iodine consumption in the area will be conducted.

(3) Health Facilities Construction

(a) General Characteristics

A small number of health facilities will be built in the three IRD areas as part of the PHC program to be implemented in these areas. These facilities (subcenters and posts) will use new designs and construction techniques which will greatly reduce their construction costs compared to the standard subcenters and posts being built by the MOH. They will provide a more appropriate physical environment for health care delivery as well as more opportunity for community involvement. A.I.D. is financing the construction of these facilities in the expectation that the GOE will, based on this experience, modify the designs of health facilities to be constructed under future programs financed by other donors.

Reductions in the construction costs for subcenters and posts will be achieved through a more rational use of interior space of the buildings which permits the construction of smaller facilities.

through the use of a low cost pre-fabricated metal rather than a reinforced concrete superstructure and through construction by direct administration rather than by contracts which will permit utilization of significant amounts of voluntary community labor and of locally available building materials. Simple designs and construction techniques which minimize specialized supervision and skilled labor requirements and emphasize community participation will be used. Health facilities construction in each IRD project will be coordinated by the IRD project unit.

(b) Health Subcenters

The health subcenters to be built in the IRD project areas will have a waiting room, a general examination and treatment room, and rooms for obstetric-gynecological procedures and hydration treatment as well as doctors, nurses, and administrative offices. A small residence which include a living dining area, two bedrooms, a kitchen and a bathroom is also a part of each subcenter.

The subcenters basic structure will consist of a pre-fabricated steel frame structure which measures 27 x 6 meters, and will include beams, columns, an asbestos cement roof, windows and doors as well as concrete anchors for the structure. (See detailed plan in Annex VII). This basic structure, which will cost \$11,000, can be easily erected without specialized labor in two weeks or less. Plumbing and wiring requirements are simple and can be done by local plumbers and electricians. Upon completion of the basic structure, the community will be responsible for masonry and finishing work, i.e., laying the floor, constructing exterior and interior walls, and fencing the land. The cost of the finished building will be \$27,000, a less than one-half of the current construction cost (\$60,000) of the MOH standard health subcenter design.

(c) Health Posts

Modifications in the design of health posts will also result in significant reductions in construction costs. Particularly innovative will be the incorporation of health posts as part of multipurpose community centers to be constructed under the IRD Agriculture project. Based on extensive joint program planning between the IRDS and the MOH, it has been determined that most health posts which are technically justifiable under the project for Salcedo and Quimiag-Penipe can be incorporated in the community centers program. (In Jipijapa there are virtually no investment funds available in the IRD Agriculture project, which will preclude this solution there.) These posts will consist of an area of 40 to 50 square meters, which will include a waiting room, examination room, and a bathroom which is built as an integral part of the community center building. Twelve health posts will be built in multi-purpose community centers.

In addition to the community center/health posts free-standing health posts will be built in seven communities in which community centers will not be built. These posts will be built by direct administration using the same type of pre-fabricated elements as in the subcenter construction. The posts will be 54 square meters in size including space for an auxiliary nurse's residence (See plans in Annex VII). These posts will cost \$12,000 compared to \$20,000 for a health post of the standard MOH design.

b. Rural Potable Water and Sanitation Activities

(1) Introduction

The major engineering activities in this component of the project will relate to the planning, design, and construction of small rural community water supply systems. Shallow wells with hand-pumps and simple excreta disposal systems, e.g., improved pit latrines and campesino pour-flush (or water-seal) toilets will also be installed under the project.

The potable water systems, shallow wells and excreta disposal facilities which will be constructed will use known technologies. In the Salcedo and Quimiag-Penipe IRD project areas simple gravity flow aquaducts will be used since the topography is appropriate for these types of systems. The water for these systems will be taken primarily from springs. According to the degree of concentration of the beneficiary populations it will be distributed through household connections with meters or through water units consisting of a faucet, laundry, toilet and shower. In more isolated areas of Salcedo and Quimiag-Penipe with small population concentrations excavated wells with handpumps will be used. Although cost reducing design modifications will be made in these systems, the technologies to be used are simple and are known to IEOS. Adequate water sources primarily springs, are available within these IRD projects in locations where it is technically possible to deliver it to the beneficiary population.

In the Jipijapa IRD project there are greater constraints on the technical feasibility of water delivery. The flatness of the terrain combined with relatively limited rainfall which occurs only in the months of December through March mean that there is little surface water available and, consequently, there is a dearth of springs or superficial water sources which could be utilized in gravity flow systems. The proximity of this project to the seashore and the special type of soil found there (expansive clay) mean that it is difficult through not impossible to find good quality subterranean water sources in the project area. Technically feasible options are electric or fuel pumped water systems and shallow wells in which handpumps are employed. The dispersed population of the area and the need to bring water over long distance make the use of pumped water systems prohibitively expensive. Therefore shallow wells will be used to provide water in the Jipijapa area.

(2) Gravity-Flow Aqueduct Systems

(a) Design and Construction

The gravity fed systems can be delineated for analytical purposes* into four sub-types which are representative of the characteristic of rural systems in Ecuador. These are: (G-1) Gravity Systems fed by a spring to service a concentrated population; (G-2) Gravity system fed by a spring to service dispersed populations; (G-3) Gravity system fed by a superficial source (creek, river, irrigation canal), to service a concentrated population; and (G-4) a gravity system using a superficial source to service a scattered population.

The G-1 systems may consist of some or all of the following elements: spring catchment, water line (spring to storage tank), chlorinator, storage tank, distribution system and household connections with meters or with flow regulators. The G-2 system consists of a spring catchment, water line (spring to storage tank), storage tank, distribution system and water units (standpipes, showers and laundry area). The G-3 system includes a surface water catchment, a water line (catchment to storage tank) a dynamic filter and/or a slow sand filter, chlorinator, storage tank, distribution system and household connections with meters or flow regulators. The G-4 system has a surface water catchment, sand filter, water line (catchment to storage tank), distribution system, and water units. The transmission and distribution lines will consist of PVC tubing. IEOS is currently using locally manufactured PVC pipe with satisfactory results. Catchments, storage tanks and filter structures will be built using reinforced concrete blocks. The water purification measures, e.g., chlorinators, slow sand filters and sedimentation tanks, will only be installed when coliform, turbidity and/or color levels exceed revised IEOS standards for safe water.

These water systems are similar to those with which IEOS has had recent experience. However, the project systems will be significantly lower cost than systems currently built by IEOS (See Section III-A.3.b.(2)) as a result of design modifications in catchments, water lines, and distribution tanks. These design modifications have been proposed by a professional sanitary engineer who has extensive experience in construction of low cost water systems and are based on designs for aqueduct systems currently being built in Panama under A.I.D. Loan 525-U-045. Also, reductions in IEOS overhead will be achieved by using trained paraprofessionals rather than civil engineers for most design and construction supervision tasks.

* These sub-types were identified and analyzed by Ing. Gonzalo Medina "Proyecto de Sistema de Entrega de Salud Rural Integrado: Saneamiento Rural USAID, DS/HEA, OTD No. 24, Contract No. AID/D5PC-C-0080. Pumped water systems which must be installed in some coastal areas are also analyzed in the Medina report but are not included here since they are not financed under the project.

Modifications (reductions) in current design standards which are currently being evaluated by IEOS will further reduce system costs by reducing the number and type of the purification measures built into the systems without significantly affecting the quality of water supplied to the users.

In the gravity systems for concentrated populations, household connections will be installed. This decision which adds \$60 - \$160 per connection (\$12-32 per capita) is based on IEOS recent promising experience with the installation of household connections with water meters in communities where Water Administration Boards (Juntas Administradoras de Agua) have been established. Despite the additional initial installation costs the utilization of household connections with flow regulators or meters will control wastage of water by regulating the volume of water available or by allowing water user charges to be collected based on the amount of water consumed. Household connections will utilize the robovalve plastic faucet which has been developed under an A.I.D. contract with Georgia Institute of Technology and which will be manufactured by a local manufacturing firm. This faucet, which has an initial cost one third that of conventional faucets, is long lasting with low maintenance requirements, and is self closing to reduce water wastage. IEOS has also recently used flow regulators on an experimental basis and will continue to test these in this project.

Gravity systems for dispersed populations will use water units, consisting of a faucet, laundry area, toilet and shower or standpipes rather than household connections.

(b) Operation and Maintenance

The potable water systems which are built under the project must be adequately operated and maintained in order to provide adequate supplies of potable water. Two factors are of key importance in this regard. These are: (1) design characteristics, which minimize the need for substantial operation and maintenance efforts, and (2) an institutional mechanism adequate to carry out operation and maintenance procedures when needed. The use of spring fed gravity flow aqueduct systems which reduce the need for purification and filtration measures and do not use electrical or fuel operated pumps will minimize the need for maintenance, although some systems will require chlorination and/or filtration. In these cases, continuous maintenance will be required. Also, where water meters are used, a repair and maintenance capability will be required. The Water Administration Board will serve as the institutional mechanism to carry out system operation and maintenance functions such as chlorination (See Annex VI). Major system repairs as well maintenance and repair of water meters will be carried out by IEOS provincial level mobile maintenance units.

(c) Cost Analysis

In order to assist IEOS and USAID to analyze the impact on costs of modifications in current designs and standards, average system characteristics have been derived for each of the four sub-types of gravity system (See the Medina report) and are detailed in Annex VII. IEOS current average costs, based on presently utilized designs, for the four sub-types of gravity systems are presented in Column 1 of Table 2 in Annex VII, Exhibit B.2. Construction costs of systems to be built under the project are presented in Column 2 of the same Table. These latter costs range from 30 percent lower (for G-4 systems) to 54 per cent lower (for G-3 systems) according to the subtype of gravity system built.

These cost reductions are based on simple design modifications and a reduction in IEOS' overhead from 25 percent to 15 percent as a result of using paraprofessionals rather than civil engineers in most design and supervision activities. Further cost reductions could also be expected to result from the modifications of IEOS' construction standards which are now being reviewed. The cost reductions which are expected as a result of relatively minor design modifications, imply a significant increase in the number of families which can be served with a given budget without reducing the quality of service provided. Per capita investment costs for these systems, which currently range from \$117 to \$205 including overhead will be reduced to a range of from \$70 to \$93. While these per capita costs are still somewhat high relative to A.I.D. financed water systems in other Latin American countries (e.g., Panama, Guatemala) they will be within the same order of magnitude and are similar to those of the systems to be financed under the Honduras Rural Water and Sanitation Project.

Operating costs of water systems will vary as a function of the treatment required and of the type of delivery system. Systems which require treatment of the water (filtration and/or chlorination) will require more cash outlays. In addition to costs for chemicals these systems generally include a paid part or full-time operator to add chemicals and clean filters. These costs range from \$240 to \$1800 per year for a system operator (\$0.15 - \$0.95 per capita) and \$0.35 - 70 per capita for chlorine. On an average cost basis the extra annual operating costs for water treatment are approximately \$0.58 per capita.

(3) Shallow Wells with Handpumps

(a) Design and Construction

Shallow wells with handpumps will be used

to provide water to communities in Jipijapa and, to a lesser degree in Salcedo and Quimiag-Penipe, where construction of aqueducts is not feasible for technical or economic reasons. Generally these will be small communities with less than 150 persons or, in Jipijapa, communities which have no ready access to springs or surface water sources which can be tapped by gravity flow systems. Shallow wells which have an average depth of 10 meters (maximum 30 meters) and a diameter of 1.5 meters will be excavated by hand. Each well will serve up to 10 families. The wells will be sealed with a concrete well cap and lined as necessary with brick, concrete or other appropriate material. In addition to the standard large diameter (1.5 meter) hand excavated wells, somewhat deeper but smaller diameter (6"- 8") wells may be dug in Jipijapa. A campesino federation in Jipijapa is using a hand-operated auger to drill small diameter wells which are then lined with PVC pipe.

The exact number of families served by each well will depend on the degree of population concentration. Community participation will be paramount in the determination of community interest in having potable water, location of wells and the number of families served per well.

The handpump which will be installed on these wells is the A.I.D. handpump designed by the Battelle Institute and modified by Georgia Institute of Technology. Field testing of an Ecuadorean manufactured version of this handpump has been initiated under a small A.I.D. contract. While the final results of this field test will not be known for several more months, the experience with locally manufactured versions of the pump in Costa Rica, Nicaragua and elsewhere has been sufficiently positive that utilization of these pumps is planned.

(b) Maintenance

Maintenance is an essential factor in the successful operation of handpumps. The A.I.D. handpump reduces or eliminates many of the problems associated with many other handpumps (e.g., cap and pivot arms breakage). Also local manufacture of the pump will allow easier access to spare parts when needed. Nevertheless, routine maintenance is mandatory. In Salcedo and Quimiag-Penipe, IEOS paraprofessionals, backstopped by mobile maintenance units, will work with communities to maintain pumps. In Jipijapa the Junta de Recursos Hidráulicos will assume primary responsibility for working with communities but will receive technical support from the IEOS provincial level mobile maintenance unit.

(c) Handpump/Shallow well costs.

The installation of shallow wells, including handpumps, is estimated to cost \$1,300 for manufacture and installation for excavation, lining and capping a 10m well when reinforced concrete is employed as the well lining. This cost is expected to be lower where soil conditions permit the use of less costly well lining materials. The locally manufacture handpump will cost \$150. The investment cost is approximately \$22 per capita. The estimated annual maintenance cost per capita is low (0.15 - 0.20) but maintenance must be performed to keep the wells operational.

(d) Excreta Disposal Systems

The loan will finance the installation of low cost excreta disposal systems. Although a large variety of excreta disposal systems exist ^{1/}, two basic types are employed in rural Ecuador, pit latrines and campesino water seal (pour-flush) toilets. Both types will be installed under the project. They will be built in communities where efforts by MOH promoters and IRD project promotional personnel have resulted in positive responses by the community toward their utilization.

Pit latrines will be constructed in areas where there is no ready access to water, i.e., where there are no household water connections. Each family will have a latrine. These pit latrines consist of a concrete slab, ceramic or wooden toilet fixture and a 10' section of 4" PVC pipe which are provided by the GOE. The toilet and concrete slab will be placed over a hole approximately 3' x 3' excavated by the recipient family. The pipe will be installed as a vent. The family will also be responsible for building a shed from locally available materials, generally wood. The cost of the pit latrine is \$200. Including the inputed costs of a wooden shed, as well as inputed labor and promotional costs contributed by community members and the GOE.

Campesino toilets will be installed where families have easy access to water, i.e., where there are household connections. The construction is similar to that of a pit latrine except that the toilet fixture is not placed directly over the pit but is connected to it by a short length of PVC pipe and no venting is required. Families may build a shed outside the house or place the toilet indoors according to their own preferences. The cost of the campesino toilet is \$230, including the additional cost of the ceramic fixture and the PVC pipe as well as the same inputed costs as for the pit latrine.

1/ Cf. John M. Kalbermatten, et al, Appropriate Technology for Water Supply and Sanitation, V.11; A Sanitation Field Manual, World Bank, 1980

c. Nutrition

This section discusses the nutritional effectiveness/efficiency of the supplementary feeding program. Questions of nutritional efficacy and operational effectiveness, efficiency and efficacy will be addressed in the evaluation. Given the lack of baseline information on the nutritional gaps which Leche-Avena or a substitute product actually has to fill, an assessment of the effectiveness of either is somewhat problematic. The planned baseline studies will eventually provide the data necessary to make more informed judgements in this regard. In the meantime, less reliable information will have to do. In 1975, the National Planning Board (CONADE's predecessor agency) established the following average nutritional deficits for population groups now served by the Leche-Avena program as follows:

	<u>Calories</u>	<u>Protein</u>
Pregnant woman	450	12.2
Lactating woman	486	14.7
5 year old malnourished child	297	5.8
1 year old at-risk child	216	4.7

Leche-Avena provides about 382 calories and 22 grams of protein per 100 grams of product. Assuming an increase in rations as currently planned by the MOH, Leche-Avena would fill these deficits as follows:

<u>Beneficiary</u>	<u>% Leche Avena Represents of:</u>	
	<u>Calorie Gap</u>	<u>Protein Gap</u>
Pregnant woman	113%	231%
Lactating woman	105%	195%
5 year old child	129%	366%
1 year old child	177%	451%

However, while Leche-Avena obviously provides plenty of protein, even the planned increases in rations might not provide sufficient calories for all mothers and older children. This is due to the fact that the percentages cited above are based on average nutritional deficits while the low-income people participating in the program almost certainly have higher than average deficits. How much higher nobody knows. Therefore, it may prove necessary to increase rations above the planned levels for some participants to fill whatever actual gaps are eventually identified. Although increased consumption could prove a problem for small children (who can't 'hold' as much), it will probably not cause any difficulties for the mothers and older children for whom the increased rations would be necessary.

Although essentially a question of operational effectiveness to be dealt with in detail during the evaluation, initial studies conducted during project design* indicate that the MOH's processing capacity is sufficient to produce these extra rations for current beneficiaries and expand the number of beneficiaries as well. (Installation of the new packing machine should significantly increase production at no cost to the MOH.) Based on the MOH's capacity to produce Leche-Avena in quantities sufficient to fill currently known nutritional gaps, USAID concludes that the current product is an effective vehicle for addressing nutritional problems in Ecuador.

It is a nutritionally efficient vehicle as well. The Callier study cited earlier compared the calorie/protein/fat content of 20 alternative formulas for an uncooked cereal/soy/milk blend which could be produced at the Ministry's processing plant. Leche-Avena ranked higher than 15 of them in the content of all three ingredients and higher than three others in 2 out of 3.

A new lower cost product, currently under development by a food technologist contracted by the Andean Pact, may replace Leche-Avena within a few years. This product will be based on locally grown rice and soy plus milk. While the exact composition of this new food has not been determined, rice/soy/milk blends are generally lower in calorie/protein fat content. Therefore increased rations or additional protein/fat supplementation may be necessary when the new food becomes available. Improved health education regarding the consumption of local foods high in protein and fat should fill any protein deficits that cannot be overcome by increased rations, and USAID therefore regards the probability of the new product's nutritional effectiveness as high.

*Callier, F. "Ecuador Trip Report, Nov 3-19, 1980". On file in LAC/DR/HN.

B. Institutional and Administrative Analysis

1. National Health Council (NHC)

The NHC was officially created by Executive Decree February 8, 1980. This decree spells out the organization functions and role of the NHC, closely following the lines suggested in the 1980-84 National Development Plan. The Council is made up of 13 representatives from various public and private organizations: Minister of Health, chairperson; Ministry of Social Welfare; Director of the Social Medicine Department, IESS; Director General, MOH (secretary); Representative from CONADE; Chief of Military Health, Armed Forces; Executive Director of the Guayaquil Welfare Board; President of the National Red Cross; President of the Ecuadorean Cancer Society (SOLCA); Representative of the Association of Ecuadorean Medical School Faculties; President of the National Federation of Doctors; President of the National Federation of Dentists; and Representative of the Public Health Employees.

Major functions assigned to the NHC include national health policy and plan development, providing guidance in the development sector, technical and administrative norms designed to harmonize and coordinate the functioning of sector institutions, and preparation of studies to assist decision making regarding the future organization of a national health system and eventually a national health service. To carry out its policy and planning functions, the Council is charged with advising the MOH on national health policy. It is also to establish guidance for national health plan development, as well as participate in the execution and evaluation of this plan.

After the Council's creation in early 1980 only four meetings of the Council were held, and no budget existed to provide a permanent Secretariat. Following a Presidential decision in early 1981 to activate the Council, an Executive Secretary was appointed, a budget established, three technical Committees formed and internal by laws approved. The Executive Secretary is a Ministry of Health employee, who will be on loan to the NHC, ensuring close coordination with the MOH. The Council's initial budget of some \$80,000 will be funded by equal contributions of the MOH and IESS. This will pay the salary of the Executive Secretary, an administrative aide, a few research personnel, technical committee expenses and minimal office supplies.

Technical Committees will be made up of Council members or their delegates. The three technical committees formed thus far include a Pharmaceutical Supply Committee, a Rural Health Committee and a Nutrition Committee. The latter will be initially concerned with the coordination of rural health efforts of IESS and MOH. In recent months these committees have been active.

Given the relative newness of the NHC, it is too early to analyze in depth its organizational strengths and weaknesses. However, the actual implementation responsibilities of the NHC under the project are relatively few and uncomplicated. A small number of technical studies must be defined and contracted, but project funded external technical assistance will be provided to help with this process. Minor equipment purchases for NHC offices will be procured through the MOH, so no procurement capability within the Council is required. Finally, the seminars and workshops to be conducted under NHC auspices will be largely organized and conducted with the help of outside technical assistance.

Politically, the NHC appears to have all the support necessary for its effective operation. The new Minister of Health appointed in early May has shown enthusiastic support for the Council. Furthermore, with the assumption of the Presidency by Osvaldo Hurtado, the architect of the Development Plan which urged the Council's creation, it is expected that the political support necessary for making the NHC an effective national health policy and planning body is assured.

2. Ministry of Health (MOH)

A management assessment of the MOH was conducted during project design, by a three person team of health management specialists, under the auspices of the DSB/RAD contract with Association of University Programs in Health Administration (AUPHA)*. Particular attention was given in the diagnosis to the current management constraints that plague effective health delivery (i.e., human resources development, supply problems, logistics information and supervision) and how these might be addressed through effective decentralization. The institutional inadequacies of the MOH were confirmed and more precisely pinpointed. The project emphasis on strengthening the MOH through area level management and in management training at all levels closely parallel the recommendations which flow from this assessment.

Although the MOH was officially created in 1967, numerous other public health agencies (including the US/Ecuadorean Health Servicio which functioned as the de facto Ministry of Health from 1942 to 1964) were created prior to that year. As a result, the MOH remained a fragmented institution until 1972 with autonomous central and provincial boards and no real decision authority. In 1972, it was restructured to centralize authority in the National Directorate of Health, which was moved from Guayaquil to Quito. The first national health plan was promulgated in 1973. In 1976, the structure of the MOH was significantly expanded and strengthened

* The report of this comprehensive assessment is contained in Robert Emery editor, "Health Management Assessment in the Ecuador Ministry of Health," ALPHA Health Management Methods Appraisal Program, April, 1981, 100 pp.

through the creation of seven directorates which exist in more or less the same form today: financial administration, planning, health services, family health, sanitary control and surveillance, rural development and technical services*; a personnel directorate was subsequently established. (See Organization Chart, Exhibit B of Annex V.)

In addition to these eight directorates, the MOH conducts operations through Provincial Offices in each of the country's 20 provinces, plus three specialized Institutes** and the Malaria Eradication Service. All of these Institutes and Provincial Offices are under the Director General of Public Health, the chief operational and technical official in the Ministry. Thus, it has only functioned as a unified Ministry since 1976 which probably make it the youngest Health Ministry in Latin America. In a sense, it is still consolidating (i.e., centralizing) its authority at a time when government policy and international professional opinion are increasingly turning towards decentralized management. These growing pains are also occurring as the nation's medical schools are flooding the Ministry with doctors untrained in management or administration, as the country continues to face the basic health problems of underdevelopment, and while political pressure for improved service delivery increases.

The number of MOH employees more than doubled from 1973 level of 6,000 to the following 1978 levels:

Doctors	1,417
Dentists	207
Nurses	436
Nurse Midwives	94
Auxiliary Nurses	3,604
Other profesionales	1,952
Other technical auxiliares	718
Administrative Personnel	1,614
Other personnel	2,933
TOTAL	12,975

Unfortunately, similar increases in staff with advanced public health or health management training have not occurred, nor does the country have adequate training facilities to address these needs in the near future. For example, the Central University Medical School just began a graduate Public Health Degree program in 1980, with its first class of 20 students to graduate in 1982.

* After this reorganization, the MOH assumed responsibility for rural health programs in 1977. These were previously conducted under Ministry of Agriculture and the Misión Andina.

** National Hygiene Institute, Nutrition and Social Medical Research Institute and the Andean Institute for Dental Resources.

Despite the current weaknesses of the MOH administrative structure, the MOH will be able to carry out its implementation responsibilities under the project. Aside from the field activities (described below), these responsibilities are relatively few, and those at the field level are of a routine nature in many instances.

The principal institution building responsibilities rest with the Director General's office; the Planning Directorate, the Ministry's Scholarship Committee and three Provincial Health Offices (Chimborazo, Cotopaxi and Manabi). All of these offices will be involved in the selection, training, and supervision of area and provincial health chief candidates for training. The Director General's Office will coordinate this effort and be the central liason point for the USAID project within the MOH. A standing committee on scholarships, which is advised by the Human Resources Division of the Planning Department, will select those persons to receive long term training under the project. The committee's selections will be ratified by the Director General of Health who will also assign all area chiefs trained. The other divisions of the Planning Directorate are also expected to play a small role in implementation. The Planning Director, the Programming and Evaluation Division, and the Methods and Organization Division will provide MOH linkage with the National Health Council for sector coordination and National Health Plan development. Together, they will provide the NHC with the MOH's inputs into the plan, participate in the NHC sponsored seminars provided under the project, and provide guidance to the IRDS and provincial health offices in planning health activities in IRD projects. This guidance will be only of a general nature since the project will also improve planning capabilities at the local and provincial level. The Programming and Evaluation Division and the Statistics Division will also work closely with the IRDS on establishing health indicators for IRD project impact evaluation that are compatible with current MOH data collection and to ensure their incorporation in MOH programming.

Provincial health offices are particularly weak but do not have substantial implementation responsibility. They will however, be responsible for helping to organize and carry out short-term technical and management training courses and to supervise the one area health chief in their province. The project will provide external technical assistance in the development and execution of the short-term training courses as well as the development of the area chief role and the area delivery model. Several provincial health personnel are already involved in the IRD project development and work closely with the local IRD project units. While provincial offices normally must be responsible for all field supervision and execution, this burden nearly disappears in the IRD project areas. Indeed, this is one of the principal objectives of the project - to place this responsibility at a lower (area) level, under an area chief. With this innovation, plus the involvement of the IRD local units in such things as community organization,

contracting, etc. and the relative smallness of the service area, provincial management weaknesses will not impede successful implementation.

The Rural Development Directorate is responsible for training and placement of health auxiliaries, promoters and midwives and location of subcenters and health posts*. Location of facilities and number and location of these personnel have already been jointly planned by the IRDS and the Directorate. During implementation this Directorate will organize training programs, participate in evaluations of staff, and ensure that inputs from this project are coordinated with similar components of UNFPA, IDB and other bilateral programs. A particularly important role will be to work with the MOH's Personnel Directorate, and the Ministry of Finance to assure that the required staffing levels are provided.

Health and nutrition surveys, studies and evaluation activities are contemplated in the IRD projects. The MOH's Institute of Nutrition and Socio-Medical Research (ININMS), will carry out several of these studies. ININMS was formed in 1980 through the merger of the former Institutes of Nutrition and Socio-Medical Studies and is the principal research arm of the Ministry. In addition to research responsibilities the Institute is a source of technical information; consulting services (especially in statistical methods) for the design, implementation and evaluation of health and nutrition projects; and of laboratory services. ININMS consists of a directorate and four divisions: Planning, Resources, Information Systems, and Applied Research. It has a permanent staff of 51 (24 professionals), and, although subject to severe budget cuts in 1981, projects a 1982 budget of \$800,000 (not including salaries).

ININMS' Applied Research Division, whose director is a consultant to CONADE on nutrition matters, will be one of the principal agencies involved in the implementation of the studies. This division is currently implementing studies of the MOH's rural health and primary care programs and traditional medical practices in the province of Manabi. It is also compiling a table of the composition of Ecuadorean foods and is in the initial stages of implementing a nutrition surveillance program. The Institute will also participate in a national contraceptive prevalence survey under the auspices of a DSB/POP centrally funded project. With its current staff and past experience, ININMS will have little difficulty in providing the necessary inputs to the studies envisaged under the project.

* Doctors, nurses, dentists and nurse midwives are trained at Univ. Medical Schools, but the same Directorate is responsible for their placement in the field.

A small amount of equipment and supplies will be necessary to implement MOH field activities. The Procurement Division of the Financial Administration Directorate will purchase audio-visual equipment, medical equipment and office equipment for the NHC and the MOH. All these are standard items routinely procured by this Division, and should present no major additional burden on the Division's staff.

USAID Conclusion

Field activities will be implemented only in three small IRD projects, thus enabling the concentration of scarce MOH expertise. This expertise will be supplemented by the administrative and managerial staff of the IRD project unit in each of these areas. Since IRD is one of the COE's highest priority programs, all agencies responsible for executing IRD project activities are in effect 'under the gun' to produce results. The IRDS and its project units will add an independent monitoring agency with strong ties to community organizations intolerable of lacidasical rural doctors, supply failures at health facilities and failure to reach out to the community. The MOH clearly views the IRD mandate as an opportunity to implement its decentralization plans at the IRD area level and is genuinely interested in the area model as an initial test of this approach to service delivery. This commitment to decentralization (and the managerial improvements it implies) is evident in the MOH's utilization of PAHO consultants to improve the provincial management, supervision and logistics systems essential for better service delivery at the local level and by its support for the UNFPA project to train promoters, auxiliary nurses and midwives as a means of expanding service delivery in rural areas.

For these reasons, USAID concludes that the MOH will be able to carry out its responsibilities under the project.

3. Ecuadorean Institute of Sanitary Works (IEOS)

IEOS was established in 1965. During the first seven years of its existence it focused primarily on the construction of water and sanitation systems in urban areas. In 1972 its scope of responsibilities was extended to include planning and normative functions for water and sanitation at the national level. In 1973, with the abolition of the Misión Andina, IEOS also was given responsibility for water and sanitation systems in rural areas. During the decade of the 1970's however, IEOS continued to focus primarily on urban works. Between 1975 and 1980 it constructed 131 water systems in rural areas. However, the investment in rural systems represented less than 10 percent of its total investment budget. While IEOS has a demonstrable capacity to build rural systems, there are a series of institutional and technological constraints which currently limit its effectiveness in this area. If IEOS is to meet the goals set forth in the National Development Plan to

build 400 water systems by 1985, significant changes in the Institute's organizational structure, operating procedures, and system designs will be required. These have been identified and discussed in an A.I.D. Wash. Project consultants report prepared in March, 1981 and available in USAID and LAC files.

IEOS is a semi-autonomous agency which operates under the general guidance of the MOH but which responds more directly to its own Board of Directors. The Board, which is IEOS policy setting body, is comprised of representatives of the following organizations: the Ministry of Health, the Ministry of Finance, the Association of Ecuadorean Municipalities, CONADE, and Institute of Hydraulic Resources. An executive director is in charge of the administration. The majority of IEOS personnel are assigned to five operational directorates at its Quito headquarters. These operational directorates are: planning, projects, construction, external credits and operation and maintenance. There are also provincial headquarters in each province. The headquarters staff currently carries out the major portion of planning and project design work as well as construction supervision and maintenance of urban projects. The provincial staff is responsible for construction supervision of rural projects which are contracted out and supervising those rural projects which are built by direct administration. The number of provincial level personnel is quite limited, especially compared to the magnitude of the rural activities proposed in the 1980-84 National Development Plan. This centralized structure reflects IEOS' past concentration on urban, rather than rural projects.

IEOS' capacity to implement projects in rural areas is currently constrained by several factors. Among these are a lack of coordination among the various national directorates responsible for planning and executing water and sanitation projects. There is a dispersion of responsibility among these directorates which affects small rural projects acutely in that they tend to get lost among larger, often politically more sensitive, urban projects. While urban projects often experience serious construction delays because of problems related to design and contracting matters, rural projects often suffer because of a failure to deliver materials to the construction on a timely basis and because of the very limited trained manpower available at the provincial level. Several project activities are intended to overcome these deficiencies in IEOS capacity to implement projects. First, a Rural Water and Sanitation Coordination Unit will be formed to expedite approval of rural projects through IEOS bureaucracy and to assure timely delivery of required materials. Secondly, many tasks currently undertaken at the central level will be assigned to an augmented provincial level staff. Specifically, the design and construction supervision of simple rural projects will be carried out by trained paraprofessionals under the guidance of the provincial engineers. These institutional development measures are expected to greatly enhance IEOS' capacity to implement rural projects and USAID is confident that, if the IEOS

institutional development component is fully implemented, not only should implementation of field activities in the IRD areas proceed smoothly, but that IEOS' ability to carry out rural programs on a national level will be significantly enhanced. In order to assure effective implementation of the institutional development component of the project, USAID will grant fund the services of an experienced sanitary engineering consultant for three years. An appropriate individual has already been identified and will be obtained through a PASA with the U.S. Public Health Service.

The Water Resources Board for the Jipijapa and Pajan cantones (Junta de Recursos Hidráulicos, Fomento y Desarrollo de Jipijapa y Pajan) will supervise implementation of water and sanitation activities in Jipijapa. The Water Resources Board is a sub-regional organization in Manabi which deals with all aspects of water utilization and management in the Jipijapa and Pajan cantones. The board was reactivated in April 1980; however, it has demonstrated significant institutional initiative and has accomplished a great deal during the year of operations. Because it has its own source of income, derived from a 2.5 percent FOB export tax on coffee produced in the area, it has been able to undertake construction activities as well as carry out studies. Its source of revenues also means that it has been able to hire competent technicians and to provide them with adequate logistic support. During the period between May and December 1980, the Junta excavated 57 shallow wells and carried out a geoelectric exploration for subterranean water services. In 1981-8 it plans to construct water systems with its own funds in four parroquial centers which do not have potable water. The Board has sufficient technical and administrative capacity and experience to carry out a program of well construction of the magnitude proposed in the project, i.e., 100-150 wells per year.

4. Integrated Rural Development Secretariat (IRDS)

The GOE established the Integrated Rural Development Secretariat (IRDS) as an office within the Presidency of the Republic in late 1980. Since then, work has progressed on organizational plans, operating regulations, and staffing. In May, 1981, the IRDS had only eight full time professionals in the Quito headquarters and five others assigned full time from various GOE ministries. However, staffing plans approved by Ecuador's National Directorate of Personnel call for a staff of 45 before the end of the year, 29 of which will be professionals.

This professional staff will be drawn from a wide range of disciplines including sociology, economics, anthropology, agriculture, medicine, and education. Many have worked together in the Ministry of Agriculture's integrated agricultural development program (PIDA) (a direct forerunner of the IRD program) and/or in the Misión Andina program of the 1960's which, with UNDP financing, attempted an IRD approach

outside mainline ministerial channels. Thus, despite its relative youth, there is a wealth of field experience among the group thus far assembled that promises a high level of commitment to progress in rural areas. Although a formal organizational plan has been prescribed, changes can be expected to occur as experience accumulates, relationships develop and remaining vacancies are filled. The current plan calls for five directorates, in addition to the Executive Secretary's office, as follows:

The Technical Directorate is comprised of one professional (and one secretary) who advises the Executive Secretary in all aspects of program execution and coordination and serves as acting Executive Secretary in his/her absence. This unit will provide overall coordination among public and private entities which participate in the formulation or execution of IRD project.

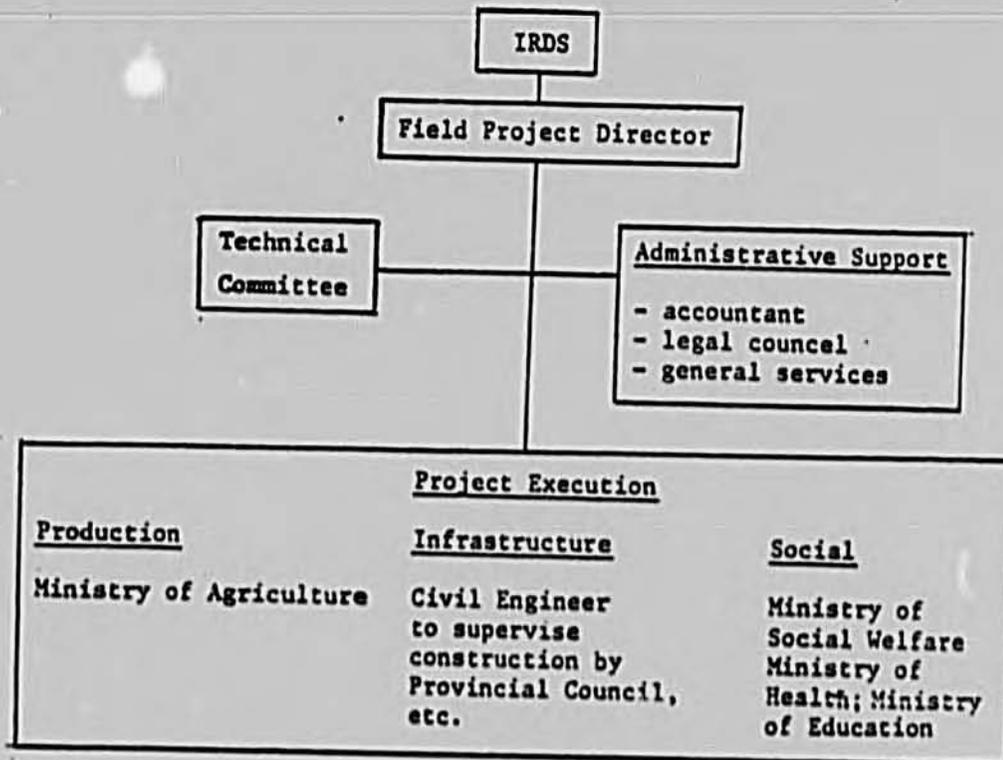
The Programming Directorate includes ten professionals and one secretary. Its functions are to develop policies, recommend funding levels, prescribe norms and standards for project design and implementation, conduct special studies, establish and monitor information and evaluation systems and negotiate with external donors for technical and financial assistance.

The Administrative and Financial Directorate is comprised of three professionals and ten secretarial and support staff (e.g., five drivers) and supervises all administrative and financial matters such as personnel, accounting, procurement, internal audit, records, filing and budgeting. This unit also handles public relations.

The Project Directorate is comprised of eight professionals and one secretary. It will develop new projects, supervise and expedite the implementation of approved projects, advise the IRD executive units (see below), assure adequate inputs from technical specialists, promote and maintain the participation of other GOE entities in IRD, prepare progress reports and participate in project evaluations.

The Directorate of Community Organization, Participation and Training is comprised of four professionals and one secretary. Its responsibilities include the development of methodologies for community participation in the design, implementation and evaluation of IRD projects; the organization of campesino training courses; and assistance in producing and distributing training materials.

Project units will be established for each IRD project and will be composed of a project director, and administrative staff, and a technical committee. The organization is illustrated below:



Substantial delegation of administrative and financial authority to the project unit is provided by Decree No. 1130 of May 15, 1981. For this reason, it is indispensable that the project unit have a strong administrative staff, including an accountant and a legal advisor who will be directly paid by and responsible to the IRDS. The technical committee in some cases may be representatives from the executing Ministries assigned to the project unit. In other cases, the IRDS may have to provide staff of one or more of the members for the health sector representative on the technical committee. The area health chief and the MOH field staff assigned to the IRD project will form part of the social division of the project execution group.

The project execution group will be formed by staff of the operating ministries and will be paid by these ministries. The exact nature of their assignment to the project unit has not been developed for all sectors. However, it is clear that IRDS has no desire to become a super ministry by assuming the responsibilities of existing ministries and eventually displacing them. What it does want is to improve the delivery of resources and services to the rural poor through an IRD framework which will, in turn, improve the performance of individual ministries. This is why the IRDS desires that personnel be seconded from the ministries to help implement IRD projects. When these people return to their own ministries, they will be able to put their IRD experience to practical use. Everyone working on development in IRD projects would not automatically become a member of the IRD executive unit. Current thinking within the IRDS envisions a type of sliding scale which would determine how many of a particular agency's personnel would be included. The criteria to be used include the following:

- The importance of a particular component of achieving project goals (e.g., the indications are that all agricultural personnel will be included).

- The track record of each agency (e.g., if an agency has done little or nothing in the project area or where its performance has been unsatisfactory, the odds are that its personnel will not be included) and

- The prior existence of demonstrated local capability (e.g., in the case of public works, where there is often a long tradition of local participation, unit staffing would be minimal).

Obviously, the IRDS is too young an organization to have established a track record to use in appraising institutional capacity. However, every indication is that the IRDS will be able to carry out its responsibilities under this project as well as its other activities. Despite almost a month of very unsettled conditions due to the January-February border conflict, the IRDS has succeeded in leading several matters relating to personnel and budgeting through a difficult approval process (helped substantially by its location within the Presidency). It has dealt with the three major external financing agencies (OAS, IICA, and FAO). It recognizes that clarifications in its operating relationships with other GOE entities are needed and is in the process of making these adjustments. Initial indicators are that the IRDS/MOH relationships will be characterized by a high degree of collaboration between these two bodies.

In USAID's judgement, development and implementation of the seventeen IRD projects identified in the National Development Plan is an overly ambitious undertaking for such a new organization. The IRDS's absorptive capacity will be sorely tested if, and it is probable that only initial studies will be completed for many of these projects by the end of the Plan. However, such an ambitious goal will add to the political urgency of the IRDS's work and support its claims for continued high levels of support from the GOE and external donors.

This sense of urgency, the cohesiveness of the team thus far assembled, and the open support from a number of external donors lay the basis for a hard working, effective organization with a feeling of purpose and esprit de corps, and USAID concludes that this project is institutionally feasible with respect to the functions envisaged for the IRDS.

C. Economic Analysis Summary

1. Economic Analysis Methodology

The economic analysis (Annex V, Exhibit A) examines the impact of the project's institution building activities and of the Primary Health Care and Water and Sanitation field activities to be implemented in the three IRD projects. Three types of quantifiable analysis are summarized: (1) the internal efficiency of project activities; (2) the affordability of field activities to the target population; and (3) the replicability of field activities. The project's effectiveness, or external efficiency, is measured only qualitatively because of difficulties in quantifying economic and social benefits which are derived from health, water, sanitation and nutrition interventions.

2. Economic Analysis Results

a. Institution Building

The project's institution building activities are aimed at enabling GOE health sector institutions (MOH, IEOS) to implement low cost rural services delivery programs. These activities will have a beneficial impact far beyond their own cost. The magnitude of savings in any one year required to pay for the costs of implementing the MOH institution building component would only have to amount to 0.7 percent of the MOH's 1980 budget.

Implementation of Integrated Rural Health Delivery Systems models in the 14 other IRD projects would result in an annual savings of more than \$700,000, over the costs to achieve the same level of coverage provided through existing institutional arrangements for delivery of services. Institutional improvements in the implementation of IEOS rural programs can generate cost savings (conservatively estimated) of 20 percent. At the investment levels for rural water programs specified in the 1980-1984 National Development Plan, cost savings would amount to \$15,000,000. The institution building activities included in the project will clearly generate increased levels of efficiency in GOE rural health programs which far exceed their costs and which will improve the replicability of these programs.

b. Field Activities

(1) Primary Health Care

(a) Internal Efficiency

The increase in primary health care coverage will add some 24,000 clients to the MOH health system in three IRD projects. This is an increase approximately of 21 percent (from 52 percent to 73 percent) of the target population. The use of a mobile health team to visit isolated communities in Quimiag-Penipe will further increase coverage. In addition, service to the currently covered population will be increased through the more effective use of nurse auxiliary and health promoters which will result in increased contacts with the target population and additional referrals to physicians. Doctors and other health practitioners will become more productive

with an increase of some 50 percent in the number of patients they attend, while reliance on costly curative services will be reduced and preventive medicine will be more common. Furthermore, the cost per attendance will therefore decrease by about 27 percent, compared to the current system. Total annual operating cost savings are projected at \$180,000.

(b) Affordability

The increased coverage will result in savings for households. MOH patient medical care, which is free of charge, will replace alternatives, e.g., private urban doctors and/or traditional healers, who charge fees for their services. The average cost savings per family is estimated to be between \$7.40 and \$8.30 per month, based on the average amount spent on private medical care by rural Ecuadoreans. In addition, travel time, valued at \$5.00 per day for working adults, in obtaining medical care will be significantly reduced. The availability of low cost medicines in the communities served also represents a substantial cost savings to the project beneficiaries. The PHC program is clearly affordable to the target group and represents a significant reduction in the cost of services compared to existing alternatives.

(c) Replicability

The extension of services envisioned under the project will, of course, involve additional costs for the government. With the IRHDS model, investment costs (in buildings and equipment) will be only \$430,000 or \$18 per beneficiary, compared to the standard average cost of \$26 per beneficiary currently incurred. Operating expenses in the IRD projects will average less than \$6.00 annually per person served compared to the national annual average of \$10.76 per person served in 1980. These investments and operating costs, which are significantly lower than the national average, mean that PHC services can be extended to a much larger percentage of the population for the same level of outlays or, alternatively to the same population for significantly lower outlays. For example, to extend services to 375,000 persons in 14 additional IRD project would require and investment of only \$6.8 million and \$2.3 million in annual operating costs.

(2) Water Supply and Sanitation

(a) Internal Efficiency

Although it is generally agreed that economic as well as social benefits are derived from improved health status achieved as a result of investments in water supply and sanitation, it is extremely difficult to quantify such benefits. Therefore, the economic analysis in Annex V focuses on the efficiency of such investments. The project will utilize technically sound, least-cost alternatives in which likely health benefits, consumes satisfaction and ease of maintenance are considered. On a cost per 100 liters of water delivered basis, the cost of spring fed gravity flow systems with household connections are approximately the same as that of shallow wells

with handpumps (0.016 per 100 liters) even though the per capita investment cost is substantially higher. When user convenience and technical feasibility are considered, gravity systems with household connections are the preferred alternative in Salcedo and Quimiag-Penipe while shallow wells are the best alternative for Jipijapa.

With regard to excreta disposal, the campesino toilet is the preferred alternative where household water connections exist since the greater user convenience, which is likely to be translated into greater user acceptance and, hence, greater usage, more than offsets the slightly higher investment cost (compared to a pit latrine). Where water is not readily available, pit latrines are the preferred (least-cost alternative).

(b) Affordability

GOE policy is that it will absorb the major portion of investment costs for the provision of water supply and sanitation. Rural communities are expected to contribute 20 percent of the investment costs for potable water systems in the form of voluntary labor, local materials or, occasionally, cash. This contribution could amount to \$20 to \$30 per capita (\$100-\$150 per family) if labor has a positive opportunity cost but the actual cash outlay will be much less. Annual operation and maintenance costs are on the average \$0.60 per capita or \$3.00 per family. Investments by beneficiaries for excreta disposal systems (campesino toilets, pit latrines) may approach 50 percent of the total investment when labor and local materials costs are inputted, but actual cash outlays will be limited to the amount of any materials (wood, zinc) purchased for the construction of the shed. Operating costs are negligible. The monthly charges collected by water boards are likely to range from 1.4 percent to 3.4 percent of average family incomes in the three IRD projects. These amount are well within the limits of affordability of the beneficiaries.

(c) Replicability

The replicability of water supply and sanitation activities depends upon the GOE budgetary allocations for these activities. The expected reduction in the per capita investment costs for potable water means that, given a fixed budget, the GOE will be able to provide potable water to 25 percent more people than it can using current construction systems and technologies. At the investment levels projected in the National Development Plan, potable water service would be extended to 748,000 rather than 590,000 rural Ecuadoreans during this five year period; that is, to an additional 15 percent rather than 12 percent of Ecuador's rural population in 1984.

D. Financial Analysis

1. Financial Plan and Cost Estimates

As shown in the table on the following page, the total cost of the project is \$14,000,000 of which A.I.D. will contribute 50 percent, consisting of \$6,000,000 in loan funds and \$1,000,000 in grant. The matching host country contribution will be in the form of GOE budget expenditures and the contribution of labor and land to be made by the communities that will benefit from the project.

The A.I.D. contribution to the project will be provided incrementally according to the estimated schedule shown below:

<u>Fiscal Year</u>	<u>Loan</u>	<u>Grant</u>
1981	\$ 3,000,000	\$ 200,000
1982	1,000,000	300,000
1983	1,000,000	250,000
1984	<u>1,000,000</u>	<u>250,000</u>
Totals	\$ 6,000,000	\$1,000,000

This schedule is consistent with USAID's latest ABS submission.

Cost estimates for construction of WS/S systems and MOH health facilities are fully described in Annex VIII, Exhibit B. Although substantial cost savings over current GOE experience are expected, the costs have been reviewed by U.S., third country, and Ecuadorean engineers and are considered feasible based on the planned adjustments in design standards. An inflation factor of 14 percent annually has been incorporated into the construction cost estimates. Other costs, particularly operating and procurement costs, were developed jointly USAID and GOE personnel using recent experience in Ecuador. The amount for contingency is \$1,300,000, roughly 10 percent of total project costs. This level is considered adequate since: (a) it is in addition to the inflation factor already built into the construction activities (which account for about 50 percent of the A.I.D. loan); and (b) most procurement of services and equipment will occur during the initial years of the project.

2. A.I.D. Disbursement Procedures

The Project Assistance Completion Date will be December 31, 1986, approximately five years from the expected fulfillment of the initial conditions precedent to disbursements. The bulk of disbursements will occur during the first three years of the project, however, with an expected 70 percent of the A.I.D. funds expended by December 31, 1984. Foreign exchange costs will be for imported vehicles and office and training equipment, consulting services, technical assistance, international travel, and training outside of Ecuador. These costs are estimated to be slightly over \$2,200,000.

ESTIMATED PROJECT DISBURSEMENT BY CALENDAR YEARS

(U.S. \$000's)

	1982			1983			1984			1985			1986			TOTALS			
	A.I.D.		Host	A.I.D.		Host	A.I.D.		Host	A.I.D.		Host	A.I.D.		Host	A.I.D.		Host	Total
	Loan	Grant	Country	Loan	Grant	Country	Loan	Grant	Country	Loan	Grant	Country	Loan	Grant	Country	Loan	Grant	Country	
I. INSTITUTION BUILDING	<u>750</u>	<u>430</u>	<u>346</u>	<u>419</u>	<u>256</u>	<u>532</u>	<u>324</u>	<u>168</u>	<u>502</u>	<u>252</u>	<u>46</u>	<u>457</u>	<u>55</u>	<u>-</u>	<u>463</u>	<u>1,800</u>	<u>900</u>	<u>2,300</u>	<u>5,000</u>
A. National Health Council	<u>15</u>	<u>17</u>	<u>12</u>	<u>53</u>	<u>54</u>	<u>42</u>	<u>22</u>	<u>49</u>	<u>36</u>	<u>10</u>	<u>20</u>	<u>33</u>	<u>-</u>	<u>-</u>	<u>37</u>	<u>100</u>	<u>140</u>	<u>160</u>	<u>400</u>
1. Studies & Technical Assistance	10	5	5	25	40	25	10	35	20	5	20	25	-	-	25	50	100	100	250
2. Travel & Workshops	5	12	3	10	14	11	10	14	10	5	-	2	-	-	6	30	40	32	102
3. Office Equipment & Support	-	-	4	18	-	6	2	-	6	-	-	6	-	-	6	20	-	28	48
B. Ministry of Health	<u>165</u>	<u>48</u>	<u>47</u>	<u>171</u>	<u>47</u>	<u>168</u>	<u>117</u>	<u>19</u>	<u>134</u>	<u>72</u>	<u>21</u>	<u>102</u>	<u>-</u>	<u>-</u>	<u>89</u>	<u>525</u>	<u>135</u>	<u>540</u>	<u>1,200</u>
1. Area Level	134	28	35	86	42	78	60	14	73	50	16	87	-	-	77	330	100	350	780
2. Province Level	11	20	5	15	5	12	17	5	14	7	5	7	-	-	12	50	35	50	135
3. National Level	20	-	7	70	-	78	40	-	47	15	-	8	-	-	-	145	-	140	285
C. Ecuadorian Institute of Sanitary Works	<u>490</u>	<u>240</u>	<u>187</u>	<u>150</u>	<u>105</u>	<u>297</u>	<u>135</u>	<u>100</u>	<u>297</u>	<u>130</u>	<u>5</u>	<u>292</u>	<u>45</u>	<u>-</u>	<u>327</u>	<u>950</u>	<u>450</u>	<u>1,400</u>	<u>2,800</u>
1. Establishment of Rural WATS Coordinating Unit	130	115	110	80	95	120	65	90	120	60	-	120	20	-	120	355	300	590	1,245
2. Improvement of Field Operations at Provincial Level	360	125	77	70	10	177	70	10	177	70	5	172	25	-	207	595	150	810	1,555
D. Integrated Rural Dev. Secretariat	<u>80</u>	<u>125</u>	<u>100</u>	<u>45</u>	<u>50</u>	<u>75</u>	<u>50</u>	<u>-</u>	<u>35</u>	<u>40</u>	<u>-</u>	<u>30</u>	<u>10</u>	<u>-</u>	<u>10</u>	<u>225</u>	<u>175</u>	<u>200</u>	<u>600</u>
1. Technical Assistance	-	100	-	-	50	-	-	-	-	-	-	-	-	-	-	-	150	-	150
2. Studies/Evaluation/Travel	80	25	100	20	25	25	-	-	-	-	-	-	-	-	-	100	25	125	250
3. Technology Replication	-	-	-	25	-	-	50	-	35	40	-	30	10	-	10	125	-	75	200
II. FIBRE ACTIVITIES	<u>528</u>	<u>-</u>	<u>303</u>	<u>871</u>	<u>-</u>	<u>714</u>	<u>1,197</u>	<u>-</u>	<u>1,355</u>	<u>704</u>	<u>-</u>	<u>1,059</u>	<u>270</u>	<u>-</u>	<u>699</u>	<u>3,570</u>	<u>-</u>	<u>4,130</u>	<u>7,700</u>
A. Primary Health Care	<u>250</u>	<u>-</u>	<u>28</u>	<u>249</u>	<u>-</u>	<u>99</u>	<u>273</u>	<u>-</u>	<u>180</u>	<u>81</u>	<u>-</u>	<u>167</u>	<u>17</u>	<u>-</u>	<u>156</u>	<u>870</u>	<u>-</u>	<u>630</u>	<u>1,500</u>
1. Community Based Activities	41	-	-	40	-	13	59	-	30	27	-	37	13	-	40	180	-	120	300
2. PIC Delivery	55	-	12	19	-	56	21	-	106	11	-	110	4	-	106	110	-	390	500
3. Infrastructure & Equipment	154	-	16	190	-	30	193	-	44	43	-	20	-	-	10	580	-	120	700
B. Water Supply & Sanitation	<u>250</u>	<u>-</u>	<u>250</u>	<u>570</u>	<u>-</u>	<u>570</u>	<u>834</u>	<u>-</u>	<u>1,080</u>	<u>593</u>	<u>-</u>	<u>857</u>	<u>253</u>	<u>-</u>	<u>543</u>	<u>2,500</u>	<u>-</u>	<u>3,300</u>	<u>5,800</u>
1. Water Systems	157	-	157	358	-	358	408	-	408	247	-	247	-	-	-	1,170	-	1,170	2,340
2. Shallow Wells	93	-	93	212	-	212	240	-	240	135	-	135	-	-	-	680	-	680	1,360
3. Sewage Disposal	-	-	-	-	-	-	186	-	432	211	-	475	253	-	543	650	-	1,450	2,100
C. Nutrition	<u>28</u>	<u>-</u>	<u>25</u>	<u>52</u>	<u>-</u>	<u>45</u>	<u>90</u>	<u>-</u>	<u>95</u>	<u>30</u>	<u>-</u>	<u>35</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>200</u>	<u>-</u>	<u>200</u>	<u>400</u>
1. Supplemental Feeding Improvement	28	-	25	22	-	10	-	-	-	-	-	-	-	-	-	50	-	35	85
2. Public Field Actions	-	-	-	30	-	35	90	-	95	30	-	35	-	-	-	150	-	165	315
Sub-Total Grant Disbursements	<u>1,278</u>	<u>430</u>	<u>649</u>	<u>1,290</u>	<u>256</u>	<u>1,246</u>	<u>1,521</u>	<u>168</u>	<u>1,857</u>	<u>956</u>	<u>46</u>	<u>1,516</u>	<u>325</u>	<u>-</u>	<u>1,162</u>	<u>5,370</u>	<u>900</u>	<u>6,430</u>	<u>12,700</u>
Sub-Total Loan Disbursements	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>24</u>	<u>-</u>	<u>129</u>	<u>52</u>	<u>143</u>	<u>326</u>	<u>24</u>	<u>219</u>	<u>175</u>	<u>-</u>	<u>208</u>	<u>630</u>	<u>100</u>	<u>570</u>	<u>1,300</u>
TOTAL	<u>1,278</u>	<u>430</u>	<u>649</u>	<u>1,290</u>	<u>280</u>	<u>1,246</u>	<u>1,650</u>	<u>220</u>	<u>2,000</u>	<u>1,282</u>	<u>70</u>	<u>1,735</u>	<u>500</u>	<u>-</u>	<u>1,370</u>	<u>6,000</u>	<u>1,000</u>	<u>7,000</u>	<u>14,000</u>

Subject to further study, some of the plastic pipe, fittings and valves for the WS/S activities also may be imported, adding almost \$800,000 to the foreign exchange component.

Imported vehicles, equipment and materials will be paid for under the A.I.D. Letter of Commitment procedure with the Central Bank of Ecuador serving as approved applicant. The sanitary engineering advisor would be paid directly th A.I.D. through PASA arrangement. Payments for other consulting services and technical assistance most likely will be made using the A.I.D. direct payment to contractor procedures, for which certificates of performance and other required documentation will be received from the GOE. Alternatively, USAID may make a small advance to a dollar account in the Central Bank to be used by the GOE to make payments to the contractors; subsequent reimbursement would be based on appropriate documentation of actual expenditures. Training and travel costs would be handled similarly, with the exception that any participant training in the U.S. would be administered through the standard A.I.D. PIO/P procedure.

Local currency A.I.D. disbursement will be for construction, in-service training (i.e., travel and per diem) local commodity procurement, and a limited amount of locally contracted technical services and personnel costs (area chiefs and promoters). These disbursements will be reimbursed to the GOE upon receipt of documentation evidencing actual expenditures. A small revolving fund may be established in the Central Bank for this purpose with an initial A.I.D. advance (for approximately three months needs, based on current turnaround time for processing vouchers, scheduling payment, and receiving a U.S. Treasury check). USAID will exchange dollar checks issued by the Treasury for local costs directly with the Central Bank at the highest rate of exchange consistent with Ecuadorean law.

3. GOE Contribution and Recurring Costs Analysis

The Host Country contribution will be \$7,000,000 during the five years of project implementation, 1982-1986. The bulk, approximately 85 percent, will be provided by GOE budget expenditures. The remainder will be provided by the participating communities as in-kind contributions; the expected levels of community contributions are based on actual experience and are reasonable. Almost all the GOE budget contributions will be channelled through the two executing institutions - the MOH and IEOS. (Only \$360,000 need be provided by the two coordinating entities, NHC and IRDS; they will incur little or no recurring costs)

As detailed in Annex V, Exhibit B, the budget level for the MOH during the 1970's has increased sevenfold in real terms to a 1980 total exceeding \$92,000,000, of which \$61,000,000 is for current (operating) costs of the Ministry. The IEOS budget has experienced similar growth rates during the 1970 and reached approximately \$45,000,000 in 1980. Thus, the MOH's average annual project contribution of \$235,000 is less than one half of one percent of the total MOH budget for 1980. IEOS' average annual contribution

to the project (excluding community participation) of approximate \$580,000 is roughly one percent of its total 1980 budget. Given the increased priority being devoted to rural services under the National Development Plan, the programmed level of contribution required from GOE budgetary sources under the project appears to be reasonable.

Both the GOE and the participating communities will have to finance recurring costs that continue beyond the disbursement period of the project. For the MOH, the construction of the six subcenters and seven health posts amounts to only five new facilities since the others are replacements. Thus, the added payroll costs for operating these facilities are limited to those for one doctor, one dentist, and ten auxiliary nurses, roughly \$75,000 per year. Additional personnel costs required for the continuation of the area delivery model are for the three area chiefs, the three assistant health educators, and the 24 rural health promoters. These costs total approximately \$125,000 annually. Another \$100,000 of recurring costs can be assumed for materials and supplies, mobilization, equipment replacement, and maintenance. The total annual recurring costs for the MOH as a result of the project, then, are estimated at \$300,000. This amounts to less than one half of one percent of the MOH's 1980 operating budget, which is a minimal burden in relation to the improved health coverage expected as a result of the project.

The major portion of the IEOS recurring costs will be for the salaries of additional personnel, i.e., the staff of the Rural Water and Sanitation Coordination Unit (four professional and two support staff) at the national level and the ten paraprofessional and six maintenance personnel at the provincial level. The annual payroll costs for these positions is approximately \$144,000. Since IEOS' total staff of 320 direct hire and 128 contract personnel, it is very likely that much of the staff of the coordination unit can be obtained through personnel reassignments and not through new hires. The provincial level personnel (paraprofessionals and maintenance crews) will be net additions to the IEOS staff. The balance of the recurring costs for IEOS will be for vehicle operation and maintenance, per diem, and the operating costs of the maintenance units. These are roughly \$14,000 annually. Thus, the expected net additional recurring costs for IEOS will be about one half of one percent of its total 1980 budget. The additional salary costs will range from three to five percent of its 1980 expenditures on salaries depending on the extent to which the coordinating unit will be staffed with new hires. Relative to the 20 percent cost savings of much larger investment costs for rural water supply systems expected as a result of the project, this level of increased recurring costs are warranted.

The participating communities will have to also finance recurring costs for the operation and maintenance of water systems. These costs will be primarily financed through water tariffs administered by the local community organization. Water systems maintenance and operation will average between \$1.50 and \$2.00 per capita per year. Costs for operating community botiquines and other community managed activities will be financed out of

operating surpluses of these enterprises.

4. USAID Conclusions

Reasonably firm cost estimates for the project have been made and the costs to the U.S. Government have been identified in detail. The contributions expected of the GOE and the communities to carry out the project are within their respective capacities and should be forthcoming without difficulty. Although there is an important recurring cost element, particularly for MOH and IEOS, these expenditures are small relative to total budget outlay. Further, the project should result in future cost savings to both institutions through improved operating efficiencies. Based on the foregoing, USAID concludes that the project is financially sound and feasible.

E. Socio-Cultural Feasibility

The Social Soundness Analysis (Annex IV) identifies several factors which may potentially constraint the effective utilization of services to be provided through the project. Despite differing ethnic, economic, and ecological characteristics of the IRD project field activities are to be implemented, these factors prevail in all three. Among the major constraints are: (1) the competition between modern medical practice and pre-existing traditional concepts of medicine which operate within a different paradigms of belief (i.e., medicine based on the germ theory of disease vs. medicine based on the humoral theory of disease); (2) the high degree of absenteeism at health subcenters and posts by physicians and nurse auxiliaries and the poorly equipped facilities at all levels within the delivery system, factors which exacerbate the initial negative or uncertain attitudes which the target population has toward modern medicine; (3) lack of understanding by medical personnel, especially physicians of the target population's socio-cultural milieu and of their belief systems; (4) a low degree of receptivity by women to GOE promotional actions; (5) the attributes of the target group's current socio-economic situation which negatively affect its nutritional status; (6) failure of the target population to understand the raison d'etre of pure water and of excreta disposal (although easy access to water is a strongly felt need); and (7) concomitantly, a lack of understanding by target group members of the purpose and operation of many of the modern health, water and sanitation technologies.

The project activity mix in both field and institution building activities has been designed to overcome these constraints and, hence, to maximize the project's socio-cultural feasibility. Two complementary strategies are proposed in order to achieve maximum benefits. These are: (1) to maximize communication between GOE action agents (i.e., IRD project personnel, physicians, nurses, auxiliaries, health promoters, IEOS engineers and para professional personnel) and members of the project's target; and (2) to maximize community participation, especially community decision-making with regard to community level interventions in health, nutrition, water and sanitation activities.

Communication between GOE health sector action agents and target group members will be improved through a number of mechanisms. Personnel from specific communities (health promoters) or from the IRD projects (additional nurse auxiliaries, IEOS para professionals) who have a good understanding of local beliefs and needs will be utilized to a great extent to implement project field activities. The majority of the paramedical personnel will be women. The use of locally recruited trained female paramedical personnel will be an important factor in improved communications with female target group members. GOE action agents will be sensitized to not only the need to interact on a continuing basis with target group members, but also to comprehend the latter's belief systems and behavioral traits. The training courses for physicians (financed by the Family Planning project), health promoters, IEOS paraprofessionals

and other IEOS staff will provide general orientation in this regard. The ability of health professionals and paraprofessionals to communicate with target group members in their communities will be further enhanced through an improved logistical capability at the field level.

Community participation in the implementation of field activities will include active participation in decisions related to the project interventions rather than only the provision of unskilled labor and local materials. This participation in decisions regarding the provision of health, nutrition, water and sanitation activities will occur through community meetings and other decision-making processes. Communities will decide whether they wish to have health promoters, will select the promoter and will pay his/her salary. Similarly they will determine whether they wish to have health facilities (subcenters, posts, botiquines), pilot nutritional activities (e.g., community marketing centers), and potable water and sanitation activities. For most of these activities communities will assume substantial responsibility for their construction as well as operation and maintenance. Prior experience in Ecuador (e.g., Juntas Administradoras de Agua) has shown that such community managed activities are socially and administratively feasible as long as adequate promotion and technical supervision is provided by the government agencies. The IRD project units will play an important role in assuring that the implementing agencies provide the required technical backstopping and to assure that communities are not over burdened by their community management responsibilities.

The Social Soundness Analysis indicates that, to the degree that communication between government action agents and target group members occurs and that community participation takes place, the probability that the proposed project interventions will be accepted by and have a beneficial impact on the target population is significantly increased. The project design has incorporated a variety of elements which should assure both an increased degree of communication and high community participation rates and, hence, which maximize the socio-cultural feasibility of the proposed project activities.

F. Environmental Concerns

The project includes the construction of small health, water and sanitation facilities substantially as detailed in the Initial Environmental Examination (IEE). No major impacts were identified in the IEE although the chemical and/or biological quality of drinking water will in some cases be changed (improved) through purification. USAID recommended a negative determination for the Environmental Threshold Decision with which the Latin American Bureau concurred on February 5, 1981. (See Annex VIII).

IV. IMPLEMENTATION PLANNING

A. Implementation Arrangements

1. Timetable

Annex III contains a detailed implementation plan for each of the project components. Assuming a July 1981 project authorization the key project start up and implementation events are as follows:

<u>ACTIVITY</u>	<u>DATE</u>
Project Agreement signed	September, 1981
Initial C.P.'s met	December, 1981
IRDS agreements with MOH and IEOS signed	January, 1982
Trained area health chiefs on-board	January, 1982
Initial group of health promoters selected	January, 1982
Sanitary engineer advisor in-country	January, 1982
IRDS nutrition advisor contracted	January, 1982
MOH and IEOS field vehicles ordered	February, 1982
IFB issued for WS/S materials	March, 1982
MOH training and technical assistance agreements signed	March, 1982
IECS coordination unit operational	March, 1982
Orders placed for WS/S materials	March, 1982
Construction of MOH infrastructure and WS/S systems begun	April, 1982
NPC studies initiated	May, 1982
Handpump contract signed	May, 1982
Construction of shallow wells initiated	June, 1982
IEOS long term training initiated	June, 1982
MOH long term health planning training initiated	June, 1982
Trained IEOS paraprofessionals in field	July, 1982
MOH long term MPH training initiated	January, 1983
IEOS in-service training initiated	January, 1983
First pilot nutrition activities initiated	April, 1983
Latrine construction initiated	April, 1983
Final project evaluation	November, 1986
PACD	December, 1986

2. Administrative Arrangements and USAID Monitoring

In accordance with normal practice in Ecuador, the Project Agreement will be signed by both the Minister of Finance and the Minister of Foreign Relations since both loan and grant funds are involved. The authorized representatives will include the Secretary of the IRDS, the Ministry of Health and the Director of IEOS. The Project Agreement will provide that: (a) all institution building components of the project will be administered directly by the respective benefitting institutions, i.e., MOH, IEOS, and IRDS; and (b) all funding for field activities will be administered by the IRDS through written agreements with MOH and IEOS.

Thus, with respect to the institution building component, USAID will maintain direct contacts with MOH, IEOS, and IRDS. Since the Minister of Health serves as chairperson for the National Health Council (NHC) and is charged with the responsibility for its organization, the NHC institution building activities in effect will be administered by the MOH.

The IRDS will play principally a coordinating role in executing field activities. It will prepare and execute agreements governing the use of project funds. One agreement will be with the MOH covering all PHC activities and the Leche-Avena nutrition activity. Another will be with IEOS covering the WS/S activities. The agreements will set forth the amount of funds to be made available, a detailed program for their use including a first year operating plan, and provisions for reporting joint monitoring, and control. Procurement responsibilities, described in the following section, will also be included. These agreements will be conditions precedent to disbursement for the respective field activities. While no overall agreement will be executed for the pilot nutrition field activities, individual pilots will be based on detailed workplans prepared by the IRDS and normally involving one or more collaborating entities (e.g., MAG, Ministry of Social Welfare, etc.) The IRDS also will sign executing agreements with Provincial and Municipal Councils for construction of health facilities. These agreements will be subject to USAID approval.

The operating plans contained in the agreements with MOH and IEOS will be updated at least yearly. The IRD project units will be responsible for preparing annual workplans. The MOH area health chief and the IEOS provincial engineer will participate in making these plans. The IRDS will review the annual work plans with MOH and IEOS staff at the national level. In the event of serious differences of opinions that cannot be resolved at this level, the IRDS will raise the issue to the Presidency. Thus, the IRDS will be able to exert a significant degree of control over the field activities even though the MOH and IEOS are in charge of most of the procurement and disbursement functions.

Regardless of the existence of formal agreements and annual workplans, much of how the project functions at the field level depends on

how well the three area chiefs are able to carry out their dual roles. Specifically, it is essential that the area chiefs be viewed as part of the IRDS project unit at the field level and simultaneously be considered as part of the verticle chain of command within the MOH.

The MOH will delegate to the area chiefs full responsibility for supervising and directing the primary health care activities in each IRD project. It is also expected that the area chiefs will ultimately become responsible for supervising all health and medical facilities and personnel in the area.

The IRDS will count on the three area health chiefs as its full time liaison with the health sector in each IRD project. The area chiefs will make inputs in local level IRD planning and evaluation documents on behalf of the local health authorities. Further, the IRDS will expect the area chiefs to provide the day-to-day supervision and monitoring of the MOH and IEOS field activities and will provide them with office space and clerical support. The area chiefs will be expected to serve as the first echelon responsibility for problem solving and for expediting health sector activities in the IRD projects. The area chiefs will report all program and problems to the respective project director of the IRD project unit but also will work through their normal ministerial hierarchy (i.e., provincial chiefs) to resolve problems. When necessary they will recommend to IRD project directors that actions be referred to the IRDS in Quito, which in turn will take action with the appropriate authorities in MOH, IEOS, etc.

The area health chiefs must maintain a close working relationship with the provincial health chief not only to assure the area health chief's authority over the MOH employees in the IRD project, but also to promote replication of the primary health care delivery system in other areas in the same province. Because the provincial health chiefs are responsible for overseeing health activities on a province-wide basis, they will be in an excellent position to contrast the effectiveness of the health delivery system of the IRD project to the normal MOH programs carried out elsewhere in the province. Thus, it is likely that they will become strong proponents of the innovations inherent in the proposed delivery system and encourage its replication not only in their own province but throughout the MOH structure.

The relationship that the area health chiefs will have with IEOS and the WS/S activities will be slightly different. The area health chiefs will not directly supervise IEOS personnel working in the IRD project. These personnel will continue to report directly to the IEOS provincial director who will be responsible for their day-to-day supervision. The three area chiefs will work closely with the respective IEOS provincial director to assure compatibility of the IEOS's own programs and workplans with the needs of the IRD projects. They will also assist the director of the IRD project executing unit monitor the performance of IEOS in

the project area to assure compliance with the program as described in the IRDS-IEOS written agreement.

In effect, as the administrative arrangements are presently conceived the area health chiefs will have two supervisors -the IRD project director and the MOH provincial health chief. Both must have enough confidence in the area chief to delegate to him or her substantial responsibility and authority. Twelve person months of consulting services, principally during the initial two years of the project, are planned in order to help identify management/organizational problems encountered by the area chiefs and recommend solutions. The IRDS is a new institution and the exact arrangements at the field level can be expected to evolve further throughout project implementation. USAID will monitor this relationship closely in order to recommend corrective action if necessary.

USAID monitoring responsibilities will be shared by its Health and Population Office with respect to the MOH and IEOS and by its Project Design and Implementation Office with respect to all contacts with the IRDS. Both are staffed with two U.S. direct hired professionals. In addition, an advisor is to be contracted to assist with population program activities. USAID's Health and Population Office also will be able to draw on the PASA sanitary engineering advisor to IEOS to assist with the implementation of the IEOS institution building and the WS/S components. An advisor with ample experience in implementing A.I.D. WS/S projects in LAC has already been identified. Internal USAID coordination of project management will be achieved through a project committee, chaired by the Chief of the Health and Population Office.

Once project disbursements begin, MOH, IEOS, and IRDS will prepare quarterly reports on the progress and problems of their respective components. At the field level, the IRD project executing unit will call regular meetings to review project progress. USAID will attend these meetings together with national and provincial level personnel of MOH and IEOS.

3. Procurement Plan* and Waiver Request

a. Institution Building Activities

(1) MOH and NHC. The institution building activities for MOH and the NHC consist largely of in-country and overseas training, studies, and technical assistance. In most cases, the arrangements will be made by the host country, i.e., by the Director General's Office of the MOH or by the Secretariat of the National Health Council. However, with respect to training in the U.S. or technical assistance from U.S. entities, USAID will play a more

*See Annex III for a detailed time phased plan of procurement and implementation actions.

direct role in making the administrative arrangements and subsequent disbursements in order to facilitate and expedite this process. For example, two possible sources for short term advisors are centrally funded projects that require cost sharing or an A.I.D. IQC arrangement; these sources are best accessed directly by USAID through issuance of PIO/T's.

In addition, the loan will fund salaries of the three area health chiefs on a declining basis as well as a small amount of off-shelf imported equipment, local materials and supplies, and the rehabilitation and equipping of office space for the area chiefs and training facilities. Normal A.I.D. disbursement procedures will be used for these local cost expenditures.

(2) IEOS. The institution building activities for IEOS include technical assistance, training, field vehicles, low cost technology development, and a small pilot incentive pay plan for IEOS field technicians. A major element of the grant component will be for a sanitary engineering advisor to help with the establishment and development of the rural water and sanitation coordination unit to be formed in IEOS to oversee the WS/S activities of the project. The advisor will be obtained through a PASA between A.I.D. and the U.S. Public Health Service. The advisor will assist the coordination unit make procurement arrangements for the other elements of the institution building components including short term technical assistance. The Project Agreement will require that IEOS present operating and disbursement plans for the technology development and the incentive pay activities. The loan funded vehicles will be procured by the GOE in accordance with normal A.I.D. procedures.

The institution building activities for the IRDS consist of a grant funded advisor to work on nutrition-production linkages, loan funded studies, loan funded short term technical assistance and observation trips. The advisor will be contracted by IRDS. The IRDS will also make the procurement arrangements for the other elements of this component.

The loan funded field level replication activities for low cost health sector technologies in other IRD projects will be administered by the IRDS. Funds will be released by the IRDS to the field operating entities (e.g., IEOS and MOH) as appropriate. The Project Agreement will require USAID approval of the criteria for using these funds as a condition precedent to disbursing for this component.

b. Field Activities

The A.I.D. contribution for field activities is entirely loan funded. The IRDS will sign formal agreements with MOH and IEOS which will execute the two major components of the field activities.

A.I.D. funding for PHC field activities will be used for imported medical equipment (kits), instruments and supplies for field workers, imported and local equipment for health subcenters and posts, vehicles, construction and reconditioning of health centers, posts and other community facilities, training of health workers, salaries of area chiefs, grants for promoters, and preparation of educational and promotional materials. Procurement of technical equipment and supplies and vehicles will be the responsibility of the MOH. The MOH will also be responsible for managing project disbursements in local currency for in-service training, salaries, and promoter support. For this purpose USAID will make a small advance to be replenished monthly based on documentation evidencing actual use. Any drugs needed for the MOH's primary health care program will be procured by the MOH as its contribution to the project.

The IRDS will implement the construction of the health centers and posts through written agreements with the provincial and/or municipal councils (i.e., the same way it is carrying out the feeder road improvement component of the IRD-Agricultural project.) The councils may contract out the work or use force account. The use of local councils will facilitate greater community participation in the construction and, as discussed previously, results in much lower costs than experienced under the IEOS program given design differences. Disbursements will be made through an initial advance with monthly replenishments based on documentation of actual use.

The WS/S field activities will be executed through IEOS for the two central sierra sites (Salcedo and Quimiag-Penipe). IEOS will directly administer the construction of individual systems but may contract out some civil works such as storage tanks and water-intake structures. No such contract is estimated to cost more than \$25,000 per system. A major cost element in the construction of water systems is the procurement of PVC pipe and fittings. Although private firms in Ecuador manufacture these materials, a further study will be made on the appropriateness of using international IFB's to meet the needs for PVC pipe through large quantity purchase. The PASA sanitary engineering advisor will be available to help with this study. With respect to the local construction costs of this component, a revolving fund will be established with an USAID advance to IEOS. Reimbursements will be conditioned on evidence that the Host Country contribution is being made as planned. Shallow well and latrine construction will also be directly administered by IEOS which will rely heavily on the paraprofessional personnel trained under the IEOS institution building component to organize and direct these activities as well as to design and supervise construction of water systems.

The WS/S activities in Jipijapa consist mainly of construction of shallow wells (5-25 meters) with simple handpumps.

Based on an inter-institutional agreement IEOS has already turned over the responsibility of water management in the southern portion of Manabí province to the Hydraulic Resources Board (JRH). IRDS will enter into an agreement with JRH to generally provide technical supervision and to install wells in some of the project assisted communities. In addition, IRDS will attempt to involve community organizations and small firms in this activity. Such contracts will be for small value (less than \$25,000 equivalent) and will be negotiated directly by IRDS in accordance with applicable GOE regulations. A.I.D. disbursements will be made through an initial advance to IRDS with subsequent reimbursements based on documentation of actual expenditures.

c. Waivers

(1) Competition and Nationality Waivers for Technical Assistance. The Universidad del Valle, a state supported university in Cali, Colombia, has had a wealth of experience in investigating and analyzing problems of health/nutrition delivery and has developed curricula and training programs ideally suited to Ecuador's needs. Particularly pertinent is the University's new Advanced Program in Health Services Administration (PROADSA), established through financial support of the Kellogg Foundation. In 1980 PROADSA initiated a Masters in Health Administration degree program (18 months duration), a series of three month intensive courses in health administration and a ten day executive seminar for high level health officials. PROADSA faculty and resources are drawn from the Social Medicine Department of the Medical School, the Information Science and Administration Departments, and CIMDER, the Center for Multidisciplinary Development Studies and Research, also affiliated with the University. The uniqueness of these various program components is that they are all carried out jointly with the Colombian Ministry of Health and specifically tailored to the needs of health managers at all levels of the delivery system. For example, CIMDER has collaborated with the Colombian Government's rural health delivery and nutrition programs and consequently has pertinent experience in: (a) developing a promoter based primary health care program; (b) adoption of low cost nutrition surveillance devices; (c) methodologies for promoting community participation in the IRD context; and (d) preparing training manuals for health workers.

Given this type of experience, the Masters Degree program is aimed at practitioners and offers a practical/theoretical combination of teaching modules, field practicums, and problem solving case studies based on actual health management situations. The three month intensive course is perfectly suited to administrators such as those at the area and provincial level. In addition, special editions of the course to meet the more varied experiences of an international group of health administrators are available. The three month duration of the intensive course is ideal in that it is sufficient for a significant learning experience but does not deprive the Ministry of its management staff for long periods. The short, ten day executive seminar is tailored to the needs of upgrading the administrative skill and knowledge of the highest level health officials, whose position does not usually permit much time off for study.

Finally, the proximity to Ecuador, the common language, and the similar cultural background further underscore the appropriateness of using the facilities of Universidad del Valle.

These programs and capacities were reviewed by a joint USAID-GOE team in a visit to the university in early 1981 to discuss training possibilities. As a result of this review, the GOE has indicated that it would like to use the university for some of the training envisaged in the project, thereby building on an established relationship that began in 1978. With PD&S funds USAID has already contracted the university to carry out the short term training of the individuals who will serve as the area health chiefs for the three IRD projects. Under the project, it is planned that additional short term training of over 60 more health officials, and the long term training of six MOH officials will be carried out by Universidad del Valle and its affiliates. The value of this training is approximately \$150,000 during the life of the project.

The A.I.D. grant will finance \$135,000 in technical assistance for necessary follow up to the training received in Cali. Of this amount, \$80,000 is budgeted to provide 12 person months of consulting services for the MOH area health chiefs to be assigned to the three IRD projects. These services will be directed at providing on-the-job training as well as management backstopping. Another \$35,000 is planned to assist in design and conduct of short term in-service management courses at the MOH provincial health chief level. The remaining \$20,000 is for course design and testing for the training of rural auxiliary nurses.

The GOE and USAID concur that all this technical assistance should come from the Universidad del Valle and its affiliates as the preferred source in order to maximize the continuity with the loan funded training. The ability to negotiate directly with the University to provide follow-up in-country technical assistance would help assure that the training course contents are applied in practice. In the process, the field experience gained in Ecuador would be fed back into the subsequent training courses in Cali. Thus, the training and the technical assistance described above are closely interwoven and should not be separated. Accordingly, the Universidad del Valle and its affiliates clearly have the predominant capability to provide this technical assistance, given the plans to perform the substantial amount of training at this university. Failure to use the Universidad del Valle for this technical assistance would be inconsistent with the institution building objectives which are critical to the success of the project and would cause undue delays in project implementation.

To enable the GOE to enter into a technical cooperation agreement with Universidad del Valle, USAID recommends that: (a) pursuant to Handbook 1, Supplement 3, Chapter 12, Sections 12 C 4a (2)(a) and 4 and 5, A.I.D. requirements for competition in the procurement of services be waived; and (b) pursuant to Handbook 1, Supplement 3, Chapter 5, Section 5 C 4a (2)(f), a waiver of A.I.D. nationality requirements be granted. The amount of the waiver should be \$150,000 to cover the costs in the project budget and to provide for a small contingency.

(2) Sole Source Waiver for Handpumps. As described in the Project Paper, USAID has drawn on centrally funded assistance from

Georgia Institute of Technology (GIT) to field test and determine the feasibility of the local manufacture of low cost handpumps. The handpump design was developed by Battelle Institute also with central A.I.D. funding. After analyzing the private and public sector manufacturing capacities in Ecuador, GIT recommended the National Polytechnical University as the most qualified entity to manufacture the A.I.D. designed handpump. Important factors in the GIT report were the University's good foundry capacity, excellent quality control procedures, and the University's favorable past experience in commercial endeavors.

USAID concurred with this selection not only because of the technical justification set forth in the report (copies available in DSB/Health and USAID files) but also because of the obvious training and institutional development benefits. Consequently, USAID and GIT have proceeded to develop with the University an initial run of 110 handpumps. The preliminary test to date confirms that the University is best suited to provide the 1,200 handpumps to be used in the project. Thus, the A.I.D. designed handpumps are available from only one source in Ecuador. Adherence to competition procedures to permit bids from other L.D.C.'s assisted under the GIT program or the U.S. would impair the program objectives of developing the local manufacture capacities necessary to assure continuous production and availability of spare parts. Moreover, the estimated unit price of \$150 is very reasonable according to GIT based on its experience in other countries. Pursuant to Chapter 12 of Handbook IB, paragraphs C 4 a (2)(c) (2) and (3), USAID requests that A.I.D. requirements on competition in the procurement of goods under host country contracting be waived because of special design and operational requirements, i.e. equipment standardization, to allow the procurement of handpumps developed specifically for use in areas such as those covered by the IRD projects, from the National Polytechnical University in Ecuador in an amount not to exceed \$200,000 (estimated costs plus contingency).

(3) Source - Origin Waiver for Motorcycles. Ten motorcycles will be purchased for use by IEOS' paraprofessionals who will be located in the provincial offices. These motorcycles will be used almost entirely in off-highway situations, usually on poorly maintained dirt roads and on some occasions will be used in areas where no roads exist. Lightweight, low-gear "trail bike" type motorcycles must be procured with loan funds in order to provide adequate service under these conditions. Such motorcycles are not manufactured in countries eligible under A.I.D. loan funds (A.I.D. Geographic Code 941). A waiver is required to permit loan-funded procurement from A.I.D. Geographic Code 899 countries where the required type of motorcycle is manufactured. Therefore, pursuant to Handbook I, Supplement B, Section 5 B 3a (2), a source origin waiver is requested for up to \$20,000 in the Loan Authorization in order to permit procurement of ten motorcycles which have a displacement of not more than 175 cc., and spare parts.

(4) A.I.D. Financed Participant Travel. Chapter 15 of A.I.D. Handbook 10 requires that the international travel of A.I.D. financed participants be paid by the host country, the participant, or other sponsor unless waived by the USAID Director in the case of USAID funded programs. As described in Part II, loan funded training is envisaged under the project, mainly in third countries but in the U.S. as well. USAID considers that A.I.D. funding of international travel costs are justified based on the overall substantial (i.e., matching) Host Country contribution planned

for the project. Accordingly, the USAID Director, in approving this Project Paper, waives the requirement of Host Country funding of participant travel under the Project. This Project Paper serves as the required notification.

B. Evaluation Plan

1. Institution Building Activities

Evaluation of institution building is necessarily a long term and somewhat subjective effort. Four aspects of institutional strengthening will be evaluated during the life of the project: the area level administrative model, IEOS' rural water and sanitation coordination unit, the National Health Council, and health sector participation in IRD.

Area level administration can be considered successful as a service delivery management mechanism if area chiefs are in place performing the responsibilities assigned to them; good working relationships have been established with both local IRD executive units and provincial health chiefs; and the MOH has absorbed the area chiefs into its budget and officially recognized the new level of management. Indicators of the latter will include institution of legal and administrative arrangements necessary to establish area chiefs nationwide, the appointment of additional area chiefs, the devolution of budgetary resources and management authority to the area level, and the amount of program planning and supervisory authority.

The rural water/sanitation coordination unit will be evaluated in similar fashion. Increases in the number of low cost rural water and sanitation projects completed in a timely manner with active community involvement, will be one indicator of the unit's development. Long term IEOS support for maintenance of the systems will also be monitored as will community satisfaction and use of the systems. Ability of the unit to achieve adoption of new technologies for system design and construction will also be measured.

Short term indicators will be increased budgetary resources channeled to rural activities, increased staff to work on rural projects and evidence of better coordination between the various divisions of IEOS involved in such projects. Quarterly reports supplied by the Sanitary engineering advisor to be attached to the unit will be the principal means of monitoring its progress.

The National Health Council will be the most difficult but one of the most important institutions to evaluate, given its potential for advancing rational health planning. Indicators of NHC institutional development will include number of technical staff hired, number and type of planning studies completed, and types of policy decisions directly related to these studies which influence sector planning; i.e. joint IEOS-MOH facilities planning or sector wide norms for drug purchasing.

Evaluation of the health sector's participation in IRD, both at the national level in relation to the IRDS, and also at the field level, will be undertaken. In effect, this will also be an evaluation of the IRDS' ability to achieve interinstitutional coordination as outlined in the IRD Agriculture Project Paper (p. 79). Indicators of this coordination will be largely subjective, but will include: (1) incorporation of health surveys and health status measures in future IRD project feasibility/planning studies, (2) the participation of area health chiefs in planning and decision making within local level IRD project executive units, and (3) the timeliness of the flow of funds for operation and investment purposes.

USAID Health and Population Office staff will participate in these various evaluation activities as part of overall project management responsibilities. USAID staff will draw on information prepared by project funded consultants and periodic TDY assistance from AID/W technicians or AID/W central evaluation funds. It is expected that one of the important TA services to be provided through the Universidad del Valle will be evaluation of the area level management of primary health care.

The decree establishing the IRDS provides for CONADE to play an evaluation role with respect to the functioning of the IRDS as an institution. Accordingly, USAID will exchange views regularly with CONADE in assessing the functioning of the IRDS system, particularly the IRDS' interface with the MOH and IEOS.

2. Field Demonstration Activities

Eight preliminary health and nutrition status indicators have been jointly developed by the IRDS and the MOH to measure health and nutrition program impact, as well as the total impact of the IRD programs. These include: (1) infant mortality; (2) maternal mortality; (3) general mortality; (4) prevalence of protein calorie malnutrition of the under six population; (5) rates of major diseases preventable by immunization in the under age two population; (6) days of work lost due to illness; (7) population with access to potable water ^{1/}; and (8) population with access to sanitary excreta disposal. These indicators will be part of the IRD information system.

1/ This coverage will be measured in terms of whether the systems installed actually work. This approach is consistent with recent agency guidelines which suggest that neither the economic nor the health benefits of water supply projects be the emphasis in evaluation, but rather "does it work?" Thus, WS/S components will be evaluated in terms of the number of units functioning 90 percent of the time, the adequacy of maintenance, and community assumption of operating costs. (See Ian Burton, "Policy Directions for Rural Water Supply in Developing Countries", A.I.D Program Evaluation Discussion Paper No. 4, April, 1979).

Weight for age measurements of preschoolers (indicator 4 above), is an approach that is consistent with the IRD project effectiveness indicators cited in the IRD-Agriculture Project Paper (p.79), and can be measured by health promoters, auxiliary nurses and others involved in data collection in the IRD projects. These data will be collected in the baseline surveys cited above, as well as by subcenters and health posts in the IRD projects as part of the Leche Avena program.

A baseline survey will be conducted in each of the three IRD projects at the initiation of the project which will incorporate measurements of the eight indicators and relate them to socio-economic variables of the target group, i.e., income, type of community, food production and consumption patterns and educational or literacy status. A follow-up survey will be conducted during the third and fifth years of the project to measure changes.

It is also important that community participation in PHC, WS/S and nutrition be carefully monitored. The creation of water boards, protein production units and community botiquines as well as number of midwives and student volunteer health promoters trained, will be useful indicators in this regard. Evaluation of all field level IRD activities will be designed and organized by the IRDS Program Division.

The large number of pilot activities and technological innovation incorporated in this project require special attention in terms of monitoring evaluation. This will be addressed as follows. First, the WS/S field activities and innovations will receive on-going monitoring by an extension of the current Georgia Tech contract for technology development. In addition, WASH-funded specialists will be requested to provide evaluation of the incentives plan (see p. 24) and other appropriate technologies (i.e. dynamic filter). Finally, the long term PASA advisor will provide continuous monitoring of these activities and be in a position to assist the IEOS in development of a sound evaluation plan.

Second, community based primary health care innovations will also receive systematic evaluation. The 12 person months Universidad del Valle TA will include monitoring and evaluation of the whole PHC model, with emphasis on promoters and area chiefs' functioning. In addition, USAID expects to utilize the new DSB Health centrally funded PHC/Operations Research Project as an evaluation resource. A detailed plan for a quantitative study of health promoter financing, efficiency and effectiveness is expected to be submitted for funding through the PHC/OR mechanism.

There will be joint USAID/GOE evaluations and progress reviews annually. The annual joint evaluations and progress reviews held during the last quarter of calendar years 1982, 1983 and 1984 in time to influence the preparation of GOE budgets for the coming years. Outputs listed in the Logical Framework (Annex II), will serve as indicators for these evaluations. A final project evaluation and completion report will be prepared jointly by USAID and IRDS staff in late calendar year 1986, assuming project completion as scheduled.

C. Conditions and Covenants

USAID recommends the inclusion of the following conditions precedent in the Project Authorization.

(1) Condition Precedent to Disbursement to Finance those Water Supply and Sanitation (WS/S) Field Activities, Except for the Procurement of Vehicle and Imported Equipment to be Carried Out by the Ecuadorean Institute of Sanitary Works (IEOS). Prior to any disbursement, or the issuance of any commitment documents under the Project Agreement, to finance those water supply and sanitation (WS/S) field activities to be carried out by the Ecuadorean Institute of Sanitary Works (IEOS), except for the procurement of vehicles and imported equipment, the GOE shall, except as A.I.D. may otherwise agree in writing, furnish, in form and substance satisfactory to A.I.D., (x) an executed agreement between IEOS and the Integrated Rural Development Secretariat (IRDS) describing a coordination and disbursement mechanism and a first year operational plan for carrying out such field activities and (y) evidence of the establishment of a coordination unit within IEOS.

(2) Condition Precedent to Disbursement to Finance Primary Health Care Field Activities, Except for the Procurement of Vehicles and Imported Equipment to be Carried Out by the Ministry of Health (MOH). Prior to any disbursement, or the issuance of any commitment documents under the Project Agreement, to finance those primary health care field activities in each IRD area to be carried out by the Ministry of Health (MOH), except for the procurement of vehicles and imported equipment, the GOE shall, except as A.I.D. may otherwise agree in writing, furnish, in form and substance satisfactory to A.I.D. (x) an agreement between the MOH and the IRDS describing a coordination and disbursement mechanism and a first year operational plan for carrying out such field activities and (y) evidence that there has been designated and established for each such IRD area the position of area health chief and that an individual has been selected for each such position.

(3) Condition Precedent to Disbursement to Finance Ecuadorean Food Program (PAE) Nutrition Activities, Except for Procurement of Technical Assistance and Training. Prior to any disbursement, or the issuance of any commitment documents under the Project Agreement, to finance nutrition activities under the Ecuador Food Program (PAE), other than for technical assistance and training, the GOE shall, except as A.I.D. may otherwise agree in writing, furnish, in form and substance satisfactory to A.I.D., selection criteria for the PAE nutrition activities and a work plan and a budget for each such activity to be financed.

D. Covenant

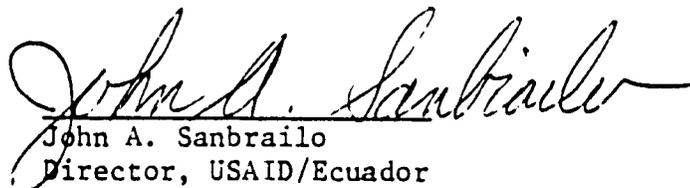
The GOE shall covenant that, unless A.I.D. otherwise agrees in writing, it will cause the IEOS and the MOH, respectively, to update, on at least an annual basis, the operational plans referred to in Section 3.d.(1) and (2) hereof.

CERTIFICATION PURSUANT TO SECTION 611 (e) OF THE FOREIGN

ASSISTANCE ACT OF 1961, AS AMENDED

I, John A. Sanbrailo, the principal officer of the Agency for International Development in Ecuador, having taken into consideration among other factors, the maintenance and utilization of projects in Ecuador previously financed or assisted by the United States, do hereby certify that in my judgment Ecuador has the technical capability and the physical, financial, and human resources to utilize and maintain effectively the proposed loan of six million United States dollars and grant one million United States dollars (\$1,000,000) from the Government of the United States of America to the Government of Ecuador for the development of an Integrated Rural Health Systems Project.

This judgement is based on: (a) the fact that the project design, as described in the Project Paper, takes into account existing GOE institutional capacities to utilize and maintain project resources and provide for a comprehensive program of institutional strengthening to promote utilization and maintenance; and (b) the USAID'S previous experience with the maintenance and utilization of other projects in Ecuador previous financed or assisted by the United States


John A. Sanbrailo
Director, USAID/Ecuador

June 29, 1981

P 241537Z DEC 70
FM GOESTATE WASHDC
TO AMEMBATEY QUITO FB12 IY 3716 - 871/
BT
UNCLAS STATE 330009

AIDAC
E.O. 12355: 1/A

AGS:

SUBJECT: DAEC REVIEW OF ECUADOR INTEGRATED RURAL HEALTH DELIVERY SYSTEM AND POPULATION AND FAMILY PLANNING PIDS

SUBJECT PIDS WERE REVIEWED AND APPROVED ON DECEMBER 4, 1968. THE FOLLOWING GUIDANCE IS PROVIDED FOR PP PREPARATION.

PART I

INTEGRATED RURAL HEALTH DELIVERY SYSTEM GUIDANCE

1. DONOR COORDINATION: THE PID STRESSES THAT PROJECT ACTIVITIES WILL FILL THE QUOTE GAPS UNQUOTE IN OTHER DONOR PROGRAMS. THE DAEC SUGGESTS THAT THE PP CAREFULLY REVIEW THE RELATIONSHIP BETWEEN THIS PROJECT'S AND THE OTHER DONOR'S ACTIVITIES TO AVOID OVERLAP AND ENSURE COORDINATION. THE PP SHOULD EXPLICITLY DEMONSTRATE COMPLEMENTARITY IN PROGRAM STRATEGY AND ACTIVITIES AMONG ALL DONORS INVOLVED IN THE ECUADOREAN HEALTH SECTOR. THIS REVIEW SHOULD INCLUDE A DISCUSSION OF OTHER DONORS' ACCEPTANCE OF THE QUOTE MICROREGIONAL UNQUOTE APPROACH, THE DEGREE TO WHICH THE SUCCESS OF THIS PROJECT DEPENDS UPON THE PERFORMANCE OF OTHER DONORS AND HOW THE VARIOUS ACTIVITIES OF ALL

DONORS FIT TOGETHER TO CREATE A WORKING INTEGRATED RURAL HEALTH DELIVERY SYSTEM AT THE NATIONAL, PROVINCIAL AND LOCAL LEVELS. IN PARTICULAR, THE PP SHOULD CLARIFY THE DISTINCTION BETWEEN THE TRAINING PROVIDED BY UNFPA AND THIS PROJECT, AND JUSTIFY THE NEED FOR CONSTRUCTING ADDITIONAL HEALTH FACILITIES (5 HEALTH POSTS AND ONE OR TWO SUBCENTERS) IN LIGHT OF THE DCL'S 9.5 MILLION USD LOAN/GRANT FOR 300 HEALTH POSTS AND 70 SUBCENTERS. REASONS WHY THE IDB LOAN CAN NOT BE REPROGRAMMED TO PROVIDE INFRASTRUCTURE IN THE A.I.D.-ASSISTED IDB AREAS SHOULD BE DISCUSSED.

2. PROJECT DESIGN:

--A. THE LINKS BETWEEN THE NATIONAL, PROVINCIAL AND LOCAL LEVELS OF THE IDB/IDB SYSTEM ARE NOT WELL DEFINED. THE PP SHOULD INCLUDE SOME KIND OF DYNAMIC PRESENTATION (PERHAPS A FLOW CHART) OF THE CHANNELS THROUGH WHICH INFORMATION WILL BE COMMUNICATED AND ACTIVITIES COORDINATED BETWEEN THE DIFFERENT LEVELS OF THE SYSTEM, I.E., HOW THE DECENTRALIZATION STRATEGY IS TO BE IMPLEMENTED. INCLUDED IN THIS DISCUSSION SHOULD BE A CLARIFICATION OF THE LINES OF AUTHORITY AND OF THE DIFFERENT OFFICIALS, PARTICULARLY AT THE PROVINCIAL LEVEL. FOR EXAMPLE, THE PP SHOULD EXPLAIN THE CHAIN OF COMMAND BETWEEN IDB COORDINATORS AND IDB'S AREA CHIEFS. DURING THE DAEC IT WAS STATED THAT DELEGATION OF IDB PROJECT MANAGEMENT RESPONSIBILITIES AT THE PROVINCIAL LEVEL IS TO BE ONLY TEMPORARY FOR PURPOSES OF GETTING THE SYSTEM IN PLACE AND FUNCTIONING. THE PP SHOULD EXPLAIN HOW THE TRANSITION IS TO BE MADE FROM THIS INITIAL PHASE OF IDB INVOLVEMENT TO THE PERMANENT PROVINCIAL OPERATION IN TERMS OF SHIFTS IN AUTHORITY AND RESPONSIBILITIES.

ADM 2	
ADM 1	
ADM 3	
ADM 4	
ADM 5	
ADM 6	
ADM 7	
ADM 8	
ADM 9	
ADM 10	
ADM 11	
ADM 12	
ADM 13	
ADM 14	
ADM 15	
ADM 16	
ADM 17	
ADM 18	
ADM 19	
ADM 20	
ADM 21	
ADM 22	
ADM 23	
ADM 24	
ADM 25	
ADM 26	
ADM 27	
ADM 28	
ADM 29	
ADM 30	
ADM 31	
ADM 32	
ADM 33	
ADM 34	
ADM 35	
ADM 36	
ADM 37	
ADM 38	
ADM 39	
ADM 40	
ADM 41	
ADM 42	
ADM 43	
ADM 44	
ADM 45	
ADM 46	
ADM 47	
ADM 48	
ADM 49	
ADM 50	
ADM 51	
ADM 52	
ADM 53	
ADM 54	
ADM 55	
ADM 56	
ADM 57	
ADM 58	
ADM 59	
ADM 60	
ADM 61	
ADM 62	
ADM 63	
ADM 64	
ADM 65	
ADM 66	
ADM 67	
ADM 68	
ADM 69	
ADM 70	
ADM 71	
ADM 72	
ADM 73	
ADM 74	
ADM 75	
ADM 76	
ADM 77	
ADM 78	
ADM 79	
ADM 80	
ADM 81	
ADM 82	
ADM 83	
ADM 84	
ADM 85	
ADM 86	
ADM 87	
ADM 88	
ADM 89	
ADM 90	
ADM 91	
ADM 92	
ADM 93	
ADM 94	
ADM 95	
ADM 96	
ADM 97	
ADM 98	
ADM 99	
ADM 100	

7 1/2

--B. THE LEGAL REPERCUSSIONS OF THE DISTRIBUTION OF... FOR EXAMPLE, IT SHOULD BE DETERMINED WHETHER A LAW, REGULATION, ETC., COVERING SUCH ACTIVITIES, AND THE SCOPE OF THE LEGISLATION SHOULD BE CAREFULLY REVIEWED. ONCE CLARIFIED, PP SHOULD DISCUSS STRATEGY PROPOSED TO DEAL WITH THE IDENTIFIED CONSTRAINTS TO ENSURE THAT FAMILY PLANNING SERVICES CAN BE MADE AVAILABLE TO THE TARGET GROUP. THE PP SHOULD NOTE WHETHER THIS STRATEGY INVOLVES CHANGES IN ECUADORIAN LAWS AND/OR CREATING A MECHANISM TO WORK IN COMPLIANCE WITH THE LAWS AS THEY NOW EXIST. TO WHAT DEGREE SHOULD NATIONAL HEALTH NORMS BE CHANGED SO THAT PARAMEDICS CAN OPERATE AS PLANNED IN THE IRD AREAS, E.G., IN THE DELIVERY OF CONTRACEPTIVES, DISTRIBUTION OF CERTAIN PRESCRIPTION DRUGS, ETC. HOW WILL THE PROJECT ADDRESS THIS ISSUE?

--C. THE PP SHOULD FURTHER DEVELOP THE QUOTE FUND UNQUOTE CONCEPT AS A MEANS OF PROVIDING FLEXIBILITY TO THE SYSTEM IN ORDER TO HANDLE UNFORESAEN PROBLEMS THAT MIGHT ARISE AT THE VARIOUS LEVELS OF THE HEALTH DELIVERY SYSTEM. MEANS OF MONITORING AND FINANCING THE VARIOUS FUNDS PROPOSED IN THE PID NEED TO BE EXPLORED DURING THE INTENSIVE REVIEW.

--D. THE PP SHOULD DISCUSS MORE EXPLICITLY THE MECHANISMS THROUGH WHICH COMMUNITY PARTICIPATION IS TO BECOME AN INTEGRAL PART OF THE PROJECT. FOR EXAMPLE, SHOULD A.I.D. ASSISTANCE IN THE POTABLE WATER PROJECT BE CONTINGENT ON THIS PARTICIPATION?

--E. GIVEN THE EXPECTED HIGH COST OF MOBIL HEALTH EDUCATION UNITS, THE MISSION SHOULD LOOK AT SIMILAR EXPERIENCES IN OTHER COUNTRIES TO JUDGE HOW THIS APPROACH COMPARES WITH MORE COST-EFFECTIVE ALTERNATIVES SUCH AS RADIO COMMUNICATIONS OR COMMUNITY BASED HEALTH EDUCATION PROGRAMS USING PARAMEDICAL PERSONNEL.

--F. SCHOOL FEEDING: CONCERN WAS EXPRESSED ABOUT THE PROPOSED SCHOOL FEEDING COMPONENT IN LIGHT OF AGENCY POLICY TO REDUCE SUPPORT FOR SCHOOL FEEDING IN FAVOR OF PROGRAMS LINKED TO MCH. PL. 430, SECTION 206 FUNDS ARE NOT AVAILABLE FOR THIS COMPONENT. THEREFORE, THE PP SHOULD DESCRIBE HOW THIS COMPONENT RELATES TO OVERALL IRD PROGRAM AND HOW THE GOE WILL USE LOAN FUNDS IN IRD AREAS TO CARRY OUT THEIR SCHOOL FEEDING PROGRAM. WHY CAN'T GOE RESOURCES BE REDIRECTED TO SUPPORT THIS SMALL PILOT PROGRAM?

PART II

POPULATION AND FAMILY PLANNING GUIDANCE

1. PROJECT STRATEGY: A.I.D. ASSISTANCE IS TO BE DISBURSED THROUGH NUMEROUS PUBLIC AND PRIVATE SECTOR FAMILY PLANNING-RELATED INSTITUTIONS. THE PP SHOULD DESCRIBE THE MECHANISM THROUGH WHICH THIS MULTI-INSTITUTIONAL EFFORT WILL WORK.

RELATED TO THIS ISSUE IS THAT OF FUNDING STRATEGY. GIVEN THE SCARCITY OF LAC BUREAU GRANT FUNDING AND THE UNCERTAINTY OF THE PERFORMANCE CAPABILITY OF ALL INSTITUTIONS TO RECEIVE A.I.D. ASSISTANCE, PROJECT SHOULD PROVIDE FOR AN ANNUAL REVIEW OF PROGRESS ACHIEVED BY THE RESPECTIVE INSTITUTIONS AGAINST PREESTABLISHED PERFORMANCE OBJECTIVES. ON BASIS OF THESE REVIEWS, MISSION WOULD MAKE ITS CASE TO THE BUREAU FOR ANNUAL FUNDING INCREMENTS.

IT WAS ALSO SUGGESTED, IN LIGHT OF LIMITED GRANT MONEY, THAT THE MISSION FORMULATE A PRIORITY RANKING OF PROJECT ACTIVITIES IN CASE FUNDING CONSTRAINTS LIMIT AVAILABLE ASSISTANCE. THIS RANKING REQUIRES A JUDGMENT OF THE RELATIVE EFFECTIVENESS AND EFFICIENCY OF THE VARIOUS INSTITUTIONS TO DETERMINE WHICH INSTITUTIONS WOULD SURVIVE A NARROWING IN PROJECT SCOPE. THE INSTITUTIONAL ANALYSIS SECTION OF THE PP SHOULD ADDRESS THESE STRATEGY CONCERNS.

2. PROJECT MANAGEMENT: THE PP SHOULD CLARIFY AND EXPAND ON THE PROPOSED RECRUITMENT OF A NATIONAL CONSULTANT AS PROJECT MONITOR, AND ALTERNATIVES TO THIS PROPOSAL SHOULD BE DISCUSSED. THIS DISCUSSION SHOULD INCLUDE HOW THE MISSION PLANS TO UTILIZE THIS ASSISTANCE, I.E., WITHIN OR OUTSIDE OF THE MISSION. THE MISSION IS REMINDED THAT IF AN EQUADOREAN IS RECRUITED A JUSTIFICATION FOR LOCAL CURRENCY FINANCING WILL NEED TO BE INCLUDED IN THE PP. IF A THIRD COUNTRY NATIONAL CONSULTANT IS SELECTED, A WAIVER OF A.I.D. NATIONALITY REQUIREMENTS WILL BE REQUIRED.

3. BILATERAL FUNDING OF COMMERCIAL RETAIL SALES (CRS) OF CONTRACEPTIVES: IF DSB FUNDS ARE NOT AVAILABLE TO INITIATE A CRS PROGRAM, IT IS DOUBTFUL THAT LAC WILL ASSUME FUNDING RESPONSIBILITY. IF FUNDING BECOMES AVAILABLE, THE PP SHOULD REVIEW SUCCESSFUL CRS PROGRAMS IN OTHER COUNTRIES AND DISCUSS THE POSSIBILITY OF INCORPORATING EFFECTIVE COMPONENTS IN THIS PROJECT. WILL ADVISE OF DSB ACTION.

4. PROJECT BENEFICIARIES: THE PP SHOULD CLEARLY DELINEATE THE DIFFERENT GEOGRAPHIC AREAS OF SERVICE DELIVERY AND THE ELIGIBILITY CRITERIA FOR THE SERVICES OF EACH PARTICIPATING INSTITUTION. THIS, IN TURN, SHOULD HELP IDENTIFY THE PROJECT BENEFICIARIES AND ASSIST IN COORDINATING ALL INSTITUTIONS' ACTIVITIES TO REACH AS MANY BENEFICIARIES AS POSSIBLE BY AVOIDING OVERLAP OF EFFORTS IN SOME AREAS AND ABSENCE OF FAMILY PLANNING SERVICES IN OTHERS.

PART III

GENERAL GUIDANCE ADDRESSING BOTH PROJECTS

1. INTEGRATION OF HEALTH AND POPULATION PROJECTS: THE PP SHOULD DISCUSS HOW THESE TWO RELATED PROJECTS ARE TO FUNCTION AS A COORDINATED DEVELOPMENT EFFORT. BOTH PIDS MAKE LITTLE, IF ANY, REFERENCE TO COMPLEMENTARY PROJECT COMPONENTS SUCH AS THE DELIVERY OF FAMILY PLANNING SERVICES (PART I, 29 OF CABLE APPLIES TO BOTH PROJECTS), TRAINING OF HEALTH PERSONNEL, AND INSTITUTIONAL STRENGTHENING. THE PP SHOULD CLEARLY DESCRIBE HOW THESE ACTIVITIES AND OTHERS ARE TO BE COORDINATED TO AVOID DUPLICATION OF EFFORTS AND PROMOTE MUTUAL REINFORCEMENT.

2. GRANT-FINANCING OF TA: THE MISSION IS URGED TO REVIEW CAREFULLY GRANT REQUIREMENTS OF BOTH PROJECTS IN LIGHT OF SCARCE LAC BUREAU BUDGETARY RESOURCES.

3. PROJECT DEVELOPMENT PLANS: GIVEN THE SUBSTANTIAL AMOUNT OF TECHNICAL ASSISTANCE, BASELINE STUDIES, AND ANALYSES REQUIRED DURING INTENSIVE REVIEW, THE MISSION IS ENCOURAGED TO FINALIZE DETAILED PROJECT DEVELOPMENT PLANS AS SOON AS POSSIBLE. IN PARTICULAR, GIVEN THE CRITICAL ROLE OF PROVINCIAL LEVEL ACTIVITIES IN THE HEALTH PROJECT, THE SELECTION PROCESS FOR AREA HEALTH CHIEFS SHOULD BEGIN ALMOST IMMEDIATELY. THE PP SHOULD ALSO INCLUDE AN EVALUATION PLAN SPECIFYING THE PERFORMANCE INDICATORS THAT WILL DEMONSTRATE THE RESULTS PRODUCED SPECIFICALLY BY A.I.D.'S INPUTS. BASELINE AND EVALUATION STUDIES SHOULD INCLUDE APPROPRIATE MEASURES OF NUTRITIONAL STATUS.

MUSKIE
BT
19839

UNCLASSIFIED

5C(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. Has the Department of State determined that this government has engaged in a consistent pattern of gross violations of internationally recognized human rights? If so, can it be demonstrated that contemplated assistance will directly benefit the needy?
 1. It can be demonstrated that a major share of the proposed assistance will be directly benefitting the needy. In any event, the Department of State has not determined that Ecuador is a violator of human rights.
2. FAA Sec. 118. Has particular attention been given those programs, projects, and activities which tend to integrate women into the national economics of developing countries, thus improving their status and assisting the total development effort?
 2. Yes. See Social Soundness Analysis. Also the Project will improve the Maternal and Child Health care capacity of the Ministry of Health.
3. FAA Sec. 481. Has it been determined that the government of the 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 U.S. unlawfully?
 3. It has not been so determined. The GOE has an active narcotics control program with USG support.
4. FAA Sec. 620(b). If assistance is to a government, has the Secretary of State determined that it is not dominated or controlled by the international Communist movement?
 4. The Secretary of State has so determined.
5. FAA Sec. 620(c). If assistance is to a government, is the government liable as debtor or unconditional guarantor on any debt to a U.S. citizen for goods or services furnished or ordered where (a) such citizen has exhausted available legal remedies and (b) the debt is not denied or contested by such government?
 5. No such case is known.

6. FAA Sec. 620(e)(1). If assistance is 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? 6. No.
7. FAA Sec. 620(a), 620(f), 620D; Continuing Resolution Sec. 511, 512 and 513; ISDCA of 1980 Secs. 717 and 721. Is recipient country a Communist country? Will assistance be provided to Angola, Cambodia, Cuba, Laos or Vietnam? (Food and humanitarian assistance distributed directly to the people of Cambodia are excepted). Will assistance be provided to Afghanistan or Mozambique without a waiver? Are funds for El Salvador to be used for planning for compensation, or for the purpose of compensation, for the confiscation nationalization, acquisition or expropriation of any agricultural or banking enterprise, or property or stock thereof? 7. No.
8. FAA Sec. 620(i). 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? 8. No.
9. 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? 9. No, the GOE is taking measures considered adequate by the USG.
10. FAA Sec. 620(k). Does the program furnish assistance in excess of \$100,000,000 for the construction of a productive enterprise, except for productive enterprises in Egypt that were described in the Congressional Presentation materials for FY 1977, FY 1980 or FY 1981? 10. No.
11. FAA Sec. 620(l). If the country has failed to institute the investment guaranty program for the specific risks of expropriation, inconvertibility or confiscation, has the AID Administrator within the past year considered denying assistance to such government for this reason? 11. The A.I.D. Administrator has so considered.
12. FAA Sec. 620(m). Is the country an economically developed nation capable of sustaining its own defense burden and economic growth and, if so, does it meet any of the exceptions to FAA Section 620(m)? 12. No.

13. 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,
13. a. No.
b. Yes.
- a. has any deduction required by the Fishermen's Protective Act been made?
b. has complete denial of assistance been considered by AID Administrator?
14. FAA Sec. 620(q); Continuing Resolution Sec. 518. (a) Is the government of the recipient country in default for more than six months on interest or principal of any AID loan to the country? (b) Is the country in default exceeding one year on interest or principal on any U.S. loan under a program for which the Continuing Resolution appropriates funds?
14. No.
15. 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 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, taken into account by the Administrator at time of approval of Agency OYB." This approval by the Administrator of the Operational Year Budget can be the basis for an affirmative answer during the fiscal year unless significant changes in circumstances occur.)
15. Yes, as reported in the annual report on implementation of Section 620(s).
16. 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?
16. No.
17. 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?
17. Payment Status is current.
18. FAA Sec. 620A; Continuing Resolution Sec. 521. Has the country aided or abetted, by granting sanctuary from prosecution to, any individual or group which has committed an act of international terrorism? Has the country aided or abetted, by granting sanctuary from prosecution to, any individual or group which has committed a war crime?
18. No.

19. 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. who is present in such country to carry out economic development programs under the FAA? 19. No.
20. 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 non-proliferation treaty? 20. No.

B. FUNDING SOURCE 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 the 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.
- 1.a. AID/W has established such criteria and they have been taken into account in reinitiating an AID program in Ecuador.
- b. FAA Sec. 104(d)(1). If appropriate, is this development (including Sanel) 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, assistance to urban poor and through community-based development programs which give recognition to people motivated to limit the size of their families?
- 1.b. Yes, reductions in infant and child mortality will reduce desire for large families.

2. Economic Support Fund Country Criteria.

- a. FAA Sec. 502B. Has the country (a) engaged in a consistent pattern of gross violations of internationally recognized human rights or (b) made such significant improvements in its human rights record that furnishing such assistance is in the national interest?
- 2.a. Not applicable.

- b. FAA Sec. 532(f). Will ESF assistance be provided to Syria? 2.b. Not applicable.
- 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? 2.c. Not applicable.
- d. FAA Sec. 620B. Will ESF be furnished to Argentina? 2.d. Not applicable.

5C(2) - PROJECT CHECKLIST

Listed below are statutory criteria applicable generally to projects with FAA funds and project criteria applicable to individual funding 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 PROJECT?

A. GENERAL CRITERIA FOR PROJECT

1. Continuing Resolution Unnumbered; FAA Sec. 634A; Sec. 653(b).
 - (a) Describe how authorizing and appropriations Committees of Senate and House have been or will be notified concerning the project;
 - (b) is assistance within (Operational Year Budget) country or international organization allocation reported to Congress (or not more than \$1 million over that figure?)
 2. FAA Sec. 611(a)(1). Prior to obligation in excess of \$100,000, will there be (a) engineering, financial other plans necessary to carry out the assistance and (b) a reasonably firm estimate of the cost to the U.S. of the assistance?
 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?
 4. FAA Sec. 611(b); Continuing Resolution Sec. 501. If for water or water-related land resource construction, has project met the standards and criteria as set forth in the Principles and Standards for Planning Water and Related Land Resources, dated October 25, 1973?
 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?
- 1.(a) The project was included in the FY 1981 Congressional Presentation, and the project as designed herein is consistent with that notification.
 - (b) Yes.
 - 2.(a) Relevant engineering and financial plans have been prepared.
 - (b) Reasonably firm estimates of costs had been made and are summarized in this Project Paper.
 3. No such action required.
 4. Yes, the project conforms in substance with the standards and criteria as per the Principles and Standards for Planning Water and Related Land Resources.
 5. 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.
 7. FAA Sec. 601 (a). Information and conclusions whether project will encourage efforts of the country to: (a) increase the flow of international trade; (b) foster private initiative and competition; and (c) encourage development and use of cooperatives, and credit unions, and savings and loan associations; (d) discourage monopolistic practices; (e) improve technical efficiency of industry, agriculture and commerce; and (f) strengthen free labor unions.
 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).
 9. FAA Sec. 612 (b), 626 (h); Continuing Resolution Sec. 508. Describe steps taken to assure that, to the maximum extent possible, the country is contributing local currencies to meet the cost of contractual and other services, and foreign currencies owned by the U.S. are utilized in lieu of dollars.
 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?
 11. FAA Sec. 601 (e). Will the project utilize competitive selection procedures for the awarding of contracts, except where applicable procurement rules allow otherwise?
 12. Continuing Resolution Sec. 522. 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?
6. No, the project is Ecuador-specific in its institution building aspects.
 7. The project will improve the technical efficiency of industry, agriculture and commerce by improving the health of the work force.
 8. Many goods and services under the project will be supplied by the US private sector.
 9. Host country contributions are 50 percent of the project costs.
 10. No.
 11. Yes.
 12. Not applicable.

B. FUNDING CRITERIA FOR PROJECT

1. Development Assistance Project Criteria

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

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.)

(1) (103) for agriculture, rural development or nutrition; if so (a) extent to which activity is specifically designed to increase productivity and income of rural poor; 103A if for agricultural research, full account shall be taken of the needs of small farmers, and extensive use of field testing to adapt basic research to local conditions shall be made; (b) extent to which assistance is used in coordination with programs carried out under Sec. 104 to help improve nutrition of the people of developing countries through encouragement of increased production of crops with greater nutritional value, improvement of planning, research, and education with respect to nutrition, particularly with reference to improvement and expanded use of indigenously produced foodstuffs; and the undertaking of pilot or demonstration of programs explicitly addressing the problem of malnutrition of poor and vulnerable people; and (c) extent to which activity increases national food security by improving food policies and management and by strengthening national food reserves,

1.a. The project will have a direct impact on the quality of life of the target group by improving the accessibility and affordability of health, potable water and sanitation services in rural areas of Ecuador. These services will be provided to rural areas through cost efficient delivery systems which use appropriate construction technologies.

1.b. This assistance is being made available for health activities under Sec. 104 of the FAA. The activity financed is an integrated rural health delivery system which emphasizes low cost, health, nutrition, and sanitation interventions for some of the poorest rural residents of Ecuador.

expanding available storage facilities, reducing post harvest food losses, and improving food distribution.

(2) (104) for population planning under sec. 104 (b) or health under sec. 104 (c); if so, (i) 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; and (ii) extent to which assistance provides advanced education and training of people in developing countries in such disciplines as are required for planning and implementation of public and private development activities.

(4) (106; ISDCA of 1980, Sec. 304) for energy, private voluntary organizations and selected development activities; if so, extent to which activity is: (i) (a) concerned with data collection and analysis, the training of skilled personnel, research on and development of suitable energy sources, and pilot projects to test new methods of energy production; (b) facilitative of geological oil, natural gas, and coal reserves and (c) a cooperative program in energy production and conservation through research and development and use of small scale, decentralized, renewable energy sources for rural areas;

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

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

(iv) reconstruction after natural or manmade disaster;

(v) for special development problems, 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? (relatively smaller, cost-saving, labor using technologies that are generally most appropriate for the small farms, small businesses, and small incomes of the poor.)

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)?

e. FAA Sec. 110 (b). Will grant capital assistance be disbursed for project over more than 3 years? If so, has justification satisfactory to Congress been made, and efforts for other financing, or is the recipient country "relatively least developed"?

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 processes essential to self-government.

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

2. Development Assistance Project Criteria (Loans Only)

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

1.c. Yes, water supply systems and health posts and subcenters will be constructed using cost-savings design standards and techniques that will permit greater community participation.

d. Yes, host country contributions amount to 50 percent of the costs of the project.

e. The project does not involve Grant capital assistance.

f. The project responds to priority needs in the health sector identified in the Natural Development Plan. It directly provides for institutional development of key health sector institutions through technical assistance and training.

g. Improvements in health and nutritional status will improve productive capacity by reducing degree of debilitating illness among Ecuador's rural population.

2.a. USAID has reviewed the GOE's capacity to pay this and other development assistance loans and has concluded that the GOE has the capacity to repay this loan.

b. FAA Sec. 620 (d). If assistance is for any productive enterprise which will compete with U.S. enterprises, is there an agreement by the recipient country to prevent export to the U.S. of more than 20% of the enterprise's annual production during the life of the loan?

2.b. Not applicable.

3. Project Criteria Solely for Economic Support Fund

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

3.a. Not applicable.

b. FAA Sec. 531 (c). Will assistance under this chapter be used for military, or paramilitary activities?

3.b. Not applicable.

5C(3) - STANDARD ITEM CHECKLIST

Listed below are the 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 commodities and services financed?
 1. In accordance with AID regulations, procedures encouraging small business participation will be followed.
2. FAA Sec. 604 (a). Will all procurement be from the U.S. except as otherwise determined by the President or under delegation from him?
 2. Procurement is planned from host country and United States for grant funds and from these or other eligible (AID Geographic code 941) countries for loan funds. Waivers from such sources will be requested as required.
3. FAA Sec. 604 (d). If the cooperating country discriminates against U.S. marine insurance companies, will commodities be insured in the United States against marine risk with a company or companies authorized to do a marine insurance business in the U.S.?
 3. Not applicable.
4. FAA Sec. 604 (e); ISDCA of 1980 Sec. 705 (a). If offshore procurement of agricultural commodity or product is to be financed, is there provision against such procurement when the domestic price of such commodity is less than parity? (Exception where commodity financed could not reasonably be procured in U.S.)
 4. Not applicable.
5. FAA Sec. 603. Is the shipping excluded from compliance with requirements in section 901 (b) of the Merchant Marine Act of 1936, as amended, that at least 50 percentum of the gross tonnage of commodities (computed separately for dry bulk carriers, dry cargo liners, and tankers) financed shall be transported on privately owned U.S. - flag commercial vessels to the extent that such vessels are available at fair and reasonable rates?
 5. No.
6. FAA Sec. 621. If technical assistance is financed, to the fullest extent practicable will such assistance, goods and professional and other services be furnished from private enterprise on a contract?
 6. Technical assistance is expected to be contracted primarily from private firms and individuals. Assistance from the United States Public Health service will be required to assist IEOS to improve its rural water and sanitation program. The provision of these services are appropriate, not competitive with private enterprise, and made available without

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

undue interference with domestic programs.

7. 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. carriers will be utilized to the extent such service is available? 7. Yes, the Project Agreement will so state.
8. Continuing Resolution Sec. 505. If the U. S. Government is a party to a contract for procurement, does the contract contain a provision authorizing termination of such contract for the convenience of the United States? 8. Yes.

B. Construction

1. FAA Sec. 601 (d). If 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 interests? 1. 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? 2. Yes.
3. FAA Sec. 620 (k). If for construction of productive enterprise, will aggregate value of assistance to be furnished by the U.S. not exceed \$100 million? 3. Not applicable.

C. Other Restrictions

1. FAA Sec. 122 (b). If development loan, is interest rate at least 2% per annum during grace period and at least 3% per annum thereafter? 1. 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? 2. No such fund will be established.
3. FAA Sec. 620 (h). Do arrangements exist to insure that United States foreign aid is not used in a manner which, contrary to the best interests of the United States, promotes or assists the foreign aid projects 3. Yes, arrangements preclude activities as stated.

or activities of the Communist-bloc countries?

4. Continuing Resolution Sec. 514. If participants will be trained in the United States with funds obligated in FY 1981, has it been determined either (a) that such participants will be selected otherwise than by their home governments, or (b) that at least 20% of the FY 1981 fiscal year's funds appropriated for participant training will be for participants selected otherwise than by their home governments?
4. Agency has met statutory goal.
5. Will arrangements preclude use of financing:
 - a. FAA Sec. 104 (f). To pay for performance of abortions as a method of family planning or to, motivate or coerce persons to practice abortions; to pay for performance of involuntary sterilization as a method of family planning, or to coerce or provide financial incentive to any person to undergo sterilization?
 - b. FAA Sec. 620 (g). To compensate owners for expropriated nationalized property?
 - c. FAA Sec. 660. To provide training or advice or provide any financial support for police, prisons, or other law enforcement forces, except for narcotics programs?
 - d. FAA Sec. 662. For CIA activities?
 - e. FAA Sec. 636 (i). For purchase, sale, long-term lease, exchange or guaranty of the sale of motor vehicles manufactured outside U.S., unless a waiver is obtained.
 - f. Continuing Resolution Sec. 504. To pay pensions, annuities retirement pay, or adjusted service compensation for military personnel?
 - g. Continuing Resolution Sec. 506. To pay U.N. assessments, arrearages or dues.
 - h. Continuing Resolution Sec. 507. To carry out provisions of FAA section 209 (d) (Transfer of FAA funds to multilateral organizations for lending.)
5. Yes.

i. Continuing Resolution Sec. 509.
To finance the export of nuclear equipment fuel, or technology or to train foreign nationals in nuclear fields?

j. Continuing Resolution Sec. 510.
Will assistance be provided for the purpose of aiding the efforts of the government of such country to repress the legitimate rights of the population of such country contrary to the Universal Declaration of Human Rights?

k. Continuing Resolution Sec. 516.
To be used for publicity or propaganda purposes within U.S. not authorized by Congress?

DRAFT PROJECT AUTHORIZATION

Name of Country: Ecuador

Name of Project: Integrated Rural Health Delivery System

Number of Project:

Loan Number:

1. Pursuant to Section 104 of the Foreign Assistance Act of 1961, as amended, I hereby authorize the Integrated Rural Health Delivery System Project for Ecuador involving planned obligations of not to exceed US\$ 6,000,000 in loan funds and US\$ 1,000,000 in grant funds over a five (5) year period from the date of authorization, subject to the availability of funds in accordance with the A.I.D. OYB/Allotment process, to help in financing foreign exchange and local currency costs for the project.
2. The project ("Project") consists of the development of an Integrated Rural Health Delivery System model by: (1) strengthening GOE institutional capabilities to plan, manage, support and replicate the model; and (2) carrying out primary health care, water supply/sanitation and nutrition improvement activities in three Integrated Rural Development areas to demonstrate the effectiveness of the model.
3. The Project Agreement, which may be negotiated and executed by the Officers to whom such authority is delegated in accordance with A.I.D. regulations and delegations of authority, shall be subject to the following essential terms and covenants and major conditions, together with such other items and conditions as A.I.D. may deem appropriate.
- 4.a. Interest Rate and Terms of Repayment

Ecuador shall repay the Loan to A.I.D. in U.S. Dollars within twenty-five (25) years from the date of first disbursement of the Loan, including, a grace period of not to exceed ten (10) years. Ecuador shall pay to A.I.D. in U.S. Dollars interest from the date of first disbursement of the Loan at the rate of (a) two percent (2%) per annum during the first ten (10) years, and (b) three percent (3%) per annum thereafter, on the outstanding disbursed balance of the Loan and on any due and unpaid interest accrued thereon.
- 4.b. Source and Origin of Goods and Services (Loan)

Goods and services, except for ocean shipping, financed by A.I.D. under the Loan shall have their source and origin in Ecuador or in countries

included in A.I.D. Geographic Code 941, except as A.I.D. may otherwise agree in writing. Ocean shipping financed by A.I.D. under the Loan shall be financed only on flag vessels of Ecuador or countries included in A.I.D. Geographic Code 941, except as A.I.D. may otherwise agree in writing.

4.c. Source and Origin of Goods and Services (Grant)

Goods and services, except for ocean shipping, financed by A.I.D. under the Grant shall have their source and origin in Ecuador 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 shall be financed only on flag vessels of the United States, except as A.I.D. may otherwise agree in writing.

4.d. Conditions Precedent to Disbursement

(1) Condition Precedent to Disbursement to Finance those Water Supply and Sanitation (WS/S) Field Activities, Except for the Procurement of Vehicles and Imported Equipment to be Carried Out by the Ecuadorean Institute of Sanitary Works (IEOS). Prior to any disbursement, or the issuance of any commitment documents under the Project Agreement to finance those water supply and sanitation (WS/S) field activities to be carried out by IEOS, except for the procurement of vehicles and imported equipment, the Cooperating Country shall, except as A.I.D. may otherwise agree in writing, furnish, in form and substance satisfactory to A.I.D., an executed agreement between IEOS and IRDS describing a coordination and disbursement mechanism and a first year operational plan for carrying out such field activities.

(2) Condition Precedent to Disbursement to Finance Primary Health Care Field Activities, Except for the Procurement of Vehicles and Imported Equipment to be Carried Out by the Ministry of Health (MOH). Prior to any disbursement, or the issuance of any commitment documents under the Project Agreement to finance primary health care field activities, except for the procurement of vehicles and imported equipment, to be carried out by the Ministry of Health (MOH), the Cooperating Country shall, except as A.I.D. may otherwise agree in writing, furnish, in form and substance satisfactory to A.I.D., an agreement between the MOH and the IRDS describing a coordination and disbursement mechanism and a first year operational plan for carrying out such field activities.

5.a. The following waivers to A.I.D. regulations are hereby waived:

(1) A.I.D. nationality requirements are hereby waived to allow the procurement of grant-financed technical assistance from suppliers whose nationality is in countries included in A.I.D. Geographic Code 941 in an amount not to exceed \$150,000.

(2) A.I.D. source, origin, and nationality requirements are hereby waived to allow the procurement of up to 10 motorcycles, with a displacement of approximately 175 cc, and spare parts, from countries included in A.I.D. Geographic Code 899. In so waiving, I hereby certify that exclusion of procurement from Free World countries other than the cooperating country and countries included in Code 941 would seriously impede attainment of U.S. foreign policy objectives and objectives of the foreign assistance program.

(3) A.I.D. requirements on competition in the procurement of services, under host country contracting, are hereby waived to allow negotiation with the Universidad del Valle and its affiliates for grant-financed technical assistance in an amount not to exceed \$150,000.

(4) A.I.D. requirements on competition in the procurement of goods under host country contracting are hereby waived to allow the procurement of handpumps from the National Polytechnical University in Ecuador in an amount not to exceed \$200,000.



Quito, a de

23 JUN. 1981

de 197

Sección:

Asunto:

Señor
John Sambrailo
DIRECTOR DE A. I. D.,
Ciudad. -

Señor Director:

El Ministerio de Salud Pública del Ecuador en concordancia a las políticas determinadas en el Plan Nacional de Desarrollo ha creído conveniente incrementar las acciones de salud en el área rural en coordinación con los programas intersectoriales identificados en diversas regiones del país, para este efecto el CONADE ha escogido tres áreas prioritarias: Quimiag-Peñipe, en la Provincia de Chimborazo, Salcedo en la Provincia del Cotacachi y Jipijapa en la Provincia de Manabí.

De la misma manera el Gobierno Nacional con el propósito de coordinar los esfuerzos de las instituciones que desarrollan programas de salud en el país y para un mejor aprovechamiento de esos recursos y una planificación más acorde de los programas de salud, decidió crear el Consejo Nacional de Salud como un paso conducente al establecimiento de un sistema nacional de salud con la participación de tales instituciones.

Adicionalmente se está contemplando el fortalecimiento institucional en el área administrativa de servicios de salud y prestación de servicios en las áreas rurales, por parte de este Ministerio.

En base a esta política el Ministerio de Salud Pública en coordinación con el CONADE, la Secretaría de Desarrollo Rural Integral y el Ministerio de Agricultura, han elaborado un Proyecto de Asistencia Técnica y Financiera que contribuya a la efectivización de los planes de Desarrollo Rural Integral.

El Proyecto se propone promover el desarrollo institucional e implementar los sistemas de regionalización, aumentando la Cobertura de los servicios de salud en íntima relación con el contexto socio-cultural de las poblaciones a servir; el desarrollo de tecnologías más apropiadas y la obtención de una coordinación efectiva entre las Instituciones que componen el sector.

Con estos antecedentes el Ministerio de Salud Pública se permite solicitar a la Agencia Internacional para el Desarrollo se proceda a considerar el otorgamiento de un préstamo que por un monto aproximado de \$ U.S. 6'000.000 (seis millones de dólares), y que por el enfoque social de las actividades a desarrollarse sería concedido en condiciones especiales en cuanto a la forma de pago, tasa de intereses y período de gracia. Además



Quito, a de

de 198

Of. 146 - Pág. 2

Sección:

Asunto:

que se contemple un fondo no reembolsable que coadyuve a la ejecución de las actividades mencionadas anteriormente por un millón de dólares, la contrapartida respectiva por un monto aproximado de igual magnitud correspondiente al país, serán negociados por las Autoridades Gubernamentales respectivas de acuerdo al trámite usual en estos casos.

Los fondos serán utilizados basicamente en las siguientes actividades:

- a) Apoyo al Consejo Nacional de Salud para efectuar estudios técnicos pertinentes y la realización de Seminarios y Talleres de Trabajo, así como la provisión de equipo complementario para sus funciones.
- b) Desarrollo Institucional del Ministerio de Salud Pública, especialmente lo referente a capacitación de Recursos Humanos y Desarrollo Administrativo con énfasis en personal de trabajo en áreas rurales, auxiliares de enfermería y promotores de salud.
Apoyo al sistema de regionalización de servicios de Salud.
- c) Actividades de Saneamiento Básico por medio de un apoyo institucional al IEOS dirigido especialmente a la provisión de agua potable y saneamiento y a los rubros de cooperación técnica, adiestramiento de personal y provisión de equipos.
- d) Complementación de la Infraestructura Sanitaria en el área rural mediante la construcción de Subcentros y Puestos de Salud y la adecuación de algunos locales, así como la provisión de material y equipo.
- e) Cooperación con el Programa de Nutrición que mantiene el Ministerio de Salud Pública en coordinación con los programas apoyados por CARE.

Todas estas actividades resumidas anteriormente requerirán de la asistencia técnica por parte de la A.I.D., con el fin de reforzar el desarrollo del programa propuesto.

Debo manifestar a usted señor Director, el alto interés que el Ministerio de Salud Pública, tiene por este programa así como exponerle nuestro agradecimiento a usted y a sus Distinguidos Colaboradores por la cooperación brindada en la fase de preparación de la solicitud.

Aprovecho la oportunidad para presentar a usted, mis sentimientos de la más distinguida consideración.

Atentamente,
DIOS, PATRIA Y LIBERTAD

Dr. Miguel Coello Ferrnández
MINISTRO DE SALUD PUBLICA



Quito,

Señor
John Sambroilo
REPRESENTANTE DE LA AID
Ciudad.

Estimado señor Sambroilo:

Confirmando lo tratado en diferentes conversaciones sostenidas con funcionarios de la Agencia Internacional de Desarrollo (AID), por la presente se permite ratificar el interés del Instituto Ecuatoriano de Obras Sanitarias (IEOS) de obtener la participación de esa Agencia tendiente a la consecución de recursos de Asistencia Técnica para la Unidad Coordinadora de los programas de saneamiento rural.

De acuerdo a las notas fijadas en el Plan Nacional de Desarrollo del Gobierno Democrático (1960-1964), en el subprograma de saneamiento ambiental en las áreas rurales, se propone dotar con servicios de agua potable y adecuadas facilidades para disposición de excretas a 400 localidades, que demandará una inversión estimada en \$/3.700.000,000. La determinación de la responsabilidad de la consecución de este programa será de responsabilidad del IEOS.

Por otra parte, en el mismo Plan Nacional de Desarrollo está prevista la ejecución de 17 proyectos de Desarrollo Rural Integral (DRI) en diferentes áreas del País. Uno de los componentes de los indicados proyectos DRI será la provisión de los mismos servicios sanitarios a las localidades existentes, en todas y cada una de las respectivas áreas, actividades que debe realizar el IEOS. Las localidades incluidas en este programa son parte de las 400 consideradas en el Subprograma de Saneamiento Ambiental. Para el financiamiento de los proyectos indicados, en la provincia de Cotacachi, Quimsag-Vonipe en la provincia de Chimborazo y Jipijapa en la provincia de Manabí, se ha previsto solicitar un crédito de AID.

De lo anterior se desprende que corresponderá al IEOS la participación directa y activa en la planificación, programación, diseño, construcción, operación y mantenimiento y administración de los servicios de agua potable y facilidades para disposición de excretas en las áreas

... / ...

rurales, para lo cual se requiere que la unidad encargada de la coordinación de estas acciones, internamente en el Instituto, tenga la conformación acorde con la magnitud de los programas y la responsabilidad a él asignada.

Por lo anterior, esta Dirección estima que será de gran utilidad contar con la colaboración de la AID para implementar un programa de Asistencia Técnica al Instituto Ecuatoriano de Obras Sanitarias, orientado al robustecimiento de la Unidad Coordinadora de los programas de Saneamiento Rural.

Mediante el programa de Asistencia Técnica se espera contar con la colaboración de Consultores especialistas en materias a fines al proyecto que asesoren en la formulación de planes de acción; en el desarrollo y empleo de tecnología apropiada, acorde con la realidad nacional, tendiente a optimizar el aprovechamiento de la experiencia, mano de obra y materiales locales, a fin de reducir los costos de instalación y de operación de los servicios a construirse; en la formulación de programas de capacitación para personal profesional, técnico y auxiliar del Instituto del nivel Central y Provincial, como para los encargados de la administración, operación y mantenimiento de los servicios a construirse, mediante la realización de cursos a nivel local y/o extranjero en el exterior.

Este programa incluirá también la dotación de medios materiales que se requieren para el desarrollo del programa, como vehículos para la movilización del personal, talleres y equipos de mantenimiento, material de ingeniería, equipos audiovisuales para promoción de la comunidad, etc.

Se estima que este programa tendrá un costo aproximado de \$/70'000.000 (US\$2'800.000) que se financiarán en un 50% con recursos nacionales, un 34% con fondos de un préstamo de AID y el 16% con fondos reembolsables. El programa tendrá una duración de cuatro años a partir de 1981.

En espera de que esta solicitud sea favorablemente atendida por la Agencia Internacional de Desarrollo, anticipo a Ud. mis agradecimientos.

Atentamente,


Ing. Carlos Ordoñez Beltrán
DIRECTOR EJECUTIVO DEL IECS

EM/cds.
Jul. 12/81

PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK

Life of Project: From FY 81 to FY 86
Total U.S. Funding \$7,000,000
Date Prepared: June 27, 1981

Project Title & Number: Integrated Rural Health Delivery System

PAGE 1

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<p>Program or Sector Goal: The broader objective to which this project contributes: (A-1)</p> <p>To improve the health of Ecuador's rural poor.</p>	<p>Measures of Goal Achievement: (A-2)</p> <p>Statistically significant decreases in morbidity (especially in the prevalence of goiter, diarrhea and communicable diseases) and mortality, especially among mothers and children under 5 in areas served by the MOH.</p>	<p>(A-3)</p> <p>-GOE national, provincial, local level health statistics.</p> <p>-Special health/nutrition surveys and evaluations.</p>	<p>Assumptions for achieving goal targets: (A-4)</p> <p>-The GOE is able to commit sufficient human and financial resources to develop the health system in three IRD areas.</p> <p>-Improvements in health services, water supply and sanitation and food intake lead to improved health status.</p>

PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK

Life of Project: _____
From FY 81 to FY 86
Total U.S. Funding US\$7,000,000
Date Prepared: June 27, 1981

Project Title & Number: Integrated Rural Health Delivery System

PAGE 2

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<p>Project Purpose: (B-1)</p> <p>To develop a model low cost health delivery system in three IRD areas which can be replicated nation-wide.</p>	<p>Conditions that will indicate purpose has been achieved: End-of-Project status. (B-2)</p> <p>1. Primary care, water/sanitation, nutrition services being provided in three IRD areas, viz: promoters generating 2.5 contacts/community member per year, utilization rates for all levels of health facilities significantly increased, 80% of all children vaccinated against common communicable diseases, ORT commonly used to treat diarrhea disease, 80% of under 14's recorded iodine injections in Quimiag-Penipe, health education campaigns being routinely conducted, promoters/and/medicines routinely supervised, botiquines functioning satisfactorily, supplementary feeding program operating efficiently. Potable water provided to 50% of population.</p> <p>2. Morbidity/Mortality significantly reduced.</p> <p>3. Model replicated in other areas; Plans drawn for national replication.</p>	<p>(B-3)</p> <ul style="list-style-type: none"> - Visits to IRD areas, including interviews with various health IRD personnel, and examination of plans, budgets staffing patterns. - Inspection of water systems - Comparison of baseline/follow up studies - Review of health post sub-center, hospital health center and promoter statistical reports on cases of immuno-preventible disease and water-borne diarrheal diseases. 	<p>Assumptions for achieving purpose: (B-4)</p> <ul style="list-style-type: none"> - GOE's commitment to IRD in general specific inclusions of health in IRD project, and national replication of IRD will continue. - IRDS, MOH and IEOS will establish harmonious working relationships and common objectives. - MOH will delegate sufficient authority to area chief. - MOH will formulate policy giving promoters sufficient independence to function properly. - MOH will provide sufficient resources (supplies, medicines, etc.) to allow manpower to function properly, including accurate record keeping.

PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK

Life of Project:
From FY 81 to FY 86
Total U.S. Funding \$7,000,000
Date Prepared: June 27, 1981

Project Title & Number: Integrated Rural Health Delivery System

PAGE 3

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Project Outputs: (C-1)	Magnitude of Outputs: (C-2)	(C-3)	Assumptions for achieving outputs: (C-4)
A. <u>Institution Building</u>			
1. <u>National Health Council</u>			
- Studies, seminars, travel	-Joint MOH/IESS rural health plan developed.	A.1.-Review of National Health Plan and IRD resource allocation plans for MOH/IESS as well as field visits to IRD's	A.1.-GOE will continue to provide political support for National Health Council and coordination among health sector institutions
- Office Equipment	-4 planning studies completed; three international observation trips.	-NHC records	
	-copy machine, typewriters and other equipment purchased.		
2. <u>Ministry of Health</u>		A.2.- B.3.	A.2.-MOH will provide political B.1,3 and resource support to regionalization at the area level, and release staff for training and provide required support for vehicles, maintenance shops and A-V equipment
- Area Chiefs trained (Cali)	6	-Quarterly project reports from IEOS and MOH to USAID	A.3,-IEOS will adopt new technologies, be receptive to long term advisor, release staff for training and provide required support for vehicles, maintenance shops and A-V equipment.
- Area Chiefs trained (In-service)	6	-Project evaluation reports	B.2.
- Vehicles for Area Chiefs	3	-Field visits by USAID staff to IRD areas	
- Area Offices Renovated/ Equipped	3	-WASH Project consultant reports	
- PHC training for Area Staff	3	-MOH and IEOS records of personnel training and assigned	
- Provincial Chiefs trained (Cali)	6		
- Short, in-service courses Provincial Chiefs & staff	6		
- Courses for other provincial staff	3		
- Health Administrators trained	8		
- Executive Seminar (Cali/ Quito)	2		
3. <u>IEOS</u>			
- Master's training for engineer's (3) and educator	4		
- Field trials of equipment			

ADDITIO...
SUPPLEMENT 1

PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK

Life of Project:
From FY 81 to FY 86
Total U.S. Funding \$7,000,000
Date Prepared: June 27, 1981

Project Title & Number: Integrated Rural Health Delivery System

PAGE 3

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<p>Project Outputs: (C-1) (continuation)</p> <ul style="list-style-type: none"> - Vehicles for coordination units - Office equipment for unit - Provincial training modules - Audiovisual equipment - Mobile Repair Shops - Incentive Plan - Paraprofessionals trained - Surveying/water testing equipment - Motorcycles - Vehicles for 3 IRD areas 	<p>Magnitude of Outputs: (C-2)</p> <p>5</p> <p>-Appropriate equipment to be determined</p> <p>4</p> <p>-To be determined</p> <p>3</p> <p>-Bonuses paid totalling \$25,000</p> <p>10</p> <p>-Set of equip. purchased for at least 3 provinces</p> <p>10</p> <p>7</p>	<p>(C-3)</p>	<p>Assumptions for achieving outputs: (C-4)</p>
<p>4. <u>IRDS</u></p> <ul style="list-style-type: none"> - Baseline/follow-up studies - Production/Nutrition studies - Travel by PAE staff - Low-cost technology replicated 	<p>-3 baseline surveys; 6 evaluation studies</p> <p>-2 trips to LDC's</p> <p>-To be determined (See pp. 27-28)</p>		
<p>B. <u>Field Level Activities</u></p> <p>1. <u>Primary Health Care</u></p> <ul style="list-style-type: none"> - Promoters trained, placed - Midwives trained/supplied - Botiquines established - School Health Volunteers/ Teachers trained 	<p>34</p> <p>75</p> <p>40</p> <p>-To be determined</p>		

AND 1970 TO 1972
SUPPLEMENT 1

PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK

Life of Project:
From FY _____ to FY _____
Total U.S. Funding _____
Date Prepared: _____

Project Title & Number: _____

PAGE 3

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Project Outputs: (C-1) (continuation)	Magnitude of Outputs: (C-2)	(C-3)	Assumptions for achieving outputs: (C-4)
<ul style="list-style-type: none"> - Oralyte distributed - Seminars on Diarrhea Control - Training materials - Travel to observe Diarrhea Programs - Immunization/Cold Chain Equipment - Training courses (EPI) - Iodized-oil Campaign - Goiter Studies - Vehicles for Health Educators - Health Education Equip. - Health Posts - Subcenters - Equipment for Facilities - Carry-all vehicle for G-P - Radios for Salcedo/Jipijapa - Training Centers renovated and furnished 	<ul style="list-style-type: none"> -20,000 packets -10 -1 trip to exterior realized -10 refrigerators, 20 thermoses 3 2 -Audiovisual aids to be determined -7 built -6 built -12 other posts fully equipped replacement equipment for other TBD 1 45 2 		
2. <u>Water Supply/Sanitation</u>			
<ul style="list-style-type: none"> - Gravityflow water systems - Rehabilitated gravity systems - Wells and handpumps - Latrines & Campesino toilets 	<ul style="list-style-type: none"> 16 13 700 5,600 installed 		

APPENDIX
SUPPLEMENT 1

PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK

Life of Project: 81 to FY 86
 From FY 81 to FY 86
 Total U.S. Funding \$7,000,000
 Date Prepared: June 27, 1981
 PAGE 3

Project Title & Number: Integrated Rural Health Delivery System

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<p>Project Outputs: (C-1)</p> <p>(continuation)</p> <p>3. <u>Nutrition</u></p> <ul style="list-style-type: none"> - Training courses (Leche-Avena) - Basic Foods Outlets/Inventories - Processing-Storage Centers/Equipment - Pilot School Feeding Programs - Local Weaning Foods 	<p>Magnitude of Outputs: (C-2)</p> <p>7</p> <p>8</p> <p>2</p> <ul style="list-style-type: none"> - 1 undertaken - 1 pilot project undertaken 	<p>(C-3)</p>	<p>Assumptions for achieving outputs: (C-4)</p>

PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK

Life of Project: From FY 81 to FY 86
Total U.S. Funding \$7,000,000
Date Prepared: June 27, 1981

Project Title & Number: Integrated Rural Health Delivery System

PAGE 4

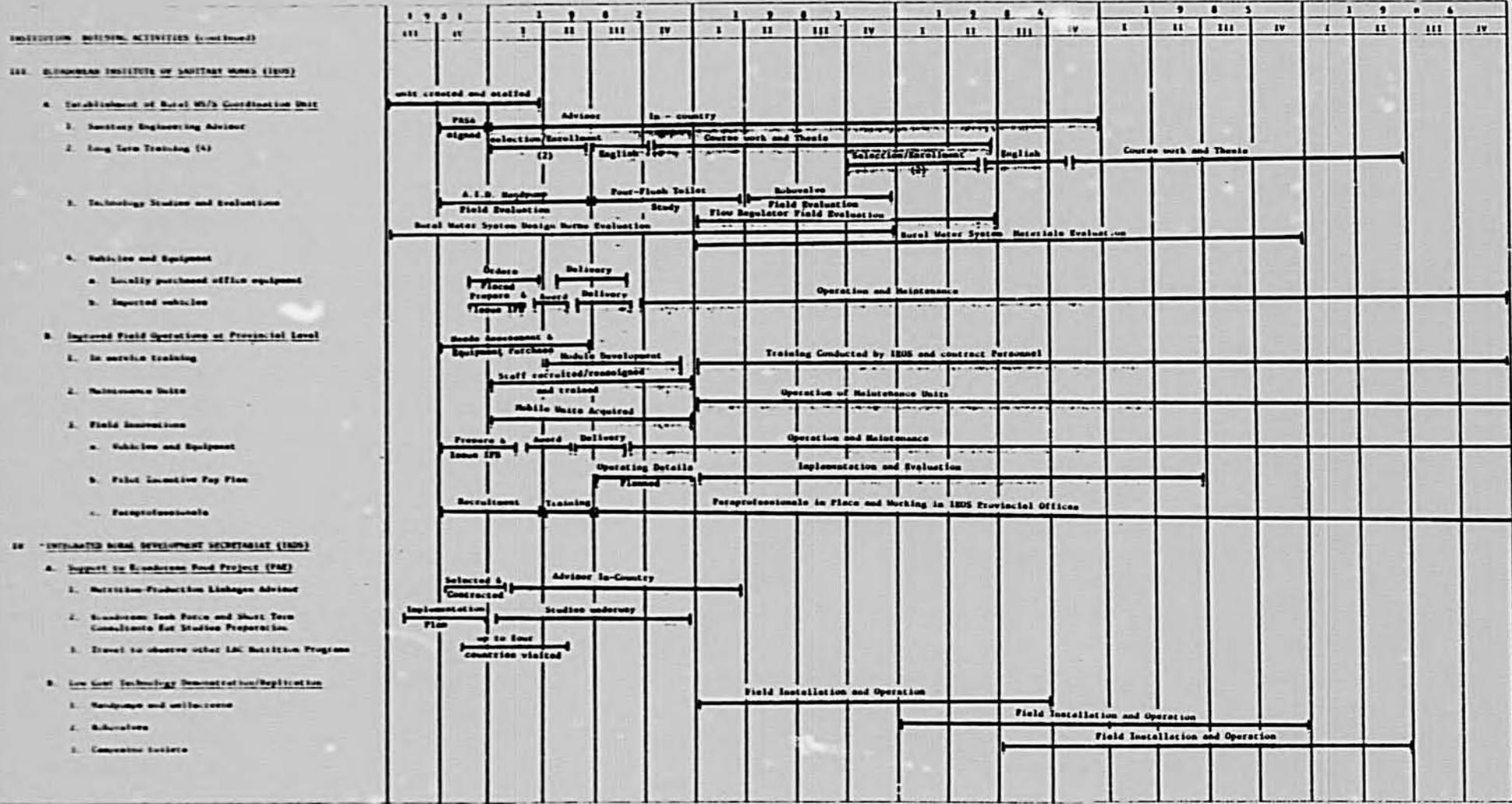
NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS				MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Project Inputs: (D-1)	Implementation Target (Type and Quantity) (D-2)				(D-3)	Assumptions for providing inputs: (D-4)
	L	G	GOE	T		
A. Institution Building					-GOE budgets, accounting records and quarterly project financial reports -USAID financial disbursement records.	-GOE maintains appropriate counterpart budget commitments. -AID provides funding increments in subsequent fiscal years as projected.
NHC	100	140	160	400		
MOH	525	135	540	1,200		
IEOS	950	450	1,400	2,800		
IRDS	225	175	200	600		
Sub-Total	1,800	900	2,300	5,000		
B. Field Activities						-No undue bureaucratic or technical delays in provision of project inputs.
Primary Care Activities	180	-	120	300		
Primary Care Programs	110	-	390	500		
Infrastructure/Equip.	580	-	120	700		
Primary Care Sub-Total	870	-	630	1,500		
Water/Sanitation	2,500	-	3,300	5,800		
Nutrition	200	-	200	400		
C. Total*	5,370	900	6,430	12,700		

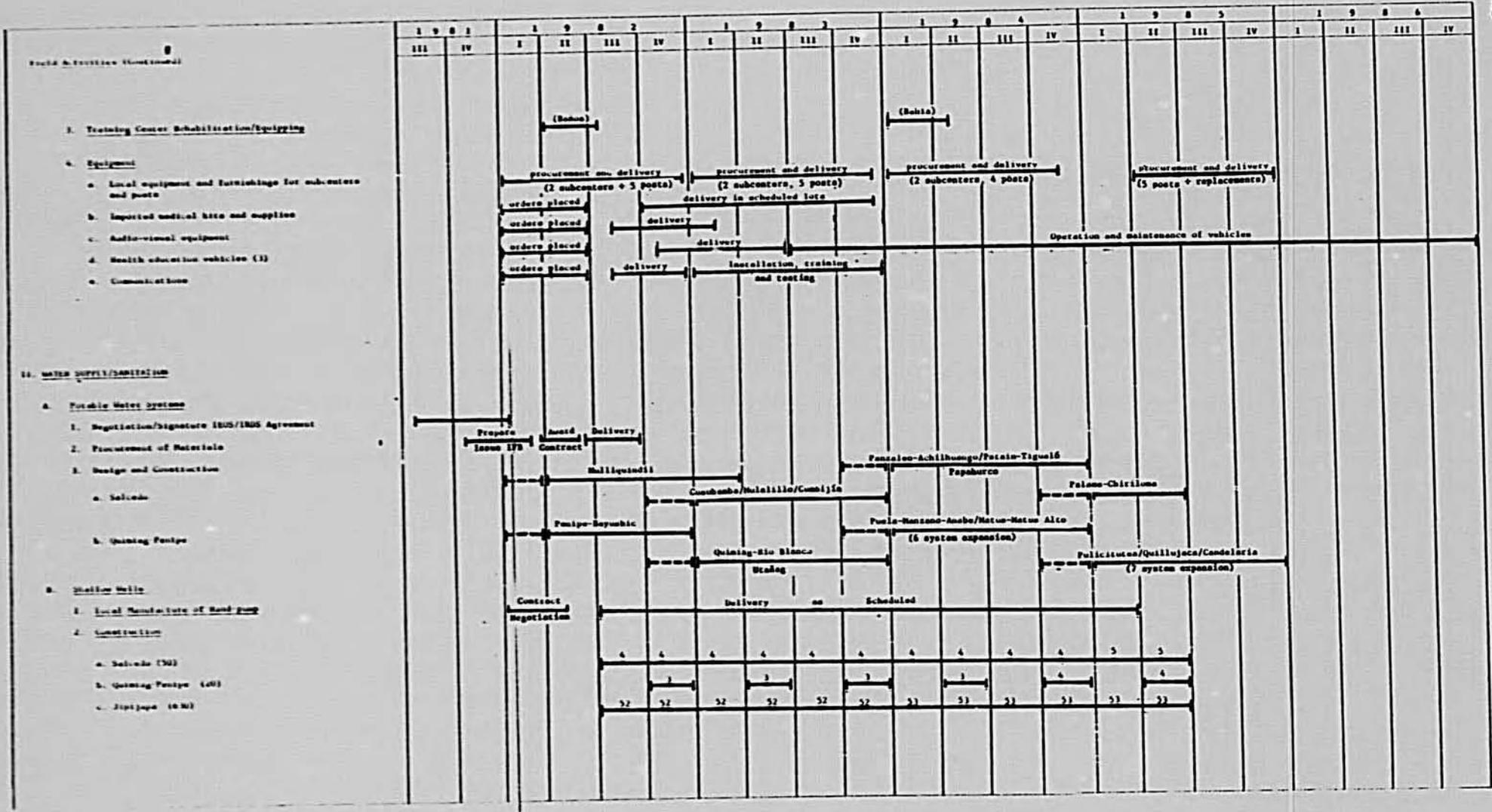
* Does not include contingency costs and \$40,000 in WASH TA.

TIME-PHASED IMPLEMENTATION AND PLAN
(Calendar years, by quarter)

Annex
Page 105

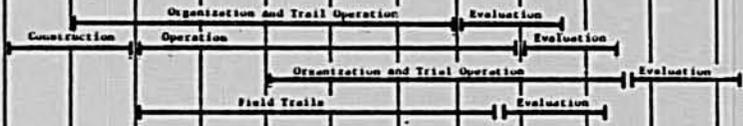
INSTITUTION BUILDING ACTIVITIES	1981		1982				1983				1984				1985				1986			
	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
I. NATIONAL HEALTH COUNCIL (NHC)																						
A. Studies and technical assistance to help update the National Health Plan																						
B. Other studies, technical assistance, and travel																						
C. Seminars and work shops (1, Quito; 2, Guayaquil)																						
D. Equipment and Supplies Procurement																						
1. Imported equipment																						
2. Locally purchased materials																						
II. MINISTRY OF HEALTH (MOM)																						
A. National Level																						
1. Public Health Management Training for six individuals at Masters level (Universidad del Valle, 18 month course)																						
2. Health Planning and Economic Development Training for two individuals at Masters level (e.g., U.Mich.)																						
3. Executive Seminars (two with ten officials each)																						
B. Provincial Level																						
1. Short term (3 month) training in Public Health Management for six MOM provincial health chiefs (Universidad del Valle)																						
2. Seminars on specific topics of health administration																						
C. Area Level																						
1. Area health chiefs for three A.T.D. financed IDB projects																						
(a) field vehicles																						
(b) office equipment/rehabilitation																						
(c) salaries, per diem																						
(d) consultant services for on the job training (12 p/a)																						
2. In-country training for additional IDB project health staff																						
(a) Medical Doctors and Nurses (30)																						
(b) Auxiliary Nurses																						
3. Short term (3 months) training for additional (6) IDB area Health Chiefs, (Universidad del Valle)																						





Annex III
Page 5 of 5

Field Activities (Continued)	1981		1982		1983		1984		1985		1986			
	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
C. Excreta Disposal														
1. Saluda														
a. Pit Latrines (477)							33	33	33	33	33	33	33	34
b. Composting Toilets (1,500)							125	125	125	125	125	125	125	125
2. Spreading-Feruge (Composting Toilets, 500)							41	41	41	41	41	42	42	42
3. Jopijopa (Pit Latrines, 1,500)							262	262	262	262	262	262	263	263
III. Nutrition														
A. In Service In-be Areas <u>Frugan Management Training</u> (7 Provinces via Workshops)					2 Cotopasi 2 Chimborazo	1 Cotopasi 1 Chimborazo	1 Manabí							
B. Pilot Activities to Increase Availability of Basic Foods (Illustrative)														
1. Community Managed Outlets														
2. Local Food Processing and Storage Centers														
3. School Feeding														
4. Development of Local Meaning Foods														



SOCIAL SOUNDNESS ANALYSIS

I. Target Group Description

A. Geographic and Demographic Characteristics of the IRD Project Areas

1. Salcedo

The Salcedo IRD area is congruent with Cantón Salcedo in Cotopaxi Province, and occupies about 4,000 hectares of inter-montaine valley 100kms. from Quito. Climate varies with altitude, but is generally temperate. The cantón is administratively divided into five parishes. A USAID study of poverty in Ecuador ^{1/} ranked Salcedo as the 90th poorest of 94 cantons surveyed.

Total population is about 42,000. Eleven percent of these people live in the cantonal capital with the remainder inhabiting rural areas. Most of these rural people live in communities of 1,000 or less with 37 percent living in communities of less than 600. Sixty percent of the population is indigenous; the remainder is of mestizo origin.

2. Quimiag-Penipe

The Quimiag-Penipe IRD area comprises about 32,000 hectares on the slopes of the Cordillera Oriental in northern Chimborazo Province, about 25 kms. east of the city of Riobamba. It covers parts of the cantons of Riobamba and Guano and is a semi-arid region with many slopes devoid of natural cover and subject to severe erosion. Half its total area is páramo and unsuitable for agriculture. The area contains six parishes. USAID's study of poverty in Ecuador ranked cantons Riobamba and Guano as 84th and 66th poorest of the 94 cantons surveyed.

The population of about 15,000 is entirely rural. There is only one town of more than 1,000 inhabitants and most people live in villages of 300-500 or less. Most of the population is mestizo, but 2000-3000 Indians live in Quimiag Parish. These indigenous people have generally suffered more illiteracy, ill-health, land exploitation, etc. than the mestizo majority, and it has proved more difficult for public agencies to provide services to these groups.

3. Jipijapa

The Jipijapa IRD area is congruent with Cantón Jipijapa-177,000 hectares of low hills and coastal plain about 100 kms. north, north-west of Guayaquil. Although the irregular terrain produces some variation, the climate is generally tropical. The cantón is divided into eight parishes; USAID has ranked Jipijapa 66th poorest of the 94 cantons surveyed.

^{1/} Luzuriaga, Carlos and Zuvekas, Clarence, "Income Distribution and Poverty in Rural Ecuador: A Survey of the Literature, 1950-1979", June, 1980

The population consists of around 86,000 people, mostly of mestizo origin. Approximately 21 percent are under the age of six and nearly 60 percent are under 20. Twenty-five percent of the population lives in the cantonal capital. The remaining 75 percent inhabit rural areas which comprise the rest of the canton. About 36 percent of this rural population live in communities of 600 or more while the rest are dispersed in smaller, more isolated settlements. However, the population is not spread evenly over the canton, but is concentrated in three eastern parishes where 31 percent of the total area is home for 71 percent of the population. Sixty-five percent of the dispersed rural population live in these parishes where the average population density is .9/hectare. Density in the remaining five parishes is only .2/hectare, but it should be noted that all the areas under discussion here are small. No point in Jipijapa is more than 9 miles from a parish center; most populated areas are considerably closer.

Population growth has been about 1.9 percent/year since 1974 -a rate considerably below the 3.4 percent national average due to out migration in the face of limited employment opportunities. Excluding migration, the growth rate in 1979 was 4.1 percent.

B. Economic Activity

Although the target populations of the three IRD areas, Quimiag-Penipe, Salcedo and Jipijapa vary in terms of their social structure, ethnicity and ecological characteristics, they do share many generalizable economic characteristics. The target population is comprised primarily of small landholders, (5 ha. or less) most of whom do not have clear title to their land. The majority of these small land-holders are not strictly subsistence farmers and market some or all of their produce (corn, beans, potatoes, wheat, and livestock in the sierra; coffee and corn in Jipijapa ^{1/}). Their involvement in a market economy is not limited to the sale of farm produce. A large percentage of male adults also work off their own land. They may work in the same areas as wage laborers on larger farms, or as skilled laborers (truck drivers, carpenters, masons, mechanics). However, many adult males migrate in search of employment in Quito as manual laborers on a temporary or quasi-permanent basis, or seasonally on coastal plantations, leaving adult females and older children in charge of farm chores. In Salcedo, many adult males work in Quito during the week and return home on the weekends. There is a significant involvement in a monetized economy. However, the income generated from these economic activities is limited, and income from the sale of produce as well as wage income is allocated in great part for the purchase of semi-elaborated and elaborated food-stuffs such as flour, noodles and brown sugar as well as for clothing.

^{1/} The grains, tubers, and legumes which are sold at harvest are often repurchased for household consumption at a later date. Livestock and animal products (cattle, hogs, chickens, milk and eggs) are usually sold rather than consumed.

C. Nutritional Characteristics

Nutritional status is generally inadequate though it is difficult to specify nutritional deficiencies quantitatively because of lack of studies. Often there are both caloric and protein deficiencies with average caloric consumption apparently decreasing over time 1/. Data from PAHO indicate that, using the Gomez scale, 36 percent of rural Ecuadorean children suffer from first degree malnutrition, 10 percent from second degree malnutrition and 1 percent from third degree malnutrition 2/.

Nutritional status in the three IRD areas appear to be comparable or worse than the rural average. Also, certain specific nutritional problems are acute in the IRD areas. Specifically, there is extremely high incidence of goiter in Quimiag-Penipe.

D. Health Status

1. Salcedo

Although no reliable data on morbidity and mortality exist for Salcedo (or for the other two IRD areas), all indications are that health status is far from satisfactory. Officially reported mortality rates (general, infant and maternal) are all higher than the national average. Rates of respiratory and diarrheal diseases are also high, even though many cases are not reported in official statistics. Tuberculosis is highly prevalent in Cotopaxi Province and rates for Salcedo are higher than the provincial average. Only 15 percent of all births in the canton were attended by trained personnel in 1980 (despite the fact that a well staffed hospital-health center with extensive maternity facilities is situated in the cantonal capital).

The canton has 16 health facilities: 13 operated by the MOH and three by IESS's Campesino Program. MOH facilities include a new, well equipped, hospital-health center in the capital 3/, eight subcenters (at least one in each of the 6 parishes), and four health posts (three in Salcedo parish). Several of these facilities are borrowed and/or in poor condition, and the existing network is inaccessible to about 30 percent of the canton's population. Seguro Campesino operates three dispensaries (two in Salcedo parish) serving 534 families.

1/ Luzuriaga and Zuvekas, p. 80

2/ Ibid. p. 102

3/ Although Salcedo city is excluded from USAID's IRD project in agriculture, it will be the area administrative and referral center for this project.

MOH facilities are staffed by 13 doctors (five in the hospital-health center), 25 auxiliary nurses (17 in the hospital-health center), two dentists, one nurse-midwife, eight technicians and 25 administrative personnel. Seventy-two percent of these employees work in Salcedo Parish. Seguro Campesino's dispensaries are staffed by one auxiliary nurse each. A physician visits each dispensary weekly.

Attendance and utilization rates in MOH facilities are low -only .34 visit per capita per year for the canton as a whole in 1979- reflecting both the physical and social distance between clients and providers. In rural facilities, the rate was only .2 per capita in the same year.

Only three percent of the rural population have access to potable water and only one percent have access to any type of excreta disposal. In addition, a few communities are served by old, piped water systems in poor repair which draw water directly from streams, rivers and irrigation ditches. Few treatment facilities exist for rural water systems. While these systems do provide a considerable degree of user convenience, they also provide water which is just as dangerous to health as if it were taken directly from the same sources.

2. Quimiag-Penipe

Health problems are similar to those in nearby Salcedo. Diarrheas and respiratory infections are common, as are nutritional deficiencies resulting from low incomes and high intake of carbohydrates. The prevalence of goiter is extremely high. A 1970 study of Penipe Parish discovered rates of 50 percent among women and 44 percent among men. A 1978 study of Chimborazo Province found a prevalence of 52 percent in Bayushig Parish --up from 40 percent in 1969. However, except for these special studies of goiter, accurate data on health status are non-existent. There is tremendous under-reporting and considerable variance in the quality of data from different health facilities. (e.g., infant mortality rates vary from three percent in Quimiag to 21 percent in Penipe, a few miles away). The leading reported cause of death is cardiac arrest, but the three ailments most often seen in health facilities are respiratory infections, parasitosis and gastroenteritis, (which together account for 56 percent of all visits). There are 12 permanent health facilities in Quimiag-Penipe: nine operated by the MOH and three by Seguro Campesino. MOH facilities include four subcenters (in four of the six parish capitals) and five health posts (in three of the parishes with subcenters). Most of these facilities are borrowed or rented and many are in ill repair and ill equipped. (Referrals are to the provincial hospital in Riobamba or to the hospital health center in Baños, both outside the project area, and are accomplished at considerable inconvenience to area residents. Two parishes have no permanent MOH facilities. Seguro Campesino operates three dispensaries in three parishes (including one

of the two parishes with no permanent MOH service) which serve about 3,000 people (20 percent of the area's population). In addition to fixed facilities, the MOH provides "itinerant service" at nine locations in five parishes. This service is provided during the course of weekly visits by a doctor and part time auxiliary nurses to borrowed spaces, such as rooms in community centers. Facility utilization, attendance/utilization rates were only .24 visit per capita per year in MOH units in 1979.

MOH personnel include three doctors, two dentists, two dental auxiliaries, seven auxiliary nurses, one sanitary inspector and a mobile team of one to two doctors/auxiliary nurses for itinerant service. Seguro Campesino has four auxiliary nurses for its three dispensaries which are also visited regularly by a doctor.

One percent of area residents have access to potable water and about 24 percent have excreta disposal facilities (90 percent of these latrines, most of which are in poor condition and seldom used). An additional 30 percent of the population are served by the same type of unprotected, piped water system described above for Salcedo.

3. Jipijapa

Epidemiological data for Jipijapa are incomplete and unreliable. The data which do exist indicate that diarrhea, respiratory infections and problems related to childbirth account for most of the morbidity in the canton. A Ministry of Agriculture survey reported that 30 percent of all morbidity results from gastro-intestinal problems with another 35 percent due to respiratory infections. Childbirth and (especially) problems related to pregnancy account for 58 percent of all discharges from the Jipijapa hospital-health center yet only one percent of all births in the canton are attended by trained personnel. Infant and maternal mortality are high. Influenza is the most common communicable disease with malaria a distant second. (Jipijapa is in the consolidation phase of the Malaria Eradication Program -i.e., only residual foci remaining -but is bordered by areas still in the attack phase.) Other significant communicable diseases include tuberculosis, measles, whooping cough and typhoid.

The canton is served by eleven health facilities: eight operated by the Ministry of Health and three by IESS. The MOH facilities are located in the eight parish capitals. They include one hospital-health center in the town of Jipijapa (which absorbs 75 percent of the cantonal health budget and 65 percent of the staff: seven doctors, three dentists, two nurses, 18 auxiliary nurses and two sanitary inspectors), six subcenters (one doctor and one auxiliary each) and one health post (one auxiliary). The IESS facilities include three dispensaries, each with an auxiliary which serve a total of 2300 people. One doctor also attends all three dispensaries. The Ministry owns only three of its eight facilities in Jipijapa. Three subcenters and the

One health post are on sites loaned by the parishes, and a fourth sub-center is rented. All five of these facilities are in disrepair and ill-equipped. Attendance/utilization rates are low. In those towns where facilities are located, there is only .6 visit/person/year. With respect to the total population of the canton, utilization is only .2/person/year. 75 percent of this activity is curative (rather than preventive) in nature.

The water supply is precarious at best. There is only one piped, purified system in the canton -in the town of Jipijapa- and it serves only three percent of the town's population. In addition to springs and streams, four parish centers have piped water while three parish capitals depend completely on trucked water, water systems will be provided to these centers during 1981, however. The principal source of water in rural areas is streams. Only about 20 percent of rural residents are served by wells and hand pumps while an additional 20 percent are served by tank trucks. The situation with respect to waste disposal is equally discouraging. There is only one sewerage system in the canton -again in the town of Jipijapa- and it is in such a state of collapse as to be virtually nonfunctional. Three parish capitals have septic tanks serving a small percentage of their population. The rest of the canton relies on latrines or (more often) streams and fields.

II. Attitudes and Perceptions about Health Water and Sanitation

The small, dispersed communities which characterize the three IRD areas have had relatively little access to public services, except for Quimiag-Penipe. This limited access is due in part to the financial limitations on the GOE's ability to extend basic services to rural areas, particularly to Jipijapa. There are, however a number of socio-cultural barriers which limit effective utilization of those health and sanitation services. These include belief systems and behavioral traits of both the target population and governmental personnel who deliver or promote these services.

Traditional medical beliefs and practices are prevalent among the target population which does not understand the basis of modern medical sanitary practices. Health sector personnel, especially physicians have little knowledge of or sympathy for the campesino life and his attitudes toward health, life and death. Social norms and occasionally language barriers inhibit contact between male program outreach personnel and adult female target group members. These factors not only incide on the delivery of primary health care services but also on the provision of water and sanitation facilities and on nutritional activities.

A. Traditional Medicine

In both Sierra and Coastal regions traditional medicine is practiced. More often than not, it competes with modern health services

although there is a fairly generalized acceptance (extensive rather than intensive) of modern medicine, especially among families within which one or more members have temporarily migrated to urban areas. Traditional medicine is constituted by a complex of beliefs which includes the humoral theory of medicine in which the status of good health is characterized by a balance between "hot" and "cold" elements in the body and disease is a consequence of an imbalance of these elements caused by dietary, environmental or behavioral factors. 1/ Diseases may be caused by an excess of hot or cold, e.g., over-consumption of food with "hot" or "cold" qualities, especially at critical times such as the post-partum period, exposure to "cold" night airs or to "hot" fires, or violation of cultural norms. Added to these beliefs about the cause of illness are belief in witchcraft, especially in some areas of the Sierra, and in worms and microbes as disease causing agents. Finally some diseases, e.g., measles, are "modern" diseases which do not fit traditional categories and for which modern treatment may be sought. The concept of balance in humoral medicine is tied very closely to food consumption and the treatment of disease is generally based on off-setting or balancing a bodily state of excessive "hotness" or "coldness" by consuming "cool" or "hot" foods and herbal teas, even when the disease is caused by "worms" such as intestinal parasites.

The practice of traditional medicine occurs at three identifiable levels. 2/ Level one is medical attention provided within the family unit, generally by the eldest female, which consists of treatment by medicinal herbs and by dietary regulation. Available data on traditional medical practices in Ecuador indicates that this is the most common form of treatment in both Sierra and Coastal regions.

The second level at which traditional medicine is practiced is that of the curandero, a local healer who in the Sierra will often diagnose the disease, employing magic-religious rites. Alternatively, the campesino may consult an urban physician. It is important to note that belief in traditional medicine does not preclude consultation with modern medical practitioners, especially in coastal areas where 30-40 percent of the population may consult physicians. Nevertheless, these consultations are often made together with or following visits to curanderos. Many times the disease has progressed beyond the point of easy, effective treatment before a physician is consulted. Two other types of persons commonly reading the entrails of a cuy and who may treat the diagnosed ailment with herbal teas. Curanderos may be men or women, depending on the tradition of a particular locality, but they are generally respected members of the community who engage in agriculture. Although curanderos are more prevalent in the Sierra than in the Coast only a

1/ See USDHEW, Office of International Health "Guidelines for Analysis of Socio-cultural Factors in Health Planning", p. 5; Lana Carole Goldman "Perspectives of Balance: A Study of Health Traditions in Iuman, Ecuador".

2/ Javier Ponce Cevallos, "Estudio de Aspectos Socio-culturales Aplicados a la Nutrición, la Salud y el Saneamiento Ambiental". Proyectos DRI de Salcedo, Quimiag-Penipe y Jipijapa, 1981.

small percentage of the population admits that they consult curanderos. However, there is considerable under-reporting because of strong negative attitudes toward curanderos by GOE authorities. The third level of traditional medicine is that of a "brujo" or shaman who provide medical services. These are empiricas (midwives), and local botiqueros (drug-gists).

The health services provided through MOH facilities are not the only alternatives open to the rural Ecuadorean population. Traditional medicine is very prevalent but there are also other "modern" alternatives; i.e., urban physicians, druggists. Health services provided through the MOH must adequately respond to the beliefs and felt needs of the target group if they are to be more fully utilized.

B. Attitudes and Perceptions Regarding Water and Sanitation

The lack of an understanding, at best only a vague comprehension by most target group members of the existence of bacteria, virus, protozoa and other invisible disease vectors severely limits the adequate utilization of modern water and sanitation technologies. Water is a strongly felt need and easy access to water is highly desired by target group members in all three IRD project areas and there is considerable community pressure on GOE authorities in all three IRD project areas to undertake water supply projects. Most nevertheless believe that water quality is good if the water looks clean and has not disagreeable taste or odor. Where water must be chlorinated it is often difficult to maintain community interest in chlorination. User preferences for water delivery strongly favor delivery to households where possible, even if the water connection leads to a tank outside the house. The potential for quarrels and the aggravation of having to carry water for a distance make public spigots much less attractive than household connections for target group member, even if the latter cost more.

Most target group members have far less interest in obtaining or using any type of excreta disposal facility than they do in obtaining an improved water supply. Not only is there a lack of understanding of the health consequences of inadequate excreta disposal but many view it as serving a useful function, i.e., fertilization. Because of the lack of interest in and understanding of the value of excreta disposal activities, considerable promotional efforts will be required, including long-term follow-up promotion once such facilities are built. Although some authorities recommend trying excreta disposal programs to those which have stronger felt needs, e.g., water supply programs. ^{1/} Nevertheless, this approach is not recommended since it implies a delay in implementing the latter program with potentially negative consequences in terms of community participation in the project.

^{1/} Mary Elmendorf and Patricia Buckles "Socio-Cultural Aspects of Water Supply and Excreta Disposal", World Bank, P.U. Report No. RES 15, September, 1978

C. Attitudes and Beliefs of Medical and Paramedical Personnel:
Their Impact on Service Delivery

Health services delivery in rural Ecuador is strongly influenced by the attitudes and behavior of the personnel who implement the programs. The great majority of MOH rural physicians come from larger urban centers, especially in Guayaquil and Quito, and most maintain residences in these cities. Furthermore, their cultural and educational backgrounds have not prepared them for rural work. A recent study of a coastal province very similar to the Jipijapa area concluded that the majority of physicians undergo culture shock when they arrive at their posts and are frightened by the poverty, confused by peasant attitudes toward health life and death, repulsed by the filth and depressed by the lack of intellectual stimulation and social companionship. ^{1/} These feelings are usually translated into strong negative attitudes toward their work which is manifested by high rates of absenteeism and poor treatment of their patients.

The attitude and behavior of paramedical personnel is markedly different than that of physicians. They are generally from rural backgrounds and better understand the peasant mentality and attitudes concerning health. Their relationship with the client is much less paternalistic and they generally tend to treat peasants more nearly as equals.

Despite the better understanding which paramedical personnel have of the client group the traditional internal hierarchy of health subcenters is such that physicians, despite their lack of experience, give orders which paramedical personnel are to carry out. In the Los Rios study, 90 percent of doctors said that they never accepted advice concerning treatment of patients from nurse auxiliaries despite the fact that the latter have a much greater understanding of peasant beliefs and attitudes and, often, a better understanding of diseases common to rural areas and how to treat them.

To a very great extent target group perceptions of the functions and utility of the services provided by health facilities are determined by the experience that they or acquaintances have had at these facilities. Utilization of health facilities is greatly reduced because of the lack of permanent medical attention resulting from high rates of absenteeism by nurse auxiliaries and, especially, physicians. In the Los Rios Province only 14 percent of persons interviewed stated that they visited health subcenters to cure illness while 40 percent said they visited

^{1/} This section is largely based on findings presented in William Kaychak "Potential Cultural Influences on the Mother-Infant Food Supplement Program among Campesinos in Los Rios Province", USAID/Ecuador, 1975

private doctors in urban communities, this despite having to pay a fee of at least 50 sucres and having to travel larger distances to obtain services. In part this behavior is based on the greater degree of confidence in experienced doctors rather than rural physicians in their first year of practice but this decision is also based on the limited medical equipment, high physician absenteeism and, often, poor physician attitudes which characterize service at rural health subcenters. The same study revealed that in most instances doctors were only fulfilling one half of their required time at field locations.

The study also found that a large percentage of the potential beneficiaries outside the communities in which health subcenters were located were unaware of their existence and those that knew of their existence viewed them strictly as places where curative services were provided (reflecting the opinion of physicians themselves). No peasant interviewed perceived of health centers as services of education concerning health and nutrition nor as providers of preventive health care. These perceptions were based on the fact that 97 percent of respondents had never been visited by a nurse auxiliary and that no nutrition education nor environmental programs were being implemented in the study areas.

III. Community Organizations and Community Participation

A. Community Organization

Patterns of community organizations in Salcedo and Quimiag-Penipe reflect the generalized existence in the Ecuadorean Sierra of co-existing formal and non-formal organizational structures. Formal community organizations include legally constituted bodies such as comunas ^{1/} and Juntas Administradoras de Agua (for potable water), Comités de Madres (sponsored by GOE institutions) and (irrigation) Water Users associations. In addition informal leadership and organizational structures exist in most communities. Jipijapa is representative of the Ecuadorean coast in that the comuna organization is less prevalent but cooperative organizations are wide spread.

Generally, formal structures are established in order to comply with legal requirements and/or with governmental bureaucratic apparatus. Often these organizations are characterized by a weak organizational structure and a low level of participation on an on-going basis. While the leaders of these organizations may be wealthier members of the community they may also be younger community members who have fewer resources but have gained experience in dealing with authorities because they have dealt with bureaucracies in Quito or elsewhere. The individuals are not necessarily true leaders in whom the community has confidence. In Salcedo, for example, elected leaders of comunas are at times referred as empleados.

Organizations such as Comités de Madres are often successful only so long as there is a service on commodity, e.g., leche-avena offered as an incentive for participation which is valued by the target group. These observations do not negate the utility of such organizations. Indeed their existence confirms that there is a felt need for public services. It does however mean that they are not likely to be strong on-going organizations which play key roles in community life. Their existence is often the result of promotional activities by outside (governmental) agents, which, without continuing follow-up by those agents, may disappear.

There are also informal organizational structures within communities such as presta-manos (helping hand) which are generally oriented toward economic ends, although activities such as housing construction may be included. Such informal organizations demonstrate a continuing cohesiveness based on family ties, compadrazgo relationships, and/or mutual economic benefits. In Jipijapa where a significant percentage of the target population are small coffee producers a number of campesino organi-

1/ A comuna is a community which has obtained legal recognition; the cabildo is the governing body of the comuna.

zations have been created and are now linked into a federation denominated Unión de Productores Campesinos de Manabí.

B. Community Participation

High levels of community participation are limited by the migration which characterizes all three areas. The family members, who are generally the primary decision-makers within the family unit, are often absent for long period of time. Adult female family members not only must undertake child-raising responsibilities but must carry out agricultural tasks on the family plot while their spouses are absent. These conditions make promotional efforts by government workers more difficult.

Nevertheless, there are clear examples of successful community participation efforts. A Water Administration Board is functioning well in José Antonio Holguin (Salcedo) and a campesino group in the Cusubamba area of Salcedo has promoted the construction and use of latrines with a high degree of success. Project field level workers and, particularly, IRD field project units must make conscious efforts to cultivate community participation in the decision making process and the support of community leaders if "modern" medical, water and sanitation services are going to be utilized extensively by the project beneficiaries because, although acceptance or rejection of these services is an individual or family decision, many services require substantial community participation to be implemented.

IV. Recommendations for Successful Implementation of Project Activities

The diversity of field activities and the fact that the project is being implemented in three distinct areas means that specific recommendations about how to implement project field activities in a particular IRD project are difficult to make. Such recommendations should be made on the basis of the detailed analyses of each area which SEDRI personnel are carrying out for each area in consultation with implementing agency personnel. However, several general recommendations can be made?

A. Training of GOE Personnel

The project will finance significant amounts of training for GOE field level personnel. Additional training programs for field level personnel are financed by other means, e.g., UNFPA, A.I.D.'s Family Planning Project. Such training should include as one of its objectives an effort to sensitize field personnel including physicians to the attitudes, beliefs, practices and worldview of the Ecuadorean campesinos so that they comprehend it and are sympathetic to it or at least do not denigrate it. Such training, where possible, should show the provision of modern medical, water and sanitation services can either adapt or complement current beliefs and practices rather than compete with them.^{1/} For example,

^{1/} Cf. Kaschek, p. 74; Goldman pp.94-95; Ponce, p. 36.

modern prescription drugs can possibly be integrated with traditional hot or cool herbal remedies.

B. Greater Interaction Between Change Agents and Target Group Members

Understanding between project field personnel and campesinos cannot be achieved unless communication first exists. There is ample evidence that campesinos will accept and use new technologies when they understand them and see the benefit of them. Such understanding must in part be derived from dialogue with technically knowledgeable promoters who also understand the socio-cultural characteristics of the communities in which they work.^{1/} Outreach activities are important in that they establish a dialogue between the field worker and the client group. This dialogue is likely to be more effective when field personnel are socially and culturally similar to the target group members.^{2/} This is especially true in the case of health, nutrition and sanitation activities where female health promoters will be expected to play a substantial promotional role, vis-a-vis adult female target group members.

C. Significant Community Participation

Health, water, sanitation and nutrition field activities will have a much greater likelihood of being successful if community members participate in the decisions about the design and implementation of these field activities in their communities.^{3/} Such community participation must necessarily extend beyond the provision of labor and local materials. When formal community commitment to an activity is made, based on the prior decision of the community, that activity is more likely to be successfully implemented. The successful operation of Community Water Boards is an excellent example of this principle. Community selection and payment of health promoters is another instance whether this same principle is to be applied. Care should be taken, however, to coordinate community decision-making processes and not to create multiple centers of community decision-making. The IRD Project Execution units should play a key role in this regard.

D. Responsible Service Delivery

A final measure which will increase the acceptance of project activities is the delivery of services as promised. That is, physicians, nurse auxiliaries and other field level personnel should be at their

^{1/} Ponce, p. 39; Elmendorf and Bucklen, p. 43.

^{2/} OIH, p. 39, Elmendorf and Bucklen, p. 43.

^{3/} Ponce, p. 39; OIH, p. 80; Elmendorf and Bucklen, p. 45.

posts as scheduled and attend meetings when they have promised to do so. Moreover, if services are to be delivered, they should be delivered on schedule to the degree possible. Most Ecuadorean campesinos are suspicious, with reason, of GOE agencies who have promised installation of health subcenters, water, electricity or some other service but have not kept the promise. Field personnel should honestly indicate that delivery of some services may take a long time.

ECONOMIC ANALYSIS

A. INTRODUCTION

Project economic analysis should seek to determine whether or not the expected results of the project are worth the resources used to achieve them. After all, projects involve the use of scarce resources, and they should be examined to see if they are good investments. But implicit in this overall theme are two subsidiary questions: (1) What are the minimum resource requirements necessary to achieve the project's expected results?; and (2) Are the expected outcomes achievable, given available resources?

Answering these questions for projects which provide health, water, sanitation and/or nutrition services is a formidable task, because there are often serious problems in defining some items (usually benefits, but occasionally costs), in assigning values to at least some of them, and in getting data that reliably measure the item under consideration. An additional problem is that the cost of a complete and conceptually satisfying economic analysis for these types of projects is prohibitive in terms of time or money, or both, even if doable. As a result, the most common way of approaching health and water project economic analyses is to break down the larger questions listed above into smaller topics, many of which are more susceptible to examination, although clear and definitive answers to the larger questions may remain elusive.

B. METHODOLOGY

Conceptually, the analysis should look at effectiveness, efficiency and affordability. An analysis of effectiveness, sometimes called external efficiency, evaluates the expected ability of the investment to achieve its ultimate objectives. In the case of health services, for example, such objectives are usually summarized as improvements in the health status of the target population, defined in some concrete way, such as a combination of: reductions in infant/child/general mortality; reduction in morbidity, according to type of sickness; and increases in life expectancy.

Although the effectiveness (or external efficiency) of a project should be a part of the economic analysis, this is difficult because the economic analyst often does not have knowledge of all the benefits or of all technical, social and administrative factors which influence the project's costs. Thus, overall conclusions on project effectiveness must be based on the review of the project performed by a multidisciplinary team of technicians, economists and social analysts. This analysis will not draw any separate conclusions on effectiveness of the proposed project, as the Project Paper as a whole presents the conclusions of the USAID multidisciplinary team.

An analysis of efficiency, sometimes called internal efficiency or cost-effectiveness, considers the expected ability of the investment to achieve its ultimate objectives in a manner that requires the least expenditure of human, financial and physical resources. This is usually done by

examining the costs of producing intermediate outputs, such as, in the case of health projects, doctor consultancies, immunizations and, generally, the programs to be supported by the investment. The underlying hypothesis is that the minimization of the costs of individual intermediate outputs will translate into the minimization of the total costs of producing a given set of ultimate outputs or, alternatively, the maximization of ultimate outputs produced at a given cost. Finally, an analysis of affordability first considers the economic and financial costs of the investment for all factors: the nation as a whole; the responsible implementing agency; and the recipients/users of the goods or services to be generated by the investment. The costs, in terms of time, money and other resources, are then compared to the expected effective demand for the goods or services, with "effective demand" understood to incorporate notions of both affordability and willingness to pay, i.e., as much absolute ability to pay as relative value.

This Project has two main elements: primary health care and nutrition, and water and sanitation. It aims to increase the institutional capability of Ecuadorean organizations at several levels to provide services of the above kinds and to make such services actually available in defined geographic areas. The actual provision of services is not only important in its own right but also because the institutional experience to be gained thereby is one factor in strengthening institutional capacity. Each activity to be supported under the Project will be analyzed separately, as far as practically possible, according to the effectiveness, efficiency and affordability concepts presented above.

C. AN APPRAISAL OF PROJECT'S INSTITUTION BUILDING STRATEGY

The Project is designed to fill in the many gaps left by other donor and prior national efforts in addressing problems of institution building such as intra-sectoral coordination, appropriate technology, community participation, decentralization of services and integration of health activities into rural development. Too little emphasis has been given to the integration of primary health care services and into a coherent delivery system at all levels or to overcoming the critical shortage of rural potable water and sanitation systems. Insofar as this Project can fill in these gaps, it will have a beneficial impact on resource utilization far beyond its own cost. Indeed, improvements in MOH planning and operations that save only 0.7 percent of the MOH's annual budget would repay all of our assistance to the MOH and the IRDS. Since it is likely that much more than that amount in current and capital expenditures is being lost each year through inefficiency or ineffectiveness, this Project element clearly has a good chance of paying for itself in just one year and, even more clearly, of paying for itself several times over during the next ten or fifteen years. Similarly, the institution-building assistance to IEOS under this Project is only 2.6 percent of its overall annual budget. Because a large share of that budget is water system construction, often at a high per capita cost, efforts to install a more appropriate set of standards for rural systems, leading to more cost-effective rural water systems,

are expected to have a large payoff. For example, if the institution-building effort in IEOS achieves a saving of only 20% in water system construction costs the increase in coverage resulting from investments of the magnitude envisioned in the 1980-1984 National Development Plan would be 738,000 rather than 590,000 persons.

Each institution-building element is designed to improve the effectiveness and/or the efficiency of delivery of primary health care, water, sanitation or nutrition services either alone or in concert with other projects, programs and activities being carried out in Ecuador in general and the IRD areas in particular. Most experts would thus judge the institution-building aspects of project design to be effective and affordable in their general approach.

D. ANALYSIS OF FIELD-LEVEL ACTIVITIES

1. Primary Health Care

(i) Internal Efficiency

In Ecuador there are significantly fewer medical facilities per capita in rural areas than in urban centers. In the IRD areas, particularly in Jipijapa, the average number of persons per health establishment is significantly greater than in urban areas. In the area of Jipijapa, the ratio of total population/number of health establishments is 10,730, in Salcedo 2,753, in Quimiag-Penipe 1,981.

The project's first measures of internal efficiency can be appraised in that 24,146 people will be added to the service areas of the health establishments. 45% of them are people in Jipijapa, although the greatest increase in the percentage covered will take place in Quimiag-Penipe.

Yet, these numbers do not say much about the kind of services that the establishments are able to provide. A common criticism among Ecuadorean rural patients concerns the lack of physicians, the scarcity of medicines and equipment, etc. In fact, only 50% of the establishments in all three project areas currently have budgetary provisions for the permanent presence of a doctor. Nationwide, the percentage is much greater (72%), pointing to the relative disadvantage of the project areas.

Table No. 1

HEALTH COVERAGE OF POPULATION

	Population served by MOH facilities		% of total Population		Absolute increase in coverage	Total of persons per health establish.	
	At Pres.	W/Proj.	At Pres.	W/Proj.		At Pres.	W/Proj.
Quimiag-Penipe <u>1/</u>	8,102	12,988	51.1	70.7	4,886	1,981	1,081
Salcedo	20,598	29,124	49.9	64.0	8,526	2,753	2,069
Jipijapa	32,122	42,856	37.4	39.0	10,734	10,730	7,822

1/ Does not include coverage through promoters, who perform a special kind of service, and whose action possibly overlaps that which is covered by other methods.

SOURCES: At present: Data prepared for each project area, by MOH and CONADE officials
 With Project: USAID estimates.

In addition to quantitative differences, qualitative deficiencies also exist and contribute to low levels of utilization. Some of the constraints to increasing service utilization will be resolved through adequate implementation of the project. The physical condition of some existing facilities in the three project areas and the insufficient supply of equipment and medicines will be improved. Coverage will also be extended through the use of paramedical personnel and community members, thus lessening reliance on expensive doctors and other personnel, to attend their service population. In addition, the establishment of community pharmacies (botiquines) will make medicines more readily available to the population.

Table No. 2

ANNUAL NUMBER OF CASES ATTENDED, BY KIND OF PERSONNEL

	At present (1980)		With Project	
	Number	Per work day per practitioner	Number	Per work day per practitioner
Quimiag-Penipe				
Doctors	5,135	4.8	7,780	7.7
Auxiliaries	8,307	2.7	21,473	5.5
Promoters	NA	NA	18,000	4.8
TBAs	NA	NA	380	n.a.
Salcedo				
Doctors	18,430	5.5	26,465	7.3
Auxiliaries	19,326	2.9	31,375	3.7
Promoters	NA	NA	15,000	4.8
TBAs	NA	NA	1,300	n.a.
Jipijapa				
Doctors	16,707	4.9	20,339	5.2
Auxiliaries	16,295	2.5	25,620	3.2
Promoters	NA	NA	18,000	4.8
TBAs	NA	NA	3,025	n.a.

SOURCE: See Table 1

Note: The number of future cases attended was projected on the basis of referrals to auxiliaries made by teachers, promoters, and parteras. Similarly, it was projected that auxiliaries will refer a part (i.e. 10%) of their cases to doctors. Each promoter, for example, will make approximately five "contacts" per work day, of which almost 15% will be referred to auxiliaries. They will also receive about 1,000 referrals annually from teachers of secondary school children.

NA = not available
 na = not applicable

The annual number of cases attended in the three project areas is projected to increase from 84,200 to 184,000 with the project. Although availability of service coverage will be extended from 52 percent to 73 percent of the target group because of the presence of additional medical and paramedical personnel in the three IRD areas, the IRHDS will also serve to increase the number of attendances per physician and per nurse auxiliary, ie. to increase internal efficiency. The average number of attendances per doctor per workday is expected to increase by 33 percent from 5.1 cases to 6.7 cases. The average daily attendances of nurse auxiliaries will increase by 53 percent from 2.7 to 4.1 cases. In addition, health promoters will handle an average of 4.8 cases per day. The use of paramedical personnel will also increase the efficiency of physicians by eliminating many "nuisance" visits. Thus the economic advantage (improved efficiency) is a result of not only an increased number of attendances per

professional or para-professional but also from a more appropriate utilization of these resources.

Because of the increased internal efficiency, the average cost per attendance by physician will fall from \$4.10 to \$3.00 (28 percent) and in the case of nurse auxiliaries from \$3.60 to \$2.65 (27 percent). Also, health promoters will provide inexpensive (\$0.90 per contact) service delivery which, if it were to be carried out by nurse auxiliaries would cost \$3.60 per contact. (See Table 3).

Table 4 (p.8) shows that to deliver the level of services to be provided with the project, 184,000 contacts per year in the three IRD areas will generate a direct cost savings of \$270,000 per year composed to the same level of service provided under current institutional arrangements. That is, total expanded PHC coverage under the current delivery system would imply an operating cost of \$690,000 per year while coverage under the IRHDS model would cost \$420,000 per year.

The estimated cost of PHC at the current level of service delivery, in the three IRD areas (84,000 contacts per year) is \$323,000 per year.* Therefore, an increase in expenditures of 30 percent will generate 118 percent additional contacts. When indirect costs, i.e. salaries and support for three area chiefs and three assistant health educators (\$90,000 per year) which will lead to significant improvement in service quality in the IRHDS model are included, the cost of service delivery with the project will increase to \$510,000 and the annual cost "savings" decreases to \$180,000.

The annual per capita cost of the IRHDS model will be slightly higher than under the current system (\$5.97 compared to \$5.31) but will be significantly lower on a per contact basis (\$2.77 compared to \$3.75 under the current system) because of the substantial increase in the level of services which is provided to target group members.

(*) These cost estimates are for personnel costs only and do not include very minor expenditures for materials and medicines.

Table 3

	<u>INDICATORS OF INTERNAL EFFICIENCY</u>					
	<u>QUIMIAG</u>		<u>SALCEDO</u>		<u>JIPIJAPA</u>	
	<u>Current (1980)</u>	<u>With Project</u>	<u>Current (1980)</u>	<u>With Project</u>	<u>Current (1980)</u>	<u>With Project</u>
1. Attendances per 100 inhabitants						
By Doctors	32.4	40.5	44.6	58.1	19.5	18.6
By Auxiliaries	52.4	79.3	46.8	68.9	19.0	23.4
Promoters	n.a.	81.6	n.a.	27.5	n.a.	13.7
2. Manpower per inhabitant						
Persons/doctors	4,366	4,737	3,176	3,251	6,603	7,300
Persons/Auxiliaries	1,320	954	1,588	1,379	3,433	3,532
3. Cost per persons served by (in 1980 sucres)						
Subcenters	527	309	508.1	217.5	171.7	122.5
Posts	468	297	64.0	83.1	112.8	30.7
4. Costs per attendance (in 1980 sucres) *						
Doctors	109.0	78.8	110.2	82.8	93.1	76.5
Auxiliaries	50.0	28.5	100.0	78.9	94.2	83.0
Promoters	n.a.	22.4	n.a.	22.4	n.a.	22.4

n.a. = not applicable

SOURCE: See Table 1

* does not include investments

(ii) Affordability

Data on current expenditures in health services and medicines in rural Ecuador are presently unavailable. The National Statistics Office (INEC) undertook a rural household survey of budget expenditures in 1978, but the results are yet to be published. An estimate of the percentage of rural household budgets that is allocated for medical care was made for The Analysis of the GOE Health Sector Budget contained in Annex I, Exhibit B. According to this estimate, households to which medical services will be provided free-of-charge through the Project will save between 7.4 and 8.3 dollars per month. For example, the expenditures presently made to visit a private practitioner (in the formal or informal sectors) can easily range

Table 4

COST SAVINGS IN HEALTH, WATER AND SANITATION PROGRAMS IN THREE IRD PROJECTS

(\$ US)

I. Investment Expenditures	<u>Health Posts</u>	<u>Health Subcenters</u>	<u>Potable Water Systems (6-1)</u>	<u>Shallow Wells</u>
Present Costs A (per capita)	24	27	119	36
With Project Cost B (per capita)	18	18	84	22
Savings C = A-B (per capita)	6	9	35	14
No. Beneficiaries D	<u>8,750</u>	<u>15,250</u>	<u>20,600</u>	<u>42,000</u>
Total Savings E = CxD	52,500	137,250	721,000	588,000
II. Annual Direct Costs	<u>Doctors</u>	<u>Auxiliaries</u>	<u>Health Promoters</u>	
Present Cost A (per contact)	4.10	3.60	3.60 ^{1/}	
With Project B (per contact)	3.00	2.65	.90	
Savings C = A-B (per contact)	1.10	.95	2.70	
No. Contacts D (with Project)	<u>54,584</u>	<u>78,468</u>	<u>51,000</u>	
Total Savings E = CxD	60,000	74,500	137,700	

1/ Current Cost for a contact by Nurse Auxiliary

from two to six dollars per visit, an amount sufficient to purchase food inputs for two or three days per family. Service in the MOH establishments is to be, by law, free of charge. In addition, people served by new subcenters or posts and people served via the itinerant service will save the time needed to travel to a practitioner. It is not unlikely, for example, that a person would now lose a day of work to travel to a place where he can be attended. This could have an opportunity cost as high as 5 dollars (the minimum wage). Even at present, some of the population defined to be "within the service area" according to MOH criteria can be three or four hours away from the nearest post or center.

With regard to the impact on the GOE budget, expenditures to implement the IRHDS model in the IRD areas represent a minuscule percentage of the MOH's budget. To extend the model to 14 additional IRD areas as well as the remaining target population in Salcedo, Quimiag-Peripe and Jipijapa, a total of 375,000 persons, implies an annual operating cost of \$2,250,000, however, net increases in expenditures would be less because there is existing MOH services delivery in the other IRD areas. Even when investment costs for constructing and equipping additional health facilities are considered, the total cost of total coverage of the 17 IRD areas represents a small percentage of the MOH budget. (See Annex V, Exhibit B for a detailed budgetary analysis).

At this level of coverage, the total savings realized (on a per contact basis) would be \$717,000 per year.

(iii) Financial versus Economic Costs of PHC

One feature of economic as opposed to financial analyses is that the economic analysis should look at the real costs of resource use, as valued by society as a whole through social opportunity prices, rather than the financial costs as valued at market prices. Each cost component should be analyzed separately with appropriate social prices applied to each. These social prices may or many not correspond to market prices.

The logical starting point would be to segregate old investments already embodied in physical or human capital from new investments. Old investments are usually treated as sunk costs, except for their value in their next-best use. Both old and new investments should be depreciated over their useful life when deriving annual operating costs. Both old and new investments should be valued at their opportunity costs when calculating investment costs (such as in a benefit-cost framework). Unfortunately, this analysis cannot handle old investment costs very well because data on the value of such investments in their next-best use are not available and could not be estimated within the time constraints set for the analysis. This may not be a serious defect, however, as it is clear that the MOH

should be much more concerned about annual operation costs of the health services delivery system. After all, the provision of health services is a labor-intensive activity and labor cost forms the largest part of total costs. Nevertheless, an estimated 40 percent of the costs in subcenter and health post construction are for direct and indirect foreign exchange costs and 60 percent are local currency costs. If foreign exchange would be shadow priced at a 15 percent premium (USAID estimate), the economic cost of new construction is 106 percent of its financial cost.

Current costs to the MOH can be divided into personal service costs and the cost of supplies, including medicines. In addition, patients incur costs, both for travel and lost work time. The economic cost of salaries and related personnel expenses is hard to estimate, but the minimum amount logically for this estimate is the consumption such employees would have if they were not working, as this consumption would be the cost to the society as a whole in real resources of keeping such people alive. Their value in their next highest use (i.e., their opportunity cost) would be the maximum estimate of using such people in delivering health services, and this maximum could be above or below their financial cost to the MOH. Given the difficulty of recruiting and retaining at least some classes of health personnel for rural service, it is quite possible that their opportunity cost is above their financial cost. On the other hand, there is clearly an abundance of medical students. It is, therefore, not unlikely that total financial personnel costs at the health post and subcenter level closely approximate total economic costs. However, one further factor should be considered: the financial cost of operating facilities above the health post and subcenter level is probably lower than the opportunity cost, and this because such facilities are capable of, and should ideally be reserved for services that cannot be performed at lower-level facilities. To the extent that this project is successful in changing the nature of the use of these higher facilities, there will be an economic (resource) gain to society as a whole.

Patient time is a definite economic cost, although it is difficult to value objectively in an economic sense. By increasing accessibility of the health delivery system, average time spent by patients going to practitioners and coming back from health facilities should decrease. Better facilities should decrease time spent at the facilities per visit. Earlier treatment of conditions would also decrease time lost from productive activities, although an increase in visits to facilities would be an offsetting consideration. And, of course, there is the question of the private costs of patients buying medicine. Society as a whole would probably shadow price such purchases by low income people at a value above their actual cash outlay. To the extent that the project makes effective medicines and effective treatment available, there will be an economic benefit both to the population served by the project and to society as a whole.

Taking the above items together, and given the many uncertainties that exist regarding their quantification and valuation, no overall conclusions can be reached regarding financial versus economic costs of health care except to say that the two are approximately equal. This is consistent with conventional wisdom which maintains that there is probably little divergence between financial and economic valuations of the costs of health services.

This does not mean to say that decision makers should disregard costs or be unconcerned with any divergence between financial costs and economic costs that are obvious for individual cost items-- such as the higher shadow price applicable to foreign exchange use.

2. Water Supply and Sanitation Activities

(i) Introduction

As with basic health care, the analysis of the economic impact of water and sanitation activity should ideally measure benefits relative to costs. The major benefits of investment in water supply and sanitation are linked to improved health status. Mortality and morbidity rates are generally assumed to fall when improved water and sanitation facilities are provided. Improved health status is in turn assumed to result in increased labor productivity. Nevertheless such benefits are extremely difficult to quantify because of the absence of a "market" for public goods.

"(In the past, development practices) advocating improved water supplies were driven to try to justify investments by showing that social gains exceeded costs and, in particular, that the health improvements alleged to follow from safer water did lead to higher productivity, for example, in agriculture.

Considerable effort was expended in such research exercises, almost all of which proved rather unconvincing. Health improvements were hard to substantiate, and could not be attributed with confidence to water and sanitation when many other factors were also changing. When health improvements were shown, it did not invariably follow that productivity would increase. The attempt to demonstrate and measure was an intellectually and scientifically frustrating exercise and it served to convince only those who already knew that safe water should have higher priority. In the absence of convincing economic evidence the hard-liners, exemplified most strongly in the development banks, looked to ability and willingness to pay as the criteria for investment." ^{1/}

^{1/} Ian Burton, Policy Direction for Rural Water Supply in Developing Countries, A.I.D. Program Evaluation Paper N^o 4 (April, 1979). p.1

And,

"Although a direct link between economic productivity and improved health might seem obvious, it is empirically, especially on a program level, difficult to demonstrate". 1/

The above quotations, born of frustration, refer to only part of the role of the economic analysis. Also important are considerations relating to the internal efficiency related to such systems, a question quite apart from the value of having such services available. In this regard, special attention has been paid to the possibility that least financial cost alternatives are not necessarily the economically optimal ones.

The project elements reflect the Mission's attempt to search for a technically sound, least-cost solution which will produce maximum health benefits as well as consumer satisfaction. Total cost and satisfaction to households is important, but is only one element in this selection of alternatives, as only a part of the costs are expected to be recovered in direct payments. Obviously trade-offs have to be made among these considerations so that the result has a chance of being anywhere near optimum. It is USAID opinion that, the alternatives proposed in the project are better than any other alternatives that were judged administratively feasible.

(ii) Water Supply Systems

In rural Ecuador, the benefits from increased accessibility to safe water are of social as well as economic nature. For example, children suffer from diarrheal episodes, and this is costly both in terms of the suffering itself, and in terms of the curative expenses to be incurred. The high incidence of bacterial and intestinal diseases (see Table 5) is largely a result of the limited quantity of (contaminated) water available for domestic consumption.

1/ Robert J. Saunders and Jeremy J. Warford, Village Water Supply, Baltimore, 1976, p. 66.

Table 5

INCIDENCE OF ILLNESSES WHICH HAVE WATER
 CONTAMINATION/SANITATION ORIGINS

	<u>Quimiag-Penipe</u>	<u>Salcedo</u>	<u>Manabí</u>
Parasitosis	990.5		
Gastroenteritis	921.1		
Skin Infections	296.5		
Typhoid		21.3	21.3
Malaria		37.2	25.2
Influenza			74.9
Whooping Cough			21.6

SOURCE: Departamento de Estadísticas de las Jefaturas Provinciales de Chimborazo, Cotopaxi and Manabí.

NOTE: Data not appearing above are not available. See discussion (in background section of this paper) of data problems.

Recent studies have demonstrated that the supply of increased quantities of water for domestic consumption purposes is an important factor in reducing gastro-enteritis and other types of diseases. ^{1/} Other studies in rural areas of LDCs have shown strong positive correlation between the accessibility of water to the household and the amount of water. ^{2/} That is, the increased access to water provided by household connections (vs. standpipes or hand pumps), will have important health benefits.

Several systems were considered during project design. Cost-effectiveness depends on the source, the type of distribution, and the degree of population dispersion. Hand-dug wells are, by far, the least expensive alternative, but they can become easily contaminated. They are impracticable in areas where the water table is too deep (particularly in the Sierra), and they generally result in a much lower per capita consumption than the piped systems with household connections. Therefore, wells will be installed only in small communities with very dispersed populations where other systems are impractical.

1/ Ibid. Appendix A.

2/ Gilbert White et al., Drawers of Water: Domestic Water Use in East Africa. Chicago, 1972.

Furthermore, although the initial cost for installing a G-1 spring-fed gravity flow system for concentrated populations (\$84 per capita) or a G-2 for dispersed populations (\$70 per capita) are significantly more than for shallow wells (\$22 per capita), the cost per 1,000 liters of water is quite similar. ^{1/} If per capita consumption is 60 lt. per day while consumption from standpipes is 30 lt. per day from wells 20 lt. per day, the cost per 100 lt. of water would be \$0.161 for the piped system with a household connection \$.027 and \$0.165 for shallow wells. If the respective consumption rates are 30 lt., 20 lt. and 15 lt. per day, the cost per 100 lt. are \$.032, \$.040 and \$0.022.

Observations in villages where household connections, standpipes, and shallow wells have been installed indicate that the former consumption rates are more likely. Under these circumstances the cost of providing water to household connections or by shallow wells is similar based on the system parameters used to make the calculations. Either shallow wells or systems with household connections represent an economically acceptable (least-cost) solution. When strong user preferences for household connections which are manifested by most rural Ecuadorean households are considered, the use of household connections is fully justified (if we assume that the marginal benefit from each additional liter of water within this 15 lt.-60 lt. range is constant).

(iii) Environmental Sanitation Systems

As with safe water, the safe disposal of waste results in reduction of social costs, and in reduced household expenditures. Solid and liquid wastes contaminate the environment---mostly the water---and increase the incidence of various communicable diseases.

Table 5 shows the incidence of illnesses in the Project areas which can be attributable mostly to environmental conditions. A reduction of such incidence, via the safe disposal of excreta, is consequently an investment with clear external benefits, since such social costs as manpower losses and even death can be avoided if the objectives of reducing mortality and morbidity are achieved. Alternatively, the portion of household incomes which are dedicated to curative care have an opportunity cost which is enormous given the scarcity of cash income in rural areas.

The problem is to adopt a system which can make possible achievement of the ambitious Development Plan coverage goal, in a cost-efficient manner. The system also has to be within the economic reach of both the public sector and the users. The user convenience of a pit privy, for

^{1/} Calculations are based on the present value of per capita construction and operating costs.

example, is clearly much lower than that for an indoor toilet. Nonetheless, the system to be adopted in rural areas should reflect the trade-off corresponding to different service standards.

Latrines are, in this regard, the most cost-efficient system. However, within this category, there are different approaches. Since pour-flush type latrines are only 15 percent more expensive than the standard type, while being more likely to generate a willingness to use them, pour-flush latrines have been adopted in this Project as the solution where household connections have been installed. This decision is an overall Mission judgement of relative worth, based on the expected effectiveness of competing alternatives: In any case, the sanitation solution to be constructed in any given community will be that system which is the cheapest per capita solution consistent with technical, social and environmental considerations.

(iv) Affordability to Beneficiaries and GOE

- Beneficiaries' Affordability and Willingness to Pay

The cost of a water system to beneficiaries under the Project will consist of part of the cost of installation and water charges for operation and maintenance of the system.

Most of the 131 (as of October 31, 1980) community water systems controlled by community water boards Juntas Administradoras, have tariff structures that are around S/.25 per household per month as the minimum for ten cubic meters (10,000 liters) of water. Those in Manabí Province, in which Jipijapa is located, have considerably higher charges, averaging about S/.70 for the minimum charge. Most of these systems are designed to provide 80 liters of water per person per day. Assuming this daily figure is actually consumed, and with an average family size of 6 people, total usage would be 14,600 liters per month per family. Although some boards have an increasing marginal charge for consumption above the minimum, others have strictly proportional charges; most round off increments above the minimum in one cubic meter steps. Thus, the monthly water bill will vary somewhat, but will probably be between S/.35 and S/.40 for the average user, except in Jipijapa, where the charge is likely to be about S/.100 per month.* Because the boards are controlled by the community, there is little chance that these charges will not be adjusted over time to reflect the true financial costs of operating and maintaining the system.

Average per family monthly cash incomes in the areas to be assisted by this Project are as follows: S/.2,702 in the Quimiag-Penipe area; S/.2,641 in the Salcedo area; and S/.2,953 in the Jipijapa area. Assuming that people with average incomes will have average water bills, the proportion of monthly cash income spent on water will thus be 1.4% in the Quimiag-Penipe area, 1.4% in the Salcedo area and 3.4% in Jipijapa.

* This is the cost for a piped system. In the Project no piped systems will be built in Jipijapa; the cost listed is only illustrative.

However, it is not unlikely that the specific places selected to receive water will have per capita incomes below the average for their IRD area; therefore, a comparison of water bills with incomes at the first quartile (lowest 25%) would be desirable. For Quimiag-Penipe and Salcedo, this comparison shows that 2.3 percent and 1.8 percent, respectively, of incomes would be spent on water. Comparable income distribution data do not exist for Jipijapa, but since the average income is higher there than in the other two IRD areas, if only slightly, it would be reasonable to assume that no more than 4 percent of the cash income of Jipijapa's lowest quartile income group would be spent monthly on water. In all three cases, the percentage would be lower if total (as opposed to cash) income were used. In any case, all of these figures are within the range of target group affordability. They are not so high as to call into question the ability of the water boards to collect funds sufficient to maintain and operate their systems.

The communities which receive water systems contribute in-kind support in form of donated labor and locally available materials, such as sand and gravel. These are by their nature "affordable" contributions.

There are no direct data showing that residents in places in the three specific IRD areas not having water systems now are willing to pay sufficient amounts to cover the costs of providing them with safe water. However, there is indirect evidence that supports the hypothesis that potential beneficiaries would be willing to do so. First, several of the 131 water systems are in the general zone of the three IRD areas. Their charges, sufficient to operate and maintain their systems, are being collected in amount at least sufficient to cover costs and allow a relatively small build-up in cash reserves. Second, the alternative sources of water faced by potential beneficiaries are reportedly even more costly in terms of time or money, or both. It is not all that unusual for people located a good distance from water sources to pay up to S/.100 for a drum of water (the volume of which varies) from a water truck. Where such a service does not exist, a hike of three or four kilometers to fresh water is not unheard of. Lastly, the program for constructing community water systems to be supported by this Project is based on community self-selection.

Communities agree both to provide substantial in-kind support in materials and labor for the construction of the system and to pay water charges, with tariff schedules subject to approval by IEOS. A very strong presumption therefore exists that communities selected to receive water systems will be willing to pay for them.

We therefore conclude that Project water system beneficiaries will be both willing and able to pay for the operation and maintenance of their water systems and for their portion of the costs of installing such systems.

- Affordability to GOE

The Development Plan indicates the increased emphasis to be placed on rural water and sanitation. Specifically, 400 systems are to be built at an estimated cost of \$77 million. Although no details are provided on the estimated number of beneficiaries, USAID estimates that 590,000 persons would benefit from this magnitude of investment. Thus, absolute affordability really depends on where these activities fit in budgetary priorities, and the priorities revealed in the Plan indicate that the GOE is generally interested in expanding rural water and sanitary activities. Given the attractive unit costs of systems to be provided under this project, the Project should be a very attractive alternative for the GOE.

The last topic to be discussed in this section is the Incentive Plan for water system construction (see discussion in Annex VI, Exhibit C.) Under that Plan, incentive payments would be made for timely completion of water system construction, the premise being that inflation costs associated with undue delays would be saved. This could be an attractive project feature, if properly implemented and if capital-based construction methods are not given inappropriate emphasis as result of the incentive. The chances for this are thought to be slim. To help guard against inappropriately capita-intensive construction techniques, careful attention will be paid to the machine-labor mix during Project implementation. The evaluation of the Incentive Plan's operation to be carried out by the end of the project will include an explicit review of this topic.

5. EXTERNALITIES OF THE PROJECT ACTIONS.-

Improved health, water and sanitation services and nutrition should have a positive impact on the economic development of the country. This impact is mostly significant in terms of an increased productivity of farmers and off-farm workers.

Ways of measuring this increased productivity demand a data base which is not available. They imply a detailed knowledge of disease-specific morbidity and mortality rates, and their impact, both in time and extend of disability or age at death, the average length of time lost per sickness, etc. Pursuing this analysis further, one could measure the labor losses due to infant mortality rates.

Unfortunately, these data are not specifically available for the three project areas, and are difficult to appraise even at a national scale. One study ^{1/} using data for 1958, found that Ecuador among the 11 countries

^{1/} Source: Héctor Correa, Population, Health and Development, Lexington Books, 1975. Lexington, Mass.

studied, had the highest percentage of working days lost due to disease (69 days a year per worker or 29% of total work days). The numbers in Table 5 provides an approximation for the project areas insofar as the specific causes for morbidity and for treatment, which are of such a nature that they impact directly on the productivity of the population. Moreover, many of them are caused by poor environmental conditions, thus suggesting that a decrease in the incidence of those conditions will likely result in an increase in the number of days worked and in worker productivity for each day worked. The IRD approach should provide sufficient opportunities to make full use of those increased time available for work.

Nutritional actions should also result in an improved labor force. Mentally and physically, for example, goiter affects the labor force. Similarly, local researchers have found that, due to malnourished pregnant mothers (258,009 pregnant mothers were estimated to be undernourished in 1980) and children (216,320 of less than 1 year and 977,530 between the ages of 1 and 5 were reported to be affected), in Ecuador's rural areas grow to be smaller, with less weights, and of lesser cerebral development than the urban children and of the U.S. standards against which they were measured. Naturally, an improvement in the nutritional status of the project area residents will bring about the pertinent changes in the existing and future labor force conditions.

A major feature of the project is the lower unit cost associated with field-level activities for health post construction, water systems and sanitary excreta disposal systems. Such costs are attractive to both implementing agencies and users, and they could have important implications for replication beyond the project's three IRD areas. Yet, the greatest external benefits will come from a more efficient administration, better quality of services, and the benefit of an experience to replicate the system in other areas of the country. To this end, this experience will be enriched, for example, from an appraisal of the benefits to decentralize and to introduce other modifications to the traditional health and sanitation systems.

The present experience in Ecuador suggests that diseconomies in the delivery of health services are due either to unwise selection of technologies, to poor maintenance---as in the case of water services, and to centralized administration which results in low operating efficiency. The project contemplates actions to address all of these issues. The end result will then be the testing of new approaches, easily replicable throughout the country, which will be more cost-efficient than traditional actions. To this extent, the benefits of the project, at a national scale, can be very significant.

ANALYSIS OF THE GOE HEALTH SECTOR BUDGET

A. Household Health Expenditures

Household expenditures for medical care vary according to geographic location and income groups, but it is clear that Ecuadorean households devote a larger share of their budget to medical care than do most others in Latin America. An urban consumption expenditures analysis made by the Brookings Institution in 1970 revealed that the average urban household in Ecuador spent 2.4% of its budget on medical care (roughly \$67 per year as of 1980), the second highest of the ten countries studied. Moreover, it is clear that many Ecuadorean households depend --and make additional expenditures through informal channels such as traditional healing techniques and self-treatment, especially in rural areas.

Even among urban areas per capita expenditures on health vary substantially. The median expenditure share in medical care in Quito is higher than in Guayaquil (2.3% as opposed to 2%), a situation which, given the fact that the average income in Quito was measured in the survey to be substantially (4.0%) higher than that in Guayaquil, points to a substantial difference in per capita health expenditures between Ecuador's two largest cities: roughly \$200 as opposed to \$100 per capita per year, at 1980 prices.

The difference between urban and rural expenditures is equally dramatic. A 1979 --urban and rural-- household survey indicated that the total average expenditure is about 5% of the total household budget.^{1/} This implies that a larger share of the household budget goes into medical care in smaller towns and rural areas, (in most cases probably to the traditional sector), thus placing a greater burden on rural families whose incomes are generally lower than those of their urban counterparts. The Mission's own extrapolation of this survey suggests that the average expenditure for medical care nation-wide is approximately \$35 per person per year, a figure which can convey a distorted view if compared for example with the median expenditure, which is probably closer to \$10 per person per year.

This verifies the obvious. Accepting a proposition that health needs are similar for all members of society, some families simply cannot afford to spend except for their most basic --mostly curative-- medical needs. The surveys indicate that the upper income groups spend between six and twelve times more than lower income groups, in health expenditures.

* ^{1/} "Estudio y Datos", Vol. 1, Año 2, Agosto de 1979

The issue is that not every household in Ecuador has access to the kind of health goods and services which the upper income households have by means of their spending an amount between 50 and 70 dollars per year, on preventive and curative care. If the principle of universality of health needs is accepted, then somebody should be subsidizing the poor's access to medical goods and services for an amount equivalent to those which can be purchased, for example, with 40 to 50 dollars per household per year, given current delivery systems. However, we need to keep in mind that the cost of delivering these health goods and services can and should be substantially reduced.

Table 1

MONTHLY HEALTH EXPENDITURES AMONG VARIOUS INCOME GROUPS IN ECUADOR

	Quartile			
	<u>First</u>	<u>Second</u>	<u>Third</u>	<u>Fourth</u>
Share of Household Expenditures				
Quito	2.35	3.47	3.03	2.91
Guayaquil	1.36	2.19	1.84	2.60
Mean Value of Total Household Expenditures (1970 dollars)				
Quito	117.00	200.00	335.20	800.00
Guayaquil	122.00	208.60	310.40	770.40
Value of Expenditures in Medical Care (1970 dollars)				
Quito	2.75	6.94	10.16	23.28
Guayaquil	1.66	4.57	5.71	20.03
- - - - -				
	<u>Lower Income Groups</u>	<u>Middle Income Groups</u>	<u>Upper Income Groups</u>	
Average National Monthly Household Expenditures (1979 dollars)	150.7	424.4	853.4	
Share of Expenditures Going into Health	4.7%	5.4%	5.3%	
Value of Expenditures in Health (1970 US\$)	6.8	22.8	45.5	

SOURCES: 1) Mongrove, Philip: "Consumer Behavior in Latin America". The Brookings Institution, Washington, D.C.
 2) Estudio y Datos, Año 1, Vol. 1. Agosto de 1979. N° 2 Quito.

B. Health System Budget and Financial Outlays

1. Budgetary Requirement and Assignment of Funds

Assuming that expenditures by middle-income households allows them access to at least the provision of basic health care (largely curative), the number of underserved households in Ecuador amounts to roughly 1,600,000. This figures allows us to compute a preliminary estimate of the public sector outlays which would be necessary to provide basic health care for every Ecuadorean, under current delivery systems. The public sector would need to devote some \$ 267.8 million, a figure which is higher than the allocations programmed for the health sector in 1981, even though in the latter are also included expenditures in preventive health and investments in the sector.

As in most developing countries, health care expenditures in Ecuador are modest, although the figures appear to be greater when activities such as monitoring outbreaks of disease, provision of water supply and waste disposal, health education, environmental sanitation, family planning, etc., are included.

A World Bank study compared per capita national health budgets in 1976. Ecuador ranked among the Latin American countries with low or medium per capita expenditures, especially in terms of local purchasing power. ^{1/}

Table 2

Country	Per Capita Health Budget	
	At Official Exchange Rates	At Purchasing Power Parity
Argentina	\$15.15	\$ 26.28
Barbados	64.78	149.80
Bolivia	5.01	12.60
Brazil	13.68	28.47
Chile	13.78	26.99
Colombia	5.76	12.92
Costa Rica	12.42	24.84
Dominican Republic	11.38	24.20
Ecuador	5.25	12.25
El Salvador	7.51	17.44
Guatemala	6.08	11.68
Guyana	13.87	35.31
Haiti	1.29	3.00
Honduras	11.15	23.66
Jamaica	42.47	91.22
Mexico	9.32	16.96
Nicaragua	11.12	22.24
Panama	18.63	36.67
Paraguay	2.29	5.33
Peru	9.46	23.31
Trinidad and Tobago	37.34	68.31
Uruguay	12.14	23.93
Venezuela	68.70	111.86

SOURCE: World Bank Staff Working Paper No. 412 "Health Problems and Policies in the Developing Countries". Washington, D.C., August 1980.

^{1/} The adjustment in purchasing power seeks to recognize major differences among countries in the cost of labor, reflecting the relative rates of compensation for health workers and for the cost of materials and supplies that enter into international commerce.

Ecuador has evolved from a country which, until the early 1970s, operated only modest publicly financed health care projects, leaving most services to physician entrepreneurs. This trend is changing, and Ecuador is in the process of "socializing" medical services undertaken by public sector or mixed enterprises.

Part of this evolution is due to the action of social insurance programs that have increased substantially over the past decade. These programs have also been instrumental in reducing economic barriers to health care, as well as providing disability and retirement benefits. However, the system covers only a small portion of the most needy and lower income groups.

In 1980, Ecuador allocated 2.31% of its GNP to health care (See Table 3): some \$30.3 per capita. The total resources allocation could be as high as 3 or 4 percent if direct household expenditures, charitable contributions and other sources were included in this analysis.

Table 3

HEALTH EXPENDITURES IN ECUADOR
 (thousands of current sucres)

	<u>1970</u>	<u>1975</u>	<u>1980</u>
1. Total Public Sector Expenditures in Health	664,501.5	2,341,820	6,326,158
a. as a % of GNP	1.93	2.16	2.31
b. as a % of consolidated public sector budget	5.71	9.38	n.a.
2. Ministry of Health Budget <u>1/</u>	54,852	630,262	2,333,962
a. as a % of GNP	0.16	0.58	0.85
b. as a % of consolidated public sector budget	0.47	2.52	n.a.
c. as a % of central government budget	1.06	4.82	4.68

1/ Not including transfers to other agencies
 n.a. = not available

Sources of health care financing in Ecuador include general tax revenues (channeled through the Central Government budget) as the primary source, plus domestic and international loans, and social insurance. Data are available for the Central Government budget channeled

through the Ministry of Health to various annexed or related agencies, and for social insurance. Data are unreliable for some agencies' total resources and for the Armed Forces expenditures in health.

Table 4 summarizes the sources of funds for the MOH, IESS and other related agencies.^{1/} All of these "related agencies" except the JBG, are affiliated with and receive substantial transfers from the MOH. In 1980, for example, one-fourth of the MOH budget (\$29 million) was transferred to IEOS, SNEM, INH, etc. The JBG receives most of its income from the Guayaquil lottery.

The MOH clearly receives the major portion of GOE budgetary resources for health. In 1980 it received 36.5 percent of all recorded public financing. The remaining 30 percent of total recorded funds are administered through other health-related agencies and include environmental sanitation.

Funds channeled through the Ministry, to be used directly or transferred to other agencies, increased substantially during the 1970s. In real terms, these funds were in 1980 twice the amount assigned in 1975, and over seven times more than in 1970. On a per capita basis, public sector expenditures in health have increased from \$2.75 in 1970 to \$14.70 in 1980.

The Social Security health budget is supported through a portion of the IESS' 9 percent deduction from employee wages and an employer contribution of 10.5%. In addition, the social security system derives a small portion of its total income from fees for services. The Social Security system finances one third of the total public health care expenditures, and covers 11.3 percent of the urban and 2.3 percent of the rural population. The remaining urban population is served by either private practitioners or public health services, depending on their income levels. The 56 percent of the Ecuadorean population living in rural villages and dispersed areas is for the most part beyond the reach of modern health care.

What Table 4 does not reflect is the relatively high priority the health sector currently has among priority investments in the Development Plan. Investment budgets suggest a recent shift in the priority assigned to the health sector. In the 1973-1977 Development Plan Period, investments actually executed in the sector were much lower than those initially programmed (2.1 percent of total public sector investment as opposed to the 4.9 percent programmed), yet more recent plans and allocations project an increase in health investments. The 1970s trend in health investment was officially attributed to "difficulties in the development of a capacity to implement these services, which are basically

^{1/} Other agencies include the Sanitary Works Institute (IEOS), the Junta de Beneficencia (JBG), the National Malaria Eradication Service (SNEM), and the National Hygiene Institute.

Table 4

SOURCES OF FUNDS OF ECUADOR'S HEALTH INSTITUTIONS
(thousands of current sucres)

Agency	Sources	1970	1975	1980
1. Ministry of Health:				
	a. GOE Budget	133,230	723,363	2,308,441
	TOTAL	133,230	723,363	2,308,441
2. IEOS:				
	a. GOE Budget	113,800	130,610.9	509,472
	b. Loans	- 0 -	32,768.5	n.a.
	c. Own Resources	- 0 -	315,533.7	n.a.
	d. Others		189,601.9	n.a.
	TOTAL	113,800	668,515.1	1,116,449 ^{1/}
3. IESS (health services budget)				
	a. Own Resources	286,756	743,406.5	2,105,529
4. Junta de Beneficencia de Guayaquil:				
	a. GOE Budget	- 0 -	27,281.0	10,614
	b. Lottery	30,000	110,310.4	551,509
	c. Charges for services	14,385	29,356.9	73,600
	d. Others	77,402	143,298.9	112,705
	TOTAL JB resources	121,787	280,894.2	748,458
	TOTAL spent in health	78,907	152,271.0	508,747
5. SHEN				
	a. GOE Budget	15,498	45,265.0	142,484
	b. External loans	16,816	9,000	- 0 -
	TOTAL	32,315	54,265.0	145,984
6. INH				
	a. GOE Budget	- 0 -	n.a.	99,232
	b. Others	19,493	n.a.	32,925
	TOTAL	19,493	n.a.	132,157
TOTAL		664,501	2,341,820.0	6,326,158
TOTAL per inhabitant		107.57	331.56	757.26
TOTAL per inhabitant (at 1980 US Dollars)		13.97	22.82	30.29

1. Mission estimates based on past trends,
n.a. = not available

new". It is reported that some \$14,200,000 were invested in the sector in the four-year period between 1973 and 1976, and that these were used as follows:

- construction of hospitals	69.1%
- renewal of hospital equipment	10.3%
- construction of new hospitals	4.0%
- urban health centers	5.4%
- health sub-centers	8.1%
- mobile centers	0.6%
- new equipment	2.5%

If the 1981 Operational Plan is a reflection of current priorities, health sector investments not only have been assigned a large share of investments in priority projects (\$69,100,000, or 7.3 percent of total investments) but, moreover, the sector has been assigned a substantial increase (41 percent) over the amount originally planned. This places the health sector in fourth place among the country's 41 priority investments.

2. Review of Individual Agencies Health Expenditures

Tables 5-11 (pp. 13-16) provide detailed data on expenditures through 1980 by all the leading health agencies in Ecuador. A summary analysis of these data for each agency follows.

a. Ministry of Health (MOH)

On the basis of data for 1970 and 1975, it appears that budgetary allocations for the Ministry of Health have traditionally been lower than the amount actually authorized by the Ministry of Finance, once resources were actually distributed. For 1970 and 1975, the amounts spent are lower than those authorized. Possibly as a result of this, the trend seems to have changed. The amounts authorized in 1979 and 1980 have been lower than the initial budgetary allocations, but the Ministry has still not made full use of the financial resources available to it. The Ministry, not including agencies to which it makes financial transfers, failed to spend \$890,000 in 1979, and some \$700,000 in the first eleven months of 1980.

Through the years, most of the MOH's resources have been transferred to provincial or regional departments. In 1980, for example, \$79,400,000 were transferred to jefaturas provinciales, thus delegating to these provincial bodies the administration of 88 percent of the funds. In 1975, the percentage was 56.5 percent of the Ministry's funds. The very weak management capacity at the provincial level exacerbated the MOH's inability to implement all the budgetary resources available to it.

(1) Current vs. Investment Budget. In 1970 the investment portion of MOH budget funds reached 28 percent, but the ratio was reduced to less than 20 percent in 1975 and 1980. The fact that the Ministry is more an operating than a building agency is reflected in the observation that, in 1980, only 3.7 percent of the Ministry-administered funds were used as capital expenditures (See Table 7). US\$ 18.1 million (78 percent of the Ministry's total investments) were transferred to IEOS alone, reflecting the fact that IEOS is the agency charged with the implementation of the Ministry's construction programs i.e., most health facilities and water and sewerage systems. This is a new trend within the Ministry, contrasting with its operations in 1970, when transfers to other agencies were used only to support their current expenditures. What emerges from this analysis is a trend toward rapid increases in the Ministry's current expenditures. Per capita operating expenditures budgeted for 1980 are, in real terms, almost twice those of 1975 and fifteen times higher than in 1970.

Through the years, the MOH has supported a number of priority programs. For example, in 1980 the Food Supplement Program, was assigned \$600,000 (0.64 percent of the Ministry's budget) and thus remains as an important program. Investment in health centers also remains a significant portion of the MOH's budget: 5 percent in 1980 and 10.7 percent in 1975.

The budgetary breakdown does not disclose rural vis-a-vis urban expenditures, however, in 1980 \$47,400,000 were assigned outside of Guayas and Pichincha Provinces (where the cities of Guayaquil and Quito are located).

b. Ecuadorean Institute of Sanitary Works (IEOS)

In the early 1970s, IEOS functions involved mostly the provision of water and sewerage to urban areas not attended by autonomous municipal agencies. In the 1970 to 1974 period, IEOS's investments in water and sewerage systems amounted to roughly \$3 million, while municipal water and sewerage entities constructed works for \$15.7 million. In 1974, IEOS involvement in the provision of water and sewerage systems increase. The GOE assigned more of this role to IEOS and reduced the municipal participation. Furthermore, in 1974, the MOH transferred to IEOS the responsibility for the design and construction of health facilities. Consequently IEOS's expenditures in 1975 were, in real terms, 87.2 percent greater than in 1973. In 1979, IEOS's total budget (\$45.5 million) represented roughly half of the MOH's budget.

MOH budget transfers to IEOS of approximately \$9,200,000 represented only 23 percent of IEOS's total allocations (roughly \$40.2 million) in 1979. These transfers had provided an average of up to 44 percent of IEOS's budget, in the 1974 to 1976 period. Currently, the

bulk of IEOS funds come from payments made by (provincial or municipal) beneficiaries of the water and sewerage systems and from external credits and donations which amounted to 25 percent of IEOS allocations in 1979.

The nature of IEOS's activities is such that the bulk of its funds are used as investment expenditures. The Mission's own extrapolations project that current expenditures decreased as a percentage of total expenditures (possibly to as low as 13 percent in 1979). Current expenditures in 1979 (\$4.8 million) may have been only slightly higher (in current prices) than the average for the 1974-1976 period. This implies that a much greater figure (\$31.9 million) was used in investments (in studies, constructions and other assets). This represents an increase, in real terms, of 31.3 percent over the 1974-1976 average.

IEOS has had problems similar to the MOH's in disbursing and utilizing funds available to it. While in 1975 it failed to utilize some 160 thousand dollars, in 1979 it used 77 percent of its assigned funds and in 1980 it had 195,000 dollars to use during the month of December. A GOE evaluation of the 1973-1976 National Development Plan noted that "there are (still) institutional, financial and administrative limitations" suggesting that, for this reason, the resources could not be more effectively used. The instruments actually executed were only 33 percent of those originally planned for potable water, and 34.4 percent of those for sewerage. The document mentions that "this kind of work, in rural areas, has proven to be very complex and not very efficient."

A scrutiny of IEOS' program and budget indicates that the largest portion of its funds have been increasingly used in the design and construction of health establishments. (See Table 9). These works demanded the use of 35.6 percent of the agency's funds in the 1977-1979 period. The construction of potable water and sewer systems, involved almost the same percentage allocation. IEOS's increasing attention and action in rural areas is reflected in the fact that an average of 3.9 million dollars (8.5 percent of the budget) was allocated for basic rural sanitation, in the 1977-1979 period, contrasting, for example, with only 8,000 dollars allocated for rural water in 1970. Still, this investment in rural areas (10 percent of the total) is a small percentage.

c. The Social Security Institute (IESS)

This social insurance system experienced a substantial growth during the 1970s. In 1968 the system had 276,100 affiliates; this enrollment increased to 520,000 by 1980. A fundamental part of the problem of expanding the coverage of IESS is that it has high operating costs. The value of total medical services expenditures divided by the number of affiliates, in real terms, went from \$122 in 1970 to \$162 in 1980.

IESS expenditures in medical care in 1980 were slightly less (8.8 percent less) than the MOH's budget. Expenditures of \$162 per

affiliate is very high, especially considering that not all affiliates make use of the system. The bulk of IESS's services are provided in hospitals in large urban areas. This results in very high operational costs due to the delivery of very specialized services.

The data available for IESS make it impossible to appraise its urban vis-a-vis its rural services. The 1968 Law which established the Pilot Plan on Campesino Social Security still has not evolved into a massive assistance program. In 1980, there were 108,000 campesino affiliates, all of them members of comunas or other organized groups, leaving out other groups such as the rural salaried workers. An emphasis on urban coverage can then be derived from the observation that, in 1980, IESS operated 15 large hospitals, for a total of 1,336 beds, and only 39 rural dispensaries.

The specialized nature of IESS services is also reflected in the breakdown of its investments and operating expenditures. Construction of its medical care centers is expensive and demanded an allocation of roughly 20 percent of IESS's total budget for medical care in 1980. Expenditures in medical equipment accounted for 23 percent of IESS's medical budget for 1979.

The trend in IESS current expenditures, and the impact that recent wage and salary measures seem to have had on the IESS budget, can be seen in Table 11. Payment to IESS medical personnel were 51 percent of total medical expenditures in 1970, 57 percent in 1979, and 60 percent in 1980. In real terms, these personnel expenditures are 534 percent higher in 1980 than in 1970. Considering that IESS total medical care expenditures were 129 percent higher in 1980 than in 1979, the increases in personnel expenditures must have resulted in foregoing other types of expenditures. The item that has been most affected by this seems to be that which IESS classified as "expenditures on affiliates and retirees", involving payments for attendance in non-IESS centers, specialized medical care, food supply to patients in IESS's centers, and subsidy payments to the affiliates, while ill or during maternity.

d. Other Agencies

(1) The Charity Board of Guayaquil (JBG)

Although only local in scope, JBG's operation has traditionally been significant. In the early years of the Ministry of Health, JBG's budget was not much less than the Ministry's, amounting to 91 percent of it in 1970. In later years this percentage has decreased, being 32.4 percent in 1980. Most of JBG's budget comes from a nationwide lottery, which in 1980 produced revenues for some 22 million dollars, roughly 74 percent of the agency's total budget. Another \$2.9 million comes from fees for services.

Of the various programs run by JBG, health services is the one to which most resources are assigned. In 1979 this program used 77 percent of the Board's total resources, a substantial increase from the 54 percent in 1975. The \$20.2 million spent by the JBG served to attend, on a free-of-charge basis, 372,535 ambulatory patients and 55,804 hospitalizations, costing an average of \$180 for each of the latter.

(2) The Malaria Eradication Service (SNEM)

SNEM depends largely on Central Government Budget transfers from the Ministry of Health. Such transfers amounted to \$5.7 million in 1980, and only \$140,000 were generated as internal revenues. In the past, A.I.D., PAHO and UNICEF had provided supplementary funds (in the case of A.I.D. a total of 88 million sucres was disbursed in the 1968 to 1975 period). Since 1975, no external funds have been made available to SNEM. The agency's budget for 1981 is estimated at \$ 9 million.

SNEM provides malaria control services, and monitoring of yellow fever. With these services, SNEM is reported to reach some 300,000 rural households on the Coast and Oriente, thus covering close to 50 percent of those rural households. However, the agency seems to need more resources. Recent economic measures increasing the minimum wage required that SNEM obtain an increase of \$800,000 over its initial 1980 budget. In spite of this increase and another one in the 1981 budget, 81 percent of its revenues are used in salaries, thus leaving a very small residual for transportation, purchasing of equipment and medicines, constructions, etc.

(3) The National Hygiene Institute (INH)

INH is an agency small in scope and revenues. In 1980, its total budget amounted to \$5.3 million, 75 percent of it coming from Central Government budgetary funds, while \$528,000 were generated internally through the provision of services.

INH's principal functions include the preparation of vaccines and diagnoses of disease in its 36 laboratories. Its staff includes 800 people, 80 percent of them professionals and technicians. Consequently, a large share of its revenues (68 percent) are used as payments of wages and salaries. This leaves few resources to invest in materials and equipment (6.5 percent of the budget) or in other forms of investments, i.e., construction (2.3 percent of the budget).

(4) The Armed Forces Health Service

The Armed Forces health services are addressed to a very specific sector of society, the military and their relatives, --roughly 0.5 percent of the population. As a result, compared with

other agencies, its medical care expenditures are modest. In 1980, they amounted to \$354,000. Measured against the number of people to be potentially served, a per capita expenditure of \$8.50 is obtained.

The Armed Forces provide very basic health care service in military posts as well as highly specialized ones in its urban hospitals -- particularly in Quito's Military Hospital. This suggests that cost per attendance must vary significantly. Data on those expenditures is not easily accessible, yet it appears that payments for personnel services demand the greatest allocations. In 1980, wages, salaries, per diem and other personnel allocations demanded the use of roughly 65 percent of the Armed Forces health expenditures.

3. Perspectives for 1980-1984

The high priority assigned to the health sector is expected to continue in the next few years. The share of public resources that are to be allocated to the sector represent an increasing share of GNP (See Table 12). The 1980-1984 Plan stresses the new emphasis that is going to be placed on Primary Health Care programs. For example, the food-supplement program is to be substantially increased and will receive an average of \$2.8 million annually, mostly for food assistance for school children. The Epidemic Control Program is to receive an average of \$2 million annually, a small figure yet significantly higher, for example, than what the program received in 1979 and 1980.

The \$249 million of capital expenditures in the Health Program in the 1980-1984 period are planned to be allocated mostly in the construction and equipment of urban hospitals. Those investments total \$190 million. Yet a trend towards increased attention of smaller towns and rural areas is reflected in the planned increased allocation of resources for health centers and posts.

In addition to the Health Program, the National Development Plan contemplates the implementation of an Environmental Sanitation Program. Investments totalling \$446 million are to be used by IEOS in its water, sewerage, pollution control and solid waste disposal programs. To this end, IEOS resources are to be significantly increased. In 1979, IEOS and other agencies spent \$23.7 million in water and sewerage programs. This figure is expected to increase to an annual average of \$87.4 million (also at 1979 prices) in the 1980-1984 period. Again, the GOE's concern for the extension of services to the rural areas is reflected in the fact that 400 rural water programs and 400 rural sewerage programs are planned for the five-year period. These programs are going to demand investment for \$77.8 and \$70.3 million, respectively, over 33 percent of the IEOS budget.

Table 5

Budgetary Allocations and Actual Expenditures (x000 sucres)

	<u>1973</u>	<u>1978</u>	<u>1979</u>	<u>1980</u> ^{1/}
I. MOH				
Amount Budgeted	615'719.4	1.840'820.3	2.170'633.8	2.257'710.0
Amount Authorized	n.a.	1.787'725.9	2.141'867.0	2.065'683.3
Amount Executed	521'442.3	1'676.363.1	2.125'788.8	2.048'130.0
II. IEOS (MOH transfers only)				
Amount Budgeted	38'200.0	206'000.0	317'298.1	56'780.0 ^{2/}
Amount Authorized	n.a.	202'937.5	309'833.3	56'780.0
Amount Executed	35'200.0	191'950.0	309'833.1	56'780.0
III. SNEM				
Amount Budgeted	50'500.0	88'679.0	99'095.0	142'484.2
Amount Authorized	n.a.	87'095.0	99'095.0	129'311.8
Amount Executed	50'500.0	87'095.0	99'095.0	129'311.8
IV. INH				
Amount Budgeted	8'000.0	70'641.0	80'641.0	107'985.0
Amount Authorized	n.a.	70'641.0	80'641.0	99'232.2
Amount Executed	8'000.0	70'641.0	80'641.0	99'232.2

1/. Through November 1980

2/. For current expenditures only

SOURCE: Ministry of Health

Table 6

GOE BUDGET FUNDS CHANNELED THROUGH THE MINISTRY
OF HEALTH

(In dollars, at 1980 constant prices)

	<u>1970</u>	<u>1975</u>	<u>1980</u>
Budget	17,048,000	59,618,000	122,477,680
Per capita for all nation	2.76	8.17	14.66
Excluding transfers to other agencies	1.14	6.36	11.18

Table 7

CAPITAL/OPERATING EXPENSES BREAKDOWN

	<u>1970</u>	<u>1975</u>	<u>1980</u>
1. All funds channeled through the MOH			
Capital	28.0%	19.5%	19.0%
Operating	72.0%	80.5%	81.0%
2. MOH directly-administrated funds only			
Capital	38.7%	10.7%	3.7%
Operating	61.3%	89.3%	96.3%

Table 8

ALLOCATION/USE OF IEOS FINANCIAL RESOURCES
 (thousands of current dollars)

	<u>GOE Budget</u>	<u>External Loans</u>	<u>Own Funds</u>	<u>Others</u>	<u>TOTAL</u>
<u>1973</u>					
Amount Budgeted	3,310	14	3,958	817	8,099
Funds Allocated	2,000	---	4,065	814	6,876
Amount Used	---	---	---	---	1,774
<u>1975</u>					
Amount Budgeted	9,976	4,040	12,026	8,832	34,875
Funds Allocated	5,225	1,311	12,622	7,584	27,541
Amount Used	---	---	---	---	24,145
<u>1979</u>					
Amount Budgeted	10,504	8,056	10,062	16,875	45,497
Funds Allocated	10,284	9,695	6,394	13,859	40,232
Amount Used	---	---	---	---	36,690
<u>1980</u>					
Funds Allocated					44,658

SOURCE: IEOS.

Table 9

PERMANENT PROGRAMS IMPLEMENTED BY IEOS
 (thousands of current dollars)

<u>Programs</u>	<u>1973</u>	<u>1975</u>	<u>1979</u>
1. Designs and studies on potable water	51.2	228.6	413.7
2. Designs and studies on sewerage	30.2	76.8	243.8
3. Construction of Potable Water systems	303.8	5,170.9	4,666.1
4. Constrction of sewer systems	81.6	1,263.9	2,646.3
5. Underground water projects	24.1	7.2	
6. Fotable Water IDB Program		3,210.6	528,8
7. IDB Sewerage Program			746.5
8. Basic Sanitation Works		860.8	3,328.0
9. Pollution Control			13.5
10. Solid Waste Disposal			245.2
11. Sanitary Control			0.4
12. Design and Construction of Health facilities		2,336.0	13,118.9
13. Maintenance of Health facilities			233.6
14. Operation and maintenance of potable water works	25.0	90.0	404.0
15. Environmental sanitation of Quito	13.9	500.0	-

SOURCE: IEOS.

Table 10

IESS: Global Expenditures in Medical Services

	<u>1970</u>	<u>1975</u>	<u>1980</u>
Total in current sucres	286'756.313	743'406.502	2.105'520.000
At 1980 prices	917.620.203	1.220' 22.157	2.105'529.000
Per Affiliate	US\$ 122	-	US\$162

SOURCE: IESS Economic Division, for 1970 and 1980. Estrella, op.cit, for 1975.

Table 11

IESS: CAPITAL AND OPERATING EXPENDITURES

	1970		1979		1980	
	Total	%	Total	%	Total	%
Investments (x000)	<u>3.757.0</u>	<u>1.3</u>	<u>414.966</u>	<u>27.2</u>	<u>544.828</u>	<u>25.8</u>
In Constructions	592.6	0.2	162.860	10.5	416.254	19.7
In Equipment	3.164.4	1.1	252.106	16.5	128.574	6.1
Current Expenditures	<u>282.955.0</u>	<u>98.7</u>	<u>1.112.638.0</u>	<u>72.8</u>	<u>1.560.700</u>	<u>74.2</u>
Personnel	147.129.3	51.3	870.267.6	56.9	1.256.503	59.7
Maintenance & Service	15.831.5	5.5	52.820.0	3.5	75.147	3.7
Subsidies, pensions, funding of specialized attention, etc.	119.994.2	41.9	189.550.4	12.4	229.050	10.8

SOURCE: IESS, Economic Division

Table 12

SHARE OF THE GNP ALLOCATED FOR MOH
HEALTH EXPENDITURES
(thousands of dollars)

	1970	1975	1980	Annual Average for 1980-84 1/
- GNP	1,371,000	4,329,840	10,934,049	12,920,028
- MOH's Administered Funds	2,194	25,210	93,358	154,000
- % of GNP	0.16%	0.58%	0.85%	1.19%
- Total funds channeled through the MOH 2/	5,329	36,304	122,478	256,241
- % of GNP	0.38%	0.83%	1.12%	1.98%

1. At 1979 current prices
2. Includes MOH Transfers to be made to IEOS and other agencies.

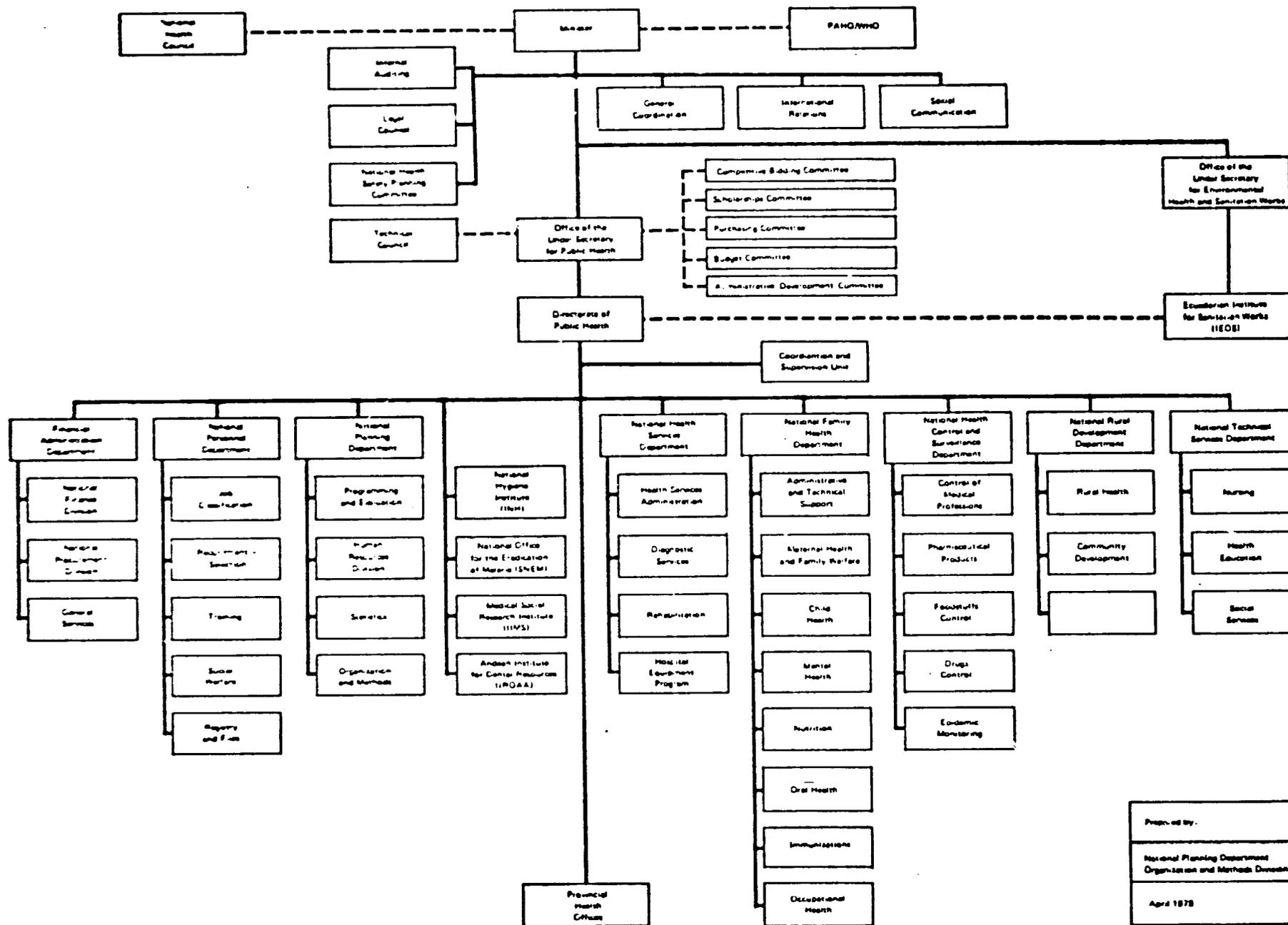
Sources: -Annual Budgets for 1970, 1975 and 1980.
-Plan Quinquenal de Salud, 1980-84.
-National Development Plan, 1980-84.

Table 13

PLANNED INVESTMENTS IN HEALTH POSTS OTHERS THAN HOSPITALS
1980-84 (in dollars at 1979 prices)

1.	Construction and equipment of:	
	21 Health centers	14,500,000
	12 Health centers plus 4 to be remodeled	17,200,000
	18 Urban Health Centers	3,600,000
	47 Health Subcenters	2,444,000
	33 Health Posts	660,000
	IDB Program	17,600,000
2.	Remodeling and Expansion of:	
	21 Health Centers	949,500
	100 Subcenters	1,272,000
3.	An identifiable portion of 25 million dollars to be used for purchasing of equipment, including, for example, 4.8 million for the re-equipment of 400 health subcenters.	

ORGANIZATIONAL CHART OF THE MINISTRY OF HEALTH



Prepared by:
 National Planning Department
 Organization and Methods Division
 April 1978

World Bank 20481

INSTITUTIONAL ANALYSIS: Ecuadorian Institute for Sanitary Works (IEOS)

I. Institutional History

The Ecuadorian Institute for Sanitary Works, was initially responsible only for the design and construction of potable water and sewage systems in smaller Ecuadorian cities. In 1972 it was assigned nationwide planning and normative powers for water and sanitation but continued to concentrate primarily on small urban systems. Only in 1978 did it begin to assume a major role in providing basic sanitation to rural communities.^{1/}

II. Organizational Structure

IEOS carries out its activities under the formal jurisdiction of the Ministry of Health but has an autonomous policy-making board of directors and administrative structure. The board of directors which determines IEOS' policies and programs is headed by the Minister of Public Health (or his representative) and also has representatives of the Institute of Hydraulic Resources (INERHI), the Ministry of Finance, the National Planning Council (CONADE), and the Ecuadorian Association of Municipalities.

IEOS is administered by an Executive Director. It has seven National Directorates at its Central Headquarters in Quito. These are: (a) the Executive; (b) Planning; (c) Project Design; (d) Construction; (e) External Financing; (f) Operation and Maintenance and (g) Administration directorates.

These national directorates are assigned specific responsibilities. The Executive Directorate supervises the over-all planning and implementation of IEOS programs. Legal and audit staffs are also attached to the Executive Directorate.

The Planning Directorate formulates urban and rural potable water and excreta disposal plans and programs, as well as health facility construction plans and programs. This directorate has four divisions (programming, coordination, technology transfer, and evaluation) which coordinate planning, negotiations with external donors and relations with the GOE agencies, training and evaluation activities. The Project Design Directorate prepares designs for all construction projects. The Construction Directorate promotes and supervises construction projects (small rural projects are done by direct administration, while larger projects are contracted out). It has a number of health promoters on its staff who arrange the community participation inputs and organize Juntas Administradoras de Agua (see Section V below). The External

^{1/} During the 1960's and early 1970's the Misión Andina had engaged in rural water and sanitation activities. When this organization was abolished in 1973 its functions passed to the Ministry of Agriculture which continued to build some systems during the remainder of the 1970's.

Finance Directorate executes programs financed with IDB and IBRD loans. The Operation and Maintenance Directorate provides nationwide technical assistance for the operation and maintenance of water systems and health facilities.

The Administrative Directorate carries out personnel, procurement, disbursement and accounting functions.

Total direct hire headquarters staff are 203 of which 162 are professional or technical personnel. There are also 128 individuals on contract most of whom are professionals or technicians. The headquarters staff currently bears primary responsibility of program and project design and implementation as well as for all major maintenance functions.

An organization chart for the headquarters staff is presented in Figure 1. A staffing pattern of the operational directorates of Central headquarters staff is provided in Table 1, Page 4.

IEOS has a provincial office in each of Ecuador's twenty provinces. Total provincial staff consists of 117 individuals of whom 60 are professionals or technicians. Each provincial officer should have at least a provincial engineer and deputy as well as a health educator and sanitary inspector. Many provincial offices, however, do not have this minimal staff.

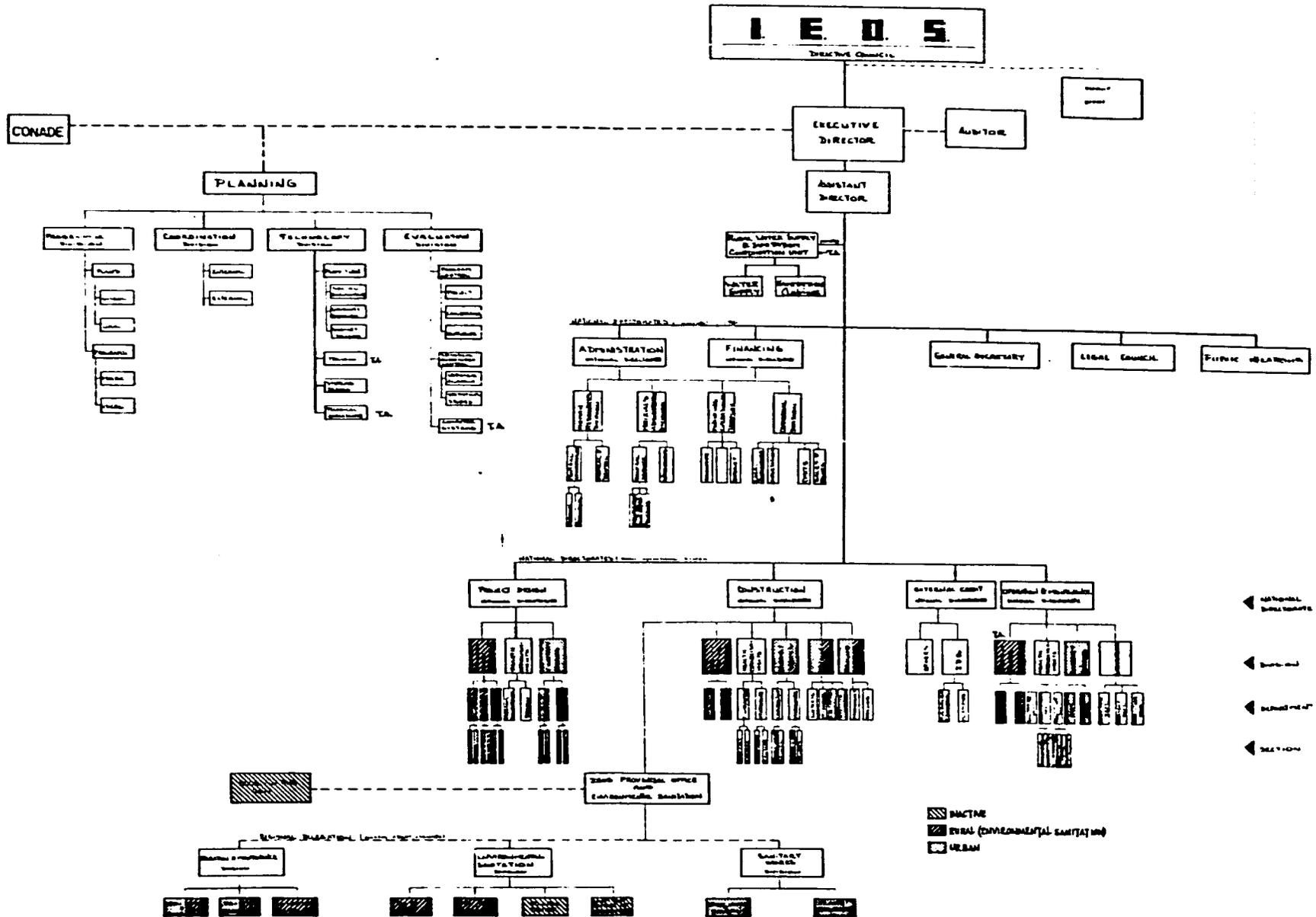
Provincial offices are currently responsible for the direct supervision of contracted water system and health facility construction activities and for executing these rural activities carried out by direct administration. They are also involved in promotion of latrine construction. Theoretically, provincial offices should be involved in operation and maintenance of water systems and health facilities although in practice very little or no operation and maintenance activities are carried out at the provincial level.

III. Current and Proposed Program and Budgetary Levels

A. Current Program and Budget Levels

During the past six years (1975-1980) IEOS has built 131 rural water systems at a cost of S/.174,000,000 (US\$7,000,000). It also installed 1,364 handpumps, 8,696 campesino toilets and 14,620 pit latrines. The cost of these activities is detailed in Table 2, Page 7.

IEO'S ORGANIZATION CHART



IEOS - EXISTING PERSONNEL
 OPERATIONAL DIRECTORATES/DIVISIONS
 1981

DIRECTORATE	DIVISION	PERSONNEL	NUMBER	
Planning		National Director	1	
		Executive Secretary	1	
		Assistant	1	
	Programming		Chief 1, Civil Engineer	2
			Chief 2, Civil Eng/Architect	1
		Assistant Architect	6	
	Coordination		Chief 1, Civil Engineer	1
		Technology	Chief 1, Civil Engineer	1
	Health Educator 10.C		1	
	Health Educator 7a.C		2	
	Health Promoter 1		1	
	Health Promoter 3		2	
	Draftsman 3		1	
	Evaluation			Chief 2, Civil Engineer
			Civil Engineer 5	2
			Civil Engineer 4	1
			Assistant Engineer	1
		Assistant Architect	1	
Project Design		National Director	1	
		Secretary 4	1	
	Rural Env. Sanitation		Chief 2, Civil Engineer	1
			Secretary 4	1
			Civil Engineer 5	3
			Civil Engineer 3	1
			Civil Engineer 2	2
			Civil Engineer 1	3
			Veterinarian Doctor	1
		Assistant Engineer	2	
		Draftsman 3	2	
	Urban Env. Sanitation		Civil Engineer 5	2
			Engineering Helper 2	1
			Civil Engineer 1	4
	Urban Sanitary Works		Engineering Helper 3	1
			Chief 2, Civil Engineer	1
			Chief 1, Civil Engineer	1
		Civil Engineer 5	1	
	Civil Engineer 4	2		

DIRECTORATE	DIVISION	PERSONNEL	NUMBER
		Civil Engineer 3	1
		Civil Engineer 2	3
		Sanitary Engineer 3	2
		Sanitary Engineer 2	1
		Sanitary Engineer 1	2
		Architect	1
		Surveyor 3	6
		Surveyor 2	1
		Assistant Engineer	6
		Assistant Architect	1
		Engineering Helper	4
		Draftsman 3	6
		Draftsman 2	1
		Secretary 1	2
Construction		National Director	1
		Office Chief 2	1
	Rural Env. Sanitation	Chief 2, Civil Engineer	1
		Chief 1, Civil Engineer	1
		Civil Engineer 5	1
		Secretary 4	1
	Urban Sanitary Works	Chief 2, Civil Engineer	1
		Civil Engineer 5	5
		Civil Engineer 2	1
		Supervisor	1
		Assistant Engineer	1
		Engineering Helper	1
		Secretary 4	1
	Installation	Chief 2, Maintenance Eng.	1
		Chief 1, Maintenance Eng.	1
		Chief 1, Civil Engineer	1
		Assistant Engineer	2
		Engineering Helper	1
		Mech. Engineering Helper	1
		Assistant Architect	1
		Maintenance Engineer 3	1
		Maintenance Engineer 2	1
		Maintenance Engineer 1	1
		Secretary 4	1
External Financing		Chief 2, Civil Engineer	1
		Chief 1, Civil Engineer	1
		Civil Engineer 2	2
		Architect 4	1

DIRECTORATE	DIVISION	PERSONNEL	NUMBER
		Architect 3	1
		Architect 1	1
		Assistant Engineer	1
		Financial Analyst 3	1
		Accountant 1	1
		Assistant Accountant 2	1
		Draftsman 3	1
		Draftsman 2	1
		Secretary	1
Operation & Maintenance.		National Director	1
		Executive Secretary 1	1
	Rural Env. Sanitation	Chief 2, Civil Engineer	1
		Chief 1, Civil Engineer	1
	Urban Sanitary Works	Chief 2, Civil Engineer	1
		Chief 1, Civil Engineer	1
		Maintenance Engineer 4	4
		Shop Supervisor	1
		Surveyor 3	1
		Maintenance Technician	1
		Draftsman 3	1
		Secretary 3	1
		Helper	1
	Ground Water	Chief 2, Civil Engineer	1
		Chief 1, Civil Engineer	1
		Geology & Mining Eng. 2	2
		Geology Engineer	1
		Civil Engineer 4	1
		Sanitary Engineer 1	1
		Assistant Engineer 4	3
		Assistant Engineer 3	1
		Engineering Helper 3	2
		Secretary 4	1
	Laboratory	Chief of Laboratory	1
		Chemist 1	4
		Laboratory Technician 2	2
		Secretary 3	1
		Office Clerk 2	2

Table 2

RURAL WATER AND SANITATION PROJECTS IMPLEMENTED BY IEOS

1975 - 1980

<u>Activity</u>	<u>No. of Works</u>	<u>Estimated Cost (millions)</u>	
Potable Water Systems	131	S/.174	US\$7.00
Water units	83	2	0.08
Manual pumps	1,364	4	0.16
Sewerage	6	13	0.50
Field Toilets	8,696	13	0.50
Latrines	14,620	14	0.56
	TOTALS	S/.220	US\$8.80

Communities contributed an average of 19%.

These investments are a relatively small percentage of IEOS overall program. Table 3, which details IEOS programmed expenditures, assigned budget and real expenditures for the 1977-79 periods, shows that real expenditures for rural sanitation increased from 5.4 percent to 11.6 percent of IEOS total expenditures between 1977-1977. It should be noted that IEOS assigned budget and real expenditures, both declined during this period as did its efficiency in spending assigned resources.

B. Future Program and Budget

IEOS future program directions are reflected in the 1980-1984 National Development Plan. The magnitude of projected investments in potable water and sanitation is presented in Table 4. While the quantitative objectives of the plan are not likely to be met because of GOE austerity measures, both the relative investment in rural WS/S projects (compared with urban investments) and the general magnitude of such investments may be derived from this table. The plan proposes to build 400 rural water and sewage systems. \$3.7 billion sucres (1979) and \$740 million annually in rural water and sanitation would be spent in rural WS/S. This is approximately eight times the annual expenditure in rural water and sanitation expenditures (expressed in 1979 sucres) during the 1977-1979 period. Rural water and sewage expenditures during the 1980-1984 period would be 34 percent of total expenditures on potable water and sanitation according to the National Development Plan.

IEOS 1977 BUDGET
SANITARY WORKS
(SUCRES)

PROGRAM	PROGRAMMED	ALLOCATED	SPENT	PERCENTAGE SPENT ALLOCATED
Sewer and Potable Water Studies	30,490,000	24,219,000	14,969,463	62
IDB Financed Constructions	289,782,176	244,183,000	233,768,695	96
Construction of Potable Water & Sewer Systems	586,315,400	412,260,000	370,143,050	90
Fluoridation	1,500,000	1,053,000	49,877	5
Systems Operation and Maintenance	4,500,000	3,159,000	1,822,726	58
Basic Rural Sanitation	99,325,000	68,816,000	51,736,544	75
Pollution Control	5,700,000	4,212,000	2,184,544	52
Solid Waste Disposal	37,480,000	34,378,000	32,250,716	94
Sanitation Control	2,200,000 *	2,106,000	---	--
Design & Construction of Health Establishments	324,148,460	258,614,000	249,871,970	97
New Health Establishments	41,000,000	---	---	--
TOTAL	1,422,441,436	1,053,000,000	956,797,587	91

*Operation. Expenses only

The programmed budget for 1977 was S/.1,422,441,436. The amount spent was 67% of that programmed. The amount allocated was S/.1,053,000,000 or 74% of that programmed, of the amount allocated 91% was actually spent.

IEOS 1978 BUDGET
SANITARY WORKS
(SUCHES)

PROGRAM	ALLOCATED	SPENT	PERCENTAGE SPENT ALLOCATED
Sewer and Potable Water Studies	33,740,000	15,229,794	45
IDB Financed Constructions	146,000,000	142,471,745	98
Construction of Potable Water & Sewer Systems	357,654,754	283,339,838	79
Potable Water O&M and Fluoridation	4,129,000	6,417,208	155
Basic Rural Sanitation	100,500,000	107,790,701	107
Pollution Control	1,000,000	546,445	55
Solid Waste Disposal	14,217,000	11,791,514	83
Designs & Construction of Health Establishments	519,535,732	467,661,073	90
TOTAL	1,176,776,486	1,035,248,318	88

The allocated budget for 1978 was S/.1,176,776,486. The amount spent was 88% of that allocated.

IEOS 1979 BUDGET
SANITARY WORKS
(SUCRES)

PROGRAM	ALLOCATED	SPENT	PERCENTAGE SPENT ALLOCATED
Sewer and Potable Water Studies	32,842,116	16,437,620	50
IEB Financed Constructions	80,044,000	31,883,565	40
Construction of Potable Water & Sewer Systems	331,177,500	182,808,960	55
Systems Operation and Maintenance	7,200,000	10,101,010	140
Basic Rural Sanitation	91,973,090	83,200,017	90
Pollution Control	2,000,000	338,156	17
Solid Waste Disposal	8,000,000	6,130,851	77
Design & Construction of Health Establishments	369,196,116	327,970,361	89
TOTAL	922,432,822	713,870,553	77

The allocated budget for 1979 was S/.922,432,822. The amount spent was 77% of that allocated.

1980-1984 PLAN
POTABLE WATER EXPENDITURES
(Million Dollars-1979)*

Program	N ^o of Systems	1980	1981	1982	1983	1984	Total
New Systems	25	5.1	7.6	9.0	10.4	22.7	54.8
Expansions	22	1.1	2.7	2.1	3.1	10.8	19.8
Rural Projects	400	7.2	8.8	12.8	15.0	25.7	69.5
Pending Projects	—	11.7	5.4	12.1	1.5	---	30.7
TOTAL:	—	25.1	24.5	36.0	30.0	59.2	174.8

* Exchange rate used was S/ 28.00 per \$ 1.00 US

1980-1984 PLAN
EXCRETA DISPOSAL EXPENDITURES
(Million Dollars-1979)*

Program	N ^o of Systems	1980	1981	1982	1983	1984	Total
Storm Sewer	9 (new)	2.13	4.29	7.30	8.73	15.42	37.87
Storm Sewer	1 (expansion)	0.05	0.06	0.09	0.10	0.11	0.41
San. Sewer	53 (new)	3.30	11.38	16.74	18.35	29.01	78.73
San. Sewer	11 (expansion)	0.44	2.05	2.42	2.84	4.74	12.49
Rural Proj.	400	4.49	5.39	11.30	13.70	27.85	62.73
Pending Projects	—	6.61	7.14	7.17	2.60	---	23.52
TOTAL:	—	17.02	30.31	45.02	46.32	77.13	215.80

* Exchange rate used was S/ 28.00 per \$ 1.00 US

IV. Constraints on the Implementation of an Expanded Rural Water and Sanitation Program

A recent consultant's report^{1/} has identified a number of institutional, technical, and financial constraints which, unless surmounted, will inhibit the implementation of an expanded rural water and sanitation program.

Paramount among these constraints are a (1) lack of focus on rural water supply and sanitation activities in the organizational structure of IEOS and (2) a lack of trained personnel, especially at the provincial level, IEOS current organizational structure is not conducive to effective implementation of rural water and sanitation programs. Three National Directorates (Project Design, Construction, and Operation and Maintenance) are directly involved in implementing sanitary works, environmental sanitation and health facilities construction programs in both urban and rural areas. Responsibility for carrying out these programs is dispersed among a large number of Divisions, Departments, Sections and Sub-Sections. No single directorate has clear responsibility for coordinating rural program implementation. The rural WS/S program consists of small projects which tend to be assigned low priority and which, consequently, suffer frequent delays within the IEOS bureaucracy even before they are ready to be implemented by provincial level staff. This deficiency in IEOS organizational structure is exacerbated by staff shortages at the provincial level where a small staff is assigned and where there are often vacancies among professional staff positions caused by high turnover due to low salaries and, in some cases, difficult living conditions. These staff shortages further delay implementation of projects, particularly for these rural projects which are built by direct administration.

A major reason for staff shortages is the low salary scale which makes it difficult to recruit and retain the experienced personnel required to effectively carry out IEOS programs. High turnover rates means that there is a lack of trained personnel, both at national and provincial levels. There is no on-going in-service training program nor do technical and manuals exist which would facilitate consistency of approach and utilization of appropriate techniques. Applied research efforts which attempt to adopt or prove alternative technologies within the rural Ecuadorian context have been initiated from time to time, e.g. use of flow regulators, but no on-going testing and evaluation program exists. As a result, project designs and construction technologies which are employed are those with which IEOS personnel are already familiar.

^{1/} "Institutional Development for IEOS" by Charle S. Pineo and Henry Van, March 1981. Project No. 931-1176, Contract No. AID/DSPE-C-0080.

Logistical support, both for construction and for operation and maintenance programs, is extremely limited. The number of vehicles is very limited and those that are available are generally in poor operational condition. Provincial offices with significant activity levels, e.g. Chimborazo, often utilize rented vehicles as their only means of transport. Technical personnel often cancel field trips because transport is not available. Promoters often travel by bus, bicycle or even hitch-hike in order to visit assigned communities. Maintenance of existing vehicles is limited to correcting major problems and is carried out in Quito.

There is also a lack of equipment and system maintenance capabilities. For example, provincial level offices have no surveying, audio-visual or maintenance equipment. At the national level there is one set of surveying equipment, a little audio-visual equipment most of which is non-operational, and a limited maintenance capability.

IEOS has no automatic data processing equipment nor does it contract out any data analysis. Manual processing of data needed for national planning and program management is either manually processed with consequent long delay in its availability or is not available at all.

VI. Proposed Actions

The consultant's report by Pineo and Van cited previously proposes a series of actions designed to overcome the major bottlenecks identified in the previous section and to facilitate the expansion of the rural water supply and sanitation program. These actions include:

- The establishment of a Rural Water and Sanitation Coordination Unit.
- The creation of a provincial level maintenance capability
- The implementation of an extensive in-service training program including in-country and external training
- The provision of necessary vehicles and equipment at the provincial level

In addition to the recommendations of the consultant's report, the utilization of para-professionals for design and construction supervision tasks at the provincial level has been identified as an important means of strengthening IEOS rural project implementation capacity.

In regard to the operation and maintenance of rural water and sanitation projects, although IEOS has promoted the utilization of

Administrative Water Boards (See Exhibit B of this Annex), these boards do not have the technical capacity to make major repairs. IEOS centralization of maintenance and operation functions, greatly limits the juntas' ability to make major repair in a timely fashion.

Juntas Administradoras de Agua

Juntas Administradoras de Agua (Administrative Water Boards) serve as the mechanism for operating and maintaining water systems built by IEOS. The Water Board mechanism was first tested by IEOS in 1976 and legally implemented by a Supreme Decree in 1979.

The board, which is democratically elected and has legal status is comprised of five community members. Prior to construction of a water system a board is elected by the community. It signs an agreement with IEOS which commits local resources to the project and, during construction, it organizes the community contribution (labor, materials or money) to the project. Upon completion of construction the board assumes responsibility for operation and maintenance of the system. It collects a tariff from users, which is generally a flat minimum charge of 12-25 sucres per 10 m³ of water and, where meters are installed 2 or 3 sucres for each m³ exceeding 10 m³.

The board then hires a part or full-time operator and a part or full-time treasurer, finances materials (chlorine) costs and accumulates a reserve fund to finance system repair or expansion.

A recent evaluation by IEOS of the operation of the 131 Juntas^{1/} then operational concluded that (1) the Juntas are generally being administered correctly but that on-going training and advice should be provided, (2) their legal status was an important positive factor which encouraged their operation; and that there are certain common difficulties which Juntas face in operating and maintaining systems, e.g., the high cost of and difficulties in obtaining calcium hypochlorite; poor operation of locally manufactured water meters, lack of provincial level meter testing and repair facilities, and a lack of technical assistance on matters which exceed the current technical competence of promoters. The evaluation concluded that these problems are minor compared to the operational success of the Juntas especially in accumulating a financial surplus which can be invested in systems repairs and expansions.

^{1/} IEOS, Dirección Nacional de Planificación, "Sistemas de Agua Potable en el Area Rural y Participación Comunitaria," Quito, July 1980.

PLAN FOR THE DEVELOPMENT OF A RURAL
SANITATION INCENTIVE PLAN

1. BACKGROUND

1.1 Rural Sanitation Programs Delays (Potable Water and Excreta Disposal)

Implementation delays in rural sanitation programs are observed in most Latin American countries, even in those where projects have external financing. There are multiple causes: (1) little or no administrative capability of the organizational components responsible for executing the programs and (2) lack of motivation of their personnel. These delays occurs even when adequate norms and administrative procedures are available.

An incentive plan can help overcome these "bottlenecks" and provide a remedy for these problems.

Unfortunately, the low salaries offered by the government organizations do not attract qualified professionals and technicians. Consequently, there are great difficulties in obtaining the necessary personnel to develop and implement programs; furthermore, even if it were possible to recruit qualified personnel, their productivity would remain very low because there is no incentive for doing a good job. Personnel are not remunerated for doing a good job. In addition, the lack of economic resources many times delays program implementation, often because a spare part is lacking for the only vehicle available, or because the health promoter cannot go out to a specific community because funds are not available for travel expenses.

1.2 Rural Sanitation Programs Methodology (Potable Water and Excreta Disposal)

Special treatment is required for rural sanitation programs which are substantially different from urban sanitation works programs. The rural programs have special social considerations. Community participation plays a very important role. This does not occur in urban programs. In other words, one is not dealing only with construction of a physical facility but with a community mobilization process not only during the construction of a system but also in its administration after its completion.

To be able to better explain the so called "Incentive Plan" (Plan) it is important to describe the methodology used in Ecuador in developing rural sanitation projects. Thus, one will be able to understand

better how the "Incentive Plan" contributes to the increased productivity of the government implementing units in rural sanitation programs (potable water and excreta disposal).

1.2.1 Preliminary List of Communities

The IEOS Provincial Office, based on the knowledge that it has of the various communities under its jurisdiction, prepares a preliminary list of the communities in which it would be feasible to provide potable water and excreta disposal services. This list is discussed by the Provincial sanitary and political authorities who define and determine the priorities. Once these are determined the list is then submitted to the IEOS Central Office which in turn analyzes this list. After the list is approved it is returned to the Provincial Office to continue the project development process.

1.2.2 Pre-feasibility Study

Based on the approved list and its priorities, the provincial engineer visits the communities and performs an assessment of the possible sources of water determines the feasibility of the proposed system.

1.2.3 Socio-economic Study

Simultaneously with the feasibility study, or innmediately following it, the IEOS health promoter conducts a community socio-economic studies. These studies provide general information about the communities, especially their attitudes toward the possibility of establishing potable water and excreta disposal services. A construction cost estimates are obtained from the pre-feasibility studies. The communities' capability to pay such cost as well as their attitude toward the future service are obtained from the socio-economic studies. These two factors will determine which projects should go forward or be cancelled. The cancellation of a project is based on (1) the unit cost being higher than that established in the Rural Sanitation National Plan, or (2) if the community for some reason does not wish to participate in the project. The cancellation many times is temporary since these two factors often change time.

1.2.4 Topographic Survey

If the community meets all the requirements, a topographic survey is then performed and the necessary detailed data for the construction is gathered.

1.2.5 Definite Project

Based on the topographic survey, the hydrologic data and information obtained during the socio-economic study, a definite project is designed based on the IEOS design specifications. This definite design and construction plan is then submitted to the IEOS central headquarters for review.

1.2.6 Promotion and Community Organization

Simultaneously with the elaboration of the project design and construction plan, the organization of community participation is initiated. An Administrative Committee (Junta Administradora) is formed and is legalized by means of a signed agreement with the IEOS.

1.2.7 System Construction

During this phase, the systems are built by direct administration utilizing community labor. The project is considered completed when IEOS, by means of a legal document, officially delivers the system to the community's Administrative Committee.

1.2.8 Supervision of the Administrative Committee

Once the system is being administered by the Administrative Committee, the IEOS Provincial Head Office is responsible for supervising such administration. This is done by performing periodic checks, usually done quarterly.

2. INCENTIVE PLAN

2.1 Description of the Incentive Plan

The Incentive Plan proposes to aid in overcoming the various "bottlenecks" described in paragraph 1.1 which are responsible for the low productivity of IEOS Provincial offices. It will create a stimulus for personnel to produce more and with better quality. By overcoming these obstacles and by obtaining a better productivity from provincial level personnel, IEOS can save money. However, to accomplish this, an additional of money to provincial-level offices is required.

The additional money required is assigned to two areas: a) for a fund to complement operational expenses of the implementing provincial units; and b) to establish a determined amount to be paid as an extra salary or bonus to all personnel at the provincial level. The first is especially needed during the last months of the fiscal year when the amounts budgeted for operating expenses have generally been depleted.

With this fund the lack of a specific item will not be an excuse for the program not to proceed as scheduled. The second provides a continuous incentive to provincial-level personnel to complete their work in an expeditious manner, since the bonus corresponds to the percentage of work completed on schedule and all provincial-level personnel receive a share of the bonus.

2.2 Schedule of Activities

In paragraph 1.2 the sequence of activities during design construction was described. Each one of these steps terminates in a specific event which is easily identified. The supervision which must be provided to operational systems is also known.

The complexity of the various activities varies considerably. Some are simple and relatively easy to accomplish and others are more complicated and require greater effort. This necessitates establishment of an index of accomplishment for each one of these activities. Experience by IEOS has determined that one engineer can simultaneously supervise the construction of three (3) potable water and excreta disposal systems. The same load can be assigned to one promoter.

2.2.1 Goals and Index of Accomplishment

An example of the programming goals and corresponding indices of accomplishment could be:

Description of Goals	Index of Accomplishment
1. Project Feasibility o Completed when the preliminary report is approved.	5
2. Socio-economic Study o Completed when the study is analyzed and approved by IEOS Central Headquarters.	5
3. Topographic Survey o Accomplished when the drawings are delivered and approved by IEOS.	10
4. Definite Project o Accomplished when the proposed project design has been approved by the Central Level.	20

5. Organization of the Administrative Committee	3
o Completed when the legal document of possession is awarded to the Committee.	
6. Signature of the IEOS - Community Agreement	2
o Legal signature of this document accomplishes this goal.	
7. Initiation of Construction	10
o Accomplished when the Chief Provincial Engineer sends a telegram notifying commencement of construction.	
8. Completion of Construction	35
o Accomplished upon presentation of the legal IEOS delivery document to the community.	
9 Operational Supervision of System	10
o Submission of the IEOS operation inspection report accomplishes this goal.	

It is understood that meeting the above requirements means that the specific task has been carried out adequately according with IEOS specifications.

2.2.2 Time Required for Each Activity

Most of the water supply and excreta disposal systems built by IEOS in the rural areas have been built in 3 or 4 times longer than the period originally programmed.

According to the opinion of IEOS personnel working in rural areas during the last four years and given the conditions which would be created by the Incentive Plan, those projects that up to now have been built in 12 to 18 months could be built in 6 months. The activities during these 6 months would be broken down as follows:

<u>ACTIVITY</u>	<u>TIME REQUIRED</u>
1. Pre-feasibility Report	1 week
2. Socio-economic Study	2 weeks
3. Topographic Survey	3 weeks
4. Project Design	4 weeks
5. Administrative Committee Organization	
Simultaneous to the above activities, the time required to accomplish this task is estimated to take 3 weeks.	

6. Signature of the IEOS-Community Agreement	
The specific time required for this task is estimated to take <u>1 week</u> . This task is carried out simultaneously to those indicated under items 1 to 4.	
7. System Construction	<u>16 weeks</u>
TOTAL	26 weeks

2.2.3 Provincial Programming

The time required for each activity is calculated when the work schedule is prepared. This schedule would specify which of the activities listed under paragraph 2.2.1 would be performed during the year and which ones would be performed every three months.

The bonus assigned to the provincial personnel would be determined as follows: the number of times that each activity is to be conducted is multiplied by the index of accomplishment. The products are added. The total obtained will determine the value of the bonus established for each provincial level. If the predetermined total is not reached, the bonus will be proportional to the number of points reached. The distribution of this total amount will be made to the personnel in proportion to their salaries.

2.2.4 Semi-annual Evaluation

Since the partial goals are semi-annual the evaluation will be conducted during this period.

2.2.5 Regulations

A set of regulations will be prepared. These will outline in detail the entire mechanism for the Incentive Plan, the manner in which the evaluation is to be conducted and the penalties to be imposed at all provincial levels in case false information is submitted. Also included will be all the forms for reporting activities and pertinent data.

3. ADVANTAGES OF THE PLAN

The proposed Incentive Plan has its advantages and disadvantages compared to the existing system. However, on balance the Plan appears to be definitely advantageous.

The fundamental objective is to obtain a greater yield out of the implementing units of government. This is done by offering an incentive

or bonus to the personnel. In other words, personnel are being rewarded for their extra effort to reach a proposed goal.

If the personnel here receive an increase in straight salary equivalent to the amount of the proposed incentive bonus given for accomplished goals, the effect upon productivity would not be the same because the personnel would not link increased salary to increased performance and the individual employee would see no reason to make an extra effort to improve his productivity. Specific advantages and estimated cost savings of the plan are detailed below.

3.1 Advantages

3.1.1 Reduced Time Required for Project Implementation

As stated previously, completion of rural projects by IEOS to date has taken 12 to 18 months. With the Incentive Plan such projects could be built in only 6 months. This reduction of the construction time implies a significant cost savings.

3.1.2 Establishment of Rational Programming

The establishment of reasonable goals will require a careful programming of the activities. This will help to determine the real operational capability of the provincial offices.

3.1.3 Improved Administration

To meet the conditions of the Incentive Plan the implementing units will be required to maintain good administrative procedures.

3.1.4 Prestige to the Institution

The ability to complete the programs on time and adequately accomplish the programmed goals will give the institution a good professional image, not only before communities and other government agencies but what is more important, before the international loan institutions.

3.1.5 Training of Personnel

The development of this Plan constitutes a type of on-the-job training in administration and programming for the IEOS personnel working in rural sanitation programs.

3.2 Disadvantages

Some of the possible disadvantages of the Plan are:

3.2.1 Creation of Resentment in other Government Institutions

Personnel in those provinces in which the Plan is implemented will feel privileged and this may create envy within other agencies which are not benefiting from such Plan.

3.2.2 Cancellation of the Plan Would Create Low Morale Among Those Who Participated in it

It is logical to suppose that personnel working under the Plan will become used to it. Thus, its cancellation would lead to even lower morale than before, therefore causing productivity to fall even lower.

3.3 Economic Savings of the Plan

To analyze the possible savings resulting from the Plan, the following conditions will be assumed: a) average time taken to date for the development and construction of a rural water supply system is 15 months, b) the applied rate of inflation is 12% and c) the provincial personnel salaries used for comparison purposes would be:

<u>Personnel</u>	<u>Total Annual Salaries</u>
1 Provincial Engineer	\$ 9,857
1 Civil Engineer	7,428
2 Promoters	10,058
1 Topographer	4,571
2 Chairmen	4,572
2 Draftsmen	6,856
1 Secretary	3,428
1 Payroll Officer	3,771
TOTAL	<u>US\$ 50,541</u>

Monthly Salary Cost: 50,541 : 12 = US\$ 4,210

Provincial offices would be capable of conducting all the activities with their existing personnel. It is important to remember that one engineer can simultaneously supervise the construction of three (3) water supply and excreta disposal systems in three different communities.

3.3.1 Investment and Administrative Expenses Without the Incentive Plan

Suppose that the selected communities have an average population of 800 and the per capita cost of a water system is US\$ 100.

Therefore, the total budget would be US\$ 80,000. The provincial level can simultaneously build three systems in a period of 15 months.

Based on the above, the necessary budget would be as follows:

o System Investment		
3 systems x US\$ 80,000 =		\$ 240,000
o Inflation Due to 9 Months of Delay at the End of Construction		
\$240,000 x 0.12 x 9/12 =		21,600
o Personnel Cost		
\$4,211 monthly cost x 15 months		<u>63,165</u>
	TOTAL	US\$ 324,765

3.3.2 Investment and Administrative Expenses With the Incentive Plan

It is suggested that 40% of the payroll value be designated to pay the personnel incentive or bonus. Thirty percent (30%) of this amount will aid in paying the administration expenses.

Taking the three above mentioned systems with an investment of US\$ 240,000 and having an incentive plan the projects would be completed in 6 months. Therefore, the required budget would be:

o System Investment		
3 systems x \$80,000 each =		\$ 240,000
o Personnel Cost		
\$4,211 monthly cost x 6 months =		25,266
o Subsidy for the Incentive Plan		
40% of \$25,260 =		10,106
o Adjustment for Administrative Expenses (30% of the Incentive Plan subsidy)		
0.30 x \$10,106 =		<u>3,031</u>
	TOTAL	US\$ 278 403

3.3.3 Savings of the Project

o Cost of the 3 systems without Incentive Plan	US\$ 324,765
o Cost of the 3 systems with the Incentive Plan	<u>278,403</u>
SAVINGS	US\$ 46,362

- o Savings per Systems
 $\$46,362 : 3 = \$15,454$ or 14% of the Project's cost per system.

National Health Council (\$000)

	A.I.D.		Host Country	Total
	Loan	Grant		
1. Studies				
a. Pharmaceutical supply study				
- Local researcher-3x4 mo. x \$750	10		10	20
- Publication of studies	1			1
- Travel and per diem	2			2
b. Rural health studies of MOH, IESS coordination				
- Four research analysts x 6mo.\$750	18		20	38
- Publication of studies	2		2	4
- Travel and per diem	5			5
c. Health manpower studies				
- Research staff	8		5	13
- Travel and per diem	1			1
- Publications	1		1	
d. Health Plan Development and Evaluation				
- Technical studies		10	10	20
- Publication & Distribution	2		2	4
Subtotal	50	10	50	110
2. Technical Assistance				
a. Advise NHC on plan for research and strategy for National Health System development - 5 mos. TA.				
		30	10	40
b. Short-term TA for each of technical studies cited above in 1, Total 5 PM				
		30	10	40
c. Univ. del Valle Contract for preparation and conduct of 6 PHC workshops				
- Faculty salaries - 3 people x 5 days x 6 workshops x \$150/day		13	30	43
- Per diem & Travel, 6 trips		7		7
- Course preparation, Univ. del Valle		10		10
Subtotal		90	50	140
3. Observational Travel				
Travel to other LDC countries for up to 30 days to view Nat. Health systems. IESS/MOH relationships, etc.				
- Air fare for 15 people at \$1,000		15		15
- Per diem for 180 days x \$80		15	8	23
Subtotal		30	8	38
4. Seminars/Workshops				
- Participant per diem/subsistence				
20 people/seminar x 5 days x 6 x \$30	18			18
- Local travel to seminars	2			2
- International travel of guest speakers		10		10
- Report, publication & dissemination	10		2	12
- Rental of space for workshops			5	5
- Salary costs of participants			15	15
Subtotal	30	10	22	62
5. Equipment and Supplies				
- Copy machine & paper	8		10	18
- Typewriters (2)	4			4
- Furniture - desks, tables, chairs	3			3
- Slide projector, tape recorders, other A-V aides	5			5
- Office rental \$250/mo/50 months			12	12
- Secretary part-time x 48 months			8	8
Subtotal	20		30	50
TOTAL	100	140	160	400

	<u>A. I. D.</u>		<u>Host</u>	<u>TOTAL</u>
	<u>Loan</u>	<u>Grant</u>	<u>Country</u>	
3. National Level				
- 18 month Master degree Cali Tuition & subsistence for 6 people	80			80
- International travel	2			2
- Local Travel, books, miscel- laneous	5			5
- Salaries of trainees for 2 years - MPH in US for 2 persons			100	100
Tuition & subsistence (1.25 yrs, including language training	40			40
- International & local travel, books	3			3
- Salaries while in training			30	30
- Executive seminar in Cali for 10 persons, air fare, per diem and tuition	10			10
- Follow up seminar in Quito	5			5
- Salaries of trainees in Quito and Cali seminars			10	10
Subtotal	145	0	140	285
TOTAL	525	135	540	1200

IEOS TRAINING EQUIPMENT

<u>ITEM</u>	<u>QUANTITY</u>	<u>TOTAL COST</u>
Ektagraphic Slide Projectors	2	\$ 650
Ektagraphic Slide Trays	6	35
Spare projection lamps	4	80
70" x 70" projection screen	1	150
Cassette recorders	2	1,000
Blank 60 minute cassettes	36	40--
Battery operated cassette recorders	3	300
Film strip projectors	2	250
Spare projection lamps	2	40
Slide sorting table	1	100
Overhead projector	1	250
Spare projection lamps	2	40
Acetate projection cel	100	25
16mm sound movie projector	1	1,000
Spare projection lamps	2	40
Spare exciter lamps	2	40
Video cassette recorder	1	2,500
Video cassette deck (Playback)	2	2,000
Blank video cassettes	25	500
Color TV monitors	2	2,000
Color video camera	1	1,200
Portapack recorder	1	2,000
Set of quartz lights	1	300
Set of Spare quartz lamps	1	100
35mm camera u/lens and case	1	350
Rolls of Ektachrome film	25	125
Rolls of B&W film	15	45
Offset Press	1	1,500
Flip-chart stands	3	150
Flip-charts	15	75
Projector carts (on wheels)	3	450
Video monitor carts (on wheels)	2	300
Heavy dutry tripod	1	150
Copy stand	1	100
Portable PA systems	3	500
		<hr/>
		\$13,385
Miscellaneous materials (cables, connectors)		
		<hr/>
		1,615
		<hr/>
		\$20,000

PROVINCIAL LEVEL EQUIPMENT LIST
 (Chimborazo - Cotopaxi)

<u>ITEM</u>	<u>QUANTITY</u>	<u>TOTAL COST</u>
Teodolites	2	\$ 6,000
Levels	4	400
Fiberglass Tapes	4	300
Measuring Rods	4	400
Transits	2	600
Water Pollution Equipment	8	8,000
Drafting Tables	2	800
Drafting machines	2	400
Plan files	2	1,200
Ektagraphic Slide Projectors	2	650
Spare projection lamps	4	80
70" x 70" projection screen	2	300
Battery operated cassette recorders	2	200
Film strip projectors	2	250
Spare projection lamps	3	60
16mm sound movie projector	2	2,000
Spare projection lamps	4	80
Spare exciter lamps	4	80
Color TV monitors	2	2,000
Office Equipment		8,000
Miscellaneous (cables, connectors, materials)		<u>5,200</u>
	TOTAL	35,000

PRIMARY HEALTH CARE COMPONENTS (\$000)

	<u>A.I.D.</u> <u>Loan</u>	<u>Host</u> <u>Country</u>	<u>TOTAL</u>
1. Community based activities			
a. Promoters			
-Stipend of \$100/mo.x60mo.x 34.	100	100*	200
-Training and subsistence for 34 promoters x 50 days x \$10/day	17		17
-Training materials	3		3
b. Midwife training			
-Subsistence for 75 midwives at \$10/day for 12 days each	9		9
-Travel costs for 75 midwives	1		1
-Subsistence for 2 trainees at \$25/day for 7 courses of 12 days each	4		4
-Preparation of training materials and cost of manuals	1	2	3
-Salaries & travel of trainers		3	3
c. Botiquines			
-Minor physical modifications of posts, subcenters, community buildings to accomodate botiquines	20		20
-Display cases & storage cabinets	5		5
-Training costs of community administrators	5	5	10
-Initial stock of medicines & supplies		5	5
d. School Health Promoters			
-MOH training personnel; salaries, subsistence		5	5
-Subsistence for teachers during training courses	6		6
-Training materials & supplies	2		2
-Uniforms and prizes for student promoters in 3 IRD areas	7		7
SUB TOTAL	180	120	300
2. PHC Programs			
a. Diarrheal Disease Control			
-Oralyte -80,000 packets at .20	17		17
-Subsistence & transportation to workshops (10 2-day workshops for 20 participants)	12		12

* GOE is expected to cover other training costs through UNFPA funds, while training facilities furnished are counted as part of counterpart in facilities section, thus no GOE counterpart shown here.

	<u>A. I. D.</u> <u>Loan</u>	<u>Host</u> <u>Country</u>	<u>TOTAL</u>
-Educational information -radio spots, pamphlets and workshop materials	6		6
-Observational travel to LDC	5		5
-Training staff salaries & travel		20	20
b. Immunization Program			
-Refrigerators for 10 subcenters at \$500 each (including transport)	5		5
-Other cold chain equipment	2		2
-Immunization equipment	3		3
-Training of MOH personnel and promoters for EPI program (subsistence & travel).	20	5	25
-Vaccines for 5 year program in 3 IRD areas		5	5
c. Goiter Control*			
-Per diem and transportation for researchers from Polytechnic and ININMS	10		10
-Contracts for researchers	15		15
-Innoculation equipment	5		5
-Iodine-containing-oil		1	1
-Salaries of research teams and innoculation staff		19	19
-Lab tests of urine specimens and iodine autoanalyzer for laboratory	10	5	15
d Health Education			
-Audio-visual equipment educational materials and vehicles.			SEE INFRASTRUCTURE AND EQUIPMENT SECTION
-Part-time Assistant Health Educators' salaries: 3 for 36 months x \$500		55	55
SUB TOTAL	110	110	220
3. Infrastructure and Equipment			
a. Subcenters			
-Prefabricated structure - 162m ² , including foundation and assembly (6 x \$11,000)	66		66
-Plumbing and appliances -sinks, toilets, septic tanks, kitchen, baths (6 x \$7,000)	42		42
-Interior construction - walls, closets, etc. (6 x \$2,000)	12		12
-Exterior brick walls (using volunteer labor (6 x 3,000)	18		18
-Enclosure of 500 mts of land (6 x 3,000)	18		18

* Project may also require short-term TA through USDA RSSA for study of iodine fortification of food supplements.

ANNEX VII
EXHIBIT B.1
Table 1

Page 3 of 5

	<u>A. I. D.</u> <u>Loan</u>	<u>Host</u> <u>Country</u>	<u>TOTAL</u>
-Transport of prefab. structures to site (6 x 1,000)	6		6
-Inflation on construction, 14% per year - 2 subcenters to be built 1982, 2 in 1983; 2 in 1984	50		50
-Value of land - 500 mts at \$ 10/mt x 6		30	30
-Community labor for construction (20% of \$14,000 x 6)		17	17
-Staffing additions 1 MD (15,000/yr.) 1 dentist 15,000/yr and 1 aux. nurse (6,000/yr) ave. 3 years for each		<u>108</u>	<u>108</u>
SUB TOTAL	<u>212</u>	<u>155</u>	<u>367</u>
b. Health Posts			
-Prefab. building and foundation (7 x 4,000)	28		28
-Plumbing and appliances, septic tank (7 x \$4,000)	28		28
-Interior construction walls, closet, shelves, etc. (7 x 1,000)	7		7
-Exterior walls (7 x \$1,000)	7		7
-Enclosure of 200 mts (1,500 x 7)	10		10
-Transport of prefab. building to site (7 x 500)	4		4
-Inflation on construction, 14% per year - 3 posts in 1983, 4 in 1984	34		34
-Value of donated land 200 mts (at \$9/mt x 7)		13	13
-Community labor for construction (20% of 7,500 x 7)		10	10
-Staffing - 9 new aux. nurses (including 5 for community center posts) at 6,000 x 3 yrs.		<u>162</u>	<u>162</u>
SUB TOTAL	<u>118</u>	<u>185</u>	<u>303</u>
c. Health Post and Subcenters			
Equipment and Medical Supplies*			
-Standard MOH subcenter equipment list -6 at 8,000	50		50
-Std. MOH health post equipment-19 at 3,500	70		70

* Includes shipping costs and inflation. UNIPAC Medical Kit prices obtained from UNICEF Packing and Assembly Centre Catalogue - Price List 1981, Copenhagen. To these prices 30 per cent has been added to cover shipping and inflation. See Table B.2 which follows for detailed equipment lists.

Standard Equipment Lists for Subcenters
 and Health Posts

1. Subcenter Equipment

<u>Quantity</u>	<u>Description</u>	<u>Unit Price</u>	<u>Total</u>
4	Metal desk, secretary style	\$250.00	\$1,000.00
25	Standard Chair	60.00	1,500.00
1	Small examining table	325.00	325.00
1	Adjustable stool	120.00	120.00
10	Garbage can with cover	120.00	1,200.00
3	Blood serum holder	100.00	300.00
1	Table for rehydration	200.00	200.00
1	Baby's bed	140.00	140.00
3	Twin bed	100.00	300.00
1	Small double bed	140.00	140.00
3	Bedside table	90.00	270.00
1	Table for medical examinations	600.00	600.00
1	Table	200.00	200.00
1	Step ladder	60.00	60.00
1	Bassinet (crib)	350.00	350.00
1	Steel file cabinet	150.00	150.00
1	Standing file for medical records	150.00	150.00
1	Adjustable chair	110.00	110.00
1	Medicine cart	200.00	200.00
1	Stretcher	130.00	130.00
	Miscellaneous and Inflation	855.00	855.00
	TOTAL		\$3,000.00

2. Health Post Equipment

1	Metal desk, secretary style	\$250.00	\$ 250.00
1	Table for medical examinations	600.00	600.00
1	Small examining table	325.00	325.00
1	Medicine cabinet	250.00	250.00
1	Step ladder	60.00	60.00
7	Standard chair	60.00	420.00
1	Adjustable stool	120.00	120.00
1	Arm chair	110.00	110.00
1	Stretcher	130.00	130.00
1	Blood serum holder	100.00	100.00
2	Garbage can with cover	120.00	240.00
1	Big double bed	210.00	210.00
4	Standard chair	60.00	240.00
1	Bedside table	90.00	90.00
4	Lanterns	25.00	100.00
	Miscellaneous and Inflation	155.00	255.00
	TOTAL		\$3,500.00

	<u>A.I.D.</u> <u>Loan</u>	<u>Host</u> <u>Country</u>	<u>TOTAL</u>
-UNIPAC Doctor's kit- 6 at \$350	2		2
-UNIPAC aux nurse kits -25 at \$75	2		2
-UNIPAC midwife kits - 75 at \$50	4		4
-Health promoter kits -34 at \$50	2		2
-Replacement equipment at existing subcenters & post	<u>25</u>		<u>25</u>
SUB TOTAL	<u>155</u>		<u>155</u>
d. Training Center Rehabilitation			
-Students desks and faculty furniture for 2 training centers	3		3
-Dormitory furnishings -beds and mattresses	2		2
-Plumbing repairs, painting and redecorating	10		10
-Maintenance and operating expenses \$250/mo/facility/40 mos.		20	20
-Teaching materials and equipment	<u>.5</u>		<u>.5</u>
SUB TOTAL	<u>20</u>	<u>20</u>	<u>40</u>
e. Vehicles and Communication Equipment			
-Carry-all vehicles for health education and (in Quimiag) mobile health team - 3 at \$ 11,500	35		35
-Vehicle maintenance and operating at \$3,000/vehicle/yr		30	30
-Two-way radios(including microphones) 45 x \$650 plus spare parts	33		33
-Radio installation, training in operations	2		2
-Audio-visual equipment for IRD Health educators	<u>5</u>		<u>5</u>
SUB- TOTAL	<u>75</u>	<u>30</u>	<u>105</u>
TOTAL	<u>870</u>	<u>630</u>	<u>1,500</u>

Health Facilities Construction
Expenditures by Years
US\$ 1,000s

Calendar Years	1982	1983	1984	1985	1986	Cumulative
	# Cost	# Cost	# Cost	# Cost	# Cost	# Cost
Facility						
I. Health Sub-Center	2 54	2 54	2 54	-	-	6 162
II. Health Post	-	3 36	4 48	-	-	7 84
Sub-Total	2 54	5 90	6 102			13 246
Cost Escalation (14% year)	8	27	49			84
TOTAL	62	117	151			330

1/ Excludes community land and voluntary labor contributions

Average Parameters of
IEOS Water Systems

- | | | |
|----|--|-----------------------------|
| 1. | Population to be served | 600 actual inhabitants |
| 2. | Number of housing units | 100 |
| 3. | Persons/housing unit | 6 |
| 4. | Period of design | 25 years |
| 5. | Growth index | 2 % per year |
| 6. | Future population | 985 inhabitants |
| 7. | Water capacity | 90 l/i/days |
| 8. | Units included in a typical gravity system | 40 l/i/day (units of water) |
-
- a) Intake or Entrapment: Rack scoop; Spring protector (tank); Canal deviation
 - b) Desander
 - c) 3 Km. pipeline of PVC tubing with 1 Km. of 3" and 2 Km. of 2"
 - d) Slow filter
 - e) Chlorinator with dosifying tank
 - f) Distribution tank with 30 m³ capacity, cyclopean cement
 - g) Distribution network of 4 Km. with PVC tubing, of the following lengths and diameters:

3"	-	200 m.
2"	-	1000 m.
1 1/2"	-	1600 m.
1"	-	1200 m.
		4000 m.
 - h) Household connections with meters, including: 50 m. of PVC tubing of 1/2"; 2 m. HG tubing of 1/2".
 - i) For scattered populations, 5 water units instead of household connections. In this case, the distribution network will be of 7 Km. PVC tubing of following lengths and diameters: 4 Km. of 1 1/2", 3 Km. of 1".
9. Variables for well pumping systems:
 - a) Drilled well of 70 m. in 6"
 - b) Pumping equipment
 - c) Shed for pump
 - d) 100 m. pipeline of PVC, 2" tubing
 - e) Elevated distribution tank, 30 m³ capacity in reinforced cement
 - f) Distribution networks, same as above.
 10. Parameters for scattered populations with no other possibility or source other than hand pump systems. (These systems assume an average number of 10 families per well):
 - a) Shallow well, 10 m. deep, 1.5 m. diameter, internal coating.
 - b) Hand pump, locally manufactured, drop pipe and connecting rods.

Alternative System Costs
(1,000 sucres)

G.1 Spring-fed, gravity systems for a concentrated population

COMPONENTS	I COST	II COST
1. Spring catchment	120	21
2. Water line, spring to storage tank	420	378
3. Chlorinator	10	10
4. Storage tank	180	97
5. Distribution system	294	286
6. 100 household connections	400	305
Direct Costs Sub-total	\$71,424	\$71,097
IEOS Overhead ^{1/}	356	164
TOTAL	1,780	1,261
Per capita construction costs (US\$)	\$119	\$84

G.2 Spring-fed, gravity systems for a dispersed population

COMPONENTS	I COST	II COST
1. Spring Catchment	120	21
2. Water line, spring to storage tank	420	378
3. Storage tank	180	97
4. Distribution system	380	389
5. Five Water Units of Standpipes ^{2/}	300	31
Direct Costs Sub-total	\$71,400	\$71,916
IEOS Overhead	350	137
TOTAL	1,750	1,053
Per capita construction cost (US\$)	\$117	\$70

G.3 Gravity system, surface water for concentrated population

COMPONENTS	I COST	II COST
1. Surface water catchment	160	71
2. Water line, catchment to storage tank	420	378
3. Sand filter, dual compartment	1,000	72
4. Chlorinator	10	10
5. Storage tank	180	97
6. Distribution system	294	286
7. 100 household connections	400	305
Direct Costs Sub-total	\$72,464	\$71,219
IEOS Overhead	616	183
TOTAL	3,080	1,402
Per capita costs (US\$)	\$205	\$93

G.4 Surface water, gravity system for dispersed population

COMPONENTS	I COST	II COST
1. Surface water catchment	160	71
2. Water line, catchment to storage tank	420	378
3. Storage tank	180	97
4. Distribution system	380	389
5. Five standpipes or; water units	300	31
6. Filter, sand, dual compartment	---	73
Direct Costs Sub-total	\$71,440	\$71,038
Direct Costs Sub-total	360	156
IEOS Overhead	1,800	1,198
TOTAL	8,120	880
Per capita construction costs (US\$)		

^{1/} Column I = 15%; Column II = 15%

^{2/} IEOS design calls for water unit complex that includes public showers, clothes washing facility, toilets and standpipe. Alternative II is public standpipe only.

MATERIALS AND LABOR COSTS
(February 1981)

1.	<u>Cost of Pipe</u>	<u>Diameter</u>	<u>Unit</u>	<u>Unit Price</u>
a)	PVC Pipe L= 6m PVC Campana Espiga	1/2"	Pipe	90
	"	1"	"	170
	"	1 1/2"	"	280
	"	2"	"	435
	"	3"	"	800
	"	4"	"	1,250
b)	<u>Galvanized Iron Pipe</u> (inc.unions)	1/2"	"	300
		3/4"	"	400
		1"	"	575
		1 1/2"	"	930
		2"	"	1,300
		3"	"	2,370
		4"	"	3,090
c)	<u>Asbesto Cement Pipe</u> (inc. unions) 20 4 mts class	2"	"	350
		3"	"	670
		4"	"	780
		6"	"	50
		8"	"	75
2.	<u>Materials Costs</u>			
	Iron		qq	750
	Cement (sack)		50 Kg	150
	Sand		m3	150
	Gravel		"	200
	Rock		"	130
	Brick(40x15x08)cm		U	3,50
	Cement Blocks		U	4,80
	Forms		0.30 cm	32
	Brackets		U	35
	Wire #18		qq	1,300
	Nails		qq	1.500
	Rubber Paint		Gallon	250
	Cement-Asbest Tile		U	7
	Clay Tile		U	3
	Chlorine		50 Kg(tank)	5,000
3.	<u>Labor Cost</u>			
	<u>Cotopaxi Province</u>			
	Daily Minimum Wage	S/. 140,00		
	Brick Layer	170,00		
	Foreman	200,00		
	Laborer	200,00		
	Plumber	200,00		
	<u>Chimborazo Province</u>			
	Daily Minimum Wage	140,00		
	Brick Layer	180,00		
	Foreman	220,00		
	Laborer	150,00		
	Plumber	220,00		
	<u>Manabí Province</u>			
	Daily Minimum Wage	140,00		
	Brick Layer	250,00		
	Foreman	300,00		
	Laborer	300,00		
	Plumber	300,00		

Costs for Structures
Gravity Flow Water Systems

1. Intake for Spring-Fed System (G1 and G2)
(Sucre)

<u>Item</u>	<u>Unit</u>	<u>Quantity</u>	<u>Cost</u>	
			<u>Unit</u>	<u>Total</u>
Concrete Blocks	(.15x.2x.4)	120	21	\$ 2,520
Reinforcing Steel	qq	2.8	750	2,100
Wood	ft.	45	32	1,440
Cement	sack	20	150	1,500
Sand	m3	1/2	150	75
Gravel	m3	1/2	200	100
Miscellaneous (wire, nails, pipes, accesories)				3,000
Skilled labor (capataz)	work-days	10	300	3,000
Unskilled labor	work-days	20	200	4,000
Contingencies (15%)				<u>2,700</u>
				20,510

2. Intake for Surface Water Source (G3 and G4)
(Sucre)

<u>Item</u>	<u>Unit</u>	<u>Quantity</u>	<u>Cost</u>	
			<u>Unit</u>	<u>Total</u>
Concrete Blocks	(.15x.2x.4)	100	21	2,100
Reinforcing Steel	qq	39	750	29,250
Cement	sack	27	150	4,050
Sand	m3	1 1/2	150	225
Gravel	m3	2	200	400
Wood	ft	130	32	4,160
Miscellaneous				
Select gravel (Filter)	m3	2	200	600
Skilled Labor	work-days	20	300	6,000
Unskilled Labor	work-days	60	200	12,000
Contingencies (15%)				<u>9,260</u>
				71,045

3. Storage Tank (30m³ capacity) (G1, G2, G3, G4)
(Sucre)

<u>Item</u>	<u>Unit</u>	<u>Quantity</u>	<u>Cost</u>	
			<u>Unit</u>	<u>Total</u>
Concrete blocks	(.15 x.2x.4)	5/5	21	10,815
Reinforcing Steel	qq	12	750	9,000
Cement	sacks	85	150	12,750
Sand	m3	5	150	750
Gravel	m3	5	200	1,000
Wood	ft	220	32	7,040
Miscellaneous				3,280
Skilled Labor	work-days	30	300	9,000
Unskilled Labor	work-days	150	200	30,000
Contingencies (15%)				<u>13,000</u>
				96,635

BUDGET FOR SHALLOW WELL^{1/}

<u>Item</u>	<u>Unit</u>	<u>Quantity</u>	Cost US\$	
			<u>Unit</u>	<u>Total</u>
Local excavation	m ³	17	2.40	40.80
Local sand	m ³	3	6	18.00
Local gravel	m ³	1.2	12	14.40
Cement	sack	16	5.40	86.40
Blocks .1 x .2 x .3	U	500	.20	100.00
Iron rod 3/8	9 m.	6	28.75	172.40
Galvanized iron pipe	m.	10	3.00	30.00
Handpump		1	150.00	150.00
4" cement pipe	m.	15	2.80	42.00
Well cover	U	1	36.00	36.00
Pipe connections, misc.				60.00
Local labor				380.00
				<u>1,130.00</u>
Supervision				170.00
				<u>1,300.00</u>

BUDGET FOR IMPROVED PIT LATRINE^{2/}

<u>Item</u>	<u>Unit</u>	<u>Quantity</u>	Cost US\$	
			<u>Unit</u>	<u>Total</u>
Local excavation	m ³	2	2.40	4.80
Platform	U	1	18.00	18.00
Seat	U	1	2.40	2.40
Local roof	m ²	3.5	10.00	35.00
Local walls & door	m ²	7.4	5.00	37.00
4" PVC vent pipe*	m.	2	3.40	6.80
Local labor				60.00
				<u>160.00</u>
Promotion			20%	40.00
				<u>200.00</u>

* Not included in design drawing for pit latrine.

BUDGET FOR POUR-FLUSH TOILET^{2/}

<u>Item</u>	<u>Unit</u>	<u>Quantity</u>	Cost US\$	
			<u>Unit</u>	<u>Total</u>
Excavation	m ³	3	2.40	7.20
Toilet	U	1	10.00	10.00
4" PVC pipe	m.	2	3.40	6.80
Hole covering	m ²	3.25	10.00	32.50
Roof	m ²	3.25	10.00	32.50
Walls & door	m ²	7	5.00	35.00
Labor				60.00
				<u>184.00</u>
Promotion			20%	46.00
				<u>230.00</u>

^{1/} Contribution: A.I.D. 50%
 Comm. 35%
 IEOS 15%

^{2/} Contribution: Comm. 50%
 IEOS 20%
 A.I.D. 30%

RURAL WATER AND SANITATION SYSTEMS COSTS

Activity and Location	Population		Type of Construction	B U D G E T			Total
	Current	Design		US\$ 1,000's (1981)			
				Loan	GOE	Comm.	
I. Potable Water Systems				50%	30%	20%	
				(774)	(464)	(310)	(1548)
A. Salcedo	(11,200)	(21,500)		(463)	(278)	(185)	(926)
1. Cusubamba-Mulalillo	2,300	4,000	G-1	96.5	58	38.5	193
2. Pansalco-Achilhuango	500	1,000	G-1	21	12.5	8.5	42
3. Mulliquindil	1,500	2,900	G-1	63	38	25	126
4. Patate-Tigualo	1,400	2,300	G-1	59	35.5	23.5	118
5. Papahurco	2,100	3,400	G-1	88.5	53	35.5	177
6. Cumbijín	2,300	3,800	G-1	96.5	58	36.5	193
7. Palana-Chiriloma	1,100	1,800	G-2	38.5	23	15.5	77
B. Quimiag-Penipe	(9,400)	(15,700)		(311)	(187)	(124)	(622)
1. Quimiag	600	1,000	G-1	25	15	10	50
2. Penipe - Bayushic	1,400	2,300	G-1	58.5	35	23.5	117
3. Puela-Manzano -Amabe-Pungal de Puela	900	1,500	G-3	42	25	17	84
4. Rio Blanco	450	750	G-2	28	17	11	56
5. Utaña	150	250	G-2	5.5	3.5	2	11
6. Pullicitusa	150	250	G-2	5.5	3.5	2	11
7. Quillujaca	300	500	G-2	10.5	6.5	4	21
8. Candalaria	400	650	G-1	17	10	7	34
9. Matus-Matus Alto	800	1,300	G-1	31.5	19	12.5	63
10. Airon	150	250	expansion or improvements	2.5	1.5	1	5
11. Balcushi	600	1,000	"	9.5	5.5	4	19
12. Bayo	200	350	"	4	2.5	1.5	8
13. Puelaza	500	800	"	10.5	6.5	4	21
14. Guesazo	250	400	"	5	3	2	10
15. Zirate	100	150	"	2	1	1	4
16. Pucupala	550	900	"	11.5	7	4.5	23
17. Maburo	500	800	"	10.5	6.5	4	21
18. Pachinilay	250	400	"	5	3	2	10
19. Ganshi	250	400	"	5	3	2	10
20. Curo de Penipe	400	650	"	8.5	5	3.5	17
21. Shamanga	300	500	"	6.5	4	2.5	13
22. Calshi	350	600	"	7.5	4.5	3	15
II. Shallow wells with hand-pumps				(455)	(136.50)	(318.50)	(910)
A. Salcedo	3,000		50 pumps	33	9.75	22.75	65
B. Quimiag-Penipe	1,200		20 pumps	13	3.90	9.10	26
C. Jipijapa	37,800		630 pumps	410	123	286	819
III. Excreta Disposal							
A. Salcedo			5,500	(351)	(234)	(585)	(1,170)
1. Pit Latrines	2,400		400				
2. Campesino Toilets	9,000		1,500				
B. Quimiag-Penipe			500				
1. Pit Latrines	3,000						
2. Campesino Toilets							
C. Jipijapa			3,150				
1. Pit Latrines	18,900						
2. Campesino Toilets							

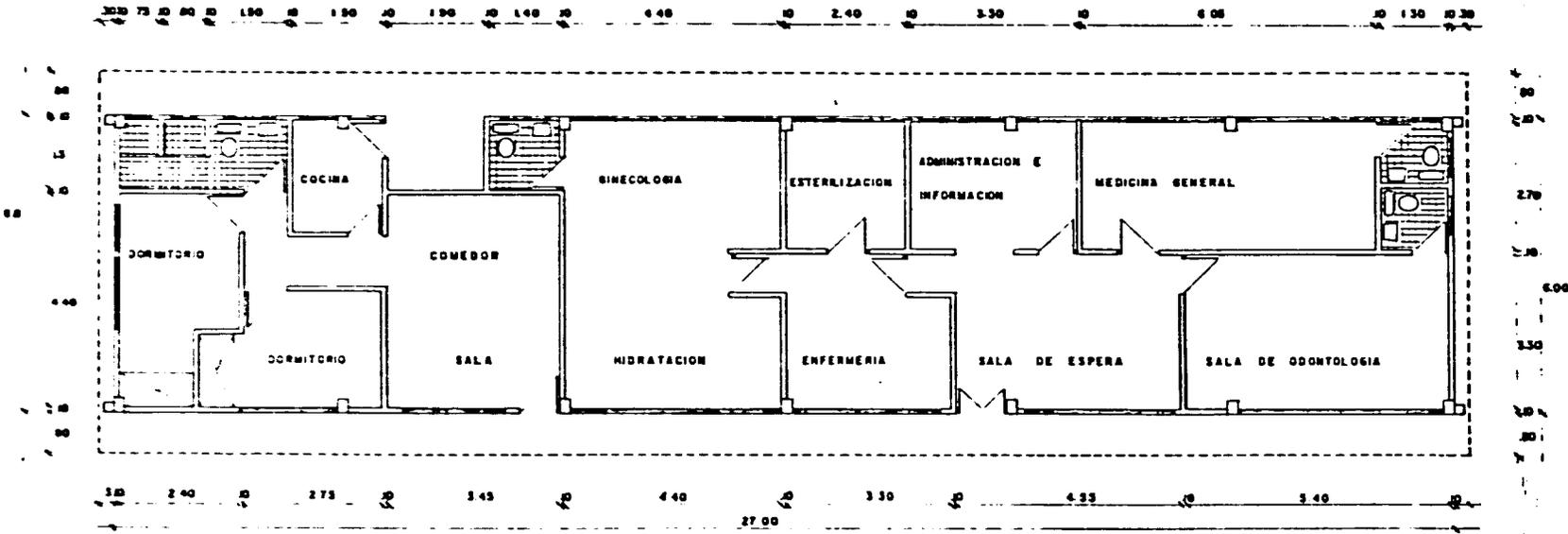
TOTAL

Rural Water and Sanitation
Expenditures by Year
(US\$ 1,000s)

Calendar Year	<u>1982</u>		<u>1983</u>		<u>1984</u>		<u>1985</u>		<u>1986</u>		<u>Cumulative</u>		
Component	AID	GOE <u>1/</u>	AID	GOE <u>1/</u>	TOTAL								
I. Potable Water Systems	129	129	258	258	258	258	129	129			774	774	1548
II. Wells/hand pumps	75.5	75.5	152	152	152	152	75.5	75.5			455	455	910
III. Excreta Disposal					<u>117</u>	<u>273</u>	<u>117</u>	<u>273</u>	<u>117</u>	<u>273</u>	<u>351</u>	<u>819</u>	<u>1170</u>
Subtotal	204.5	204.5	410	410	527	683	321.5	477.5	117	273	1580	2048	3628
Cost Escalation (14% year)	45.5	45.5	160	160	313	397	268.5	372.5	133	277	920	1252	2172
TOTAL	250	250	570	570	840	1080	590	850	250	550	2500	3300	5800

1/ GOE contribution includes community contribution.

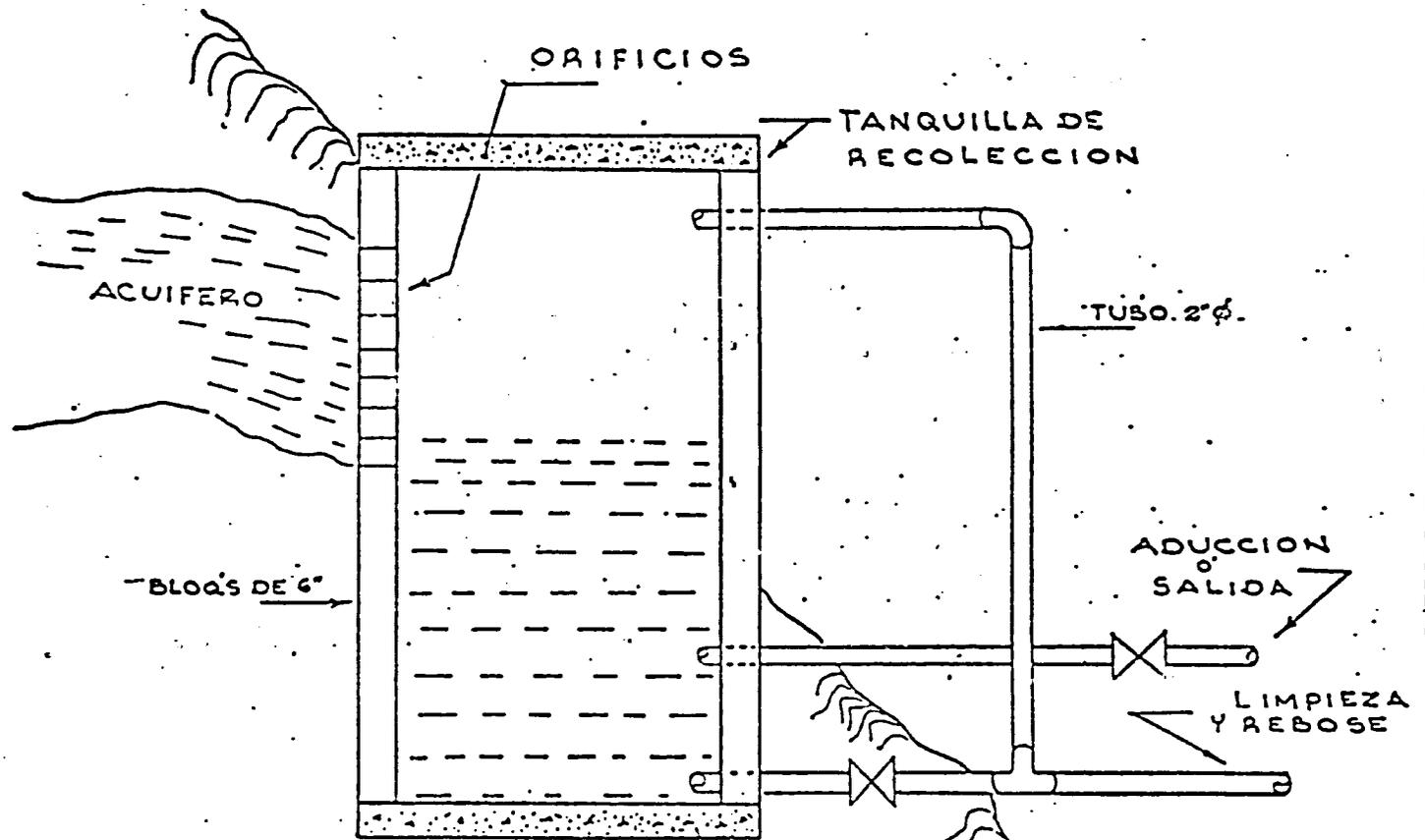
2/ Initial cost escalation factor calculated for 1 1/2 years.



PLANTA
SUBCENTRO DE SALUD

HEALTH SUBCENTER

ANNEX VII
 Exhibit C.I.
 Drawing 1

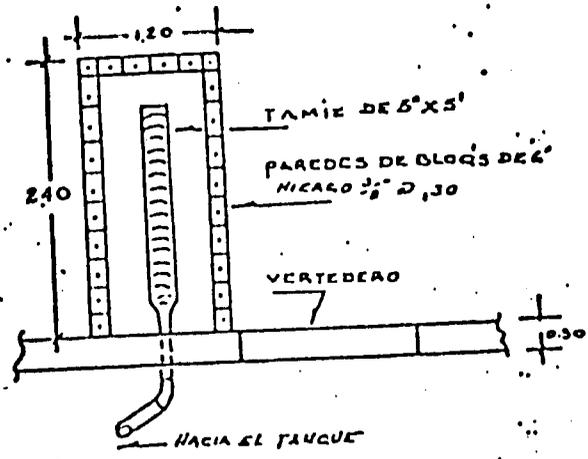


AFLORAMIENTO HORIZONTAL
CAPTACION

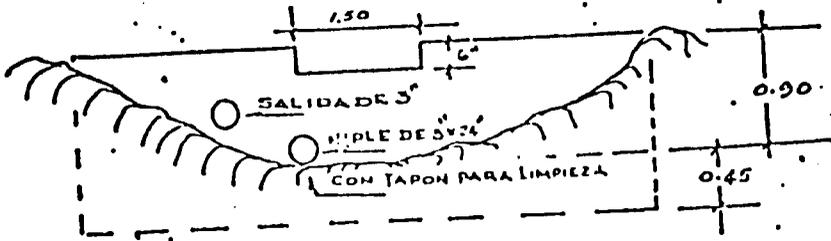
INTAKE FOR G1 AND G2 SYSTEMS

ANNEX VII
Exhibit C.2
Drawing 1

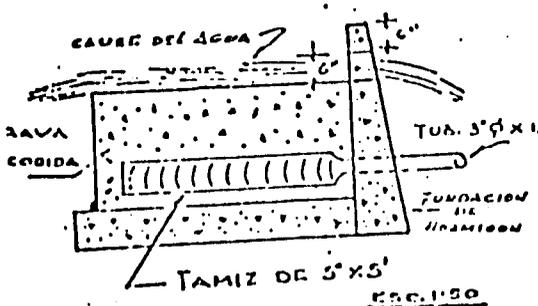
CAPTACION



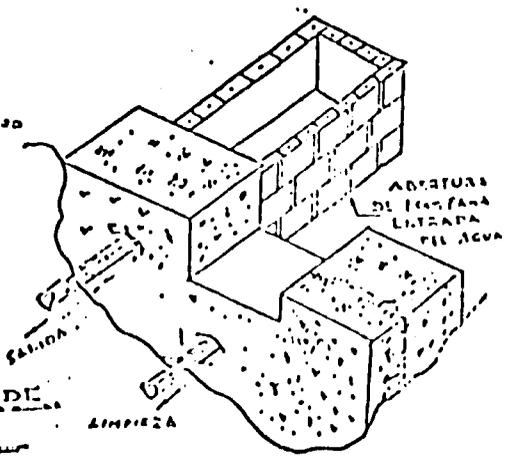
PLANTA ESC. 1:50



ELEVACION PRINCIPAL ESC. 1:75

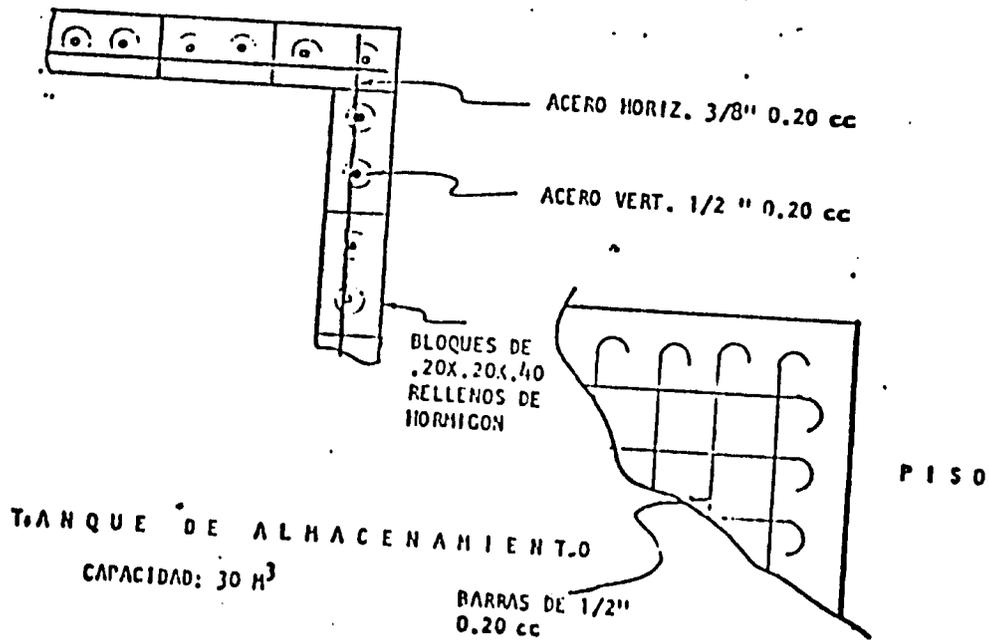
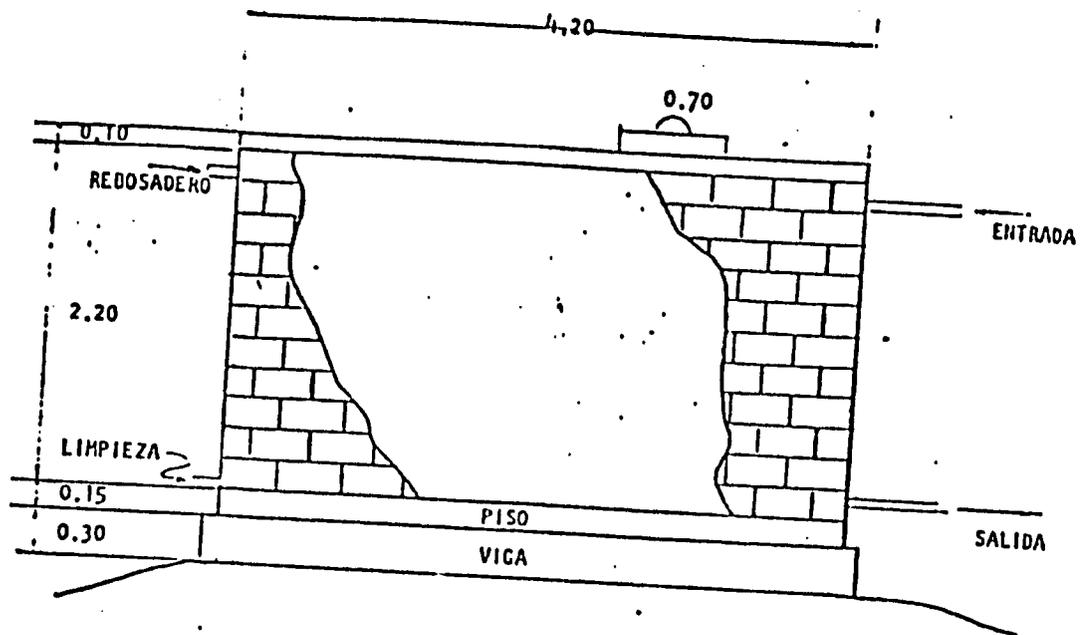


ELEVACION LATERAL ESC. 1:50

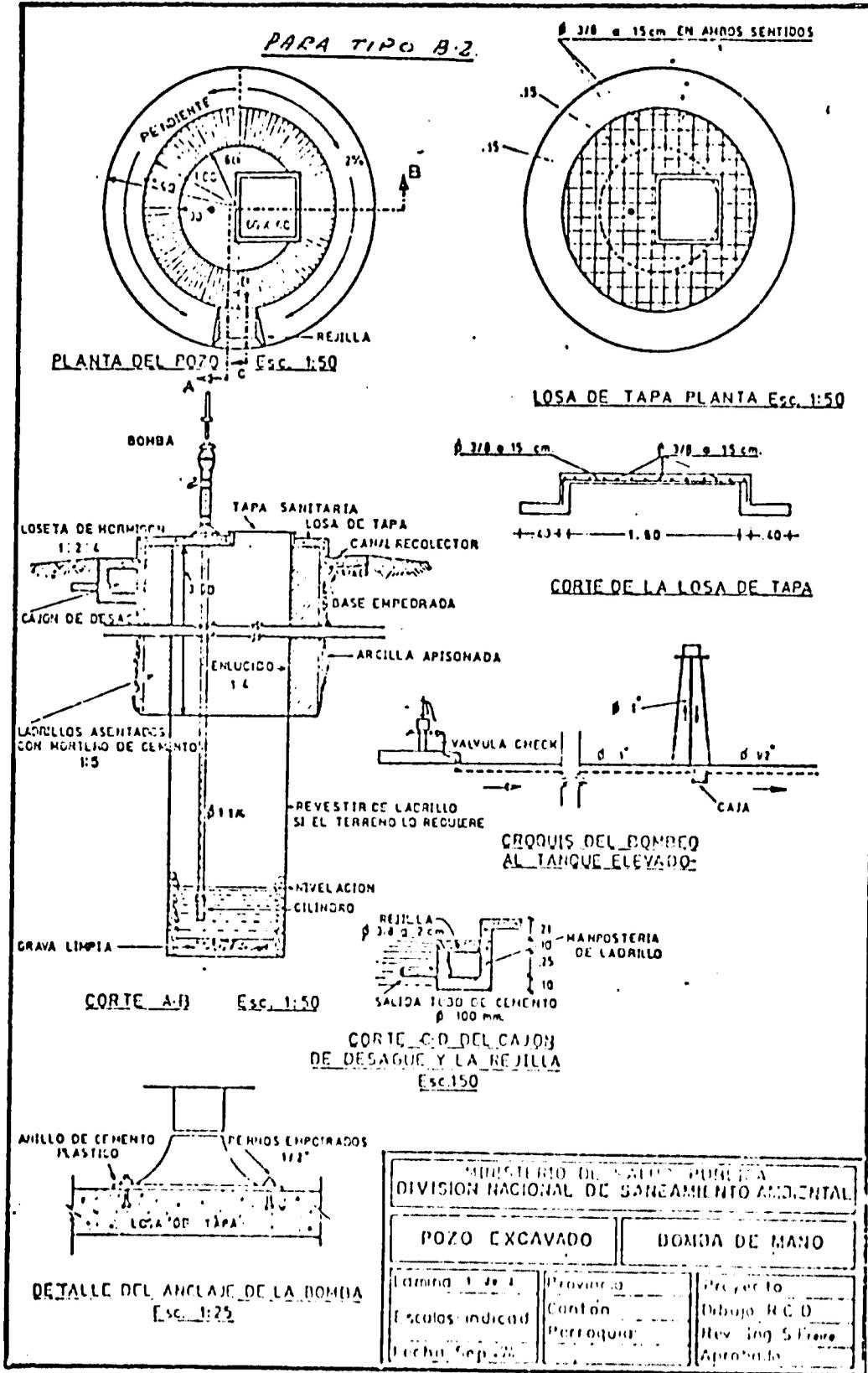


PROYECCION DE LA CAPTACION

STORAGE TANK

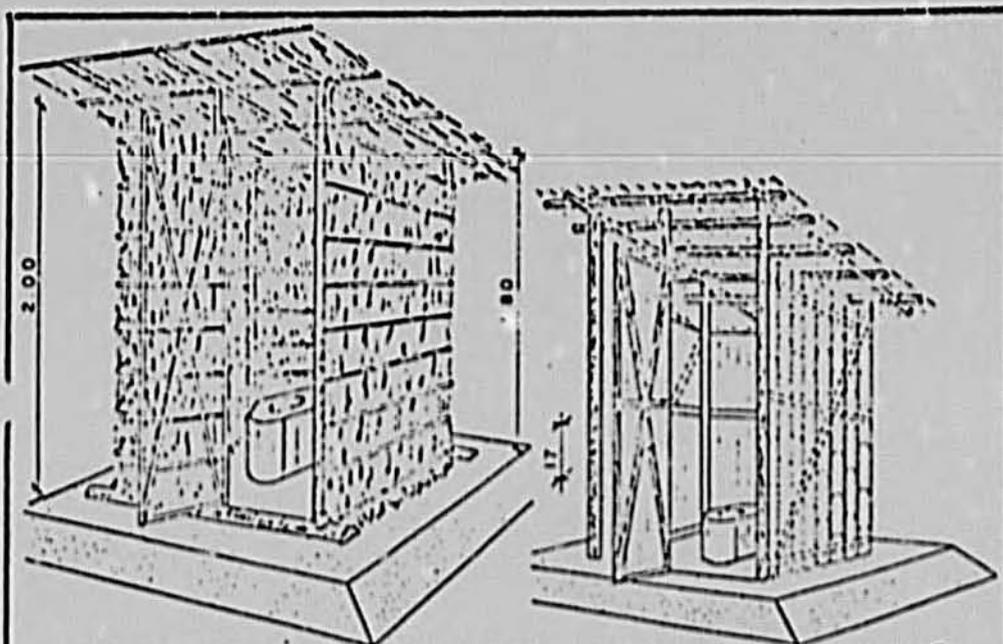


SHALLOW WELL WITH HANDPUMP



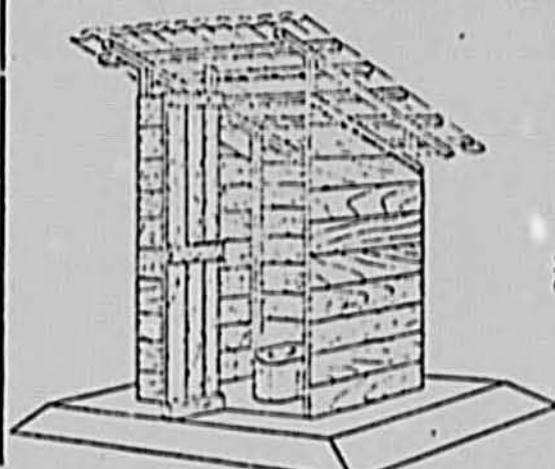
MINISTERIO DE SALUD PUBLICA DIVISION NACIONAL DE SANEAMIENTO AMBIENTAL		
POZO EXCAVADO		BOMBA DE MANO
Lamina 1 de 4	Provincia	Proyecto
Escala indicada	Cantón	Dibujó R.C.D.
Fecha Sep. 20	Parroquia	Rev. Ing. S. Freyre
		Aprobado

PIT LATRINE

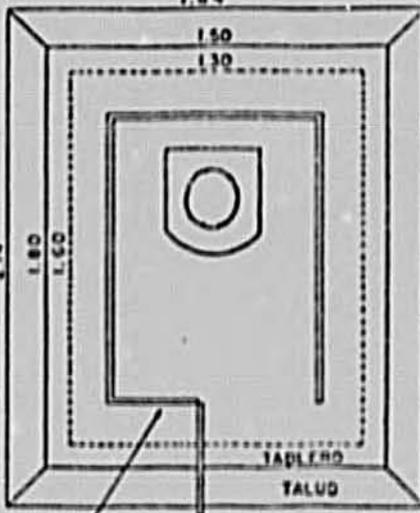


CROQUIS DE LETRINA CUBIERTA CON PENCOS

CROQUIS DE LETRINA CON CAÑA

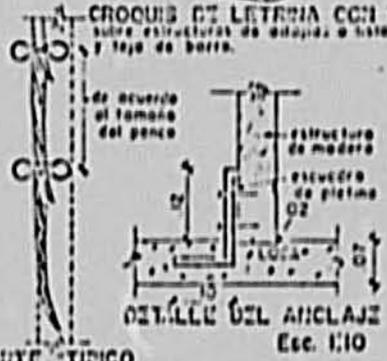


CROQUIS DE LETRINA CON TACLAS
sobre estructura de estacas o listones
y leño de barra.



PLANTA Esc. 1/25

Nota: Cuando la base sea de concreto, la estructura debe anclarse con estacas de hierro y 1/2".



CONTE TÍPICO
Forma de colocación de pencos
con clavo e ligadura de cobre.

INSTITUTO ECUATORIANO DE LAS SANITARIAS		
DIVISION DE SALUBRIDAD AMBIENTAL		
SANEAMIENTO-BASICO		LETRINA HOYO SECO
Lugar	Provincia	Proyecto
Escola indicada	Cantón	Dibujo F.C.B.
Fecha Enero 75	Parroquia	Revisado Ing. S.F.J.
		Aprobado

LAC/DR-IEE-81-9

ENVIRONMENTAL THRESHOLD DECISION

Project Location : Ecuador

Project Title and Number : Integrated Rural Health Delivery
System, 518-0015

Funding : \$1 million (Grant)
\$6 million (Loan)

Life of Project : Five years

IEE Prepared by : Jay Anderson, LAC/DR
November 12, 1980

Recommended Threshold Decision: Negative Determination

Bureau Threshold Decision : Concurrence with Mission
recommendation

Action : 1) Copy to USAID/Quito
John Sanbrailo
2) Copy to Jay Anderson, LAC/DR
3) Copy to IEE file

 Date 5 Feb 81

Robert O. Otto
Chief Environmental Officer
Bureau for Latin America
and the Caribbean

INITIAL ENVIRONMENTAL EXAMINATION

Project Location: Ecuador

Project Title: Integrated Rural Health
Delivery System

Funding: US\$ 7,000,000

Life of Project: Five Years

IEE Prepared by: Jay Anderson, LAC/DR
November 12, 1980

RECOMMENDED THRESHOLD DECISION

Negative Determination

MISSION DIRECTOR'S CONCURRENCE:



John A. Sanbrailo
AID/Representative
USAID/Ecuador

Description of the Project

This project seeks to increase the capacity of the Ministry of Health to manage and expand the delivery of basic health and sanitation services to the rural poor. It will fund (1) training and technical assistance to key institutions and (2) construction of a few health facilities and a variety of water/sanitation systems to attain this end.

Discussion of Environmental Impacts

(1) The project's training and technical assistance components will have no impact on the physical environment and, obviously, will not alter the biosphere. Neither is it anticipated that these activities will adversely affect any significant socio-cultural traditions. Some technical assistance will be aimed at enhancing the community's role in problem identification, priority setting, and program activities and, if successful, could positively affect community decision-making processes.

(2) Facilities construction will be limited to approximately eight health posts and three subcenters spread over four cantones. These will be relatively small buildings (50 and 150 sq.m. respectively) of simple construction which will require some excavation, but which will result in no permanent environmental degradation. The GOE is constructing 370 such structures elsewhere in Ecuador with IDB assistance.

Water systems will consist of approximately 1000 hand pumps; 15-20 gravity fed, piped systems; about 10 wells with electric pumps and 10-15 water units (including a well, storage tank, community laundry, showers, and faucets). These systems will be spread over four cantons with an area of some 395,156 sq. hectares and total population of 175,000. Systems will be carefully constructed to protect water sources from contamination and will include purification measures. This protection should not be difficult since the planned systems are fairly simple and the technology is well developed. The Mission will explore community participation mechanisms during intensive review to insure that these systems are properly maintained.

Sanitation systems will consist primarily of water-seal toilets and some pit latrines - a total of about 1600 units in four cantones. These latrines will not be located near wells and will also be constructed so as to preclude contamination of water sources. It is important to remember that all the activities noted above - especially those in water and sanitation - are measures to improve the environment by reducing key environmental hazards which cause disease and death. Water sources are already contaminated throughout Ecuador, and it is difficult to conceive how the construction of protected wells and latrines could make this situation worse. One is forced to the conclusion that the net negative environmental effects of these systems are non-existent.

THRESHOLD DECISION RECOMMENDATION

After analyzing the various areas of potential environmental impact, the Mission finds no adverse environmental effects connected with the proposed project and recommends a Negative Determination.

IMPACT IDENTIFICATION AND EVALUATION FORM

<u>Impact Areas and Sub-areas</u>	<u>Impact Identification and Evaluation *</u>
A. LAND USE	
1. Changing the character of the land through:	
a. Increasing the population	N
b. Extracting natural resources	N
c. Land clearing	N
d. Changing soil character.	N
2. Altering natural defenses	N
3. Foreclosing important uses	N
4. Jeopardizing man or his works	N
5. Other factors	
.	N
.	
B. WATER QUALITY	
1. Physical state of water	N
2. Chemical and biological states.	M
3. Ecological balance	L
4. Other factors	
.	N

* The 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 IDENTIFICATION AND EVALUATION FORM

C. ATMOSPHERIC

- 1. Air additives N
- 2. Air pollution N
- 3. Noise pollution N
- 4. Other factors
 N

D. NATURAL RESOURCES

- 1. Diversion, altered use of water L
- 2. Irreversible, inefficient, commitments N
- 3. Other factors
 N

E. CULTURAL

- 1. Altering physical symbols N
- 2. Dilution of cultural traditions N
- 3. Other factors
 N

F. SOCIOECONOMIC

- 1. Changes in economic/employment patterns N
- 2. Change in population N
- 3. Changes in cultural patterns (community participation) N
- 4. Other factors
 Change in community social services N

MISSING PAGE

NO. *Page VIII*
707