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

ECUADOR

PROJECT PAPER

WATER AND SANITATION FOR HEALTH AND
ECUADOR DEVELOPMENT

AID/LAC/P-568

Project Number: 518-0081

UNCLASSIFIED

PROJECT DATA SHEET

A Add C Change D Delete Amendment Number CODE 3

2. COUNTRY ENTITY: Ecuador
 3. PROJECT NUMBER: 518-0081
 4. BUREAU/OFFICE: LAC 05
 5. PROJECT TITLE: Water and Sanitation for Health and Ecuador Development
 6. PROJECT ANTICIPATED COMPLETION DATE (FACD): MM DD YY 1 9 2
 7. ESTIMATED DATE OF OBLIGATION (Under "B" below, enter 1, 2, 3, or 4):
 A. Initial FY 89 B. Quarter C. Final FY 92

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

A. FUNDING SOURCE	FIRST FY 89			LIFE OF PROJECT		
	B. FX	C. L/C	D. Total	E. FX	F. L/C	G. Total
AID Appropriated Total						
(Grants)	600.0	251.0	851.0	2,336.0	1,664.0	4,000.0
(Loans)						
Other:						
U.S.:						
Host Country:						
Other Donor(s): Communities					15,761.0	15,761.0
TOTALS	600.0	251.0	851.0	2,336.0	20,025.0	22,361.0

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	510	540				851.0		4,000.0	
(2)									
(3)									
(4)									
TOTALS						851.0		4,000.0	

10. SECONDARY TECHNICAL CODES (maximum 6 codes of 3 positions each): 541 545
 11. SECONDARY PURPOSE CODES: 935
 12. SPECIAL CONCERNS CODES (maximum 7 codes of 4 positions each):
 A. Code: BRW CS
 B. Amount:

13. PROJECT PURPOSE (maximum 430 characters):
 To strengthen IEOS capability to assist rural communities in eight provinces to:
 1) install cost effective safe water supply systems and latrines; 2) use the water and latrines to improve family health status; and 3) maintain and improve the systems in the future.

14. SCHEDULE OF EVALUATIONS: Initial MM YY 01 92 Final MM YY 11 93
 15. SOURCE ORIGIN OF GOODS AND SERVICES: US 941 Local Other (Specify) 935

16. AMENDMENTS NATURE OF CHANGE PROPOSED (This is page 1 of a 52 page PP Amendment):
 I concur in the proposed methods of implementation and financing for this project as summarized in Section II. of this document.

Richard Goughnour
 USAID/Quito, Ecuador Controller

17. SIGNATURE: Frank Almaguer, Mission Director
 18. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION: MM DD YY 07 21 89

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- C. Provinces Analysis
- D. Social Soundness Analysis
- E. Institutional Analysis
- F. Technical Analyses
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 - 2. Hygiene Education Program (Summary)
 - 3. Operations and Maintenance Program (Summary)
 - 4. Appropriate Technology Program (Summary)
- G. Training Plan
- H. Environmental Assessment
- I. Final Evaluation Report 518-0015 (Summary)
- J. Statutory Checklist

IN BULK FILES AT MISSION

- A. Provinces Analysis
- B. Appendices to Institutional Analysis
- C. Technical Analyses
 - 1. Social Marketing Strategies for Hygiene Education in Water and Sanitation for Rural Ecuador (Hygiene Education Program)
 - 2. Operations and Maintenance Program
 - 3. Appropriate Technology Program
- D. Scope of Work for Environmental Assessment
- E. Final Evaluation Report 518-0015 (WASH)

GLOSSARY OF ACRONYMS

AID	Agency for International Development
AID/W	Agency for International Development/Washington
AT	Appropriate Technology
CDSS	Country Development Strategy Statement
CIF	Cost, Insurance, Freight
CONADE	National Development Council (Consejo Nacional de Desarrollo)
CP	Condition Precedent
CS	Child Survival
CSS	Child Survival Strategy
DA	Development Assistance
DINEFONASA	National Direction of FONASA
EA	Environmental Assessment
EOPS	End-of-Project-Status
ESF	Economic Support Fund
FHD	Family Health Division
FONASA	National Fund for Water Supply and Sanitation Construction (Fondo Nacional de Saneamiento Ambiental)
FSN	Foreign Service National
GOE	Government of Ecuador
HC	Host Country
IEE	Initial Environmental Examination
IEOS	Ecuadorian Institute of Sanitary Works (Instituto Ecuatoriano de Obras Sanitarias)
INERHI	Institute of Hydraulic Resources (Instituto de Recursos Hidraulicos)

IMR	Infant Mortality Rate
INEC	National Statistics Institute (Instituto Nacional de Estadísticas y Censos)
JAAP	Junta Administradora de Agua Potable
KAP	Knowledge, Attitudes and Practices
LAC/CEO	Latin American Caribbean/Chief Environmental Officer
LAC/DR/HN	Latin American Caribbean/Development Resources/Health Nutrition
LTTA	Long Term Technical Assistance
MOE	Ministry of Education
MOF	Ministry of Finance
MOH	Ministry of Health
O/CONT	Office of the Controller
OTIDES	Technical Office for the Integration of Health and Education
O&M	Operations and Maintenance
PACD	Project Assistance Completion Date
PAHO	Pan-American Health Organizations
PC	Provincial Chief
FHC	Primary Health Care
PID	Project Identification Document
PIL	Project Implementation Letter
PIO/C	Project Implementation Order/Commodities
PIO/T	Project Implementation Order/Technical Services
PO	Provincial Office
PP	Project Paper
PPD	Program and Project Development
PVO(s)	Private Voluntry Organization(s)

RCO	Regional Contracting Officer
REMS/SA	Regional Environmental Advisor
RFP	Request for Proposal
RLA	Regional Legal Advisor
R&D	Research and Development
RWS&S	Rural Water Supply and Sanitation
STTA	Short-term Technical Assistance
TA	Technical Assistance
UCETA	Appropriate Technology Studies Coordinating Unit (Unidad Central de Coordinacion de Tecnologia Apropiada)
WASH	Water and Sanitation for Health
WASHED	Water and Sanitation for Health and Ecuadorian Development
WHO	World Health Organization
WS&S	Water Supply and Sanitation

Project Design Team

A.I.D. Personnel

William Goldman	Chief, Health and Population Office
Adalid Arratia	Project Coordinator (PSC)
Maria Rivadeneira	PPD Officer
James Stein	RHUDO
Carrie Thompson	LAC/DR

IEOS Personnel

Marco Morillo	Subsecretary of Sanitary Works
Miguel Loaiza	Executive Director
Marcelo Piedra	National Planning Director
Julio Ayala	National Basic Rural Sanitation Director
Eduardo Coral	Promotion Division Chief
Hector Orquera	Administrative Directorate
Eduardo Vacas	Planning Directorate
Marcia Jacome	Planning Directorate
Jorge Erazo	Planning Directorate
Gilberto Toro	Planning Directorate
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Jose Jimenez	Promotion Division
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Guillermo Bedoya	Promotion Division
Carlos Gonzales	Operations & Maintenance
Manuel Aldas	Operations & Maintenance

Contractor Personnel

Robert Pratt	WASH Consultant
Oscar Larrea	WASH Consultant
Martha Escobar	WASH Consultant

PROJECT AUTHORIZATION

NAME OF COUNTRY/ENTITY: ECUADOR/Ecuadorian Institute of Sanitary Works (IEOS)

NAME OF PROJECT: Water and Sanitation for Health and Ecuadorian Development (WASHED)

NUMBER OF PROJECT: 518-0081

1. Pursuant to Section 104 of the Foreign Assistance Act of 1961, as amended, I hereby authorize the Water and Sanitation for Health and Ecuadorian Development (WASHED) Project for Ecuador involving planned obligations of not to exceed Four Million United States Dollars (US\$4,000,000) in grant funds over four years from the date of authorization, subject to the availability of funds in accordance with the AID OYB/allotment process, to help in financing foreign exchange and local currency costs for the project. The planned life of the project is four years from the date of initial obligation.

2. The Project consists of assistance to strengthen IEOS's capability to assist rural communities in eight provinces: 1) to install cost effective, technologically appropriate safe water supply systems and latrines; 2) to use the water and latrines to improve family health status; and 3) to maintain and improve the systems in the future.

a. Source and Origin of Commodities, Nationality of Services

Commodities financed by AID under the Project shall have their source and origin in the United States (AID Geographical Code 000) or Ecuador except as AID may otherwise agree in writing. Vehicles must be manufactured, and have their source and origin, in the United States except as AID may otherwise agree in writing. Except for ocean shipping, the suppliers of commodities or services shall have the United States or Ecuador as their place of nationality, except as AID may otherwise agree in writing.

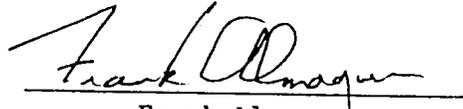
Ocean shipping financed by AID under the Project shall, except as AID may otherwise agree in writing, be financed only on flag vessels of the United States.

B. Waivers

(1) AID source and origin procurement requirements are hereby waived from Code 000 to Code 935 to permit the procurement of up to twenty

(2) motorcycles, with a displacement of approximately 175 cc, and spare parts, in an amount not to exceed \$40,000. In so waiving, I hereby certify that exclusion of procurement from Free World countries other than Ecuador and countries included in AID Geographic Code 941 would seriously impede attainment of U.S. foreign policy objectives and objectives of the foreign assistance program.

(2) AID source and origin procurement requirements are hereby waived from Code 000 to Code 935, and the requirement that the cooperating country pay the international travel costs for AID-financed participant trainees is hereby waived to permit the travel of IEOS officials to the U.S. and to 935 countries, in an amount not to exceed \$100,000, to participate in observational trips which will strengthen their technical and managerial skills in rural potable water and sanitation systems construction, operations and maintenance, and appropriate technologies.


Frank Almaguer
Mission Director
USAID/Ecuador

Clearances:

GC/LAC: TGeiger (By phone) (07-20-89)

PPD: PMaldonado PM 7-20-89

FHD: WGoldman W 7/20/89

RCO: JFrame JF 7/20/89

O/CONT: RGoughnour RG 7/20/89

AD/DIR: RPeters RP 7/20/89

Drafted by: PPD:MRivadeneira
(1198m) (07.18.89)

SUMMARY DESCRIPTION OF THE PROJECT

1. Grantee and Executing Agency

The grantee will be the Government of Ecuador (GOE) and the Ecuadorian Institute of Sanitary Works (IEOS), a semi-autonomous institution of the Ministry of Health (MOH), will have the responsibility for implementing the Project. The IEOS Project Manager will be the Director of the National Office of Basic Rural Sanitation who will be assisted by a Project Coordinator to be contracted by USAID with Project funds.

2. Statement of Problem

The mortality analysis conducted for the USAID/Ecuador Child Survival Strategy identified the major risks for infant and child mortality as high risk births and poor quality of perinatal care/conditions, malnutrition, acute respiratory infections, diarrheal disease and vaccine preventable diseases in descending order of importance. While Ecuador has achieved the reduction of the national infant mortality rate (IMR) since 1965 from 103/1000 to 51/1000, the national rate masks considerable regional and socio-economic differences. The IMR in urban and rural areas of Ecuador ranges from 46/1000 live births per year in Quito to over 80/1000 in the rural highlands and in some rural areas of provinces with the highest rate, the IMR is reportedly well over 100/1000.

To reduce morbidity and mortality from diarrhea there must be greater access to adequate water supply and sanitation facilities in rural areas and improved hygiene behavior. To date only 30% of the population has access to safe water, 20% have latrines, and hygiene practices in general are quite poor.

Summary Project Description

The goal of this four year Project is to improve the health status of infants and children in Ecuador, complementing efforts supported under the Child Survival Project. The purpose of this Project is to strengthen IEOS' capability to assist rural communities in eight provinces to 1) install cost effective, technologically appropriate safe water supply systems and latrines; 2) use the water and latrines to improve family health status; and 3) maintain and improve the systems in the future. Although some of the Project activities will be conducted nation-wide, primary emphasis will be focussed on eight provinces to test new management, technological and education methodologies and demonstrate what impacts can be achieved. The provinces, which were selected based on the scope of the problem and the feasibility of implementation, include: Imbabura, Pichincha, Cotopaxi, Chimborazo, Azuay, Tungurahua and Carchi in the Sierra, and El Oro in the Coastal region.

The project consists of five major components: systems construction, hygiene education, operations and maintenance, appropriate technology, and training. The project plans to support the construction of 640 new rural WS&S systems using the decentralized operational module approach and institutionalizing this means of construction in the process. The hygiene education program plans to use mass media and person to person health education technologies to change hygiene behaviour to improve health impact. Project operations and maintenance objectives are to 1) establish in IEOS the capability to maintain and support the community Water Boards maintenance of the RWS&S systems and 2) strengthen the administrative capability of the Water Boards. Activities under the Appropriate Technology component are intended to provide IEOS with the long term capability to design, manage, and apply research to improve RWS&S technologies and efficiency; and also to complete specific studies that can be used to increase the cost-effectiveness of construction and operations. Training activities undertaken by this project will: 1) upgrade the traditional technical and management skills of IEOS headquarters and field personnel to perform their assigned tasks appropriately, and 2) introduce new management practices and technical skills called for by this Project's innovations.

The total cost of the Project is \$22.3 million. The AID contribution will be \$4.0 million (37%) in Grant funds and will be complemented by \$15.7 (63%) of counterpart funding. This counterpart funding includes \$1.6 million of ESF local currency funds. In addition, community participation through the provision of primarily labor in system construction has been estimated in \$2.6 million. The following table summarizes AID, GOE and Community contributions.

<u>Budget Item/Amount (\$000)</u>	<u>AID</u>		<u>Total</u>	<u>GOE</u>	<u>Communit.</u>	<u>TOTAL</u>
	<u>FX</u>	<u>LC</u>		<u>LC</u>	<u>LC</u>	
1. Technical Assistance	1035.0	300.0	1335.0	0.0	0.0	1335.0
2. Training	100.0	497.0	597.0	200.0	0.0	797.0
3. Commodities	310.0	315.0	625.0	550.0	0.0	1175.0
4. Operational Costs	0.0	904.0	904.0	874.0	0.0	1778.0
5. Construction	0.0	120.0	120.0	12850.0	2600.0	15570.0
6. Evaluations/Audits	100.0	100.0	200.0	0.0	0.0	200.0
7. Contingenc./Inflation	<u>119.0</u>	<u>100.0</u>	<u>219.0</u>	<u>1287.0</u>	<u>0.0</u>	<u>1506.0</u>
TOTAL	1664.0	2336.0	4000.0	15761.0	2600.0	22361.0

I. PROJECT RATIONALE AND DESCRIPTION

A. Background

1. Health and Water & Sanitation Problems in Ecuador

USAID and the Government of Ecuador recognize that environmentally transmitted disease is a major contributor to infant and child mortality and to morbidity in general. Immunization, diarrheal disease treatment, nutrition, and acute respiratory infection interventions must be supported by greater efforts to prevent infection from unclean water and unhygienic practices. The problem which this Project will address is three-fold: only 30% of the rural population has access to safe water; only 20% have latrines; and even fewer families understand and apply appropriate hygiene practices. The solution is two-fold: expand the availability of the water systems and latrines; and change water use and hygiene practices.

Ecuador has a child mortality rate of 73/1000. This national average masks considerable variation within the country: the rate for rural areas is 99/1000, i.e., one child in ten dies before reaching five years of age. Diarrhea accounts for about 20% of all deaths of children under age five, making it one of the three leading causes of death of Ecuadorian children. Children under age five in rural areas experience an average of 4.6 bouts of diarrhea per year, contributing to a range of health problems and high levels of malnutrition.

USAID is supporting an active national Child Survival program which includes a new six-year project which will begin in FY 1989. The program focuses on a set of primary health care interventions aimed at reducing infant and child mortality, particularly in areas of the country where mortality rates are especially high. While these interventions, including oral rehydration therapy, are having a direct and immediate impact on reducing deaths due to diarrhea and other childhood diseases, additional attention must be given to activities which reduce the environmental causes of diarrhea.

The GOE/USAID determination to strengthen water and sanitation interventions in support of child survival objectives is supported by recent research findings. WHO studies carried out in 1985 and 1986 (Esrey, Feacham and Hughes 1985, and Esrey and Habicht 1986) show that water supply and sanitation (WS&S) programs have substantial impacts on diarrheal disease morbidity, ranging as high as 37% with improvements in both water quantity and quality. Twenty of 26 studies cited in the 1986 paper reported beneficial impacts from improved sanitation.

But, WS&S physical infrastructure alone is not enough. Experience with WS&S projects throughout the industrialized and developing world has demonstrated that hygiene education is essential to achieving the full health and economic value of WS&S interventions. This has been the case in Ecuador where little health impact has been seen following substantial expansion of water systems in rural areas. Consequently, in late 1988 the IEOS/USAID program initiated

a national sanitation education program, utilizing new social marketing technics with inter-personal and mass communications approaches, to improve families' water usage and sanitation practices.

2. IEOS/USAID Experience (1981 - 1989)

USAID support for IEOS' rural water supply and sanitation program began in 1982, as a component of the Integrated Rural Health Delivery System Project (AID/LAC/P-518-0015). The overall project objective was to improve the institutional capability of the Ministry of Public Health and several collaborating institutions to deliver primary health care services in rural areas. IEOS, a semi-autonomous entity of the Ministry of Public Health, was to develop a decentralized mechanism for construction of rural water supply and sanitation systems in support of that overall objective. The systems were to be operated and maintained by community water boards, with revenues from user tariffs.

The overall project ended in June 1987, but USAID decided to continue the two most successful components of the project, i.e., Child Survival, and those activities concentrating in the provision of water and sanitation services to the rural areas, via IEOS. This decision was driven, in part, by the availability to IEOS of substantial funds for rural water supply and sanitation system construction from the National Fund for Environmental Sanitation (FONASA). Under the FONASA law, rural communities identified by Congress (a list of 2400 communities) are targetted to receive RWS&S systems, constructed by IEOS. FONASA is funded by a percentage of revenues received by the GOE from petroleum exports.

In Project Amendment No. 9 (July 1987) USAID and IEOS agreed that a large amount of counterpart funds (FONASA) dedicated to construction of RWS&S systems presented a good opportunity for AID to continue to provide IEOS with technical assistance and training support for its construction, appropriate technology and management decentralization initiatives in order to give IEOS a further opportunity to meet the original project goals.

During 1987 - 1989 the project focus was on accelerated construction of rural water supply systems with latrines (RWS&S) using a system of expedited team promotion and construction called "operational modules". The accelerated construction was made possible by the availability of construction funds from FONASA and AID (ESF and PL 480), and by the effectiveness of the operational module approach.

Project Final Evaluation

The IEOS component of Project 518-0015 was evaluated by a team of experts provided by the A.I.D. ST/H WASH III project in March 1989. The team concluded that IEOS had made significant progress in system construction, but also identified a number of constraints to full achievement of the program goal of improved health resulting from the RWS&S interventions. IEOS and USAID share the team's concerns and elimination of those constraints is the immediate objective of this new Project. The major constraints are identified below:

- GOE and IEOS policies and management practices which inhibit decentralized planning, decision-making and attainment of system construction targets;
- Weak Operations and Maintenance program, exacerbated by low water use tariffs;
- Improper household water use and hygiene practices; and
- Lack of systematic procedures for investigating and adopting new, appropriate RWS&S technologies.

A summary of the evaluation report is included in Annex I. Its principal findings and recommendations have been taken into account in this Project design, as reflected in the brief discussion which follows, and in Section I.D. Project Components.

a. Management changes in support of greater decentralization to the provinces includes several elements which were identified in the WASH evaluation. The operational module approach has operated successfully for all projects funded by USAID (DA, ESF and PL 480), and was also applied successfully to FONASA-funded projects for several years. Unfortunately, it was discontinued for FONASA-funded projects by the Government in 1988 due to a change in leadership and policy priorities. To date, the new Government, which removed and replaced all but one of the province chief engineers, has not fully reinstalled the decentralized model. The drastic staff turnover effectively stymied the overall decentralization initiative, of which the operational module was the centerpiece. Now IEOS has asked USAID to help it re-install the operational module system and appears committed to pursuing decentralization for all of its rural water supply and sanitation system construction program. To ensure that another reversal does not occur following another time of political change, IEOS must fully institutionalize the decentralized management system, insulating it from political influence.

IEOS' management weaknesses also appear to have been responsible for its inability to utilize all of the FONASA funds allocated by the Ministry of Finance for rural WS&S systems during 1985 and 1986. Performance improved dramatically in 1987 and 1988 when IEOS expended almost all of the available funds, using the decentralized modular approach. Now, responsibility for IEOS' inability to meet performance targets may rest in part with the Ministry of Finance not allocating sufficient funds to IEOS.

b. IEOS recognizes that provision of safe water and sanitary facilities has not made a measurable health impact in the affected communities. Promoters have had to devote most of their time to construction of new systems and are not adequately trained and supported to conduct effective health education programs. Furthermore, the male promoters (there is only one female promoter) have been determined to be ineffective communicators of improved health and hygiene practices to mothers, the primary target. IEOS is now undertaking a major water use and hygiene behavior change social marketing program to achieve greater health impacts from the RWS&S interventions. IEOS must also hire more female promoters to dedicate more attention to direct communication with mothers. The WASH evaluation team endorsed these initiatives and made a number of suggestions to strengthen the hygiene education efforts.

c. IEOS is responsible for providing periodic supervision and technical support to community Water Boards and system operators for operating and maintaining the systems. The WASH evaluators found that IEOS visits for this purpose have become less frequent over the past three years. Consequently, they found that community water board officers are unsure about how to perform their duties (tariff collections, bookkeeping, chlorine procurement and application, and system abusers). Furthermore, the evaluators found that water user fees (tariffs) are not covering the costs of current operations, and are certainly not providing for reserves for future repairs and replacement (depreciation). This presents a major constraint to system sustainability. If the current Operations and Maintenance (O&M) and user fee problems continue, eventual system deterioration will be inevitable. Fortunately, IEOS recognizes the severity of the problem and has asked USAID to help it improve the O&M program and reform the tariff system through this Project.

d. The WASH team found that IEOS did not pursue appropriate technology initiatives as provided for in project 518-0015, but that it should do so now. The evaluators felt that IEOS' construction and O&M programs require continuous investigation of low cost, appropriate technologies to assure that it is providing cost effective services to the rural areas. IEOS concurs and has requested that USAID support a new, serious, effort to do so in this Project.

3. Project Design Process

A set a nine design tasks to be completed for the Project Paper was outlined by USAID and shared with IEOS authorities. Each task was undertaken by a different team composed of IEOS staff (who were authorized by the IEOS Executive Director to dedicate themselves full-time to this work), contracted advisors (in the case of technical and social soundness analyses) and AID personnel. The IEOS Planning Director participated as the coordinator of the IEOS work teams, which included working level as well as political level people. As a result of the joint effort and the fact that IEOS demonstrated a strong commitment to the project by working full-time on the preliminary design tasks, a set of objective analyses was completed by the end of May, in time to begin preparing the Project Paper in mid-June.

It is worth noting that after the PID was approved, IEOS has taken positive steps in support of the Project objectives, by increasing its delegation to the provincial offices for procurement and construction actions, as well as salaries of Provincial Heads to compensate for additional responsibility. This additional effort by IEOS demonstrates its elevated level of commitment to the proposed Project.

4. Policy Issues

Based on the constraints which have impeded IEOS' performance to date in rural areas, USAID has identified five key policy objectives on which it will place major attention throughout Project implementation. Several will be the subject of initial negotiations and appear as conditions or covenants in the Project Agreement, whereas all will be the object of Project technical

assistance and training. The policy objectives are identified briefly below and discussed in more detail in other sections of this Project Paper.

- a. Availability of GOE counterpart funds for system construction (FONASA or other sources).
- b. Reduction of management and program disruption from staff turnover.
- c. Expansion and strengthening of the management decentralization process.
- d. Assurance of system sustainability through development and implementation of a strong Operations and Maintenance program, including adequate system revenue collection.
- e. Institutionalization within IEOS of an appropriate hygiene education program to maximize the health impacts from the system investments.

With regard to point a. above, one of the Project covenants states that the GOE will provide to IEOS sufficient funds from FONASA, or other sources, to enable IEOS to carry out the project's rural water supply and sanitation system construction program and that they will provide IEOS with evidence of the availability of these funds on an annual basis. Yet, if for some reason all of these counterpart funds do not become available, the overall project purpose will still be met as the construction of new water systems is only one component of the project. In addition to increasing access to WS&S facilities through construction, the main objectives of the project are to: (1) institutionalize within IEOS the capacity to assist the provincial offices in the operation and maintenance of the RWS/S systems; (2) achieve long term behavioural changes in the target populations with regard to sanitary water use; and (3) institutionalize the decentralized operational module. If fewer new systems are built than planned, these objectives can still be met.

B. Project Rationale

Despite the fact that IEOS' performance in the area of hospitals and urban water supply systems construction has not always been strong, its performance in rural water system construction has been very good and so the rationale for continuing to provide support to IEOS via this Project is strong. Working with IEOS represents an opportunity to consolidate gains made to date in rural water supply sanitation system construction, revive attention to operations and maintenance, and appropriate technology and to expand and strengthen the new initiative in hygiene education. The management and technical contributions provided with modest AID inputs (\$4.0 million) will be applied to a major GOE - financed system construction initiative in eight provinces (\$12.8 million equivalent). The intensive concentration of technical and training support, and on-the-job skills application in construction, operations and maintenance, hygiene education and appropriate technology applied research, in eight provinces over four years offers an excellent possibility that the skills, methodologies and policies will become fully institutionalized within IEOS for continued application nation-wide in the future.

1. Conformity with GOE Health and Economic Development Strategies

This project conforms to, and supports directly, objectives of the GOE National Health Plan which specifically emphasizes (1) increasing water supply and sanitation coverage in rural areas; (2) improving cost-effectiveness of construction; and (3) strengthening community involvement in construction and operation and maintenance. The GOE has placed high priority on improving the health of the poor majority of its population through a renewed emphasis on primary health care and basic infrastructure services in rural areas most affected by poverty, malnutrition, and high infant and child mortality and morbidity rates. One response to this high priority attached to water supply and sanitation programs, was the legislation by the Ecuadorian Congress in 1984 of a special national fund for water supply and sanitation construction (FONASA) which is financed from petroleum revenues.

2. Relationship to USAID Country & Sector Strategies

The Project forms an integral part of the USAID CDSS and USAID's Child Survival Strategy. It represents a continuation of Mission support for expanding rural water supply and sanitation coverage begun in 1981 as part of the Integrated Rural Health Delivery System (IRHDS) Project (518-0015). Together with the Child Survival program, the proposed project is a major component of the Mission's strategy to improve health and child survival in Ecuador. This is a major priority in our recently-approved CDSS. The project will contribute to reducing diarrhea related infant and child mortality by expanding rural household access to safe water supply and sanitary facilities, and promoting appropriate use of them. In addition, the project will contribute to the Mission's principal policy guidance objective in the health sector by helping the GOE develop and institutionalize more cost-effective approaches to allocating scarce public sector resources while maximizing their impact on the most serious health problems in the country.

Additionally, USAID's housing office is supporting a \$10 million loan project to improve urban infrastructure, especially urban water supply and sanitation infrastructure. This will involve an expansion of urban water sanitation coverage in Quito and several other large cities, an effort to achieve improved policy for systems cost recovery, and assistance to IEOS to improve their capacity to design standards and set norms for urban WS&S systems. The WASHED project should have an indirect impact on this project through the mass communication hygiene education program. While USAID's hygiene education program is designed for rural areas, it will nevertheless have an impact on urban areas as well as it will be transmitted via television and radio.

3. Relationship to Other Donor Programs

The World Bank and IDB have expressed interest in WS&S programs, although primarily in urban areas. To our knowledge concrete plans have not been made yet. The German and Canadian Governments are also providing assistance for water supply and sanitation programs. U.S. Peace Corps Volunteers work with the IEOS field programs as engineers and promoters through project 518-0015. This collaboration between two U.S. Government agencies has been very successful. In addition, CARE has been implementing rural water supply and sanitation projects for several years with its own funds.

It is expected that by the end of the project, IEOS will have developed a sound, effective institutional base that will make it an attractive vehicle through which the future resources of other international donors can be channelled.

C. Project Objectives

1. Project Goal and Purpose

The sector goal to which this Project will contribute is to improve the health status of infants and children in Ecuador. The purpose of this Project is to strengthen IEOS' capability to assist rural communities in eight provinces to 1) install cost effective, technologically appropriate safe water supply systems and latrines; 2) use the water and latrines to improve family health status; and 3) maintain and improve the systems in the future. Although some of the Project activities will be conducted nation-wide, primary emphasis will be focussed on eight provinces to test new management, technological and education methodologies and demonstrate what impacts can be achieved. However, while the direct impact of the project will be in the eight provinces, the indirect and long-term impact will be nation-wide through the institutionalization of IEOS' capacity to construct and manage RW&S systems in a decentralized fashion, and to effect behavioural change with regard to sanitary water use.

The Project represents a continuation of USAID support for IEOS' rural water supply and sanitation program. The plan is to build on the achievements made to date in system design, community mobilization and system installation; strengthen the Operations and Maintenance program to enhance systems sustainability; and develop and institutionalize a strong hygiene education program within IEOS. IEOS and USAID feel that a limited amount of technical assistance, training and material support targetted to the key constraints identified in this paper will enable IEOS and the communities to derive maximum health impacts from the GOE investments in the water and sanitation systems.

2. Project Outputs

The major outputs to be derived from the Project inputs are described below, and included in the Logical Framework in Annex A. They are limited in number and are readily identifiable and measureable. If attained on schedule, the Project purpose will be achieved. For the most part, each major output will be the product of several intermediate outputs which will serve as progress benchmarks during the course of the Project. The intermediate outputs are described in Section I.D (Project Components).

a. Systems Construction:

1) IEOS RWS&S system construction planning and management policies and procedures formally codified and adopted.

2) The decentralized Operational Module management system functioning for all RWS&S system construction in the eight Project provinces.

3) Six hundred forty (640) new RWS&S systems installed with ESF, FONASA and other IEOS funds in the eight Project provinces, providing potable water supplies and sanitary facilities to approximately 320,000 persons.

b. Hygiene Education

1) Hygiene practices analyzed and behavior change messages and communications techniques developed.

2) IEOS institutional capacity to plan and implement the ongoing hygiene education program developed.

c. Operations and Maintenance

1) IEOS O&M support program developed, budgeted and operating.

2) Realistic RWS&S O&M cost projections developed per province.

3) User fee rates and collection procedures revised to support O&M program and ensure systems sustainability.

d. Appropriate Technology

A viable appropriate technology testing and adaptation capability institutionalized within IEOS to ensure that the RWS&S systems it constructs are technologically and economically appropriate for their environments and users.

Training

1) 2,288 IEOS personnel trained and performing at expected levels of productivity; and 5,768 members of rural water board committees, health promoters and rural teachers trained for O&M and hygiene education project activities.

2) An effective RWS&S training program institutionalized in IEOS.

D. Project Components

1. System Construction (Decentralization)

This Project component will provide IEOS with financial and technical support to strengthen its RWS&S construction program in the eight Project provinces. The objective is to fully institutionalize the decentralized construction planning and management process initiated with assistance from the predecessor A.I.D. project. That system is referred to as the "operational module" system. It is described fully in Annex F.1. In order to achieve this objective, a number of the IEOS Administrative reforms must be implemented

successfully as well because those issues impact directly on systems selection, design, financing and construction. Those issues were identified in the WASH evaluation report and in the IEOS Institutional Analysis report (Annex E).

a. Detailed Description

1) System Planning and Management

IEOS has identified several key management problems which have inhibited system construction performance in the past. The favorable progress achieved by the ESF-funded "operational modules" during the past several years was obtained by working around the regular IEOS management process rather than by improving that process. Projects financed by IEOS' own funds (FONASA and other), and IEOS' management practices were not affected by the A.I.D. ESF-funded innovations. Now, IEOS, with A.I.D. support, intends to adopt the decentralized operational module approach for all of its rural water supply and sanitation system projects. To do so, it will make several major changes in its project planning, budgeting, and monitoring procedures, with technical assistance from this Project component.

The principal changes are discussed below:

- **Project Selection:** A project selection process will be developed which will establish explicit criteria for selection and permit prioritization among projects. Construction schedules will then be prepared and formally adopted for each province, projecting out three years when new projects will be initiated. Detailed annual work plans for each operational module will be based on those schedules. IEOS feels that this procedure will be important to formalize the selection process, which has been too ad hoc and subject to non-technical criteria in the past.
- **Project Budgeting:** IEOS central and province staff practices in estimating project costs and budgeting the corresponding funds will be strengthened because IEOS has found that many projects have been under-budgeted, resulting in many unfinished projects.
- **Operating & Management Policies and Procedures:** IEOS has concluded that system construction performance has been hurt as a result of lack of clarity about routine operating and management procedures. This is exacerbated by the relatively high staff turnover rate which IEOS experiences. The problem has been manifested in two ways. New central and province-level political appointees have had excessive opportunity to introduce new priorities and practices, and other new staff have required excessive time to become fully productive. Consequently, IEOS will develop formal norms, guidelines and procedures to alleviate this problem. This component will provide technical and training assistance to support that initiative.
- **Decentralized Management Practices:** Project success will depend on delegation of appropriate responsibilities and authorities from IEOS headquarters to province chiefs, and from them to operational module chiefs, and then on satisfactory performance of those delegated

responsibilities. Key staff at all levels will have to learn new ways of working and relating to one another. Training and specialized consultant services will be provided through this component to assist with that transition.

2) Construction Implementation

By the start of the first Project year (1990) IEOS will have established two operational modules in each of the eight Project provinces. One operational module in each province will have had prior experience through construction of 77 systems financed by ESF funds as part of the previous A.I.D. project. The other operational modules will be newly formed for this Project. During the first year, the experienced "ESF" operational modules will construct 80 systems using the remainder of the ESF funds, and the new operational modules will construct another 80 systems using S/.800,000,000 of FONASA funds. During the remaining three Project years the sixteen operational modules will construct 480 new systems using approximately S/.4,800,000,000 of FONASA and other IEOS funds exclusively.

During 1990 IEOS will apply the decentralized operational module construction approach only to the systems financed by ESF and FONASA funds in the eight provinces. It is felt that by the end of this Project the decentralized approach will have been used sufficiently in a large number of provinces, and for projects financed by IEOS' own funds, that it will have become fully institutionalized.

Under the new decentralized approach, IEOS headquarters delegates authority and responsibility to its province chiefs to plan, manage and supervise projects, and they in turn delegate authority and responsibility to the operational modules to promote, design and construct the projects.

Currently, projects constructed with FONASA funds are located only in communities identified in the FONASA law, and their selection is subject to some political priorities. The projects constructed with ESF funds are in communities which are not on that list and which meet several feasibility criteria, including ease of access, adequate water source, community interest and commitment, and size (between 300 and 2,000 inhabitants).

Beginning with this Project, in January 1990, IEOS will develop a new project selection methodology which will apply to all projects constructed in the eight provinces. That methodology will include, in addition to basic technical feasibility criteria, socio-economic and health status criteria. The new methodology will facilitate the setting of priorities among competing projects, forward planning and budgeting for construction, and advance planning for subsequent hygiene education and operations and maintenance activities in those communities. It will also enable IEOS to make concrete proposals to other funding agencies to support construction of specific projects.

Each operational module will have a sanitary engineer as "Module Chief", three promoters, and one administrative assistant. Each promoter will be responsible for constructing three projects per year. Detailed operating and

administrative procedures, staff functions and cost estimates of the operating modules are described in Annex F.1.

b. Key Outputs

Three principal outputs were identified above in Section II.C. Project Objectives; IEOS RWS&S system construction planning and management policies and procedures codified and adopted; the decentralized operational module approach adopted and functioning; and 640 new RWS&S systems installed and functioning, providing potable water and sanitary facilities to approximately 320,000 rural inhabitants. In order to achieve those major outputs several intermediate outputs will be required first. They are identified below, with approximate time of achievement:

- Project selection criteria adopted and project schedules established for the eight Project provinces. (3/90)
- Projects appropriately budgeted and funded. (12/90)
- Operating policies and procedures codified and adopted. (12/90)
- Two Operational Modules established in each Project province. (3/90)
- RWS&S system project selection methodology adopted for use for all projects to be constructed in the Project provinces. (3/90)
- 160 RWS&S projects serving 80,000 rural inhabitants constructed by Operational Modules during first year. (12/90)
- 160 RWS&S projects serving 80,000 rural inhabitants constructed by Operational Modules during each remaining year of the Project. (12/91, 12/92, 12/93)

c. Project Inputs

IEOS:

IEOS Headquarters Staff and operating costs
Province "Jefaturas" Staff and operating costs
Operating Modules Staff and operating costs
Construction funds (FONASA & IEOS)

Communities:

Water Boards Community mobilization
Community contribution 20% of project costs

A.I.D.:

Technical Assistance
Construction funds ESF
Training

2. Hygiene Education

This component will address the problem identified by IEOS that the investments in rural water supply and sanitation systems have not achieved their potential health impacts, particularly in contributing to reduction of infant and young child mortality and morbidity. The WASH evaluation also noted that no health impacts could be detected from the RWS&S system projects. In its concern about this situation, IEOS initiated in August 1988 a National Sanitary Education Program supported by A.I.D. IRHDS Project funds. The program employs a social marketing approach, using mass media and community-level inter-personal communications techniques. A survey was undertaken of 552 families in 60 rural communities in five provinces (Azuay, Imbabura, Chimborazo, Esmeraldas and Los Rios, to determine rural families' knowledge, attitudes and practices (KAP) toward use of the water supply and sanitation facilities, upon which to base the preparation of behavior change messages. The message content has been developed and publicity firms will soon be hired to prepare the actual radio and television spots and stories. Twenty four IEOS promoters were trained in social marketing concepts and techniques to support the program in the field.

The program will be launched to the public in August 1989 with simultaneous transmission of radio and television messages, interpersonal promotion in communities through Community Health Education Teams, hygiene education for children in schools, and contests. The campaign is expected to reach the majority of the population because approximately 80% of the population listens to radio daily and 30% - 40% have televisions. The first campaign will run from August 1989 to January 1990, when the results will be evaluated by means of a KAP survey.

a. Detailed Description

The Hygiene Education component of this Project will take over responsibility for continuing the program described above, incorporating changes called for by the results of the evaluation of the first campaign, and by further research into water and sanitation use beliefs and practices of target population groups in the eight Project provinces. A long-term communications expert and short-term consultant specialists in cultural anthropology and communications will work with the Division of Promotion and Hygiene Education (Division de Promocion y Educacion Sanitaria) to strengthen the effectiveness of all of its community level work, including hygiene education, operations and maintenance, and construction.

In direct support of the hygiene education component, IEOS will convert thirty five current rural water and sanitation promoters to become hygiene education promoters to support the program in the eight Project provinces. Nationwide, each promoter will be responsible for approximately 10 communities; nevertheless, in order to give special emphasis to the eight Project provinces

IEOS will use A.I.D. Project funds to contract up to 70 additional community hygiene educators during the project to permit each promoter to cover only five communities. IEOS will hire local women for this task, to the extent possible. Furthermore, IEOS promoters will encourage each Community Water Board to select a woman from their communities to serve on the Board as hygiene education coordinator. That will provide a focal point in each community for hygiene education activities and a local contact person with whom the hygiene education promoters can work. Those Water Board hygiene education coordinators will organize the community participation in activities sponsored by the social marketing program.

The promoters will be given initial training in social marketing and communications skills, as well as in the hygiene practices desired, and then periodic follow-up training throughout the course of the Project. Their performance will be evaluated annually, together with evaluations of the overall hygiene education program.

Following the evaluation of the first social marketing campaign in January 1990, IEOS will support, with Project funds, formative research in several indigenous communities of one or two Project provinces, to determine in more detail the nature of the determinants of current hygiene practices in order to guide the design of future hygiene education activities in those regions. Interpersonal and mass media communication techniques and messages will be tested there during the next year and the results evaluated. The findings from this effort will be fed back to the national program for application where appropriate. Similar testing, evaluation and feedback will be conducted each year thereafter during the life of the Project.

The Hygiene Education program will target communities receiving new water and sanitation systems for special emphasis in the expectation that they will be most receptive to adopting appropriate hygiene practices when they receive the new services. The education promoters will coordinate with the construction operating modules to identify those communities and schedule their education efforts. This initiative will be evaluated annually to determine if the strategy is effective.

b. Key Outputs

Two levels of Outputs were identified in the Logical Framework: Hygiene practices analyzed and behavior change messages and communications techniques developed; and IEOS' institutional capability to plan and manage an ongoing hygiene education program established. In order to achieve those outputs several intermediate outputs will be required. They are identified below, with approximate time of achievement:

- Evaluation of first social marketing campaign (cycle) completed (2/90);
- Selection, training and evaluation of IEOS hygiene promoters accomplished (65 in 6/90, 75 in 3/91, 95 in 3/92, and 105 in 1/93);

- Report of hygiene practices formative research in indigenous areas completed (6/90);
- Two more cycles of mass media campaigns completed (2/91, 2/92)
- Impacts of hygiene education efforts in targetted communities (new systems) evaluated (1/91, 1/92, 1/93, 1/94);

c. Project Inputs

IEOS:

IEOS Headquarters Staff time & operating costs
Province "Jefaturas" Educators' time and costs

Communities:

Water Boards & other volunteers Time and energy
Schools Teachers & materials

A.I.D.:

Program operating costs
Training
Technical assistance
Research & Evaluation

3. Operations & Maintenance

IEOS is responsible for ensuring the proper functioning of the water and sanitation systems it has installed by providing technical assistance to the communities to enable them to carry out appropriate preventive maintenance, and by providing corrective and emergency maintenance services as required. IEOS is also responsible for expanding systems upon request of the communities, as appropriate.

The component objectives are to: 1) enable IEOS to provide to the communities, through the Water Boards, the capability to maintain the W&S systems appropriately; and 2) to strengthen the administrative capability of the Water Boards to support systems operation, maintenance, and depreciation.

a. Detailed Description

IEOS will establish an Operations & Maintenance Unit at its Headquarters. It will be responsible for supporting all operations and maintenance of rural water and sanitation systems through comparable O & M Units in each Province.

The central O & M Unit will be staffed as follows:

- Unit Chief - Sanitary engineer
- Promoter/Educator

- Administrative Analyst
- Technical Analyst
- Secretary
- Driver

During the first stage of this Component (1/90 to 9/91) the central Unit will do the following:

- Establish the Provincial O & M Units
- Define the Rural O&M Program policies, objectives, strategies, targets, resources and responsibilities. This will include the establishment of a cadre of full time rural O&M promoters dedicated solely to assisting community Water Boards with operations and maintenance of their systems.
- Prepare a training plan for all personnel involved in the Program - central, Province level and Community Water Boards.
- Carry out a complete inventory of the rural WS&S systems in the eight Project provinces.
- Prepare a detailed Rural O&M plan in collaboration with the Province O&M Units through a series of workshops.
- Design a management information system to guide implementation of the Program.

During the second stage (1/91 to 12/93) the central Unit will:

- Initiate the Rural O&M program in two provinces on a pilot basis.
- Conduct a detailed study of user tariffs in the two pilot provinces and negotiate appropriate rates with the respective communities.
- Initiate the O&M Program in three more provinces in 9/91.

During the third stage of the Component (1/92 to 12/93), the central Unit will:

- Evaluate the Rural O&M Program performance through a series of workshops with provincial and community participants and external consultants, and modify the Program accordingly.
- Initiate the Program in the three remaining Project provinces (6/92).
- Conduct an evaluation research study of the user tariff situation focussing on social, economic and financial factors affecting the communities' ability and willingness to pay in relation to the financial requirements of the Rural O&M Program.

b. Key Outputs

A number of specific intermediate outputs will be required during the course of the Project in order to achieve the major Component outputs identified in the Log Frame. Those intermediate outputs are described below, together with estimated schedule for their attainment.

1) IEOS O&M Program Developed and Operating

- Central O&M unit established (3/90)
- Rural WS&S systems inventory completed in eight provinces and real costs determined. (9/90)
- Rural O&M Program prepared and adopted. (12/90)
- User tariffs study completed in two pilot provinces. (12/90)
- Rural O&M Program initiated in two pilot provinces (1/91)
- Rural O&M Program initiated in three more provinces. (9/91)
- Socio-economic evaluation research study of user tariffs situation completed. (6/92)
- Rural O&M Program initiated in final three provinces. (6/92)
- New user fee tariffs system introduced in the eight provinces. (1/93)

c. Project Inputs

This component will require a variety of inputs provided by IEOS, the communities, and A.I.D. IEOS will provide personnel, office support, and operating costs; the communities will provide human resources and user tariffs; and A.I.D. will provide technical assistance, equipment and operating funds for training and studies. The inputs are shown in detail below.

IEOS:

Central O&M Unit:	Staff and operating costs
Provincial O&M Units: O&M Promoters	Staff and operating costs

Communities:

Water Boards	Members' time
Households	User fees

A.I.D.:

Technical Assistance	10 pm short-term
Training	
Equipment	Tools and materials
	Pick-up Trucks (9)
	Motorcycles (20)
Buildings	Province O&M Workshops/warehouse (8)

4. Appropriate Technology

IEOS' policy is to design and construct rural water supply and sanitation systems which are low cost, efficient and easy to operate, maintain and repair. IEOS engineers feel that they have adhered to that policy and that, accordingly, the systems now in operation and planned employ appropriate technology.

However, IEOS has not conducted any formal program of applied research and development, nor evaluation, to ensure that it is indeed employing the most appropriate technologies in specific circumstances and environments. IEOS and its advisors are aware of technological innovations which have been employed in other countries but IEOS has been unable to test them here due to lack of resources. They are unwilling to simply adopt approaches used elsewhere without first testing their applicability in Ecuador, and perhaps making necessary modifications. This Project component will enable IEOS to do so in a scientific manner.

This Project component will provide valuable experience to IEOS staff in planning, managing and conducting these investigations and formulating concrete measures based on the findings. In that sense, the specific findings will represent only a portion of the component benefits. In order to reinforce the learning experience from this component, training workshops will be incorporated into the component plans.

a. Description

Prior to undertaking any specific studies IEOS will establish an Appropriate Technology Studies Coordination Unit (UCETA) at its headquarters to manage this component and continue the efforts following Project termination. It will be headed by an experienced sanitary engineer and provided with appropriate staff. This Unit will work with the central and provincial level operating units of IEOS to identify priorities for appropriate technology investigation and application, and to plan and carry out the projects.

Prior to undertaking any Appropriate Technology study funded by this Project, the Unit will prepare a technical proposal for approval by IEOS management and USAID. The proposal will describe the nature of the problem to be addressed, review the technology to be tested, including experience and findings obtained elsewhere, estimate the benefits to be obtained if successful, show the technical, financial and material inputs required, and a schedule for completing the project. When approved, the resources will be assigned to

carry out the studies. A report of each study will be prepared by the Unit and provided to IEOS and USAID.

IEOS and USAID have agreed to consider proposals for four specific studies which are described in Annex F.4. Other subjects will also be considered during the course of the Project. However, the four studies proposed represent current IEOS priorities and will probably be undertaken unless the detailed proposals dictate otherwise.

The four studies are described briefly below:

1) Review and Modification of Norms and Specifications for Design, Construction, Operation and Maintenance of Rural Water Supply and Sanitation Systems.

This study would be conducted in all eight Project provinces, could begin in the first year and take one year to complete. It could be conducted by IEOS staff with technical assistance support, or be contracted entirely to a private firm.

2) Water Quality and Methods of Disinfection

This study would also be conducted in all eight Project provinces, could begin in the second half of year one, and would take approximately one year. It would use data from the system inventory to be conducted for the O&M component. It would be conducted by IEOS staff, assisted by Project technical assistance.

3) Study of Alternative Technologies for Providing WS&S Services in Coastal Areas and Investigation of New Low Cost Methods of Pumping Water in Rural Areas.

This project would include various specific studies which would be conducted in appropriate coastal provinces. It could begin in the second year and would require approximately two years to complete. It would be conducted in part by IEOS staff with Project technical assistance, and in part by private contractors.

4) Technical Study and Socio-Economic Analysis of Appropriate Low Cost Methods for Collection, Treatment and Disposition of Excrement, Waste Water and Garbage in Rural Areas.

This project could be conducted by IEOS staff with technical assistance, or by contract with a private firm. It could begin in the third year and would take approximately 18 months to complete. It would be done in the eight Project provinces.

b. Key Outputs

The overall output expected from this component is a viable, institutionalized capability within IEOS to ensure that the RWS&S systems it constructs are technologically and economically appropriate for their locations and users. The component will produce specific outputs from each AT study undertaken,

represented by the study findings and recommendations and follow-up actions. In addition to the study findings, this component will be expected to produce several intermediate institutional development outputs which will determine if the overall component output cited above will be achieved.

The intermediate outputs are as follows, with approximate date of achievement:

- Appropriate Technology Studies Coordination Unit (UCETA) established and staffed. (3/90)
- Procedures and terms of reference for AT studies proposals developed by UCETA. (6/90)
- Procedures adopted for managing and evaluating AT studies performed, based on experience of managing the first studies. (12/91)
- Provincial staff trained in AT issues and study methods. (12/91)
- IEOS adopted policies and procedures for evaluating AT study findings and introducing new technologies into its RWS&S program. (12/92)

c. Project Inputs

This component will require a limited amount of financial, administrative and technical assistance inputs to IEOS to support the planning and management of this component and the institutionalization of UCETA. In addition, financial, equipment and technical assistance inputs will be required for each of the specific AT studies undertaken.

5. Training

Training activities undertaken by this Project will meet two basic criteria: 1) upgrade the traditional technical and management skills of IEOS headquarters and field personnel to perform their assigned tasks appropriately, and 2) introduce new management practices and technical skills called for by this Project's innovations (decentralized management, hygiene education, appropriate technology R&D, pilot project approaches, impact evaluation). The training will focus on the specific needs of the Project, assigning priority to subjects and persons which are clearly needed to achieve Project objectives. Persons trained will be involved directly in RWS&S programs or provide management support to those programs. All persons trained will receive orientation training in general public health concepts and issues in order to make them aware of the overall objective of the program interventions and their role in the total effort. To mitigate the negative impact of political appointee turnover, training will be directed toward permanent staff working on the RWS&S systems as well as toward provincial directors.

Training is addressed in this Project as a discrete component, rather than merely as a set of Project inputs, because it plays a critical role in the

Project and in IEOS' plans for the future. IEOS intends to establish a Training Unit (Unidad de Capacitacion) to institutionalize the enhanced training skills and capacity which it will derive from the Project. Nevertheless, the training activities will all support directly the requirements of the other four Project components.

a. Detailed Description

IEOS, and its consultants, have prepared training plans for Project support, which are included in Annex G. Training is proposed in support of immediate requirements for the Construction, Hygiene Education and Operations & Maintenance components. Some training is being conducted currently with support from the IRHDS Project (Water Boards and Hygiene Education Social Marketing) and will continue until 12/90. However, the initial step to be taken under this Training component will be to review all of the previous and current RWS&S training from content and methodological perspectives, and prepare a detailed training plan for the remainder of the first year of the Project focussing on meeting the most immediate Project needs. If possible, the training program review and preparation of the detailed first year training plan will be conducted as a pre-implementation exercise during September - December 1989, using other funds, in order to be in a position to start the Project training in the first quarter of 1990.

As a general rule, most training of senior IEOS staff (national directors, division and unit chiefs, province chiefs, etc) will be conducted by outside consultants and specialists, from Ecuador and abroad as appropriate. Training of lower level IEOS staff and others, e.g. Water Boards, will be conducted by IEOS staff or outside, national trainers. A cadre of effective national trainers will have to be prepared to carry out the program. Based on the critical review of the current training activities, a training-of-trainers program will be undertaken by Project consultants, concurrent with the implementation of the first year training program. Modern training methodologies will be taught to the national trainers before or during the first courses, and then the consultants will provide feedback and coaching assistance as needed to ensure that the skills are fully transferred and used. All training courses conducted by expatriate technicians will also be directed methodologically by the component training consultants.

Most training will be in the form of workshops lasting one week, with 20 to 30 participants each time. Some specialized skill training, such as project cost estimating, budgeting and control, will be for smaller groups. Most courses will be repeated for the same groups at least once during the Project in order to reinforce the skills taught and/or to reach new staff who will have joined the program since the first training was given. Study tours for some key personnel will also be arranged in other Latin American countries, or in the U.S. Those will be very carefully planned and conducted to maximize their learning impact.

b. Key Outputs

Two overall outputs will be expected from this component:

- 2,288 IEOS personnel trained and performing at expected levels of productivity; and 5,768 members of rural water board committees, health promoters and rural teachers trained for O&M and hygiene education project activities.
- an effective RWS&S training program institutionalized in IEOS.

In order to achieve those final outputs, a number of intermediate outputs will be required. They are described below, with estimated dates of completion:

- critical review of current IEOS training program conducted (3/90);
- first year detailed training plan prepared (3/90);
- IEOS trainers trained (6/90);
- IEOS Training Unit established and staffed (3/90);
- each year's training program completed satisfactorily (12/90, 12/91, 12/92 and 12/93).

c. Project Inputs

IEOS:

Training staff Salaries
Trainees Salaries
Training sites In-kind

Communities:

Water Board members and Operators Time

A.I.D.:

Technical Assistance:
S.T. Training Specialists 24 pm
Operating Costs:
Participant per diems
Trainers' honoraria
Materials & Supplies
Training sites rentals

II. COST ESTIMATE AND FINANCIAL PLAN

A. Required Financing

The Project will be implemented over a period of five AID fiscal years (FY 89 to FY 93), but actual Project activities will be implemented over four calendar years (1990 to 1993). No disbursements of AID funds are expected until December 1989. Total required financing by source, currency and major inputs is shown in Table 1. AID resources are budgeted at \$4.0 million of Development Assistance funds, of which, \$1.7 million is for U.S. dollar costs and \$2.3 million is for local currency (Sucre) costs. An exchange rate of US\$1.00 to S/.500 was used to transfer the local currency costs into US dollars. The AID funds will be provided from the Health account, and will be obligated in the following fiscal years:

FY 1989	\$ 851,000
FY 1990	\$ 800,000
FY 1991	\$ 780,000
FY 1992	\$1,569,000
FY 1993	\$ -0-
Total	\$4,000,000

In addition to the Development Assistance funds, AID and the GOE will also agree to the use of \$1.6 million of ESF local currency funds by IEOS for construction of rural water supply and sanitation systems to be installed as part of the Project. Those funds will be provided in 1989 for use in 1990.

The Government of Ecuador will provide the equivalent of approximately \$11.2 million to construct the RWS&S systems; \$1.6 million for 1990 and \$3.2 million in 1991, 1992 and 1993. The funds will be derived from the FONASA or other GOE funds. Additionally, community participation through the provision of primarily labor in system construction has been estimated in \$2.6 million.

B. Projection of Expenditures

Table 1 below presents a summary of projected Project expenditures by calendar year and source of funding.

TABLE 1

	<u>Expenditure Projections (Calendar year)</u>				
	(\$000)				
	<u>A.I.D.</u>		<u>G.O.E.</u>	<u>Communities</u>	<u>Total</u>
	<u>D.A.</u>		<u>ESF</u>		
1990	972	1,600	2,395	650	5,617
1991	1,253	-0-	3,526	650	5,429
1992	868	-0-	3,487	650	5,005
1993	<u>688</u>	<u>-0-</u>	<u>3,466</u>	<u>650</u>	<u>4,804</u>
Total	3,781	1,600	12,874	2,600	20,855
Contig./Inflat.	<u>219</u>	<u>-0-</u>	<u>1,287</u>	<u>-0-</u>	<u>1,506</u>
Grand Total	4,000	1,600	14,161	2,600	22,361

If Project implementation and related expenditures proceed as planned, there will be ample funds available throughout the life of Project. The relationship between planned obligations and estimated expenditures is shown below in the Cash Flow Analysis, Table 2.

TABLE 2

Cash Flow Analysis

	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>
January	+ 851	+ 679	+206	+ 907
	+ 800	+ 780	+1,569	+ 0
	<u>-972</u>	<u>-1,253</u>	<u>-868</u>	<u>-907</u>
December	+679	+206	+907	-0

Table 3 shows estimated expenditures in detail by major input categories, funding source (AID or GOE) and foreign exchange versus local currency.

Table 4 presents projected AID expenditures according to major inputs assigned to each Project component, and by calendar year. Training costs are shown as inputs for the first four components and then shown together as a training component as it will be managed as such in the Project. The costs of the Project Coordinator (Long-term Technical Assistance) are not assigned to any specific component because he will have responsibility for overall Project implementation. A 7% contingency/inflation factor is added to the total Project costs to arrive at the grand total.

The total GOE counterpart contribution is presented in Table 5 according to major inputs and years. The amounts are shown in millions of sucres and thousands of dollars. The estimates include actual cash contributions for RWS&S system construction and purchase of land for the O&M warehouses, if required, and attribution of salaries of IEOS staff working on the Project and of value of IEOS equipment devoted to Project activities. ESF funds as well as the value of time and labor contributed by community members for RWS&S construction, operations and maintenance and hygiene education are not included in the counterpart budget.

TABLE 3

Total Project Costs by Inputs, Funding Source and
Foreign Exchange and Local Currency

<u>INPUTS</u>	(\$000)					
	<u>F.X.</u>	<u>A.I.D. L.C.</u>	<u>Total</u>	<u>G.O.E L.C.</u>	<u>Comm. L.C.</u>	<u>Total</u>
Technical Assist.						
International	1,035		1,035	-		1,035
National		300	<u>300</u>	-		<u>300</u>
Subtotal			1,335	-		1,335
Training						
Overseas	100		100	10		110
In-Country		497	<u>497</u>	<u>190</u>		<u>687</u>
Subtotal			597	200		797
Commodities						
Equipment	140		140	90		230
Materials		315	315	-		315
Vehicles	170		<u>170</u>	<u>460</u>		<u>630</u>
Subtotal			625	550		1,175
Operating Costs						
Salaries		240	240	802		1,042
Services		664	<u>664</u>	<u>72</u>		<u>736</u>
Subtotal			904	874		1,778
Construction						
RWS&S Systems				12,800*	2,600	15,400
O & M Warehouse		120	<u>120</u>	<u>50</u>		<u>170</u>
Subtotal			120	12,850*	2,600	15,570
Evaluation & Audit	<u>100</u>	<u>100</u>	<u>200</u>	-	-	200
Total	1,545	2,236	3,781	14,474*	2,600	20,855
Contingency/Inflation	119	100	219	1,287		1,506
Grand Total	1,664	2,336	4,000	15,761*	2,600	22,361

* Includes US\$1.6 million of ESF local currency funds

TABLE 4

A.I.D. Budget by Project Components & Inputs by Year

(\$000)

Components and Inputs	<u>Project Years</u>				<u>Total</u>
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	
<u>Construction/Mgt</u>					
L.T.T.A. (Nat'l)	30	30	30	30	120
S.T.T.A. (Int'l)	30	30	30	-	90
Training	<u>56</u>	<u>70</u>	<u>33</u>	<u>38</u>	<u>197</u>
Subtotal	116	130	93	68	407
<u>Hygiene Education</u>					
L.T.T.A. (Nat'l)	30	30	-	-	60
S.T.T.A. (Int'l)	10	10	7	3	30
S.T.T.A. (Int'l)	45	30	30	15	120
Commodities	145	115	30	25	315
Operating Costs	105	103	112	124	444
Training	<u>55</u>	<u>18</u>	<u>36</u>	<u>4</u>	<u>113</u>
Subtotal	390	306	215	171	1,082
<u>O & M</u>					
L.T.T.A. (Nat'l)	15	15	15	-	45
S.T.T.A. (Int'l)	60	30	15	15	120
Training	74	68	69	39	250
Equipment		290	-	-	290
Construction	<u>30</u>	<u>45</u>	<u>45</u>	<u>-</u>	<u>120</u>
Subtotal	179	448	144	54	825
<u>Appropriate Tech.</u>					
L.T.T.A. (Nat'l)	15	15	15	-	45
S.T.T.A. (Int'l)	40	45	90	50	225
Training	12	14	11	-	37
Commodities	20	-	-	-	20
Operating Costs	<u>60</u>	<u>95</u>	<u>160</u>	<u>145</u>	<u>460</u>
Subtotal	147	169	276	195	787

Components and Inputs	<u>Project Years</u>				<u>Total</u>
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	
<u>Training*</u>					
Constr./Magt.	56	70	33	38	197
Hygiene Education	55	18	36	4	113
Operation & Mgt.	74	68	69	39	250
Approp. Tech.	12	14	11	-	37
Study Tours**	(30)	(40)	(20)	(10)	(100)
Subtotal	(197)	(170)	(149)	(81)	(597)
<u>Project Coordination</u>					
L.T.T.A. (Int'l)	120	120	120	120	480
Evaluation & Audit	<u>20</u>	<u>80</u>	<u>20</u>	<u>80</u>	<u>200</u>
Subtotal	972	1,253	868	688	3,781
Contingency/Inflat.	<u>50</u>	<u>69</u>	<u>50</u>	<u>50</u>	<u>219</u>
Total	\$1,022	\$1,332	\$918	\$738	\$4,000

* Training costs are included in each component shown above and are shown together as Training Component for information only.

** Overseas study tours are allocated to specific components above and are shown here separately for information only.

TABLE 5

CONSOLIDATED COUNTERPART BUDGET
 SUCRES AND U.S. DOLLARS EQUIVALENT
 (S/.000,000; USD000)

<u>Inputs</u>	Year 1		Year 2		Year 3		Year 4		Total	
	S/.	USD	S/.	USD	S/.	USD	S/.	USD	S/.	USD
Technical Assistance										
International										
National										
Training										
Overseas	1.5	3	2	4	1	2	0.5	1	5	10
In-Country	30	60	25	50	25	50	15	30	95	190
Subtotal									100	200
Commodities										
Equipment	45	90							45	90
Materials										
Vehicles	230	460							230	460
Subtotal									275	550
Operating Costs										
Salaries**	75.5	151	108.5	217	108.5	217	108.5	217	401	802
Services	9	18	9	18	9	18	9	18	36	72
Subtotal									437	874
Construction										
RWS&S Systems	800	1600	1600	3200	1600	3200	1600	3200	5600	11200*
O&M Warehouses	6.5	13	18.5	37					25	50
Subtotal									5625	11250*
Evaluation & Audit										
Total	1197.5	2395	1763	3526	1743.5	3487	1733	3466	6437	12874*
Contingency/Inflation	119.5	239	177	352	173.5	349	173	347	643	1287
Grand Total	1317	2634	1940	3878	1917	3836	1906	3813	7080	14161*

* Does not include ESF local currency funds shown in Table 3.

** Includes travel and transportation costs

The budget estimates are based on unit costs derived from actual costs of some inputs such as the O&M warehouses, and on factors developed by the USAID according to the LAC Cost Estimating Methodology. A summary of some of the cost estimating unit costs is shown below.

BUDGET ESTIMATE METHODOLOGY

Long-Term Technical Assistance - Expatriate (Personal Services Contract)	\$120,000 per year
Long-Term Technical Assistance - National (Institutional Contract - National)	\$ 30,000 per year
Short-Term Technical Assistance - Expatriate (WASH III Contract Buy-In)	\$ 15,000 per month
Short-Term Technical Assistance - National (WASH III Contract Buy-In & National Inst. Contr.)	\$ 2,500 per month
Training:	
Travel & Per Diem for Participants	IEOS rates
Training Sites Rentals	
Payment to National Instructors	
Contract Community Promoters (Salary + Travel)	\$ 100 per month
O & M Workshops/Warehouse	\$ 15,000 each
In-Country Travel & Per Diem - L.T. Consultants (5 days per month at \$50 per day)	\$ 250 per month

C. Methods of Implementation and Financing

The following chart shows the methods of implementation and financing to be employed for the \$4.0 million AID contribution according to inputs.

<u>Method of Implementation</u>	<u>Method of Financing</u>	<u>Amount</u>
1. <u>Technical Assistance</u>		
a. Personal Services Contract	Direct Payment	\$480,000
b. Direct AID Instit. Contract	Direct Payment	\$300,000
c. USAID Buy-in to ST/H Contract	Direct Payment	\$555,000
2. <u>Training</u>		
a. HC Implementation	HC Reimbursement	\$497,000
b. AID Participant Trng.	Direct Payment	\$100,000

<u>Method of Implementation</u>	<u>Method of Financing</u>	<u>Amount</u>
3. <u>Commodities</u>		
a. Direct AID Procurement	Direct Payment	\$310,000
b. HC Direct Proc., local costs	HC Reimbursement	\$315,000
4. <u>Operating Costs</u>		
a. HC Direct Proc., local costs	HC Reimbursement	\$904,000
5. <u>Construction</u>		
a. HC Direct Implementation	HC Reimbursement	\$120,000
6. <u>Evaluation and Audits</u>		
a. Direct AID Inst. Contract	Direct Payment	\$100,000
b. HC Direct Proc., local costs	HC Reimbursement	\$100,000
7. <u>Contingency</u>		\$219,000
TOTAL		\$4,000,000

D. Host Country Reimbursement Procedures

Upon satisfaction of the relevant conditions precedent to initial local currency disbursements, IEOS will establish a special bank account for the deposit of advances from USAID. USAID and IEOS will determine jointly the amount of an initial advance to cover approximately three months of AID reimbursable local currency expenditures. The amount will be based on the schedule of work projected in the first Annual Implementation Plan, which is to be prepared by IEOS and approved by USAID prior to USAID authorization of disbursements for the first Project year. IEOS will request reimbursement each month of the preceding months expenditures, thereby maintaining an adequate level of funds available in the advance account. If additional funds will be needed based on the annual implementation plan work schedule, IEOS will request temporary increases in the amount of the advance outstanding.

E. Audit Coverage

Annual financial and compliance audits of Project expenditures will be conducted each year by a local public accounting firm affiliated with a U.S. firm. The Project budget includes \$100,000 of AID funds for this purpose. The GOE will contract, using AID host country contracting procedures, with a firm to perform the audits.

III. PROJECT IMPLEMENTATION

A. Implementation Responsibilities

1. GOE Counterpart Agency - IEOS

The Project Agreement will be signed by the Ministers of Health and Finance. The GOE counterpart agency directly responsible for implementing the Project will be the Ecuadorian Institute for Sanitary Works (IEOS), which is a semi-autonomous unit of the Ministry of Public Health. Within IEOS, the National Office of Basic Rural Sanitation, is responsible for planning and directing all of IEOS' support for rural water supply and sanitation systems. Its Director will serve as the official, day-to-day counterpart to USAID for all routine implementation matters. Subordinate units responsible for specific Project components either already exist (Division of Hygiene Education and Promotion) or will be created within the National Office of Basic Rural Sanitation (Operations & Maintenance, Appropriate Technology - UCETA, and Training). IEOS province Chiefs (Jefaturas Provinciales) will be responsible for implementing Project construction and O&M activities in their provinces.

2. USAID

The Family Health Division will carry out USAID's implementation and monitoring responsibilities, assisted by the USAID Project Committee and other USAID offices as appropriate (PPD, O/CONT, RCO). An Assistant Project Officer will be responsible for day-to-day project administration.

3. Technical Assistance Advisors

A Project Coordinator (PSC) will assist IEOS directly with all aspects of project implementation, and will maintain close coordination with the USAID Assistant Project Officer and the Chief of FHD to keep them apprised of Project performance. Three long-term national advisors will assist IEOS with specific Project components - Construction, O&M, Appropriate Technology, and Hygiene Education. A variety of national and expatriate short-term consultants (49 pm) will assist with specific technical aspects of Project implementation, as needed. The Project Coordinator will make the arrangements for the short-term consultants at the request of IEOS and with the concurrence of USAID.

B. Procurement Plan

1. Technical Assistance

Technical assistance services required for the Project will be procured through several mechanisms: personal services contract, institutional contract with an Ecuadorian organization, and buy-in to an AID Science & Technology Bureau contract.

The expatriate Project Coordinator's services will be procured directly by USAID through a personal services contract financed by the Project funds. IEOS' concurrence with the scope of work and selection of the Project Coordinator will be obtained before completing the selection process. USAID and IEOS will decide whether to seek non-competitive procurement of the services of the present coordinator for project 518-0015, or to solicit candidates through a competitive process. The procurement process will be performed during September - December 1989 so that the Project Coordinator can begin working in January 1990. His/her services will be required for four years.

Three national long-term advisors' services and some national short-term consultants will be obtained through a competitive procurement process among management/engineering firms (or other appropriate institution) in Ecuador. The procurement process will be handled by USAID with IEOS participation, and the contract will be between USAID and the contractor. The advisors are 1) Construction Supervisor - four years, 2) Assistant Project Coordinator (O & M and Appropriate Technology) - three years, and 3) Hygiene Education Advisor - two years. This procurement will also be completed by December 1989 so the advisors can begin in January 1990.

All expatriate and some national short-term consultants required for the Project will be procured through a USAID buy-in to the WASH III project managed by the Health Office of the A.I.D. Science & Technology Bureau (ST/H). USAID will obtain a commitment in principle from ST/H and WASH III to provide the estimated level of services required for the entire life of project. Following that, USAID will negotiate specific contract buy-ins annually, (or bi-annually) based on concrete Project annual implementation plans. The buy-in for the services required for the first Project year will be completed by December 1989 so that consultant services can be initiated in January, if needed.

2. Equipment and Materials

All equipment which must be imported will be procured directly by USAID through the PIO/C process. This will represent a small number of items including 20 motorcycles, 9 pick up trucks, and tools (for O&M). Miscellaneous equipment and materials which can be purchased in Ecuador will be procured by IEOS and reimbursed by USAID with Project funds. IEOS has been contracting for this kind of procurement successfully under the local currency agreement associated with the present USAID project 518-0015.

3. Professional Services

Professional services required to carry out specific Project activities, and which can be obtained from Ecuadorian sources, will be procured directly by IEOS, according to procedures approved by USAID. These will include services of publicity agencies and media organizations (radio and television), 70 new hygiene promoters for the Hygiene Education component, and persons and/or organizations to perform studies and research for the Appropriate Technology component, among others.

4. Host Country Contract Capability

Host country contracting proposed under this project will be minimal. Nonetheless, the Mission is confident that IEOS possesses the institutional experience and capability necessary to assure that project funds are utilized properly and in accordance with sound business practices. As an Ecuadorian government entity, the institution employs formal procurement procedures and regulations which closely parallel those utilized by the U.S. Government.

In general, any single procurement action valued under \$3,000 requires a minimum of two formal bids, while procurement between \$3,000 and \$10,000 requires at least three formal bids. Larger procurement actions require open and full competition, public advertising, and committee awards depending on the amount in question. With the exception of annual independent audits, there are no single procurement actions contemplated in this project which will exceed \$10,000. Although the annual audits could cost as much as \$20,000, the Mission will closely monitor the procurement process to assure that it is openly and competitively bid, and that the ultimate recipients of the contracts have the capacity to perform the audits in accordance with U.S. Government standards and requirements.

C. Training Plan

Almost all of the training to be supported by the Project will be conducted in Ecuador through IEOS' normal mechanisms. However, because of the increased volume and importance of the training, IEOS will establish a new training unit to manage it, assisted by Project consultants. Training to be conducted each year in accordance with the Training Plan in Annex G, will be included in an annual training plan, which will form a part of the Annual Implementation Plans which IEOS will prepare and submit to USAID for approval as a condition precedent to authorizing disbursement of AID funds for that year. In addition to the extensive in-country training, several study tours to Latin American countries will be made. Participants will be limited to a few key policy and technical level staff from IEOS central and province offices. These trips will be conducted according to A.I.D. Participant Training procedures.

D. Project Monitoring and Evaluation

1. USAID Routine Monitoring

Routine Project monitoring on behalf of USAID will be done by the Assistant Project Officer of the Family Health Division. He will stay abreast of Project progress through 1) regular contact with the Project Coordinator (PSC), other Project consultants and the IEOS Project Manager, 2) review of quarterly progress reports from IEOS/Project Coordinator, 3) annual implementation plans prepared by IEOS, and 4) periodic field trips to the eight Project provinces. He will also receive financial commitment and disbursement performance information from the USAID Controller's office to monitor Project financial progress.

2. Monitoring & Evaluation Activities

a. Monitoring Inputs. The contracted Project Coordinator will be responsible for tracking and monitoring the timely procurement, arrival and utilization of all Project inputs, including commodities, personnel, training and financial resources. Routine IEOS and USAID documentation will be used to track the input procurement and utilization process. The Project Coordinator will be assisted in this by the three long-term national advisors. He will alert the IEOS and USAID Project Officers to any problems and work with them to resolve the problems.

b. Assessment of Outputs. The quarterly progress reports prepared by the Project Coordinator will include quantitative data on attainment of the key outputs and intermediate outputs described in the Component descriptions and Logical Framework. The actual outputs and their appropriate progress indicators which will be reported on will be determined jointly by IEOS, USAID and the Project Coordinator in a Project monitoring and evaluation workshop to be held in January 1990, assisted by appropriate short-term technical assistance. The workshop will also determine an appropriate performance information gathering, analysis and reporting mechanism for use during the Project.

c. Mid-Term Evaluation. A mid-term evaluation will be conducted in January 1992 to assess performance in achieving the output targets, and to review overall implementation progress. This will be a process evaluation intended to identify issues or problems which could impede achievement of the intended end-of-project purpose indicators. The evaluation will focus on progress achieved to date in institutionalizing within IEOS of the several management objectives (decentralization, O&M program, hygiene education, appropriate technology assessment, community mobilization), as well as progress in meeting the quantitative and qualitative targets in the field.

d. Final Evaluation. A final evaluation will be held in November 1993 to assess performance in achieving the end-of-project output and purpose level objectives. A major emphasis of this evaluation will be to assess the extent to which the Project initiatives have been fully institutionalized within IEOS, and prospects for IEOS sustaining the activities. In addition, the capability of the beneficiary communities to sustain the RWS&S Systems installed and derive maximum health benefits from them will be carefully assessed. This will include a summary assessment of changes in health behavior and hygiene practices. Independent of the Project, data will be collected on morbidity and mortality in two National Health and Demographic surveys: one conducted at the beginning of the Project and one at the end. This data will provide information to assess changes in diarrheal disease morbidity or mortality, which is related to the goal of the Project. In addition to the large scale surveys, the hygiene promoters will carry out community based surveys of changes in knowledge, attitudes and practices (KAP) with regard to hygiene and water use practices in Project communities.

IV. SUMMARIES OF PROJECT ANALYSES

A. Provinces Analysis

As indicated in the Project Identification Document (PID), IEOS will place special emphasis on achieving Project objectives in eight provinces with AID assistance in order to obtain demonstrable outcomes and methodologies which it can extend to additional provinces with its own resources during and after completion of the Project. Nine provinces have been considered during Project design. These are Imbabura, Pichincha, Cotopaxi, Chimborazo, Azuay, Tungurahua and Carchi in the Sierra, and El Oro and Manabi in the Coastal region. From these, eight have been selected by IEOS and USAID based upon two criteria: 1) child survival priority; and 2) implementation feasibility. See Annex C, Provinces Analysis, for comparative data on these provinces.

The Child Survival Project (518-0071) selected eight priority provinces based on detailed analyses of the country's health needs and potential impact of reductions in infant and child morbidity and mortality on national rates. Note that of the principal causes of death for children under five years, namely, perinatal conditions, respiratory infections, immunizable diseases, intestinal infections and diarrhea, and malnutrition, the latter two are closely related with poor sanitation. Of the eight provinces selected for this Project, five are included in the Child Survival Project, i.e., Imbabura, Pichincha, Cotopaxi, Chimborazo and Azuay, in the Sierra. The overlap geographical focus will help ensure that the potential beneficial effects of reduced communicable diseases, improved maternal and child health and improved nutritional status will be advanced through better environmental sanitation and increased community awareness of health measures and programs. Given the critical importance of community participation in the construction of rural water supply and sanitation systems for project success, the non-Child Survival provinces in the Sierra, Carchi and Tungurahua, were chosen specifically on the basis of community willingness and commitment to participate in systems construction and maintenance, which is evidenced in present IEOS efforts in those provinces.

With regard to the Coast, it has been IEOS and USAID experience that lack of community support for system construction and operation and maintenance constrains project success in the region. This has led to the conclusion that one province of the Coast be included for this Project as a pilot effort. Thus, El Oro has been selected due to the following factors: IEOS coordination already exists in that province to implement RWS&S systems following the modular system, construction works are already underway using ESF local currency funds, and efforts have already been made by IEOS to obtain community participation. In addition, and as detailed in the Provinces Analysis attached as Annex C, El Oro is one of the poorest provinces and exhibits a high rate of infant and child morbidity and mortality. From a beneficiary and impact standpoint, El Oro provides fertile ground for demonstration efforts and has significantly higher infant and child morbidity and mortality rates than Manabi.

To continue IEOS efforts in the Coastal region, however, the Appropriate Technology component will emphasize the investigation of innovative technologies and the development of different strategies for working in the coast, based on which IEOS will be able to replicate, in Manabi as well as in the other coastal provinces, the experiences gained from its work in El Oro province.

B. Social Soundness Analysis

Ecuador is a culturally heterogeneous country with a population composed of different ethnic and cultural groups, many of which still preserve their language and form of social organization. While there remain distinct differences among these groups, and some groups have become more acculturated than others, a clear process of re-identification with traditional values and forms of social organization has begun. This is evident in the expectations these groups hold for projects they are involved with and the influence they exert on the design and implementation.

Consequently, it is essential to take the cultural heterogeneity of these groups into account when planning and implementing projects that are designed to improve the status of the poorest populations in Ecuador, especially when they involve "world view" and lifestyle issues like health.

Given that rural communities are the target group of this project, and despite the significant regional differences between the Coast and the Sierra, it is important to bear in mind the basic elements that make up these differences because they can either facilitate or inhibit project performance. In the Sierra these factors are: the organizational forms and power structures; economic relations, work and migration; inter-ethnic relations and social differentiation; inter-community relations, demographic size and conformation; religious practices; and the status of women.

The black communities of the Sierra -- which are a minority but an extremely poor one -- have their own unique characteristics, as do the black coastal communities. These have been dealt with only briefly in this report and should be examined more closely in the future.

Thus, the success or failure of this project is dependent on the degree to which these factors are taken into consideration and the methodologies and skills developed for understanding the country's social and cultural differences. Only this will make possible the real participation of the target populations in construction, operation and maintenance of the water systems, as well as in hygiene education.

This participation should be understood as a dynamic and continuous process in which women should play a central role, not only in the execution of specific actions, but rather in the planning and decision-making. This is important not only because women perform the domestic chores related to hygiene, health, nutrition, handling of water, etc. based on their traditional beliefs and values, but also because they have the power to effect change in the quality of life in rural areas. The participation of women in the community is very active but often goes unnoticed because they are not in leadership positions.

For this reason, it is recommended that a woman responsible for health promotion be on each of the Water Boards and that health promoters be women, preferably from among the target groups (that is, from the same ethnic and linguistic group, in the case of the indigenous groups).

Furthermore, the existence of different explanatory models with respect to health and the cause of illness affects the actions taken in the search for improved health. The existence of traditional explanatory models for various phenomena is already confirmed in Ecuador. The same is true with regard to water and health. For example, in the minds of the indigenous and coastal populations, there is no biomedical explanation for diarrhea but rather a multicausal one composed variously of supernatural, psychic, or physical factors. The same applies to the different qualities and importance attributed to water.

This confirms the need to begin with the traditional explanatory models if substantial and long-lasting change is to be achieved. The accessibility of services or information about hygiene does not necessarily imply its acceptability. Acceptability is achieved only by respecting and conforming to the population's own explanatory models.

Finally, the recommendations included in the analysis with regard to the specific project components are based on the two aforementioned facts: the need to understand and respect the socio-cultural heterogeneity, and the need for the target populations to participate fully in project activities.

Emphasis must be given to strengthening the "Jefaturas Provinciales" through decentralization. In order to achieve this, it is necessary that all of the personnel in these offices have health improvement as their primary goal.

It is also necessary to strengthen the Water Board's ability to promote hygiene education and their autonomy with regard to water quality control, operation and maintenance of the systems, development of alternative ways of administering user tariff systems and increasing revenues.

With regard to the hygiene education component, several recommendations are made which would complement the Social Marketing project presently underway and which give greater emphasis to Participative Community Education. Furthermore, it is recommended that the range and content of the health projects be expanded, especially in nutrition. This could be done through inter-institutional collaboration and through the support of organizations already involved in these areas.

C. Technical Analyses

1. Construction

IEOS, through its National Office of Basic Rural Sanitation, has constructed approximately 900 systems serving 564,000 persons in 21 provinces since 1974.

IEOS staff and contracted personnel understand the basic requirements for designing and building the systems, which utilize simple technologies, and are simple to operate and maintain. In most cases (especially in the Sierra) a water source above the community is tapped, and water is piped to the village by gravity with a minimum of hydrostatic head provided by a storage tank, which is also the point for water chlorination. Distribution is by metered household connection. No standpoints are provided. In almost all of the community systems the sanitation component is completed by the installation of water sealed (pour-flush) latrines for each dwelling.

In coastal areas, and other locations where the water sources are below the communities, pumping equipment is used to pipe the water to a higher elevation from which the community is served by gravity. In those cases electric, gasoline or diesel power pumps are used. When the water sources do not meet the minimum safe water quality standards for human consumption, treatment units are installed. Such units could consist of sedimentation tanks to separate coarse materials from the water, slow sand filtration tanks and hypochlorination units.

GOE funds for constructing rural water and sanitation systems are provided to IEOS from the National Fund for Environmental Sanitation (Fondo Nacional de Saneamiento Ambiental - FONASA) which was established by Congress in 1974.

USAID has provided technical and financial support to IEOS since 1982 (Integrated Rural Health Services Project 518-0015) to strengthen the rural water supply and sanitation program and to build more systems. AID financing accounted for approximately 200 of the 900 systems constructed as of June 1989.

With USAID Project support, IEOS and AID developed a separate approach to planning and constructing systems in order to avoid bureaucratic and politically oriented obstacles encountered by the regular GOE funded program (FONASA and other IEOS funds). It is a decentralized approach referred to as the Operational Module system. Consequently, during the past eight years IEOS has been carrying out two parallel rural water supply and sanitation system construction programs: GOE funded program (700 systems), and USAID-ESF funded program (200 systems). The USAID - ESF Operational Module approach is seen by IEOS as having been very successful, and they intend to adopt it as their standard approach for all system construction from now on.

Operational Module - Decentralized Approach

This approach is based on the following principles:

- Administrative decentralization which delegates responsibility and authority to the Province Chiefs (Jefaturas Provinciales) to select the communities, and to plan and construct the systems;
- Formation of construction teams called Operational Modules (Modulos Operativos). Each Module is responsible for constructing ten systems per year and consists of one sanitary engineer, one administrative assistant and three sanitation promoters;

- Application of practical solutions to field problems, utilization of appropriate technologies, and adaptation of standard designs to rural conditions;
- Community ownership of the systems and participation of the community members in the system construction and in subsequent operation and maintenance; and
- Provision of appropriate vehicle support for each Module, consisting of one pickup truck for supervision and transporting materials and three motorcycles for promotion and sanitary education activities.

This approach, conducted for the USAID-ESF program, has used contracted personnel to staff the Modules and is not now used for the larger FONASA - funded IEOS program. That program is still highly centralized in terms of decision-making, and subject to political factors in community selection. Those issues are discussed further in the IEOS Institutional Analysis (Section IV.D.) However, IEOS top management recognize the increased productivity achieved by the Module approach and see the advantages of adopting it for their entire rural program. To do so, however, will entail a major commitment by the entire organization, and interested Congressmen, to adopt the same technical criteria and decentralized management practices as are currently used for the USAID-ESF program. All regular IEOS staff assigned to the rural water supply and sanitation program must adopt the new decentralized approach. That will require a major training effort, and extensive on-the-job application experience under guidance and supervision to be provided by this Project.

The construction component of this Project will provide sufficient experience to the IEOS management and operations staff in applying the new approaches to fully institutionalize them within the organization. It will support the creation of two Operational Modules in each of the eight Project emphasis provinces. Each Module will construct an average of ten systems per year, benefitting 5,000 inhabitants. By the end of the Project, 16 Modules will have constructed 640 systems in the eight provinces with assistance of intensive training and technical and managerial guidance. In addition, IEOS will begin applying the same approach to systems it will construct in the rest of the country, thereby spreading the innovations beyond the Project sites. One Operational Module in each of the eight Project provinces will build ten systems in the first year with USAID-ESF funds (80 systems). All of the rest of the systems built during the Project in the eight provinces will be financed from FONASA and other IEOS funds (560 systems).

This analysis concludes that IEOS, with technical and training assistance from this Project will be able to plan and construct 640 rural water supply and sanitation systems in the eight Project provinces in four years. Success will depend on effective organization and management of the human and financial resources. The specific physical construction requirements are well known to IEOS and will not pose a problem. Following four years of intensive experience with the decentralized Operational Module approach, IEOS will be able to expand the program nation-wide and carry it on in the future without further A.I.D. assistance.

2. Operations and Maintenance

The beneficiary communities are responsible for the effective operation and maintenance of the water supply and sanitation systems constructed by IEOS. This is a basic tenet of the program and a formal condition of IEOS' support. Community operation and maintenance is feasible because the systems are technologically simple, complicated only by the presence of pumps in most coastal areas, and by the high cost of chlorine where disinfection is required

Community Water Boards, formed prior to initiation of construction, are the administrative vehicles for system operation and maintenance. The Board, comprised of community leaders, selects one or two individuals to be trained by IEOS as system operators/caretakers. One of them is appointed as salaried operator on a full time or part time basis. Following the initial training, he/she is supposed to receive regular, periodic supervision and on-the-job training from a IEOS promoter. Unfortunately that follow-up supervision and training has become increasingly infrequent during recent years. In fact, the IEOS rural operation and maintenance support program has become virtually inoperative. The principal reason given is lack of transport and travel expenses for the promoters. In reality, the community operators perform their duties as best they can, assisted by their initial IEOS training and an operator's manual provided by IEOS.

All costs of operating and maintaining the systems are expected to be paid for from the fees paid monthly by each community household receiving water. As shown in the Financial Analysis (Section IV.E.) the current tariff levels are too low and the amounts collected are inadequate. Routine costs to be met from the tariffs usually include the operator's salary, payments to a part-time clerk, materials for preventive maintenance and small repairs, purchase of hypochlorite, and 10% - 20% for depreciation or major repairs. Tariffs in the Sierra average 200 sucres per month and in the coastal areas 350 sucres per month. The latter must also cover the cost of fuel for mechanical pumps. This rate represents approximately 1.5% to 2.0% of family income in the Sierra and 3% to 4% in the coast, considerably below the WHO rule of thumb of 5%. Most tariff rates have not been increased since systems were installed and have fallen far below current costs. Successful implementation of an effective Operations and Maintenance program supported by this Project will require that the tariffs be increased substantially, matched by reliable technical support from IEOS. Even with increased tariffs, IEOS may be required to provide direct assistance with major repairs and repairs to water meters, without reimbursement by the communities.

The high financial burden imposed on the communities by the recent dramatic increase in the cost of chlorinating the water systems may be ameliorated on average by a much more discriminating approach to use of chlorine to be adopted by IEOS through this Project. Whereas previously IEOS and USAID advocated routine application of chlorine on the presumption that all systems required disinfection, now IEOS will recommend its application only if water quality tests confirm that it is necessary, and only for as long as necessary. This policy will be adopted for several reasons. First, the high price of chlorine makes its use uneconomic except where absolutely required.

Secondly, the Environmental Assessment will probably confirm that its extensive use is harmful to the environment, and excessive application could also be harmful to the water consumers. Thirdly, the Operations & Maintenance program that IEOS will implement with Project support will provide much greater water quality monitoring support to communities than previously, enabling Water Boards to determine more precisely whether or not to chlorinate their water systems, and appropriate quantities to use for their particular conditions. All of these factors will result in less use of chlorine, and some economic relief for the communities.

Aside from adequate community tariffs to support routine operations and maintenance, the O & M program feasibility will depend on building a strong rural O & M institutional capacity within IEOS at the central and provincial levels, and on careful design and implementation of the pilot O & M program in the eight Project provinces with Project support.

The focal point of the rural O&M program will be at the province level, supported by a strengthened capacity at IEOS headquarters to provide essential technical and administrative services to the provinces. The central Rural O&M Unit will coordinate field activities and encourage adoption by the provincial O&M units of appropriate norms, standards and procedures, and will promote adoption of appropriate construction technologies which will reduce the costs of rural O&M. The central Unit will also coordinate training of provincial O&M personnel, and will be responsible for monitoring the O&M program performance. The Rural O&M Unit will comprise a Chief Engineer, a Health Educator with expertise in rural O&M training, community promotion, and management, and several technical and administrative assistants. The Unit staff will prepare a National Rural O&M Plan and a strategy for its implementation. (See Annex F.3). Project consultants will assist with their preparation.

The provincial Rural O&M Units, to be established as part of this Project, will be headed by a sanitary engineer with experience in rural water supply and sanitation systems construction, operations and maintenance. The staff will consist of a health educator/promoter, and several technical and administrative assistants. Each provincial O&M Unit will supervise a cadre of community O&M promoters (one per 15 - 20 communities). Each promoter will visit each community four times per year to support the system operators. Each province Unit will also have one mobile maintenance unit (pick-up truck), small warehouse, transport, and spare parts.

3. Hygiene Education

Despite the substantial investments made by IEOS and 900 communities in constructing and operating rural water supply and sanitation systems, little or no health impacts have been observed. IEOS' community promotion and education efforts have been directed almost exclusively toward system construction and operation. The promoters are not trained in, nor encouraged to pursue, education of mothers and other child caretakers in appropriate use of water and latrines to reduce infections. Even if trained and encouraged to do so, hygiene education would still be a secondary function after

construction. Also, since almost all current promoters are men, it is felt that they would not communicate effectively with women about child care, food preparation, and other personal and household hygiene issues. Furthermore, most promoters are not from the communities where they work, and are not intimately familiar with the local cultures, beliefs and languages, all of which impact heavily on health care practices.

IEOS management realizes that it must undertake a major effort to address this problem. But, being an institution oriented toward physical construction and led by engineers and administrators, they do not yet fully understand the complexity of the problem and what will be required to obtain maximum health impacts from all of the systems they are building.

The National Sanitary Education Program (Social Marketing)

In response to the problem IEOS initiated a four year National Sanitary Education Program in 1988. Financial and technical support is currently provided by USAID through Project 518-0015 and will be continued from this Project as of January 1990. It uses a social marketing strategy and methods, employing mass media and interpersonal communications techniques, and is designed to terminate in 1992.

A baseline survey was conducted in five provinces in 1988 to determine current knowledge, attitudes and practices (KAP) of a sample population. From that, twelve specific program behavior change goals were identified comprising proper use of water, correct human waste disposal practices, general waste disposal, and water system maintenance. The strategy for attaining the goals employs a multi-media campaign consisting of interpersonal and mass media education, and including promotion of use of certain personal hygiene commodities, e.g. soap, contests and incentives, and school education. Community participation is obtained by enlisting the services of local leaders, teachers, priests, students and local authorities to serve as members of Community Education Committees associated with the local Water Boards. The primary target population are mothers of children under five years of age, and other family members who care for those children. The secondary target is the entire rural population with water supply systems. In addition, a large number of other rural and urban population will receive the messages and benefit to some extent. The program will evaluate impacts on the primary and secondary target populations through follow-up KAP studies, but will not attempt to measure the impact on the rest of the population.

The program "product" consists of a change in the target groups' water and sanitation attitudes and practices. Behavior change will be supported by offering various "commodities" (soap, etc.) at subsidized prices. The primary contact point with the target population is via the Water Boards and the Community Education Committees. The Committees will offer mini-courses periodically and will sell the subsidized commodities. They will also be responsible for maintaining stocks of promotional materials produced by the program and distributing them, and for sponsoring family and community contests supportive of appropriate hygiene practices. Concurrent with those interpersonal activities, educational messages will be transmitted via radio and television to reinforce the community level activities. All of the

persons involved in this complex program must be trained in order to perform their roles effectively. The training of all of the principal participants has been completed.

The program employs nonformal education techniques through the mass media and formal education techniques through the regular school system. The latter component provides audiovisual materials to 900 primary schools in the targetted communities and training to the school teachers. Commercial publicity and advertising firms are being employed to produce appropriate materials and messages.

Issues

1. The IEOS Education and Promotion Division, which is responsible for managing this program, does not have experience nor expertise in this field. The program has been planned and initiated by expert consultants with active participation of the IEOS staff. In order to ensure successful implementation of the program during the Project period, considerable technical assistance and training will be required. Fortunately, the Project will provide it.
2. The National Sanitary Education Program was designed prior to design of this Project, and as a time-limited social marketing campaign that would terminate when AID support terminates. Now, the hygiene/health practices objectives of this Project are broader and more institutionally oriented than was contemplated by the social marketing approach. That has required that IEOS plan for creating a permanent cadre of health educators (preferably female) who will be dedicated exclusively to the promotion of appropriate use of the water and sanitary facilities for health impacts. It must also decide during the Project to what extent it will continue the mass media campaign aspects of the program with its own resources following Project completion.
3. During Project design several social science consultants have recommended that the Hygiene Education component include a major formative research element to determine accurately the reasons for current water and sanitation use practices among the indigenous target populations. They feel that such investigation is required in order to determine appropriate communications and behavior change strategies to employ in those specific regions and communities. This concern, and appropriate ethnographic, formative research measures, will be incorporated into this Project component when the National Sanitary Education Program is incorporated into the Project in January 1990. Phase one of the Program will be conducted during August 1989 - January 1990 and its impact on knowledge, attitudes and practices (KAP) of the target groups will be measured in February 1990. The Project will support an intensive KAP evaluation in several indigenous communities to determine the impacts there, and reasons for the levels of impact found. If warranted, further research will then be conducted in those communities to strengthen subsequent phases of the social marketing program, or to develop supplementary hygiene education activities for those regions.

4. Appropriate Technology

As stated in the Project Description, it is IEOS' policy to design and construct rural water supply and sanitation systems which are low cost, efficient and easy to operate and maintain. And, IEOS engineers and outside technicians are confident that the policy has been applied, to the best of IEOS' ability based on its knowledge of available technologies. However, IEOS has been applying technologies, standards and specifications that it acquired many years ago, without any systematic effort to update its knowledge base. IEOS has not tested new technologies now in use in other countries because it does not have the institutional capacity to do so. A plan to do so was included in the previous USAID project with IEOS (518-0015) but was not implemented.

This Project component provides IEOS with the opportunity to develop an institutional capability to test, adapt and apply new appropriate technologies. IEOS management, and USAID consultants, are confident that IEOS has sufficient qualified staff to manage a successful appropriate technology program. However, the program will only be successful if the findings from specific studies and tests are eventually incorporated into the regular RWS&S construction programs implemented by the Provinces in the new decentralized approach. The study results must not remain "on the shelf". Consequently, this Project component will place major emphasis on institutionalizing the utilization of AT findings, as well as on the process of planning, designing, implementing and evaluating AT studies. The new UCETA unit responsible for managing the AT program will have to establish close working relationships with key IEOS officials in charge of system design and construction at headquarters and in the provinces.

IEOS and USAID have identified several priority subjects to be investigated and evaluated for possible application. In order to give the proposals serious consideration, IEOS must first establish the central unit for coordinating appropriate technology studies for rural areas (UCETA). It will be responsible for identifying subjects for investigation, or reviewing proposals submitted, and developing concrete terms of reference, overseeing the studies' execution, evaluating the results and managing the application of the findings within IEOS. Because IEOS has had almost no experience of this kind, the Project will provide the half-time services of a long-term national advisor to assist the UCETA chief, and services of periodic short-term consultants to help with specific studies and institutionalization of the process.

The four studies recommended for Project support are described below. Although they do represent high priorities for IEOS at this time, they are presented here and in the Project Description as representative studies which may be conducted if approved by IEOS and USAID upon closer examination during the Project implementation. However, because they are representative of what will be done, their estimated costs will serve as reasonable budget estimates for the component regardless of what studies are finally undertaken.

- Review and update of norms and specifications for the design, construction, operation and maintenance of rural water supply and sanitation systems.

This study will provide IEOS with a firm basis for the norms and specifications it applies to these systems. It could result in a number of modifications to its present set of norms and specifications, or confirm that the latter are still appropriate. It will entail a number of specific field studies of engineering factors and of the relationship of the systems to family health needs. Subjects would include sanitary surveys, groundwater and surface water sources, water quality problems, system capacity, design periods, population estimates, levels of services, household demand variations and allowances, climatological variations, selection of appropriate sources, wells and intakes, pumps, alternative power sources, transmission mains, distribution and storage systems, low cost treatment and disinfection technologies, waste water collection and disposal, sanitation facilities, operation and maintenance procedures, and more.

- Low cost appropriate methods for water disinfection and water quality control.

This study would include field studies of the actual water disinfection practices employed, evaluation of the public health role and objectives of water disinfection, methods for evaluating the quality of drinking water, and alternative methods and devices for disinfecting community and household drinking water.

- Alternative options for providing rural water supply and sanitation services in coastal areas, and investigation of new low cost methods of pumping water in rural areas.

The first part of this study would focus on socio-cultural and economic constraints to expanding rural water supply and sanitation services in coastal areas, and geographical, logistical and management factors. The second part would seek to identify new low-cost methods for pumping water in rural areas.

- Socio-economic analysis of appropriate low cost options for collection, treatment and disposal of excretas, waste water and garbage in rural areas.

This study would analyze the costs, technical feasibility and effectiveness of new excreta and waste water treatment and disposal technologies and their potential health impacts. It would study ways to minimize discharges to surface water bodies, disinfection methods, advanced garbage treatment, disposal and recycling method and their economic implications and impacts on rural communities.

Study Implementation Arrangements

This analysis has identified two options which IEOS could take for conducting these appropriate technology studies: 1) by IEOS staff, assisted by consultants; or 2) contracting out to qualified firms or organizations. There

are advantages and disadvantages to both methods. The first would require that IEOS staff are capable, both technically and organizationally, of doing the job. An advantage of that method is that IEOS staff would acquire experience in conducting rigorous research studies. That method would also require less Project funds from USAID and more from IEOS, in the form of salary for its staff. Both methods would require careful preparation of terms of reference, supervision and evaluation of results. UCETA will have to recommend an appropriate method for each study based on their specific requirements, and IEOS and USAID will have to consider the alternatives carefully when reviewing and approving each study.

D. Institutional/Administrative Analysis

The Ecuadorian Institute for Sanitary Works (IEOS) which was established in 1965, was assigned responsibility for rural water supply and sanitation systems in 1972. It previously was responsible only for urban systems. It is responsible for setting norms and standards, designing and securing funding for projects, managing construction and providing technical assistance and training to all community water boards and small municipalities which request it. It is also responsible for construction of all government health services facilities in the country, including hospitals.

IEOS is a semi-autonomous body attached to the Ministry of Health. Its management reports to a Board of Directors chaired by the Ministry of Health Under Secretary for Environmental Health and Sanitary Works. Board members include representatives of the Institute of Hydraulic Resources (INERHI), the Ministry of Finance, the National Development Council (CONADE), and the Ecuadorian Association of Municipalities.

As a governmental agency, IEOS has a broad mandate which includes responsibility for the construction of public works, hospitals, and various other urban infrastructure projects. As indicated above, they have only recently become involved in rural construction activities. While the urban construction projects with which IEOS has been associated have not always met with success, and they have a reputation for high staff turnover and weak financial management, A.I.D. has had a positive experience with IEOS in the specific area of rural water sanitation system construction. Because of their proven track record in rural construction activities under the Integrated Rural Health Delivery (518-0015) project, A.I.D. has chosen to work with IEOS again and feels confident in their ability to administer the project. To address the high staff turnover and weak financial management problem, training and technical assistance will be provided under the project for the purpose of institutional strengthening. While the project can do little about high staff turnover per se, the project will institutionalize decentralized construction and O&M procedures so that when key staff leave, systems and procedures will remain in place to provide continuity to the management of project activities.

Within IEOS, the National Office of Basic Rural Sanitation is responsible for implementing the rural water supply and sanitation system program. It has been the direct counterpart unit responsible for implementing the RWS&S

portion of USAID Project 518-0015. Its projects are funded from the GOE general budget and from national and foreign loans and grants.

Another unit within IEOS is responsible for administering the funds derived from the National Fund for Environmental Sanitation (FONASA) established by Congress in 1974 to finance construction of potable water and sanitation systems in rural areas. That unit is the National Executive Office of the National Fund for Environmental Sanitation (DINEFONASA). Coordination between the two units which both carry out rural water supply and sanitation projects is good because the Director of the National Office of Basic Rural Sanitation is also the Director of DINEFONASA.

Although both units plan and implement the construction of rural water supply and sanitation systems, only the National Office of Basic Rural Sanitation performs community promotion activities through a Promotion Division. Its cadre of 136 promoters organizes and supervises the Community Water Boards.

While IEOS has demonstrated considerable capacity for building rural water supply and sanitation systems, a number of institutional and management constraints limits its effectiveness. These include lack of data about the current number and condition of systems already built, lack of good information about demand for systems and about activities of other public and private agencies operating in the sector, poor financial administration which limits disbursement rates from the Ministry of Finance, project selection on non-technical criteria, unclear operating procedures, lack of clear delegation of responsibilities and authorities to subordinate and provincial levels, and high turnover of management and technical staff due to many political appointments and low salaries.

IEOS has been applying technical criteria for selection of rural water supply and sanitation projects to construct through the USAID/ESF program. But, selection of projects to be built with FONASA funds is still based on ad hoc factors, with as much weight given to political interest as to technical criteria. IEOS staff submit a list of recommended projects to the IEOS Board of Directors for approval, following which, the list is sent to the Congress for its review and approval. Substantial changes are usually made there for political reasons. IEOS wants to apply a single set of technical and social criteria to the selection of all projects, whether financed by ESF, FONASA, or other funds, in order to avoid the uncertainty caused by the application of political criteria by Congress and others.

IEOS has begun to address the information problem. Its Studies Division is now preparing an inventory of projects and studies related to construction, operation and maintenance of rural systems conducted during 1985 - 1989. Technical assistance and training to be provided through this Project will address most of the other issues identified. Since IEOS identified these problems themselves in the Institutional Analysis which they prepared for this Project design (Annex E)_prospects are good that the needed changes will be made. If so, IEOS' capability to implement rural projects will be greatly enhanced.

IEOS Staff Issues

National directors and provincial heads (Jefes Provinciales) are political appointees. This causes frequent managerial and professional staff turnover which has impeded institutionalization of strong managerial skills. Division heads are usually well qualified professionals who are not subject to change when governments change. However, they have also experienced high turnover recently due to low salaries, and informal political pressure. Decision-making is often hampered because authority to make decisions is not delegated to personnel who should do so.

IEOS is attempting to resolve the last problem by adopting the decentralization policy now being applied by the Ministry of Health. Some positive steps have been taken recently. IEOS increased its delegation of authority to provincial offices for procurement and construction actions, and raised salaries of provincial heads to compensate for additional responsibilities placed on them. The Project will support further changes of this type through management training for central and province staff members so that headquarters will be willing to delegate additional responsibility and authority to the provinces.

E. Financial/Economic Analysis

As stated in the PID, this analysis will not attempt to develop a detailed economic analysis of the relationship between the costs and benefits of the rural water supply and sanitation systems to be constructed with Project assistance. Sufficient evidence exists from a number of studies in other countries (references) that appropriate use of safe water reduces morbidity in infants and young children. The test for this Project will be to achieve appropriate use of the water, in order to obtain the same benefits obtained elsewhere and thereby justify the investments from economic and social welfare points of view.

On the other hand, the Project will give major attention to the cost aspect of the water supply and sanitation systems installed, in order to minimize the investment cost and the ongoing costs of operation and maintenance. As pointed out previously in this Project Paper, IEOS and outside experts (USAID consultants) are confident that the systems being installed are of appropriate design and costs, for their functions and environments. However, that confidence is not based on a thorough analysis of potential alternatives which could in fact lower the total costs and increase efficiency. Therefore, IEOS has requested inclusion of the Appropriate Technology component in this Project in order to investigate such alternatives, among other objectives. Furthermore, an objective of the Operations and Maintenance component is to reduce the ongoing costs of maintaining and repairing the systems by devoting more attention to the quality of routine operations and preventive maintenance. These actions together, supported by Project technical assistance and training, will ensure that systems will be built, operated and maintained at the lowest cost commensurate with their planned function of providing safe water supplies in adequate quantities.

Financial Sustainability of Systems

A major objective of this Project is to assist IEOS ensure the sustainability of the systems it constructs. The Operations & Maintenance component will strengthen IEOS' O&M program and the communities' capability to operate and maintain their systems properly. It will also analyze the user tariff situation carefully and assist communities to increase the amounts collected, upon which effective operations and routine maintenance depend.

The community Water Boards are responsible for setting the rates charged each household connected to the system and for collecting the fees monthly. The tariff is supposed to be recalculated annually, based on an analysis of changes in the system operating costs. The amount charged per household is based on a calculation of actual costs of operating and maintaining the systems plus 10% to 20% for depreciation of the systems' fixed assets. That amount is divided among the system's users to determine the tariff for each household for a basic minimum quantity of water, usually 15 cubic meters per month. A surcharge is applied for each cubic meter used above the minimum. The costs consist of the following:

- Payment to a system operator (full or part time). The rate is usually less than the official minimum wage.
- Chlorine for water treatment.
- Cost of fuel for pumps, when required.
- Payment to a part-time office assistant.
- Office supplies for the Water Board.
- Tools and materials for repairs and maintenance.
- Office rental for the Water Board, if no community center is available.

Although IEOS does not have comprehensive information about O&M costs for existing systems, it estimates that the typical rural household pays 1,500 sucres per year, or 125 sucres per month. IEOS also understands that most Water Boards have not increased the tariffs since the systems were installed. Since approximately 45% of the existing systems were built at least ten years ago, most communities are paying far less than current costs.

IEOS does have tariff information from a sample of six Sierra communities and one coastal community. The Sierra communities, which usually obtain water from springs or other surface sources, charge about 11 sucres per month per cubic meter for consumption up to 15 cubic meters, and 20 sucres per month for each additional cubic meter. The coastal community, which probably uses a pump to draw water from a well, charges 40 sucres per month for 10 cubic meters, and 20 sucres per month for each additional cubic meter.

Reliable data on rural household incomes do not exist in Ecuador. Consequently, it must be collected as part of the tariff analysis to be conducted in the O&M Project component. WHO has set a standard of one day's pay as a reasonable amount for a household to pay per month for 15 cubic meters of water. A 1975 census reported monthly income of the lowest 25% of rural households at 18,000 sucres. This would yield 600 to 800 sucres per day, depending on how many work days per month were used. Based on a rule of thumb of 5% - 6% of construction costs as the annual cost of O&M, an average

10 million sucre system would cost 600,000 sucres per year for O&M. After adding 20% for depreciation, total O&M costs would be 720,000 sucres per year. For the average rural community of 100 household water connections, the annual per household cost would be 7,200 sucres, or 600 sucres per month, which falls just within the WHO standard of one day's pay. Based on this very rough calculation, the typical rural household should be able to pay a tariff sufficient to cover system operations and maintenance. However, the average O&M costs estimate used here does not take into account the recent dramatic increase in the cost of hypochlorite, 1000% since 1987. IEOS estimates that that commodity alone represents a per family cost of 250 sucres per month. That factor probably pushes total monthly costs beyond the capacity of the lower rural income groups. However, as pointed out in the Operations & Maintenance Technical Analysis Summary (Section VI.C.2.), IEOS will take steps to reduce the quantity of hypochlorite used in the community water systems, and thereby reduce the costs to system users. IEOS will conduct, with Project assistance, a detailed field study of rural households' ability and willingness to pay upon which to base a major effort to increase the amounts collected. System sustainability will depend on the outcome of that effort.

Most rural communities have had reasonably good experience with tariff collections, at the prevailing low rates. Delinquencies (3 months) of 15% compared to 20% to 30% for urban areas. The relative success may be due to social pressure which may prevail in small communities. On the other hand, rural households usually have more uneven cash flows being dependent on seasonal variations, size and value of harvests, etc.

If the studies conducted on this subject reveal that many rural communities will be truly unable to pay realistic routine O&M plus major repair costs, IEOS must decide whether to a) decline to build systems serving those communities, or b) to establish a fund to subsidize essential O&M and repair requirements faced by communities which are paying a reasonable tariff. These issues will be dealt with by the O&M component of the Project.

F. Environmental Analysis

The LAC Regional Environmental Advisor (REMS/SA) and Assistant Mission Environmental Officer prepared an Initial Environmental Examination, Environmental Review following PID preparation. Their review was based on information included in the PID, the final evaluation of the predecessor project IRHDS (518-0015), and the IEE prepared in 1980 for that project design. In conclusion they stated that they foresaw "...no significant, direct, detrimental environmental impacts from the activities of the proposed WASHED project, but it is necessary to verify the presumptions and conclusions of the 1980 IEE (based only on project design), by examination of water and latrine systems presently functioning, or abandoned, installed by the previous project."

The team recommended that a preliminary analysis of the potential impacts, both on the water systems and caused by the water latrine systems, be conducted immediately by sampling some of the systems installed through the IRHDS project. They added that a) if that analysis revealed any unforeseen, potentially significant, environmental impacts, the system designs should be

modified in the Project to obviate those potential impacts, and b) if any negative impacts are found, it would be necessary to conduct a more systematic analysis of all systems installed during the IRHDS project and corrective actions included for support from the WASHED Project. Finally, they stated that, if a systematic analysis was found necessary, "a scope of work for the systematic analyses, and follow-up, with a possible formal Environmental Assessment, will be prepared under guidance of the LAC/DR Bureau Environmental Officer." This was included in a list of six required actions. (See Annex H.)

The preliminary analysis recommended above was conducted in June 1989 by the USAID Assistant Mission Environmental Officer. (See Annex H. for his report). He concluded that "...the water supply systems are well constructed as are the latrines. However, I strongly recommend that "Actions Required" as included in the IEE Report be strictly followed. It may be that in the highlands (as in Loreto and Santa Ana) there are no present or potential problems, but if the project extends to areas in the Sierra valleys or in the Coastal lowlands possibilities of upstream pollution or downstream consequences will increase."

Despite that conclusion, the LAC Bureau Chief Environmental Officer (CEO) determined that the potential for adverse environmental impacts from the Project activities is sufficiently great as to warrant the preparation of a full environmental assessment for the Project. (Reference LAC-IEE-89-48) He requested "...that the Project Paper include as a condition precedent the condition that no funds will be disbursed for construction of water systems until the environmental assessment has been completed, and recommendations of the EA have been incorporated into project implementation." Subsequently, the LAC CEO concurred with the USAID recommendation "...to establish a covenant, rather than a condition precedent, requiring that recommendations from the EA be included in Project design or initiated in implementation plan by a fixed date, no later than four months after Agreement is signed." (Reference State 215272, July 7, 1989) He suggested that the USAID procure the services of experts from the ST/H WASH III Project to perform the Environmental Assessment.

Based on those recommendations, USAID has made arrangements for a team of WASH III experts to conduct the EA, beginning in August 1989 at the latest. USAID and IEOS will incorporate the recommendations from the EA into the Project design and implementation, according to the Covenant No. 1 in Section V of this Project Paper. The scope of work for the EA team is shown below.

1. Conduct a scoping exercise to identify the significant issues to be addressed in this Environmental Assessment. To accomplish this, the team leader will review pertinent project documents, liaise with the Regional Environmental Management Specialist, Howard Clark, USAID/Quito health, rural development and engineering officers, and representatives from the host country government responsible for implementing the project.

2. Based on the scoping exercise identify those issues to be analyzed in the EA, and those which are not significant and need no further environmental review. The scoping exercise will result in preparation of a tentative outline and written discussion of issues which will be dealt with in

the EA. These written statements will be reviewed and approved by the Bureau Environmental Officer. The scoping of issues is expected to last three to four days.

3. Review the current criteria used by the GOE in locating water intake structures, latrines and wells and submit recommendations for improvements.

4. Prepare recommendations for construction practices which will reduce erosion of runoff water from storage tanks, wells and household connections and eliminate pools of water associated with poor drainage.

5. Within WASHED project provinces, visit sites where water and sanitation facilities have been constructed under Integrated Rural Health Delivery Systems Project (518-0015) to evaluate the environmental impacts of such systems. Visit sites where water and sanitation facilities will be constructed under WASHED. Based on these site visits, recommend watershed protection measures for systems already installed and to be installed. Prepare an environmental evaluation of such sites and internal review system for inclusion in the overall Environmental Assessment.

6. Assess the status of water quality and recommend water quality monitoring programs and programs for protection of water supplies, as appropriate.

7. Based on the findings and results of Tasks 1 through 6 above, and following the procedures detailed in 22 CFR 216.6, prepare an environmental assessment for the Water and Sanitation for Health and Ecuador Development project.

V. CONDITIONS AND COVENANTS

In addition to the standard conditions precedent to initial Project disbursements and standard covenants, the Project Agreement will include several special conditions and covenants.

1. Environmental Assessment Recommendations: The GOE will covenant that, within four months of signing the Project Agreement IEOS will incorporate into the Project design and implementation plans, as appropriate, recommendations from the Environmental Assessment to be performed during August 1989.

2. Annual Implementation Plans: Prior to disbursement of A.I.D. Project funds in any Project year, IEOS must submit to A.I.D., in form and substance satisfactory to A.I.D., a detailed implementation plan for that year. The first annual implementation plan will provide detailed information about steps already taken, or to be taken during the year (1990), to establish, staff and fund, the Operations & Maintenance Unit, UCETA, and the Training Unit. The annual implementation plan should reflect sufficient resources to provide for the travel and transport of promoters.

3. GOE Counterpart Construction Budgets: The GOE will covenant that it will provide to IEOS sufficient funds from the FONASA, or other sources, to enable IEOS to carry out the Project's rural water supply and sanitation system construction program. Evidence of the availability of those funds to IEOS must be provided in each Annual Implementation Plan referred to above.

4. Female Hygiene Education Promoters: The GOE will covenant that IEOS will make best efforts to contract women to serve as hygiene education promoters under the Project. The target for women as a percentage of total hygiene promoters under the Project will be 75%. Progress toward this end will be monitored closely by IEOS and USAID.

ANNEX A

LOGICAL FRAMEWORK

PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<p><u>Goal: The broader objective to which this project contributes</u></p> <p>To improve the health status of infants and children under age five in Ecuador</p>	<p><u>Measures of Goal Achievements:</u></p> <p>Significant decreases of morbidity (especially prevalence of diarrheal diseases and mortality among infants and children under five, in project areas</p>	<p>Vital statistics</p> <p>Epidemiological data</p> <p>Political stability</p> <p>Survey data</p>	<p><u>Concerning long term value of Program/project:</u></p> <p>No natural disasters including epidemics</p> <p>Debt repayment on schedule</p> <p>Annual certification on GOE re drug control authorized by USG</p> <p>Continued GOE commitment to supporting WSS/S construction</p> <p>People are willing to change water use behavior</p>

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NARRATIVE SUMMARY

OBJECTIVELY VERIFIABLE INDICATORS

MEANS OF VERIFICATION

IMPORTANT ASSUMPTIONS

Purpose

Conditions that will indicate purpose has been achieved:
End of project status

Affecting purpose-to-goal link:

To strengthen IEOS' capability to assist rural communities in eight provinces to (1) install safe water supply systems and latrines/toilets (RWS&S systems); (2) use the water and latrines/toilets to improve family health; and (3) maintain and improve the systems in the future

- IEOS decentralization model fully institutionalized
- Efficiency and cost-effectiveness of IEOS system construction operations improved
- Potable water and sanitation facilities provided to about 320,000 persons in eight Project provinces
- IEOS applying a financially viable operations maintenance program on a yearly basis
- 1,200 Rural Community Boards established and effectively operating and maintaining water and sanitation systems
- Served populations use proper sanitation practices
- Served population using greater quantity of water

Survey data
Service statistics
Review of IEOS provincial office procedures
Observational studies

GOE's political and economic support for continued investments in the sector

IEOS provides sufficient human and financial resources to implement the project

IEOS demonstrates its ability to use funds effectively and efficiently

That a positive correlation exists between improved health status and reduced infant mortality

FONASA fund continues to receive adequate resources

Trained staff is available

Education is improved among beneficiaries

NARRATIVE SUMMARY

OBJECTIVELY VERIFIABLE INDICATORS

MEANS OF VERIFICATION

IMPORTANT ASSUMPTIONS

Outputs

Magnitude of Outputs necessary and sufficient to achieve purpose

Affecting output-to-purpose link Assumptions:

A. Systems Planning and Construction Program Functioning Effectively

1. IEOS RWS&S construction planning and management policies and procedures codified and adopted
2. The decentralized "operational module" approach adopted and functioning for all RW&S construction in the eight Project provinces
3. 640 new RW&S serving approximately 320,000 persons installed with ESF, FONASA and other IEOS funds and functioning in the eight Project provinces
4. IEOS financial administration strengthened
5. IEOS province-level RWS&S project selection, monitoring and evaluation system developed

- Field inspections
Site visits
IEOS records
Survey reports

- GOE is willing and able to develop and implement new policies in the sector
GOE provides adequate budgetary support to IEOS
Continued support by IEOS management for systematic change in procedures and their application

B. Hygiene Education Program Implemented

1. Hygiene practices analyzed and behavior change messages and communications techniques developed

KAP Surveys

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NARRATIVE SUMMARY

OBJECTIVELY VERIFIABLE
INDICATORS

MEANS OF VERIFICATION

IMPORTANT ASSUMPTIONS

Outputs

Affecting output-to-purpose
link Assumptions:

	2. IEOS' institutional capability to plan and manage an ongoing rural hygiene education program established		
C. <u>Operation and Maintenance Programs developed and institutionalized</u>	1. IEOS O&M program developed and operating	Field inspections site visits	
	2. Realistic O&M cost projections developed per province	IEOS records survey reports	
	3. User fee rates and collection procedures revised to be self-sufficient		
D. <u>Appropriate Technology Program Institutionalized</u>	1. Four A.T. studies completed and findings incorporated in IEOS RW&S program		

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NARRATIVE SUMMARY

OBJECTIVELY VERIFIABLE INDICATORS

MEANS OF VERIFICATION

IMPORTANT ASSUMPTIONS

In (\$000)

INPUTS

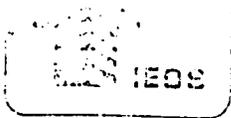
	<u>A.I.D.</u>	<u>GOE</u>	<u>Community</u>	
Technical Assistance	\$1,335			USAID Controller Office records
Training	\$ 595	200		
Commodities	\$ 625	550		GOE budget/Implementing agency records
Operating Costs	\$ 904	874		
O&M Warehouses	\$ 120	50		
Evaluation/Audit	\$ 200			
Systems Construction: FONASA ESF LC		11,200 <u>\$ 1,600</u>	2,600 <u> </u>	
	<u>\$3,781</u>	<u>\$12,850</u>	<u> </u>	
Contingency/Inflation	<u>219</u>	<u>1,287</u>	<u> </u>	
TOTAL	<u>\$4,000</u>	<u>\$15,761</u>	<u>\$2,600</u>	

(1713M)

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ANNEX B

GOE REQUEST FOR PROJECT ASSISTANCE



MINISTERIO DE SALUD PUBLICA
INSTITUTO ECUATORIANO DE OBRAS SANITARIAS

Nº **1126942** -89-SSA

Quito, 19 JUL. 1989

REPLY DATE	7.28.89
REPLY BY	
DATE	INITIALS

AGENCIAS	
DIR	
DIR	
RLA	
ROD	
EXO	
CONT	
PPD	
ODD/PSD	
ARDO	
FHD	
FLUDO	
WASH	

Señor
 Frank Almaguer
 DIRECTOR DE LA AGENCIA DE LOS ESTADOS UNIDOS
 PARA EL DESARROLLO INTERNACIONAL -AID
 Presente

ASUNTO: Proyecto de Agua Potable y Saneamiento para el
 area rural del Ecuador.

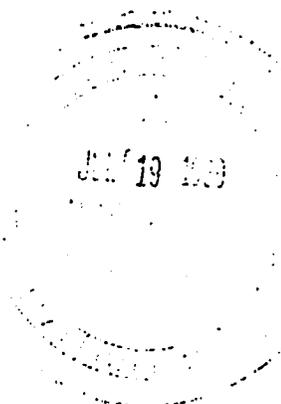
Señor Director:

El Instituto Ecuatoriano de Obras Sanitarias (IEOS) en concordancia con la política determinada en el Plan Nacional de Salud, establece como uno de sus principales objetivos de trabajo, el de solucionar la carencia de agua potable y saneamiento en el área rural del país. Las acciones que se realicen en este campo se encuentran dentro de los lineamientos fundamentales del desarrollo socio-económico de la población rural ecuatoriana pues aquellas acciones se relacionan con el mejoramiento de las condiciones de vida, la preservación del medio ambiente y la disminución de los altos índices de morbi mortalidad de la población.

A pesar del significativo incremento de los índices de cobertura de los servicios de saneamiento básico rural de los últimos años, el IEOS considera que aún existen restricciones que impiden alcanzar el objetivo final de mejorar la salud de la población rural ya sea por la falta de una mayor cobertura, o un mejor servicio, o por el deficiente uso de los sistemas de agua potable y saneamiento instalados.

De acuerdo a estos antecedentes, el IEOS ha preparado un amplio programa nacional de construcción de Sistemas Rurales de Agua Potable y Disposición de Excretas que utilizará técnicas de trabajo basadas en la descentralización administrativa y a la vez ejecutará un plan nacional de operación y mantenimiento de los sistemas instalados considerando la organización de un sistema de asistencia técnica del IEOS para apoyar la participación de las comunidades rurales, dueñas de los sistemas construidos.

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INSTITUTO ECUATORIANO DE OBRAS SANITARIAS

Nº 2 1962
Señor Frank Almaguer

También el IEOS propone impulsar el programa de educación sanitaria y comunicación social que permitirá educar a los beneficiarios mediante técnicas modernas de mercadeo social por medios de comunicación interpersonales y masivos sobre las ventajas y la necesidad del uso adecuado del agua potable y las letrinas. La adopción o modificación de los hábitos socio-culturales permitirán prevenir las enfermedades de origen hídrico y sanitario de las comunidades rurales y disminuir los índices de morbi-mortalidad de la población, especialmente infantil

Con aquellos antecedentes y con el deseo de impulsar un efectivo desarrollo en el subsector del saneamiento rural y el mejoramiento de la salud, el Instituto Ecuatoriano de Obras Sanitarias se permite solicitar a la Agencia de los Estados Unidos para el Desarrollo Internacional (USAID), el otorgamiento de un Fondo no Reembolsable de cuatro millones de dólares (US \$ 4.000.000) que nos permitirán financiar un programa nacional de Saneamiento Básico Rural por un período de cuatro años de acuerdo con las políticas señaladas líneas arriba.

Los fondos solicitados serán utilizados para reforzar los planes de nuestra institución para desarrollar las siguientes actividades:

- 1) Fortalecer sistemas de trabajo institucional basados en la descentralización técnico-administrativa en ocho provincias del país. El objetivo es el de institucionalizar los procesos de planificación y administración descentralizada que permitan construir sistemas de saneamiento básico rural eficientes, de bajo costo y con la utilización de tecnologías apropiadas para el medio rural del país.
- 2) Impulsar el proceso de educación sanitaria a los miembros de las comunidades rurales para lograr el impacto deseado en salud, particularmente para disminuir los índices de morbi-mortalidad infantil, y justificar los esfuerzos económicos que el gobierno nacional y las comunidades realizan en el área del saneamiento.
- 3) Institucionalizar un sistema de operación y mantenimiento que asegure el adecuado funcionamiento de los sistemas instalados disponiendo de asistencia técnica a las comunidades para que ellas mismas estén capacitadas de realizar trabajos preventivos, de mantenimiento o reparación que sean necesarios.
- 4) Desarrollo e investigación de nuevas tecnologías apropiadas para el medio rural, de bajo costo, eficientes y fáciles de operar, mantener y reparar.

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MINISTERIO DE SALUD PUBLICA
INSTITUTO ECUATORIANO DE OBRAS SANITARIAS

Nº 942-89-SSA
Señor Frank Almaguer

Todas las actividades han sido descritas ampliamente en el documento del proyecto que fuera preparado para el efecto, con el apoyo de funcionarios de la AID, para quienes expresamos nuestro agradecimiento.

A la espera de una favorable respuesta, anticipamos a usted, señor Director, nuestro agradecimiento por la cooperación brindada a nuestra institución y por ende al pueblo ecuatoriano.

Atentamente.,

Ing. Marco Morillo Villarreal
SUBSECRETARIO DE SANEAMIENTO
AMBIENTAL Y OBRAS SANITARIAS

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ANNEX C

PROVINCES ANALYSIS

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TABLA N. 11 POBLACION TOTAL Y TASAS BRUTAS DE NATALIDAD, MORTALIDAD GENERAL, MORTALIDAD INFANTIL Y MATERNA, SEGUN REGIONES Y PROVINCIAS DE RESIDENCIA HABITUAL 1.987

REGIONES Y PROVINCIAS	POBLACION 30-VI 1/	NATALIDAD		MORTALIDAD GENERAL		MORTALIDAD INFANTIL		MORTALIDAD MATERNA	
		NUMERO	TASA 2/	NUMERO	TASA 2/	NUMERO	TASA 3/	NUMERO	TASA 3/
TOTAL REPUBLICA:	9.922.514	204.475	20.6	51.567	5.2	9.761	47.7	355	1.7
REGION SIERRA:	4.580.767	104.965	22.9	28.369	6.2	3.546	52.8	185	1.8
✓ CARCHI	145.153	3.257	22.4	857	5.9	156	47.9	4	1.2
✓ IMBABURA	285.880	7.367	25.8	2.107	8.1	431	59.5	17	2.3
✓ PICHINCHA	1.774.840	31.530	18.9	8.071	4.6	1.667	49.7	46	1.4
✓ COTACACHI	317.636	8.603	27.1	1.017	9.5	600	79.0	19	2.2
✓ TUNGURAHUA	381.616	9.210	24.1	2.796	7.3	542	55.8	13	1.4
✓ BOLIVAR	165.560	4.968	30.0	1.246	7.5	254	51.1	9	1.8
✓ CHIMBORAZO	372.876	11.808	31.1	3.626	9.7	700	60.3	29	2.5
✓ CAÑAR	201.991	4.801	23.8	1.312	6.5	242	50.4	8	1.7
✓ AZUAY	525.483	11.976	22.8	3.230	6.1	596	49.8	22	1.8
✓ LOJA	409.670	9.646	23.5	1.915	4.7	278	25.8	18	1.9
REGION COSTA:	4.909.775	90.030	18.3	21.642	4.4	3.828	42.5	154	1.7
✓ ESMERALDAS	306.615	6.960	22.7	1.707	5.6	419	60.2	21	3.0
✓ MANABI	1.060.655	25.652	24.2	4.534	4.3	671	26.2	48	1.8
✓ LOS RIOS	547.739	9.800	17.9	2.498	5.3	631	64.4	17	1.7
✓ GUAYAS	2.573.742	40.584	15.8	10.947	4.3	1.893	46.6	58	1.4
✓ EL ORO	421.024	7.034	16.7	1.556	3.7	217	30.9	12	1.7
REGION AMAZONICA:	351.843	9.327	26.5	1.574	4.5	380	40.7	15	1.6
✓ NAPO	161.013	4.690	29.1	723	4.5	171	36.5	7	1.5
✓ PASTAZA	39.931	890	22.3	173	4.3	48	57.9	2	2.2
✓ MORONA SANTIAGO	88.890	2.054	23.1	359	4.0	92	44.8	3	1.5
✓ ZAMORA CHINCHIPE	62.009	1.693	27.3	242	4.0	69	43.8	3	1.8
REGION INSULAR:	8.370	145	17.7	28	3.3	6	40.5	1	6.8
✓ GALAPAGOS	8.370	145	17.7	28	3.3	6	40.5	1	6.8
ZONAS DE DELIMITADAS:	71.759	-	-	-	-	-	-	-	-
EXTERIORES:	-	4	-	24	-	1	-	-	-

1/ PROYECCION DE LA POBLACION POR PROVINCIAS. 1.982 - 1995.- INEC.
 2/ POR CADA 1.000 HABITANTES
 3/ POR CADA 1.000 NACIDOS VIVOS
 NOTA: LAS TASAS DE NATALIDAD, MORTALIDAD INFANTIL Y MATERNA, ESTAN CALCULADAS DE ACUERDO AL NUMERO DE NACIMIENTOS OCURRIDOS E INSCRITOS EN EL AÑO DE 1.987. ESTOS DATOS SERAN CORREGIDOS Y AJUSTADOS EN EL ANUARIO DE 1.988 CON LOS NACIMIENTOS OCURRIDOS EN EL AÑO DE 1.987, INSCRITOS EN 1.988

FUENTE: Estadísticas vitales INEC/87



MINISTERIO DE SALUD PUBLICA
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MORBIMORTALIDAD INFANTIL 1987
(TASAS POR C/1000 NACIDOS VIVOS)

<u>PROVINCIAS</u>	<u>MORTALIDAD</u>	<u>MORBILIDAD</u>
CARCHI	47.9	74.9
IMPABURA	58.5	56.7
PICHINCHA	49.7	160.8
COTOPAXI	79.0	21.5
TUNGURAHUA	58.8	76.8
CHIMBORAZO	60.3	69.4
AZUAY	49.8	109.0
- MANABI	26.2	74.9
- EL ORO	30.9	119.5

FUENTE: Estadísticas vitales - INEC
MSP

ELABORACION: Dirección Nacional de Planificación - IEOS

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POBLACION Y COBERTURAS DE AGUA POTABLE Y SANEAMIENTO A 1989



INSTITUTO ECUATORIANO DE OBRAS SANITARIAS
 MINISTERIO DE SALUD PUBLICA

ANNEX C
 Page 3 of 9

PROVINCIA	POBLACION TOTAL	- 1989		A. P.			EXCRETAS			DENSIDAD POBLACION HAB/KM2.
		U.	R	T.	U.	R.	T.	U.	R.	
CARCHI	148922	61986	86936	53	70	42	47	67	32	38
IMBABURA	295470	124446	171028	78	52	81	52	70	39	65
PICHINCHA	1'914235	1'404092	510143	62	65	54	63	65	56	141
COTOPAXI	327779	56276	271501	37	73	30	29	62	22	52
TUNGURAHUA	396139	160491	235648	56	74	44	53	66	45	138
CHIMBORAZO	379997	120889	259108	54	74	44	44	68	33	59
AZUAY	530086	240745	309341	60	72	51	40	62	23	57
MANABI	1'103935	485628	618307	41	61	26	47	51	44	62
EL ORO	449835	313049	136786	60	56	69	53	52	53	77

FUENTE: División de Información e Investigación - IEOS

ELABORACION: Dirección Nacional de Planificación.

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DENSIDAD POBLACIONAL

AÑO 1989

PROVINCIAS	SUPERFICIE Km2	POBLACION	DENSIDAD
CARCHI	3.875.9	148.922	38.4
IMBABURA	4.542.7	295.470	65.0
PICHINCHA	13.580.4	1'914.235	141.0
COTOPAXI	6.245.8	327.779	52.5
TUNGURAHUA	2.868.6	396.139	138.1
CHIMBORAZO	6.470.6	379.997	58.7
AZUAY	9.630.9	530.086	55.0
MANABI	17.707.7	1'103.935	62.0
EL ORO	5.815.8	449.835	77.4
T O T A L	70.738.4	5'546.398	78.4

FUENTE: CENSO DE POBLACION 1982 Y PROYECCIONES-INEC

ELABORADO: ASESORIA DE PLANIFICACION

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INVENTARIO DE LA RED VIAL 1982
(Kilómetros)

PROVINCIAS	R E D V I A L		CAMINOS DE VERANO	T O T A L
	PRINCIPAL (1)	SECUNDARIA (2)		
CARCHI	315.1	353.5	775.3	1.443.9
IMBABURA	196.2	628.1	454.5	1.338.8
PICHINCHA	905.7	1.217.8	488.5	2.612.0
COTOPAXI	411.6	1.068.3	834.0	2.313.9
TUNGURAHUA	185.6	294.7	193.3	1.273.6
CHIMBORAZO	438.6	296.1	910.0	1.644.7
AZUAY	481.3	424.1	371.7	1.277.1
MANABI	1.064.3	400.7	4.186.1	5.651.1
EL ORO	474.6	469.7	443.6	1.387.9
T O T A L	4.473.0	5.213.0	8.657.0	18.943.0

FUENTE: INVENTARIO DE LA RED VIAL NACIONAL 1987 - MOP

ELABORADO: ASESORIA DE PLANIFICACION

NOTA: (1) CARRETERAS: ASFALTADA-AFIRMADO-TIERRA

(2) CAMINOS: ASFALTADO-AFIRMADO

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MINISTERIO DE SALUD PUBLICA
INSTITUTO ECUATORIANO DE OBRAS SANITARIAS

NIVEL DE INSTRUCCION
TASA DE ESCOLARIDAD
(Habitantes de 6 años y más)

PROVINCIA	1974			1982			1989 *		
	Prim.	Sec.	Sup.	Prim.	Sec.	Sup.	Prim.	Sec.	Sup.
CHIMBIZO	69	9.2	0.7	65.4	15.5	1.8	62.4	24.5	4.1
U.	63.7	21.3	1.3	55.2	27.3	3.8	48.7	35.3	7.3
R.	71.4	3.4	0.2	71.8	7.6	0.5	72.2	15.4	1.1.
IMBABURA	52.0	8.4	1.0	53.3	13.6	3.0	54.5	20.7	3.4
U.	60.4	19.7	2.6	52.9	25.8	6.2	47.1	32.7	13.3
R.	47.9	2.9	0.3	53.7	6.0	1.0	59.3	11.3	2.9
PICHINCHA	53.6	21.2	5.2	47.4	26.9	9.1	42.6	33.1	14.8
U.	41.5	28.4	7.3	43.5	32.6	11.8	45.3	36.8	18.0
R.	58.0	6.0	0.9	59.2	12.6	2.2	60.3	24.1	4.8
COCHABAMBA	50.1	6.1	0.6	52.1	9.9	1.8	53.9	15.1	4.7
U.	54.4	27.0	3.3	45.2	31.7	8.5	38.4	36.5	17.2
R.	49.1	2.7	0.2	53.5	5.7	0.5	57.7	11.0	1.1
TUNGURAHUA	57.1	10.1	1.6	56.5	16.0	3.8	56.3	23.9	8.1
U.	57.9	23.6	3.9	48.3	29.4	8.6	41.2	35.6	17.2
R.	56.8	3.2	0.4	61.4	7.9	0.9	65.7	17.4	1.8
CHIMBORAZO	44.4	8.3	1.2	45.4	12.4	2.9	46.3	17.6	6.3
U.	55.9	25.6	4.0	44.0	31.4	8.8	35.7	37.5	17.5
R.	40.3	2.2	0.2	46.0	4.5	0.5	51.6	8.4	1.1
AGUAY	60.2	9.0	1.7	57.7	14.5	4.2	55.6	22.0	9.3
U.	57.5	23.9	4.9	47.2	29.1	9.6	39.7	34.6	17.3
R.	61.5	1.6	0.2	64.7	4.9	0.6	67.6	13.0	1.6
MORONA	55.6	6.6	0.8	54.2	11.1	2.6	53.0	17.5	7.3
U.	62.4	17.7	2.3	50.9	21.2	5.8	42.6	24.8	13.0
R.	53.0	2.4	0.1	56.2	5.0	0.6	59.2	9.5	2.9
EL ORO	38.9	13.1	1.1	57.7	20.7	3.6	61.5	30.9	10.2
U.	65.2	20.4	2.0	43.0	25.7	5.0	29.9	31.5	11.1
R.	72.3	6.3	0.3	66.2	11.6	1.0	61.3	19.8	2.9

* ESTIMADO

Prim. = Primaria
Sec. = Secundaria
Sup. = Superior

fuente: Censos de Población y Vivienda 1974, 1982, 1989
Elaboración: Dirección de Estadística y Censos, Instituto Ecuatoriano de Obras Sanitarias

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TASAS DE ANALFABETISMO

PROVINCIAS	1974			1982			1989 *		
	T.	U.	R.	T.	U.	R.	T.	U.	R.
CARCHI	16.5	8.5	20.3	11.4	5.9	15.0	8.2	4.3	11.5
IMBABURA	35.9	12.3	47.3	24.7	7.8	35.9	17.8	5.2	28.2
PICHINCHA	14.8	7.7	30.3	8.7	4.7	19.3	5.5	3.1	13.0
COTOPAXI	40.4	10.3	45.4	29.8	6.3	34.5	22.8	4.1	27.1
TUNGURAHUA	26.1	9.5	34.5	17.2	5.8	24.3	11.9	3.8	17.9
CHIMBORAZO	43.8	10.7	55.6	31.2	6.2	41.9	23.2	3.8	32.7
AZUAY	24.6	8.8	32.6	15.8	5.3	23.0	10.7	3.4	17.0
MANABI	31.6	12.0	38.7	20.9	9.5	28.1	14.6	7.7	21.2
EL ORO	12.1	7.4	16.5	7.2	4.9	11.5	4.6	3.4	8.4

* ESTIMADO FUENTE: CIEVAL- IEOS.

ELABORACION: Dirección Nacional de Planificación.

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PROVINCIA DE GALAPAGOS
(Territorio insular)
Por limitación de espacio no se
incluye las islas Darwin y Wolf

COLOMBIA

OCEANO PACIFICO

AUTORIZACION INSTITUTO GEOGRAFICO MILITAR
870138 - IGM - DT - 6 - Marzo 13, 1987



PROTOKOLO MISION
PEDEMONTE 18JO

LEYENDA

MAPA DISTRIBUCION CANTONAL DE LA PENSIÓN ALIMENTICIA EN EL ECUADOR

Destinatarios menores de 2 años Mapa del Ecuador 1:500,000 escala

Porcentaje

1. Menor de 30	11. 30 a 35
2. De 31 a 35	12. 36 a 40
3. De 37 a 42	13. 41 a 45
4. De 43 a 48	14. Mayor de 48
5. Mayor de 48	15. Sin datos
6. Sin datos	

FUENTE: Grigales y et al. Estimación sobre crecimiento físico de los niños ecuatorianos, 1956

FUENTE: Encuesta de Fisiología Infantil, 1956

COMISION ESPECIAL DE LIMITES INTERNOS DE LA REPUBLICA DEL ECUADOR

Las Comisiones de Límites Internos de la República del Ecuador, en cumplimiento de sus funciones, han acordado, para establecer definitivamente los límites internos de la República del Ecuador, que los límites no podrán ser cambiados por el poder ejecutivo, sino por el consentimiento de las autoridades administrativas. Quito, 24 de febrero de 1977.

Dirección Patrones Referenciales de 1977

PERU

INSTITUTO NACIONAL DE INVESTIGACIONES NUTRICIONALES Y MEDICO SOCIALES
PROYECTO "DAS-DANS"

MINISTERIO DE SALUD PUBLICA

Distribución Cantonal de la Desnutrición en el Ecuador

Fecha: _____

Lugar: _____

Elaborado por: _____

Revisado por: _____

ANNEX C
Page 8 of 9

COLOMBIA

Mapa de pobreza rural por cantones

Simbología

Rango	Trama	Puntaje
1		23-24
2		21-22
3		19-20
4		17-18
5		16 o menos

Océano Pacífico

- INDICADORES**
- Ingreso per cápita (S.)
 - Ind. agrícolas de-11a(%)
 - Mrt. infantil (por mil)
 - Alimentación (%)
 - crec. poblacional (%)
 - Ind. Municipal/hab. (S.)

PERU

Fuente: Ministerio de Bienestar Social
 Elaboración: Diario HOY

ANNEX D

SOCIAL SOUNDNESS ANALYSIS

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WASH

**CONTEXTO Y FACTIBILIDAD SOCIAL
DEL PROYECTO DE AGUA Y SALUD
PARA LAS AREAS RURALES DEL ECUADOR**

MARTA ESCOBAR

QUITO, JUNIO DE 1989

CONTENIDO

NOTA INTRODUCTORIA

1. CONTEXTO SOCIO-CULTURAL DE LAS REGIONES Y PROVINCIAS SELECCIONADAS DENTRO DEL AMBITO DE LA COMUNIDAD

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- A.1. Comunidades indígenas y mestizas**
- A.2. Comunidades negras**

B. RECINTOS Y POBLADOS DE LA COSTA

1.2. CONCLUSIONES Y RECOMENDACIONES GENERALES

2. EL AGUA Y LA SALUD EN LOS MODELOS EXPLICATIVOS TRADICIONALES

3. RECOMENDACIONES ESPECIFICAS PAARA LAS DISTINTAS AREAS DEL PROYECTO

3.1. Descentralización y Fortalecimiento de las Jefaturas Provinciales

3.2. Fortalecimiento de las Juntas Comunales de Agua

- 3.2.1. Operación, Mantenimiento y Control de Calidad**
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ANEXO I

BIBLIOGRAFIA

EXTRACTO DE LAS RECOMENDACIONES DE CAPACITACION

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3. RECOMENDACIONES ESPECIFICAS PARA LAS DISTINTAS AREAS DEL PROYECTO

Las recomendaciones que se hacen a continuación se basan en la observación rápida de campo realizada en las provincias del Carchi, Imbabura y Cotopaxi; en la observación de la institución misma y en la Evaluación llevada a cabo por los consultores de Wash.

Están centradas en los componentes del proyecto que tienen mayor relación con el aspecto socio-cultural y ponen un especial énfasis la capacitación que debe llevarse a cabo en todos ellos. Muchas de las recomendaciones vienen a ser complementarias de las planteadas en la Evaluación de Wash.

3.1. Descentralización y Fortalecimiento de las Jefaturas Provinciales

Está claro que la finalidad última del agua potable es la salud y que la línea fuerte del proyecto constituye el mejoramiento de la salud de la población rural, especialmente el grupo materno-infantil. Es entonces fundamental que esta meta se constituya en el eje de todos los componentes del proyecto y al mismo tiempo en el elemento integrador de todas las acciones. Es además indispensable que los recursos humanos involucrados en las mismas adquieran una conciencia sobre esta meta. Solo en esta medida la planificación, la ejecución y la evaluación del proyecto será efectiva.

En este sentido creo que es importante que la descentralización vaya acompañada de un fortalecimiento de las jefaturas provinciales con una clarificación de metas y roles y con una planificación muy estructurada que tome en cuenta la población que viene a ser el objetivo del proyecto. La capacitación viene a ser, entonces, uno de los componentes principales de la descentralización y el fortalecimiento.

Se recomienda:

1. Definir claramente y unificar los criterios de selección de las comunidades en base a categorías tales como: población de mayor riesgo, morbi-mortalidad materno infantil, zonas de mayor pobreza dentro de la provincia.

2. Realizar un diagnóstico provincial que lleve a la elaboración de un mapa de pobreza y de necesidades básicas para así lograr una selección por etapas de la población beneficiaria.
3. Diseñar, a nivel provincial, planes operativos que sean discutidos y evaluados permanentemente por todo el personal involucrado, especialmente el equipo de dirección, el equipo técnico y los promotores.
4. Redefinir, en esta medida, los roles y cargos del personal encargado de llevar a cabo la ejecución del proyecto en las comunidades. Se sugieren los siguientes criterios:
 - a. Que los ingenieros complementen su labor técnica de construcción de los sistemas con la vigilancia y control de la calidad de los sistemas y del agua en las comunidades que ya cuentan con estos, ya que de lo contrario la incidencia del agua en la salud es nula.
 - b. Que lleven a cabo para ello, conjuntamente con los promotores, un censo general del estado de los sistemas existentes, con el fin de desarrollar la vigilancia de una manera más efectiva y global.
 - c. Que se duplique el número de promotores con el fin de que trabajen en equipo de dos por zona, teniendo el uno prioridad sobre la organización, dirección y seguimiento técnico y el otro sobre la educación y promoción en salud.
 - d. Que los nuevos promotores sean mujeres con el fin de que trabajen con las madres en educación informal de higiene y salud y recojan información sobre los modelos explicativos propios de la enfermedad y su manejo terapéutico.
 - e. Que las promotoras encargadas de salud pertenezcan preferiblemente al grupo beneficiario y sobre todo que en las áreas rurales andinas hablen quichua.
 - f. Que se unifiquen los sueldos, obligaciones y derechos de los promotores (AID, FONASA, IEOS), con el fin de facilitar, entre otras cosas, el trabajo en equipo y evitar diferencias.
5. Desarrollar formas de capacitación provinciales para permitir el intercambio de información y experiencia de todo el personal del proyecto y para incidir en el fortalecimiento de la entidad provincial. Sería importante, además, que al inicio del proyecto se realice un taller

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con todo el personal de cada provincia para la clarificación de los propósitos y metas y para dejar establecidas metodologías y responsabilidades. Esto, por otro lado, desarrollaría la experiencia del trabajo en equipo, indispensable para las siguientes etapas y para la evaluación. Este taller debería reanudarse una vez al año.

7. Capacitar al personal pertinente en Planificación, Programación y Evaluación de proyectos.

6. Poner un énfasis mayor en la capacitación permanente de todos los promotores en la medida en que estos constituyen el nexo con la población beneficiaria. Esta capacitación debe ser teórico-práctica incluyendo en la segunda: aplicación de técnicas de investigación rápida, desarrollo y evaluación de técnicas informales de educación en salud, de motivación, etc.

3.2. Fortalecimiento de los sistemas comunales de agua

3.2.1. Operación, Mantenimiento y Control de Calidad

A nivel rural, el IEOS ha demostrado una gran capacidad en las actividades de construcción de los sistemas de agua. Esto ha sido probado por el tipo y las formas de participación comunitaria en esta etapa.

Sin embargo su tarea se ha centrado en la dotación de los sistemas, poniendo menor énfasis en todo lo que se refiere a la vigilancia de estos, a las actividades de operación y mantenimiento (que inciden directamente en la calidad del agua y por ende en la salud), en el control de la calidad del agua, y en general en el seguimiento y evaluación de todas las acciones que tienen relación con esto: implantación de tarifas, adquisición de repuestos y productos de desinfección, fortalecimiento de las juntas. Siendo la salud la meta última del proyecto, especiales medidas se deban tomar en este sentido.

Del lado de las juntas de agua, solamente el momento en que estas directivas y la población misma entienda e interiorice la relación del agua y las enfermedades, el peligro del agua contaminada o mal tratada, se podrá esperar que realicen las actividades cabalmente.

Las siguientes recomendaciones se referirán entonces a las acciones a ser tomadas dentro de la institución misma y en relación con las juntas y organizaciones comunitarias.

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A. IEOS:

1. Realizar un inventario a nivel provincial que de cuenta de:
 - a. el número o porcentaje de los sistemas en operación
 - b. el número o porcentaje de los los sistemas de desinfección en funcionamiento.
 - c. el tipo de mantenimiento dado a los sistemas
 - d. la calidad del agua de estos sistemas
 - e. el monto y las formas locales de cobro de tarifas
 - f. la cobertura de beneficiarios
2. Programar, en base a estos datos, las actividades de vigilancia y control de los sistemas provinciales de agua, dando prioridad en el tiempo a los sistemas más necesitados.
3. Crear una base de datos que puedan servir para el seguimiento y las futuras evaluaciones conjuntamente con los demás datos socio-económicos sugeridos.
4. Identificar la infraestructura disponible a nivel provincial (medios de transporte, laboratorio, stock de repuestos, etc.), y las necesidades fundamentales en este sentido.
5. Seleccionar personal (ingenieros y promotores) cuya responsabilidad se centre en esta área.
6. Crear lazos interinstitucionales con organismos estatales y privados - nacionales e internacionales- que estén trabajando en la dotación de sistemas de agua y en la búsqueda de tecnologías alternativas para el desarrollo de acciones conjuntas y el intercambio de información.

B. En relación con las Juntas de Agua:

1. Realizar un control técnico y un seguimiento por etapas. Una vez entregado el sistema de aguas se requiere de un control cercano (1 a 2 meses) con el fin de verificar el funcionamiento y resolver los problemas que puedan surgir por desconocimientos en el manejo. Luego puede ser espaciado a 6 meses.

2. Fortalecer a las juntas de agua en un proceso de capacitación permanente que contemple, además de las herramientas técnicas, una concientización sobre la relación de la calidad del agua y la salud.
3. Capacitar a la junta de agua en el desarrollo de destrezas preventivas y de previsión para que puedan, con el tiempo, crear formas relativamente autónomas de operación, mantenimiento, control del agua e implementación de tarifas.
4. Ubicar mecanismos y formas de interacción comunitaria para la adquisición de material de desinfección, apoyo en daños y emergencias, intercambio de información, actividades de educación y promoción de la salud.
5. Crear una metodología alternativa de capacitación integral a las juntas con el fin de lograr capacitar a todos sus miembros en las mismas áreas. En las comunidades no existe la división de roles y especialización marcada como en las instituciones. Por otro lado es común que se de una rotación de los mismos miembros tanto en la junta de agua como en el cabildo u organizaciones de base. Esta forma de capacitación incidiría en el desarrollo general de la comunidad.
6. Realizar la capacitación preferiblemente en las mismas comunidades con la participación de juntas de la misma región. Esto dinamizaría los nexos intercomunitarios, permitiría la observación y evaluación directa de los sistemas y crearía un espacio de discusión y evaluación.
7. Incluir en la directiva de la junta de agua a una mujer encargada de la salud. Esta sería el puente con la institución para la educación en higiene y salud, la coordinadora de salud con las mujeres de la comunidad y la promotora local.
8. Acogerse a los días, horarios y formas locales de las reuniones y mingas (generalmente en fines de semana) para las acciones de seguimiento, control y capacitación.

3.2.2. Tarifas

Las irregularidades en el cobro de tarifas incide directamente en la continuidad y calidad de las actividades de Operación y Mantenimiento. La falta de poder real de las juntas en el incremento de las tarifas en función de las nuevas necesidades (adquisición de cloro, repuestos, pago

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de operador, etc) determina la discontinuidad de la desinfección, de las acciones de mantenimiento y obviamente repercute sobre la calidad del agua.

Sin embargo cada comunidad tiene mecanismos específicos, que tienen mucho que ver con sus hábitos tradicionales de redistribución (en la sierra) y de manejo del capital en las necesidades financieras comunitarias. De ahí el hecho de que en algunas comunidades de la sierra se nieguen al cobro diferenciado y que en la costa sea más manejable el cobro.

En este sentido es fundamental que el apoyo que de el IEOS en la definición de las tarifas y en la elevación de su monto se haga en base a los criterios y las modalidades de las comunidades.

Se recomienda:

1. Identificar el criterio de los usuarios respecto al incremento tarifario.
2. Determinar la capacidad de solventar este incremento en relación con las características socio-económicas del grupo.
3. Detectar las formas de pago implementadas en las comunidades (standard, según consumo), y las particularidades en las formas de pago (regular, morosidad, tipos de familia que no pagan regularmente).
4. Identificar el nivel de información de los usuarios en la relación consumo-costos y su grado de incidencia en el uso doméstico del agua (sub-utilización del agua entubada o potable para ciertas actividades como lavado de la ropa, higiene personal). Esta información debe ser cruzada con los hábitos y creencias tradicionales respecto a la utilización del agua.
5. Conocer el monto de retribución de los miembros de la junta de agua para definir si poseen un verdadero estímulo económico y poder tomar medidas al respecto. Otra vez, sólo cuando conozcan la importancia de la potabilización del agua los usuarios encontrarán necesarias las actividades que se realicen con este fin y la necesidad de retribuir el trabajo.
6. Buscar -con las comunidades- formas alternativas de lograr un excedente, las cuales pueden basarse en mecanismos comunitarios tradicionales o en actividades en las que el IEOS puede apoyar: películas,

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obras de títeres, teatro, música etc, que pueden servir además para la educación en salud.

7. Detectar si existe la posibilidad de movilización y participación de grupos organizados de las comunidades (mujeres, deportistas, etc.) para llevar a efecto estas actividades.

3.3. Educación en Higiene y Salud

Este componente resulta ser de primordial importancia para el proyecto y requiere de un especial esfuerzo por parte de la institución. Son muchos los factores que se interrelacionan para hacer más o menos efectiva la educación y su factibilidad está condicionada por ellos. Los principales factores son: el alcance de los objetivos, la concepción sobre los beneficiarios, la metodología.

Pueden establecerse objetivos a corto, mediano o largo plazo, dependiendo de la importancia que se de al componente de Educación en Higiene y Salud. En término cualitativos y desde la perspectiva de los beneficiarios, el de corto plazo radicaría en una amplia accesibilidad de la información sobre higiene y salud, el segundo incluiría una cierta aceptabilidad por parte de estos y el tercero implicaría una verdadera toma de conciencia, el desarrollo de comportamientos que incidan positivamente sobre la salud y una movilización comunitaria alrededor de la salud.

Este elemento tiene una profunda relación con la concepción que se tenga sobre la población beneficiaria y la metodología a aplicarse: si se piensa que esta población carece de conocimientos y que de ahí se derivan sus hábitos erróneos en la utilización del agua, en el manejo de la enfermedad, la higiene, etc, es obvio que la metodología tenderá a la transmisión de conocimientos e información, jugando la población el papel de receptor pasivo a lo largo del proceso.

Más si por el contrario se acume que esta población posee conocimientos y desarrolla procedimientos bien estructurados que guardan relación directa con su historia y con su forma de vida, se podrá deducir que una mera inyección de información sólo tendrá efecto mientras dure el estímulo, y su posibilidad de proyección futura es casi nula. Desde esta perspectiva es fundamental basar la educación en los valores, costumbres, procedimientos, idioma de la gente y desarrollar una metodología participativa en todos los momentos de la acción. La ausencia de este componente reduciría enormemente su factibilidad.

El tomar en cuenta las particularidades, la heterogeneidad socio-cultural de la población rural, y la necesidad de partir de una clara definición de los factores expuestos anteriormente se hace indispensable para la planificación y desarrollo de la Educación en Higiene y Salud.

Así por ejemplo, a nivel de los medios de comunicación, mientras en las comunidades de la sierra la tradición oral constituye el principal medio de transmisión de información y conocimientos, en la costa se da una mayor accesibilidad a los medios masivos. El componente de educación comunitaria e interpersonal debería tener mayor énfasis en la sierra mientras en la costa sería efectiva la comunicación masiva.

Por su parte el IEOS cuenta con un gran facilitador para la Educación en Higiene y Salud: la necesidad generalizada del agua y el gran potencial movilizador que esta tiene. Desgraciadamente, en la medida en que en su meta no estaba explícito el mejoramiento de la salud de la población, este factor fue potencializado solamente en la construcción de los sistemas de agua, y por lo tanto desperdiciado en todo lo referente a la salud. Si el IEOS se propone objetivos de largo alcance, esta educación debe iniciarse en las primeras acciones para la construcción de los sistemas y continuarse -incluyendo a los sectores que ya cuentan con este- a lo largo de todo el proceso posterior.

Se recomienda entonces una serie de acciones complementarias a las Estrategias de Mercadeo Social:

1. Recoger información cualitativa acerca de las creencias y comportamientos sobre el agua y su utilización; los modelos explicativos tradicionales y el manejo de las enfermedades (en especial las diarréicas y las que tienen relación con el agua), terminologías, factores socio-económicos relacionados con estos comportamientos, etc.
2. Implementar una metodología de comunicación y educación informal en base a esta información y crear espacios comunitarios de autodiagnóstico y de búsqueda de soluciones, como parte de la Educación.
3. Concertar la participación de las organizaciones de base y de segundo grado en la campaña, con proyección a que tomen a su cargo las acciones de continuidad de la misma.
4. Incentivar la creación un comité femenino para la salud que se haga cargo, con la encargada de salud de la junta de agua y bajo la

coordinación de la promotora del IEOS, de promover la salud y de desarrollar actividades de comunicación y educación dentro de cada comunidad.

5. Capacitar a este comité en el desarrollo de técnicas informales de educación como socio-dramas, títeres, etc., y en la elaboración de material didáctico.

6. Desarrollar, con estos grupos y la población misma, programas de radio-difusión con las siguientes características: en quichua entre la población quichua hablante y con las terminologías locales entre los de habla hispana; en base a situaciones propias de su contexto; con referencia a sus costumbres.

7. Buscar el espacio para la difusión de estos programas en las radios locales de mayor audiencia.

8. Poner mayor énfasis en la elaboración y distribución de folletos de educación popular con contenidos, formas y lenguaje propio de las diferentes zonas.

Para poder llevar a efecto estas recomendaciones, se hace necesario llevar a cabo las siguientes acciones con los promotores de salud del IEOS:

9. Capacitar a las promotoras y promotores en la ubicación de los grupos de soporte, en la motivación y organización de los comités de salud, en la programación y evaluación de actividades de educación y en el manejo de técnicas formales e informales de educación en higiene y salud.

10. Capacitarlos en la prevención de las enfermedades diarreicas y en las técnicas tradicionales y modernas de control de la deshidratación (orchatas, sueros caseros, hierbas medicinales, TRO) y tratamiento de estas enfermedades.

11. Capacitar a los promotores en la identificación de todos los factores que inciden sobre las enfermedades diarreicas tales como la alimentación, la lactancia, y sobre la necesidad de mantenerlos durante los episodios diarreicos.

12. Ampliar los contenidos de Educación en Higiene a los de Educación en Higiene y Salud con una inclusión de conocimientos generales sobre las principales enfermedades que afectan al grupo materno-infantil, los modelos explicativos tradicionales, las técnicas de tratamiento

tradicionales y modernas, las actitudes de la población en el proceso de búsqueda de la salud. Se debe poner un especial énfasis en el aspecto nutricional para lograr una revalorización y consumo de los productos tradicionales.

Con esto se evitaría una sub-utilización de recursos, se apoyaría al proyecto de Supervivencia Infantil del Ministerio y se incidiría de una manera más integral en el mejoramiento de la salud de la población.

13. Ubicar instituciones y organismos que trabajen en esta área para llevar a cabo acciones conjuntas y coordinadas.

14. Disponer de un consultor o coordinador -preferiblemente mujer- experto en comunicación y educación comunitaria durante la fase inicial y a lo largo del proceso de implementación, evaluación y rectificaciones metodológicas de la Educación en Higiene y Salud.

15. Establecer un espacio de coordinación entre el área de Capacitación y el de Educación en Higiene y Salud para llevar a cabo acciones complementarias y lograr una mayor coherencia en la programación, metodologías e implementación.

ANEXO I

LISTA DE COMUNIDADES VISITADAS

PROVINCIA	COMUNIDAD	CANTON	PERSONA ENTREVISTADA
IMBABURA	<u>Imantag</u>	Cotacachi	grupo de indígenas usurario indígena usuaria mestiza esposa del Pte. Junta Agua
	<u>Tunibamba</u>	Cotacachi	dirigentes indígenas (2) mujer usuaria indígenas no usuarios
	<u>Pijal</u>	E. Espejo	dirigente indígena mujeres
	<u>Ambuquí</u>	Ibarra	grupo de jóvenes líder
COTOPAXI	<u>Union y Trabajo</u>	Salcedo	asamblea de usuarios operador Pte. Junta Agua
	<u>San Ignacio</u>	Salcedo	Pte. Junta Agua
	<u>Los Laipos</u>	Latacunga	operador
CARCHI	<u>Caldera</u>	Montúfar	mujeres mujer de org. de mujeres secretario Junta Agua
	<u>Piquiucho</u>	Montúfar	esposa Pte. Junta Agua

ANNEX E

INSTITUTIONAL ANALYSIS
OF THE ECUADORIAN INSTITUTE OF SANITARY WORKS (IEOS)

INSTITUTIONAL ANALYSIS OF IEOS

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INSTITUTIONAL ANALYSIS OF IEOS

1. Functions and Responsibilities of the Institute

The Ecuadorian Institute of Sanitary Works (IEOS) is the body which governs the Environmental Sanitation Subsector. Together with enterprises of potable water works and sewerage, municipalities, and other regional and provincial bodies, it is responsible for providing timely and permanent environmental health services to the country's urban and rural populations.

IEOS's legal functions, among others, are the following:

- To prepare the national program of potable water and sewerage which is part of the country's National Plan for Economic Development;
- To render technical assistance to the municipalities and other entities in the planning, preparation of studies, construction, and administration of the public service of water, sewerage and disposal of excreta and solid wastes provided by these entities;
- To study and determine the needs of potable water for human consumption, of sewerage, and of disposal of excreta and solid wastes for the sanitation of the country's urban and rural areas;
- To determine the projects and priorities in the National Program of Potable Water and Sewerage, controlling investments and works;
- To research, coordinate, standardize, supervise, and control the activities inherent in the services of potable water, sewerage, latrines, health centers and the pollution of air, water, and soil, as well as the ecology in general.

The actions taken and the activities carried out by IEOS for the purpose of fulfilling its functions are embodied in a new concept of environmental sanitation policy which, because of its humanistic content and broad social scope, is intended to be the answer to the just and deferred aspirations of a national community which seeks the satisfaction of its basic rights to health, potable water, sewerage, and the control and conservation of the environment.

It is a known fact that health is not an isolated problem in the socio-economic context and that the characteristics of illness, its spreading, and its causes are closely related to the quality of life. Without an improvement of this quality, the population cannot ostensibly improve its standard of health. It is evident that standards of health and of living vary according to region, socio-economic levels, and cultural factors. Consequently, in view of the need for redistributing the country's wealth more justly and equitably, priority will be given to efforts and resources benefiting groups of population of greatest risk because they are socially marginal and biologically vulnerable.

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2. Organizational Structure

IEOS's organic structure is regulated in Ministerial Resolution No. 8967 published in Official Register No. 799 dated August 2, 1984, which contains the Functional Organic Regulation of the Institute, and in Ministerial Resolution No. 1773, published in Official Register No. 657 dated April 2, 1987, which contains amendments to the Functional Organic Regulation with a new structure of the National Office of Finance and the National Office of Human Resources.

The Institute comprises five levels: Directive, Executive, Advisory, Assistance, and Operative.

- The Directive level is in charge of establishing and directing the institution's policy and ensuring its compliance. It consists of a Board of Directors.
- The Executive level is in charge of standardizing, regulating, and implementing the Institute's policy. It consists of the Office of the Executive and the Office of the Assistant Executive.
- The Advisory level is the consulting body of the institution; it functions through the Directive level, which assumes, approves, modifies, or rejects the project submitted by the Advisory level. It is formed by the National Office of Planning, the Legal Advisory Office, and the Auditing Office.
- The Assistance level provides assistance to the other levels in the carrying out of their activities; its services are of a general and internal nature. It is formed by the National Office of Human Resources and Administrative Services, the National Office of Finance, the General Secretariat, and Public Relations.
- The Operative level directly fulfills the final objectives for which the Institute was created; it carries out the programs established by the Executive level. It comprises the National Office of the National Fund for Environmental Sanitation, the National Office of Urban Sanitation, the National Office of the Environment, the National Office of Health Centers, the National Office of Foreign Loans, and the Provincial Offices.
(See Annex 1.)

3. Investment and Budget Programs

For the purpose of providing an objective view of the work performed by the Institute in recent years--1986 to 1988--table No. 3.1 gives a breakdown of the investments made in potable water, sewerage, latrines, operation and maintenance (basic sanitation and hospital infrastructure), health centers, and control of environmental pollution in the country's urban and rural areas.

Whereas in 1986 the investment amounted to three billion two hundred and eight million two hundred fifty three thousand three hundred seventy two sucres (S/.3,208,253,372), in 1988 the funds appropriated for these works amounted to eight billion nine hundred and eighty-four million three hundred fifteen

thousand eight hundred and forty one sucres (S/.8,984,315,841); that is, an accumulative annual growth is maintained which is equal to 41 percent. This figure is very important if it is considered that this growth takes place in a very conflictive period of crisis for the rest of the sectors of the country's economy.

The total amount of investments made in the rural area in 1986--excluding health centers--was one billion two hundred and fifty-nine million sucres (S/.1.259.000.000), whereas in 1988 the investment amounted to five billion twenty-four million sucres (S/.5.024.000.000). This figure represents an annual increase of 56 percent and reflects, without any doubt, the importance to the Institute of construction, operation, and maintenance of basic sanitation services for the rural area.

3.1. Investment Program 1989. In accordance with its Organic Function and in coordination with the National Development Council, IEOS has prepared its investment program for this year, which amounts to fourteen billion six hundred and sixty seven million eight hundred and eighty one thousand (S/.14.667.881.000) sucres to cover the cost of studies, construction, maintenance of basic sanitation systems, and health centers (see table No. 3.2.).

This program gives special attention to the country's most impoverished sectors, located in peripheral or marginal areas of the large cities and of the rural area. In the rural area the investment is approximately 3,900 million sucres (27 percent), to be used for potable water works, sewerage, and intensive latrine programs. This year the investment will cover the construction and maintenance of 357 basic sanitation systems, and provision has been made for 221 feasibility studies.

3.2. Sources of Financing.

The works performed and the services rendered by the Institute have different sources of financing, classified as internal sources, including its own income, Government contribution, provincial entities, and internal loans; and foreign sources, comprising contributions or loans made by international credit organizations, such as AID, IDB, World Bank, etc.

If the contents of Table 3.3 are studied, it will be seen that during the last three years there were important changes in the structure of the sources of financing. For example, in 1986 internal sources financed 77 percent of IEOS's general budget; the Institute's own resources financed only 5 percent. In 1988 there were changes which substantially favored the Institute's finances: internal sources financed 94 percent of the total cost, and the IEOS contribution was increased to 41 percent. Dependency on foreign credit and contributions decreased to 6 percent.

3.3. IEOS's General Budget for 1989

Table No. 3.4. is a summary of the main income and expenditures in IEOS's budget proforma for this year. Total expenditures are seventeen billion four hundred five million five hundred and forty-five thousand sucres (S/.17'405.545.000) with the respective counterpart of income. The detailed investments for this year appear in table No. 3.2 referred to previously.

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TABLE 3.1.

INVESTMENTS MADE BY IEOS DURING THE PERIOD 1986-1988
(sucres)

	1986	1987	1988
POTABLE WATER	1,851,548,709	3,646,058,377	4,521,983,675
STUDIES	7,607,990	8,307,434	9,564,731
CONSTRUCTIONS	146,129,496	199,564,195	232,773,551
IDB 519 SF/EC	955,923,001	636,992,318	357,871,065
OPERATION AND MAINTENANCE	52,232,920	81,682,033	130,335,614
UNDERGROUND WATERS	27,000,224	42,153,445	59,708,325
FONASA--S ^m IES	38,149,612	126,821,062	68,946,455
FONASA--CONSTRUCTIONS	624,505,446	2,550,537,890	3,662,783,934
SEWERAGE	145,288,627	373,635,846	779,863,667
STUDIES	10,846,539	6,857,226	6,923,966
CONSTRUCTIONS	29,124,617	56,672,816	193,408,940
IDB 333 SF/EC	-	-	-
FONASA--STUDIES	44,824,648	33,586,518	26,976,908
FONASA--CONSTRUCTIONS	60,492,787	276,519,286	450,829,836
BASIC RURAL SANITATION	502,668,087	643,527,470	873,496,836
STUDIES	1,495,331	12,431,027	6,348,143
CONSTRUCTIONS	433,662,329	367,752,310	647,151,667
OPERATION AND MAINTENANCE	2,043,642	22,943,113	11,705,808
FONASA-LATRINES	65,466,785	202,993,951	135,150,877
FONASA OPERATION AND MAINT.	-	37,407,069	73,140,341
POLLUTION--SOLID WASTES	11,327,446	18,985,904	58,745,288
HEALTH CENTERS	697,420,503	1,838,720,644	2,750,226,375
STUDIES	7,751,944	12,645,288	11,258,193
CONSTRUCTIONS	584,341,592	1,710,156,714	2,561,360,727
IDB 519 SF/EC	69,878,541	70,725,467	109,892,858
OPERATION AND MAINTENANCE	<u>35,448,426</u>	<u>45,193,175</u>	<u>67,714,597</u>
TOTAL	3,208,253,372	6,520,928,241	8,984,315,841

SOURCE: IEOS Budget Liquidation 1986-1988
PREPARATION: National Planning Board

3.4. Personnel

Annex No. 2 shows the total for personnel who, either under contract or by appointment, render services in the Central Office of IEOS. The information given refers to administration and service personnel (387 persons) and technical and auxiliary personnel (374 persons).

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Table 3.2.

IEOS INVESTMENT PROGRAM (sucres)
1989

	STUDIES		CONSTRUCTION		OPER. & MAINT.		LATRINES	TOTAL	
	No.	S/.000	No.	S/.000	No.	S/.000	S/.000	S/.000	
BASIC URBAN SANIT.	12	93.200	84	6.065.929	85	346.449		6.505.578	44.0
BASIC RURAL SANIT.	86	103.203	185	2.031.030		100.514	203.704	2.438.451	
FONASA	135	205.000	172	1.238.535			7.000	1.450.535	
SUBTOTAL	221	308.203	357	3.269.565		100.514	210.704	3.888.986	22.0
UNDERGROUND WATERS								317.439	2.0
ENVIRONMENT								300.750	2.0
ENVIRONMENTAL IMPACT	59	500							
LABORATORIES	79	000							
SOLID WASTES	125	000							
SUPERVISION	37	250							
HEALTH CENTERS									
Const., enlargement & improvement		55.405		3.185.930		291.143			
Hospitals	20		50						
Health Centers Hos.	9		27						
Health Center	2		7						
Health Subcenter	2		44						
Health Station			4						
Others			2						
BID Constructions				103.650		19.000			
SUBTOTAL	33	55.405	134	3.289.580		310.143		3.655.128	25.0
TOTAL								14.667.881	100.0

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TABLE NO. 3.3.

SOURCES OF FINANCING
FOR IEOS BUDGET

	1986	1987	1988
INTERNAL	2,962,588,757	9,097,172,366	10,999,247,190
IEOS INCOME	180,992,863	4,326,866,764	4,801,912,801
GOVERNMENT CONTRIBUTION	1,971,429,544	3,112,102,695	3,475,882,061
MUNICIPAL CONTRIBUTION	134,377,652	145,112,277	32,623,532
OTHER ENTITIES CONTRIBUTION	328,286,305	192,901,656	1,152,895,127
INTERNAL LOANS	347,502,393	1,320,188,974	1,535,933,669
EXTERNAL	863,860,247	310,848,800	758,582,970
AID CONTRIBUTION	89,735,244	71,948,202	338,464,000
AID LOAN	24,197,539	12,611,799	-
IDB LOAN	<u>749,927,464</u>	<u>226,288,799</u>	<u>420,118,970</u>
TOTAL	3,826,449,004	9,408,021,166	11,757,830,160

SOURCE: IEOS Budget Liquidation 1986-1988
PREPARATION: National Planning Board

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TABLE 3.4.

IEOS 1989 GENERAL BUDGET
(S/.000)

<u>ITEM</u>	<u>INCOME</u>
CURRENT	
NOT DERIVED FROM TAXES	
RATES	150.000
INCOME FROM ENTREPRENEURIAL ACTIVITY	30.000
PATRIMONIAL INCOME	8.000
OTHER INCOME	50.000
CAPITAL	
INTERNAL PUBLIC CREDIT	1.530.773
SALE OF ASSETS	120.000
RECOVERY OF LOANS	15.100
BALANCES	1.063.690
CURRENT TRANSFERS	
NOT BUDGETED	77.582
BUDGETED	1.208.193
OF CAPITAL	
BUDGETED	13.152.207
TOTAL INCOME	17.405.545

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EXPENDITURES

(Thousand of Sucres)

<u>D E N O M I N A T I O N</u>		<u>CURRENT</u>	<u>1 9 8 9 CAPITAL</u>	<u>TOTAL</u>
I	<u>REGULAR ACTIVITIES</u>	441.953	84.050	526.003
II	<u>BASIC OPERATIONAL SYSTEM</u> 494.935	15.328.586	15.823.521	
	1. Basic Urban Sanitation	146.305	7.483.978	7.630.283
	1. Proj. Regular Activity	62.305	1.000	63.305
	2. Studies and Design		93.200	93.200
	3. Constructions		5.202.732	5.202.732
	4. Construction-Foreign Credit	84.000	1.840.597	1.924.597
	5. Operation and Maintenance		346.449	346.449
	2. Basic Rural Sanitation FONANSA	136.699	4.310.630	4.447.329
	1. Regular Activity Project	136.699	22.000	158.699
	2. Studies, Latrine Construction and other works FONANSA		1.450.535	1.450.535
	3. Studies, Designs, Construction, and Maintenance		2.838.095	2.838.095
	3. Environmental Control	78.863	500	79.363
	1. Regular Activity Project	78.863	500	79.363
	4. Health Centers	133.068	3.533.478	3.666.546
	1. Regular Activity Project	133.068	1.000	134.068
	2. Studies and Design		55.405	55.405
	3. Construction		3.185.930	3.185.930
	4. Maintenance		291.143	291.143
III	<u>ADMINISTRATIVE AND FINANCIAL SERVICES</u> 628.742	427.279	1.056.021	
	1. Administrative Services	487.514	413.779	901.293
	2. Financial Services	141.228	13.500	154.728
	<u>TOTAL EXPENDITURES</u>	<u>1.565.630</u>	<u>15.839.915</u>	<u>17.405.545</u>

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4. Specific Responsibilities for Support of the Rural Water and Sanitation System

IEOS's works in the rural area for the purpose of satisfying the basic needs of the population in regard to potable water, sewerage, and latrines are implemented through the National Office of Basic Rural Sanitation, which finances its operations with resources from the Government's General Budget and from national or foreign credit.

DINEFONASA, the National Executor Office of the National Fund for Environmental Sanitation, operates in a parallel manner. It is in charge of administrating and assigning the funds derived from the National Fund for Environmental Sanitation, which was created to finance the preparation of studies and to carry out works of potable water, sewerage, and other environmental sanitation in the country's rural areas. DINEFONASA is directly under the Executive Office of IEOS and schedules its activities in coordination with the National Planning Office of IEOS and the Ministry of Public Health. The National Director of Basic Rural sanitation is, in turn, the representative and principal executive of DINEFONASA.

The National Director of Basic Rural Sanitation is, in turn, the representative and principal executive of DINEFONASA. Of the funds obtained from the export of petroleum and petroleum by-products, only 5.625 sucres of each export dollar is used to maintain and/or increase the Fund. According to the law which created the Fund, this amount represents 25 percent of the difference between 66.50 and 44.0, considered as the exchange rate ceiling. The fixing of this ceiling as the rate of exchange of sucres for each dollar which the government receives from the export of petroleum and by-products is detrimental since, on the one hand, the Fund derives no benefit from the continued devaluations (at present the exchange rate fluctuates around 500 sucres per dollar), and on the other hand, the purchasing power of the financial funds which it receives tends to decrease constantly because of the sustained increase of the price index in the country in recent years.

The National Office of Basic Rural Sanitation, as well as DINEFONASA, makes studies of, constructs, operates, and maintains new works or enlarges existing works; controls and supervises the execution of works by direct administration and under contract at the location itself--no elaborate studies or designs are required--and by agreements signed with provincial bodies.

Besides these tasks, there are works of promotion, among which the following are important: the preparation of technical standards of promotion and education to facilitate the implementation of sanitary infrastructure programs; the organization and supervision of the operation of the Administrative Boards of the systems of potable water and sewerage which IEOS has constructed in the country's rural areas; the carrying out of demonstration programs for the installation of pumps, latrines, farm outhouses, and others, which serve as models for each community.

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5. Analysis of Limitations for Achieving the Objectives Proposed for the Project

5.1. General Considerations

There is no study at present which makes it possible to foresee in an organic and justified manner the deficiencies which prevent the Institute from effectively fulfilling the functions and responsibilities described at the beginning of this document.

Research carried out shows that there have been isolated efforts, especially at the beginning of this decade, which have attempted to highlight the most visible limitations of the Institute's work, which as time passes have worsened and at present seriously obstruct what could clearly be improved. Consequently, it is essential that a small effort be made to verify the cause and the real magnitude of the limitations mentioned below and which are included in the majority of the institutional diagnose in regard to IEOS.

Engineer Marcelo Dutilh stated in June 1981 in the document "Program of Institutional Development" for IEOS: "The relative importance given to the fulfillment of each one of IEOS's functions has depended frequently on transitory situations, such as the availability or lack of availability of resources in the different areas, of political-level decisions, of the interest shown by one or another director instead of on the existence of clear policies, objectives, and goals based on the systematic study of existing needs and available resources.

"IEOS should have plans and programs which serve as tools to facilitate the making of decisions at the highest political level of the Government and geared to the obtaining of its objectives.

"The lack of qualified human resources and of financing has prevented the development of operative instruments for the programming, evaluation, and control of activities.

"There is a lack of adequate information regarding the environmental health sector which is IEOS's responsibility.

"There is a lack of coordination between the different units (island units).

"There is a lack of coordination with other national, provincial, or local bodies.

"There is a high turnover of executive and professional personnel."

In 1985 the National Development Council, in referring in Annex III of the National Development Plan (1985-1988) to the problems of the health sector, stated: "There is no national health policy. The different institutions in charge of health have not coordinated their actions; each one has its own policy.

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"In the area of prevention, the programming of the infrastructure of health services is not in accordance with the programming of investment in sanitation infrastructure.

"From the point of view of prevention, a sufficient supply of water of adequate quality is important.

"In practice, many water systems consist of piped water which is not treated, and there is no proper control of the quality of existing systems."

Actually, the present magnitude of these limitations, which still persist, will be very difficult to measure if an overall study is not made of the environmental sanitation sector, which includes, among other aspects, the institutional issues. The preliminary step in this direction has already been taken. IEOS has the terms of reference and a technical-economic counteroffer to implement the National Plan of Environmental Sanitation. In view of the characteristics of the subsector, this implementation cannot be deferred.

Consideration has been given to the possibility of preparing, until funding is obtained for this study, a basic statistical repository related to the coverage of potable water, sewerage, and latrines, as well as the updating of the quality of these services and of the corresponding infrastructure.

Since these works are part of the similar responsibilities of the National Planning Office, the material and financial resources must be supplied to enable their strengthening, especially in regard to the support of equipment and personnel trained in the areas of planning, programming, and evaluation of projects.

In a preliminary form and in accordance with the terms of reference, a brief analysis will be made of the areas of financing, information, and management skills.

5.2. Financial Programming

The present manner of appropriation of financial resources is closely related to the programming made in recent years. Those who participated in the previous administration--1984 to 1988--are of the opinion that the programming of works for that period was exaggerated. There was no real balance, and no attempt was made to have one, between the physical programming and the supply of resources required. The majority of works, whose termination was scheduled to take place during 1988, were incomplete and/or suspended. The programming for 1989 had to be limited because of this situation, and almost the totality of resources had to be assigned to complete these works. Consequently, the suspended works of the previous administration constitute the main item of investment for this year. It should be mentioned that despite the efforts made to correct this imbalance, it is estimated that the lack of financing for these suspended works by the end of this year be in the amount of one billion sucres.

In order to take care of the needs which have been deferred for several years in the communities which are part of the Environmental Sanitation Fund, it is

planned to finance these works with funds assigned to the National Office of Environmental Sanitation.

In regard to the methodology for the programming of investments by these two units, it should be stated that instead of being rational or scientific, the method used is more a traditional practice which has not been changed over the years. The sequence of this programming begins with a list of minimum requirements which are proposed by the Provincial Heads in regard to studies, construction, operation, and maintenance of systems of works of Basic Environmental Sanitation. This list of needs is revised, enlarged, or trimmed by financial analysts and supervisors of the National Office of Basic Rural Sanitation and DINEFONASA. Generally, and as has already been indicated previously, the criteria for the order of preference, inclusion, or exclusion of works have been to provide resources for those works which are underway and then attend to new works. The document prepared is then submitted to the Board of Directors of the Institute (IEOS's Directive Level) for approval and is then sent to the National Congress. The practice has been that the proformas submitted by the Institute to Congress undergo changes, especially in regard to the use of resources, in percentages of approximately 30%. This fact reflects the imposition of local criteria and the very marked political influences on the part of the legislator, and this undermines and changes a process based on knowledge and experience obtained in the direct handling of the problem of environmental sanitation in the country's rural areas by IEOS technicians and promoters.

5.3. Information Systems

All the diagnostic reports prepared in regard to this subject and the technical personnel consulted--Offices of Sanitation: Basic Rural, DINEFONASA, Planning, Financing--coincide in mentioning the lack of an adequate information system of updated figures or indicators on the behavior of the environmental sanitation sector. This lack of information persists at an internal level, directly affecting the executive level in the making of decisions. Furthermore, little is known concerning the behavior of the main variables of the subsector related to the activity involving the other public and private entities which are in charge of the basic sanitation needs in the country's rural and urban areas. This fact reflects, among other things, the lack of coordination between these entities.

In view of the scope of this document, it would be well to refer to the more important characteristics concerning the manner of obtaining, processing, using, and preparing records with the information originated in the Institute.

With respect to the control of the execution of works in the rural area, the information is generated by the Provincial Heads through the zonal supervisors, who submit to the National Office of Basic Rural Sanitation monthly reports regarding the physical progress and financial disbursements made in the works. The information received is tardy and prevents having permanently updated knowledge. Only in the event of very serious problems in telex used to accelerate the solution processes.

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The reason given for the above is that there are logistical problems which, if solved, would make it possible to enlarge the content of the information and increase the frequency of its delivery.

The Divisions of Studies and Constructions of the National Office of Basic Rural Sanitation obtain information from microcomputers on reports concerning work progress, cash flows, etc., which make it possible to issue the necessary instructions and take corrective measures.

At present the Division of Studies is attempting to prepare an inventory of projects and studies related to construction, operation, and maintenance of systems of potable water, sewerage, and latrines. This has been in preparation directly or under contract by all the entities of the public sector--central and/or provincial--during the years 1985-1989.

As to quality of the information, it does not meet the requirement of the process of planning or programming of short or medium term, but rather suffices to meet the requirements of immediate control related to the processes of inspection and supervision of works. Furthermore, there are no expeditious and effective mechanisms for the timely transferal of this information to the National Planning Office so that this Office can prepare records of control, follow-up, and evaluation of projects. Annex No. 3 of this document presents the criteria of the engineer who is the director of the Data Processing Unit in regard to the scope of its activities and the limitations which should be surmounted in order to have a data bank covering all the areas of action of the entity.

5.4 Management Skills

This aspect deals with the more visible characteristics of the three segments of IEOS officials who head, guide, execute, and support the works financed with all the resources at IEOS's disposal. These officials are: National Directors, Provincial Heads, and Division Heads.

i. National Directors. In the executive area the national directors are the main link between the Executive Office and the intermediate-level personnel represented by the Provincial and Division Heads. Their main function is to implement strategies and work programs and define clear objectives and goals to make possible putting into action the policy guidelines which serve as reference for the executive directors of the Institute (Undersecretariat and Executive Office). From consultation with personnel which had directly collaborated with the national directors of previous administrations, it was understood that the limitations observed may be generalized as follows:

The common feature of the majority of appointments has been improvisation, which is the result of the political involvement which is part of this function. Another characteristic is the rigid adherence to the traditional way of doing things, with no attempt at innovation but rather following in the steps of previous administrations. The reason for this behavior, according to those interviewed, is the temporary nature of appointment of the national

director. This is confirmed by the excessively high turnover of professionals, which generally take place when there are changes in the top-level directors of the subsector.

Furthermore, there are serious limitations in the making of decisions inherent in the responsibilities of the function.

ii. Provincial Heads. These are in charge of the execution of works and the rendering of the basic services of environmental sanitation to the communities under their responsibility. They maintain direct contact with the authorities of IEOS headquarters (Quito office), that is, with the Undersecretariat, Executive Office, Assistant Executive Office, and National Offices. Besides the provision of the services of potable water, sewerage, and latrines, they are in charge of activities related to the conservation of the environment and to health centers.

The Provincial heads may also be freely removed. In almost all cases, their stability is guaranteed only during the four years of the incumbent President's term of office.

Among the main limitations observed in this group is the tendency, which is generalized, to execute works not included in the operative plans. This is due more to local political pressures than to personal reasons.

In the programming of works, the provincial heads do not take into account all the costs which are part of the budget of the works. This situation results in numerous difficulties, such as the lack of financing and later proceedings to obtain the required resources. The carelessness, and in some cases negligence, in the handling and control of financial resources creates conflictive situations with the National Office of Finances of IEOS's headquarter office.

Nevertheless, it must be admitted that in general the provincial heads are professionals who have a good level of preparation and technical knowledge besides vast professional experience.

Salaries are very low; consequently, besides their regular official activities, provincial heads must resort to other, personal activities to ensure an income compatible with their needs.

iii. Division Heads. These hold middle-management positions in the Institute and provide the solid support for the preparation and execution of programs for all the areas of institutional works (technical, administrative, planning, financing, operative, etc.).

In the case of basic rural sanitation, the division heads, together with the provincial heads, study and approve the budgets prepared in the Provincial Head Offices for the purpose of integrating their investment programs at a national level.

Although division heads are not subject to free removal, in recent years a high turnover has been observed, mainly because of low salaries and political

pressures. Studies have shown that the duration of employment of present division heads is between three and four years; in view of the responsibilities they must assume, this time is relatively short.

6. Recommended Assistance for the Project

The focus given to this preliminary diagnosis makes it possible to differentiate two areas of study which, despite their peculiarities, are complementary: the area of basic sanitation and the area of financing.

AREA OF BASIC RURAL SANITATION: The technical assistance recommended for this office and for DINEFONASA is intended for each one of their administrative divisions:

CONSTRUCTION:

- Course on updating of knowledge in applied hydraulics
- Course on price readjustment, including the required legal and financial aspects
- Courses on technical specifications of construction and review of IEOS's construction standards

STUDIES AND DESIGN

- Course on the Control of Projects (given by personnel of the Government's General Comptrollership)
- Course on the preparation of terms of reference for the contracting of studies
- Course on technical specifications for construction of potable water and sewerage systems
- The studies personnel should also participate in the course on price readjustment planned for the construction personnel

TECHNICAL ENGINEERING ASSISTANTS AND AUXILIARIES
(includes topographers and draftsmen)

- Courses should be given to facilitate the updating of knowledge, especially knowledge of recent innovations
- Course on how to obtain and set unit prices with the pertinent formula for readjustment
- Course on technical standards of construction
- Course on basic computation and implementation of updated programs on control and evaluation of projects

SECRETARIAL PERSONNEL

- It is essential to include for secretarial personnel a refresher course on basic spelling, composition of business correspondence, filing techniques, human relations, and the operation of IBM machines.

OPERATION AND MAINTENANCE OF SYSTEMS

In regard to training, this area requires a very special treatment, since there are many shortcomings; it practically doesn't function, and there are no consistent and feasible operative programs of consistent evaluations.

At present there is underway a proposal for the Organization System for the attainment of the objectives and aims stated in the Organizational Chart of this Division. The proposal includes 8 supervision zones covering the 21 provinces. Despite the situation described, the following courses will be required for this personnel:

- Training course on the preparation of operation and maintenance manuals (type of materials to be used, equipment, tools, handling of chemicals for treatment of water, etc.). Furthermore, efforts will have to be made to standardize the acquisition of parts and equipment in line with international standards (IS).
- Just as in the other divisions, the operation and maintenance personnel should be trained in forms of processing and presentation of information which will make possible the timely recording and control of the operation and maintenance of the systems of potable water, sewerage, and latrines in the rural areas.

INSTITUTIONAL ASPECTS

From the institutional point of view, the recommendations which will make it possible to upgrade and improve performance of the National Office of Basic Rural Sanitation and DINEFONASA are the following:

- Systems should be implemented for evaluating impact, that is, for quantifying or qualifying the results observed in health, hygiene, and changes of habits in the communities as a result of the works undertaken there by IEOS. This is not being done.
- Incentives should be given or important changes should be encouraged in the policy for the development of human resources so as to avoid the turnover at the Institute's middle-management level.
- There should be a manual of administrative routines, besides an updated codification of laws; their lack obstructs and delays the processes of contracting, supervision, follow-up, and auditing of works.
- There should be adequate coordination with the National Planning Office; this is practically nonexistent. This situation has resulted in the gradual taking over, by the National Office of Basic Rural Sanitation, of the responsibilities of the National Planning Office.

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- There should be greater understanding and coordination of efforts with the Financing Office, especially in regard to the appropriation of funds for the Provincial Heads. New forms of evaluation and control of such appropriations should be proposed.
- Finally, there is no policy regarding the decisions made by the national directors; these need greater support from the authorities in charge of the Institute's work.

PROVISION OF MATERIALS AND EQUIPMENT

After consulting with the directors of basic rural sanitation, it was determined that the following equipment is urgently required:

- 8 HACH equipment, minilaboratories for physical-chemical and bacteriological analyses for water quality control. This equipment will be used by the Operation and Maintenance Division.
- 2 Equipment for jar tests for analysis of water treatment. The equipment will be used by the technical personnel of the Studies and Design Division.
- 1 Laboratory of soil mechanics and testing of materials.
 - Pitometers and algeophone should be acquired for the control of water leakages in the potable water systems.
- 2 Vehicles for the Construction Division
- 2 Vehicles for the Studies Division
- 15 HP 41 CX machines for the National Office of Basic Rural Sanitation and DINEFONASA.

OFFICE OF FINANCE

The proposals of assistance to this office take into account the following basic problems:

- a. Professional personnel are needed in the area of economics and specifically in evaluation of projects and preparation of financial programs. Most of the technical personnel are specialized in the field of accounting. The majority of the personnel that go into this area are not duly qualified or selected by the pertinent administrative office.
- b. The physical space is insufficient. The capacity of the space does not suffice for the number of personnel as well as for the office furnishings, files, etc.
- c. The operative materials is insufficient. The mechanization of the processes and the accounting records cannot be postponed. The use of microcomputers is considered of great importance.
- d. There is an excessive turnover of national directors, which results in unforeseen and continuous changes in the entity's financial management.

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In order to solve these pressing problems, it is proposed that the following training courses be held:

- Preparation and evaluation of projects.
- Planning and programming of investments (for these courses instructors have been requested from the main international credit agencies).
- Updating of standards and similar regulations.
- General accounting
- Human relations and filing for the secretarial personnel.
- A renovation must be made of chairs, desks, and shelves.
- Two microcomputers must be acquired.

"APPENDICES IN USAID FILES"

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ANNEX F
TECHNICAL ANALYSES

ANNEX F.1.

OPERATIONAL MODULE

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PLAN DE IMPLEMENTACION
PROGRAMA DE CONSTRUCCION DE SISTEMAS
DE AGUA POTABLE Y LETRINIZACION
CON FONDOS DE SOPORTE ECONOMICO (ESF)
INSTITUTO ECUATORIANO DE OBRAS SANITARIAS (IEOS)

I. ANTECEDENTES

El Ministerio de Salud Pública (MSP) a través del Instituto Ecuatoriano de Obras Sanitarias (IEOS) ha preparado un amplio plan de construcciones de infraestructura básica sanitaria para el área rural del país.

Uno de los programas más importantes del plan es aquel que se desarrolla para la construcción de Sistemas Rurales de Agua Potable y Letrinización con el financiamiento del Proyecto de Estabilización y Recuperación Económica (ESF) (Convenio de Programa AID No. 518-0058) cuya actividad es financiada con fondos en moneda local provenientes de este convenio.

El Propósito de este programa es el de apoyar los esfuerzos del Gobierno Ecuatoriano en el cumplimiento de su Política Nacional para dar respuesta efectiva a las demandas de agua potable y saneamiento en el área rural del país.

El programa ha logrado desarrollar exitosamente una técnica de trabajo basado en procedimientos operativos prácticos que impulsarán al IEOS a su utilización en los diferentes programas rurales de construcción de infraestructura sanitaria, principalmente en aquellos que son financiados por el Fondo Nacional de Saneamiento Ambiental (FONASA).

La Ley del Fondo Nacional de Saneamiento Ambiental (FONASA) aprobado por el Gobierno Nacional tiene como uno de sus principales objetivos el dotar de agua potable y letrinización a 2.400 comunidades rurales seleccionadas por el Congreso Ecuatoriano. El uso de los recursos de FONASA está limitado a aquel grupo privilegiado de comunidades rurales, el cual solo representa un cuarto de la población rural nucleada del país. Esta circunstancia y la necesidad de cubrir las demandas reales de los servicios sanitarios en el área rural, obliga al Gobierno a buscar y destinar otros fondos que cubran la demanda en otras comunidades que el IEOS técnicamente considera necesarias de ser incluidas en los programas de expansión. La importancia de las nuevas comunidades está relacionada con la ubicación con relación a otros proyectos implementados y con las necesidades crecientes del área rural.

A pesar del éxito obtenido en el programa ESF, el IEOS para expandir estas experiencias a escala nacional requiere de un mayor respaldo técnico-económico que le permita:

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1. Capacitar al personal de las Jefaturas Provinciales, principalmente a sus Jefes e ingenieros y a sus promotores, administradores y supervisores, para poder institucionalizar el modelo de descentralización técnico-administrativo propuesto por el programa AID-ESF para la construcción de sistemas rurales de agua potable y letrización.
2. Continuar con la investigación de nuevos diseños técnicos y pruebas de tecnologías apropiadas para las condiciones requeridas en el área rural ecuatoriana
3. Institucionalizar un programa de Operación y Mantenimiento de los sistemas construidos que permita conservar las inversiones realizadas y brindar un servicio permanente y continuo a las comunidades.
4. Impulsar e institucionalizar el programa de educación sanitaria, comunicación y mercadeo social.

La importancia del programa de educación sanitaria radica en el hecho que permitirá a los beneficiarios de los sistemas conocer mediante modernas técnicas de mercadeo social las ventajas de contar con agua potable y con facilidades sanitarias y su relación con la salud. A la vez propondrá en forma sistemática la adopción o cambio de los hábitos socio-culturales que permitirán prevenir las enfermedades de origen hídrico y sanitario en las comunidades del área rural, especialmente en su población infantil, y así disminuir los índices de morbi-mortalidad. Se ha demostrado que solo con este proceso educativo se obtendrá un verdadero impacto en la salud y por consiguiente se justificarán los esfuerzos económicos que el gobierno y la comunidad toda del país realizan en el área de saneamiento.

Con aquellos antecedentes, se ha solicitado a la Agencia de los Estados Unidos para el Desarrollo Internacional (AID) la extensión de la Asistencia Técnica y Económica al IEOS por otros cuatro años más (1990-1993). La asistencia técnica de AID permitirá continuar con el apoyo de esta institución a las cuatro actividades mencionadas líneas arriba y a la vez posibilitará la profundización y ampliación de las experiencias del Programa ESF a otros programas similares que ejecuta la institución.

La futura asistencia técnica de AID y el Proyecto de Estabilización y Recuperación Económica (ESF), permitirán al IEOS aplicar a nivel nacional las experiencias del modelo de descentralización técnico-administrativa para la construcción de sistemas rurales de agua potable y letrización en un programa integrado ESF-FONASA-AID, el cual considera diferentes etapas de implementación.

Los fondos remanentes del Programa ESF 1988 y los nuevos fondos del programa ESF 1989 serán programados para la construcción de 128 nuevos sistemas Rurales de Agua Potable y Letrinización mediante el modelo de descentralización administrativa y la nueva técnica de los "Módulos Operativos". Las construcciones serán ejecutadas en ocho provincias considerando dos etapas de construcción.

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La primera etapa de junio a diciembre de 1989 incluye la ejecución de 48 sistemas que darán servicio sanitario a aproximadamente 24.000 habitantes y la segunda etapa de enero a diciembre de 1990, contempla la construcción de 80 nuevos sistemas que servirán a aproximadamente 40.000 habitantes.

Para la segunda etapa, la AID proveerá a los ocho módulos operativos con un equipo de procesamiento automático de datos, una volqueta, una camioneta y tres motocicletas, que les permitirá realizar una labor más eficiente y ágil.

Las provincias seleccionadas por el Programa son:

1. El Oro
2. Pichincha
3. Chimborazo
4. Tungurahua
5. Azuay
6. Imbabura
7. Cotopaxi
8. Carchi

Cinco de las provincias citadas, Imbabura, Pichincha, Cotopaxi, Chimborazo y Azuay fueron seleccionadas en base a sus altos índices de morbi-mortalidad infantil y se ha planificado actuar en forma conjunta con el Ministerio de Salud Pública implementando paralelamente el nuevo Programa de Sobrevivencia Infantil que se iniciará a partir de 1990. La aplicación de ambos programas permitirá coordinar acciones relacionadas con la salud, el saneamiento y la educación sanitaria.

La Provincia de El Oro fue elegida como provincia modelo del área de la costa para probar los nuevos métodos de descentralización administrativa, ampliados con la aplicación de tecnologías apropiadas destinados a beneficiar los programas que se ejecutan en las provincias de la costa, dándoles mayor eficiencia técnica y económica.

Las provincias de Tungurahua y Carchi fueron escogidas como provincias modelos debido a sus elevados índices de cobertura de servicios sanitarios. Los fondos del Programa serán utilizados para financiar proyectos de infraestructura sanitaria en sectores aislados, los cuales por su ubicación y su influencia nociva no permiten disminuir los índices de morbi-mortalidad e impactar efectivamente en la salud de aquellas regiones rurales.

La iniciación de la segunda etapa del Programa ESF coincidirá en su implementación con la extensión del nuevo Programa de Asistencia Técnica de AID al IEOS. La Asistencia Técnica de AID estará dirigida a fortalecer las actividades que el IEOS realiza en el área rural dando énfasis al trabajo coordinado en las ocho provincias seleccionadas.

Como contraparte a la asistencia técnica de AID, el IEOS además dispondrá de fondos propios y del FONASA destinados a la construcción de 560 nuevos sistemas rurales de agua potable y letrificación en las ocho provincias seleccionadas que servirán para aproximadamente 280.000 personas, con un presupuesto total aproximado de S/.5.600.000.000. El proyecto integrado del IEOS será realizado mediante la estructura de los "módulos operativos" y por el lapso de cuatro años, tiempo de duración de la asistencia técnica de AID.

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Cada módulo operativo será responsable de la ejecución anual de 10 nuevos proyectos, financiados con un presupuesto estimado de S/.100.000.000, al que deberá añadirse el aporte comunitario en mano de obra y materiales locales y el apoyo logístico institucional.

Aparte de la inversión estimada del IEOS en este programa, el presupuesto de inversiones del IEOS y el saldo de presupuesto del FONASA serán utilizados a nivel nacional en las restantes trece provincias, utilizando el proceso de descentralización administrativa y los procedimientos operativos practicados por el programa.

Con el programa integrado de módulos operativos IEOS-ESF-FONASA-AID, desde enero de 1990 a diciembre de 1993 se construirán un total de 640 nuevos Sistemas Rurales de Agua Potable y Letrinización con un costo aproximado de S/.6.400'000.000 y se dará servicio a aproximadamente 320.000 nuevos beneficiarios en las ocho provincias seleccionadas por el programa.

La nueva técnica de ejecución de los Módulos Operativos continuará operando con las siguientes bases:

1. Supervisión y Administración descentralizada realizada por las Jefaturas Provinciales, y
2. Promoción, diseño y construcción de los sistemas de agua potable y letrinización ejecutados por los responsables de los módulos operativos.
3. Participación comunitaria de los beneficiarios en la construcción de las obras y en la operación y mantenimiento de los sistemas construidos.

II. SELECCION DE COMUNIDADES

Los procedimientos para la selección de las comunidades que se considerarán en el programa serán las siguientes:

Primera Etapa.- Se continuará utilizando los procedimientos del programa anterior que estableció criterios de preselección de la siguiente manera:

1. De preferencia, ninguna comunidad debe estar incluida en las listas de la ley de FONASA.
2. Las comunidades deben ser nucleadas, con vías de acceso directo, y con fuente segura de agua.
3. Debe existir el interés comunal para participar efectivamente en la construcción de los sistemas de agua potable y letrinización
4. Las poblaciones nucleadas deberán tener una población aproximada no menor de 300 habitantes y no mayor a los 2,000 habitantes.

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Los Jefes Provinciales del IEOS, basándose en los criterios de preselección, proporcionaron una información detallada sobre los requerimientos provinciales, los tipos de obras, su costo, tiempo estimado de construcción, población a servirse y el alcance de los diferentes proyectos.

Con aquella información, y considerando los aspectos limitantes del programa, recursos económicos fijos y área restringida de trabajo de los módulos operativos, se procedió a la selección definitiva de las comunidades considerando los siguientes criterios:

1. Se consideraron preferencialmente las comunidades con sistemas de provisión de agua por gravedad.
2. Se consideraron prioritariamente proyectos de construcción de sistemas nuevos de agua potable.
3. La ubicación geográfica y accesibilidad de las comunidades debía facilitar la labor de los "módulos operativos".

Con estas bases de preselección y selección de comunidades y analizando los costos "estimados" de los proyectos escogidos, se estableció el alcance de la primera etapa del programa.

El cuadro No. 1 muestra el detalle de las provincias y el listado de las comunidades que fueron seleccionadas para la construcción de los sistemas de agua potable y letrinización en la primera etapa mediante el módulo operativo del Programa ESF. Se podrán efectuar cambios o inclusión de nuevas comunidades según las necesidades específicas del área, y según los criterios del ingeniero jefe de módulo y el jefe provincial. La A.I.D. deberá aprobar cualquier modificación a la lista de comunidades seleccionadas.

Segunda Etapa.- Para la selección de comunidades a considerarse en la segunda etapa del programa, el IEOS, con la asistencia técnica de AID desarrollará una metodología de selección que no solo considere los factores anotados en la primera etapa sino que incluirá otros factores relacionados con la salud y saneamiento y con factores socio-económicos de las comunidades. Estos criterios de selección permitirán establecer prioridades y acciones posteriores especialmente para las actividades de operación y mantenimiento de los sistemas y para las labores de educación y comunicación sanitaria. Este proceso selectivo permitirá a la vez a las Jefaturas Provinciales preparar planes de trabajo para el presupuesto general administrativo y para preparar propuestas específicas de nuevos programas para captar fondos de otras instituciones interesadas en trabajar en el subsector.

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C U A D R O No. 1

COMUNIDADES CONSIDERADAS PARA LA CONSTRUCCION DE SISTEMAS DE AGUA
POTABLE Y LETRINIZACION EN LA PRIMERA ETAPA DEL PROGRAMA ESF
JUNIO A DICIEMBRE DE 1989

PROGRAMA MODULOS
OPERATIVOS

ESF

<u>Provincias</u>	<u>Comunidad</u>	<u>Población Estimada Actual</u>
1.- El Oro	1.1. Chuva	300
	1.2. Fátima	500
	1.3. Cotopaxi-Río Bonito	900
	1.4. Loma de Franco	600
	1.5. Minas Nuevas	400
	1.6. Amarillos	600
2.- Pichincha	2.1. La Moca-San Antonio-La Libertad	800
	2.2. Oyambaro-Oyambarillo-La Isla	1,060
	2.3. Puichig-Sta. Rosa-San Agustín	1,050
	2.4. Iguiñaro	750
	2.5. La Aduana-San Carlos	350
3.- Chimborazo	3.1. San Juan de Trigol na	500
	3.2. Tutupala-San Francisco	600
	3.3. Cochapamba	440
	3.4. Compañía-Cruz Loma	500
	3.5. Peltetec	300
	3.6. Calera-Shobol	500
4.- Tungurahua	4.1. Chambag-Florida	1,050
	4.2. Miñarica-Verde Sacha	850
	4.3. Pingue Alto	450
	4.4. Calamaca	300
	4.5. Quillán	300
	4.6. Mirador	200
5.- Azuay	5.1. Pata Pata	500
	5.2. Catabiña 1 y 2	500
	5.3. Caledonea	240
	5.4. Guashum	520
	5.5. Sta. Teresita	600
	5.6. San Antonio de Huentel	360
6.- Imbabura	6.1. Padre Motilón Chupa	360
	6.2. Quinta Yuquín	700
	6.3. Nápoles	200
	6.4. El Morlán	585
	6.5. El Milagro-La Carolina	350
	6.6. La Esperanza-El Abra-San Clemente Chirihuasi	900

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<u>Provincia</u>	<u>Comunidad</u>	<u>Población Estimada Actual</u>
7.- Cotopaxi	7.1. Juigua Yacubamba	1,000
	7.2. Piedadcita de Calope	330
	7.3. Matango-Pucará	420
	7.4. Tingo-Colias	433
	7.5. San José de la Victoria	420
	7.6. Tandacato	300
8.- Carchi	8.1. El Naranjal	360
	8.2. El Corazón-San Francisco	300
	8.3. Chután Alto	540
	8.4. Guamag	600
	8.5. El Milagro	320
	8.6. Carrizal	<u>300</u>
TOTAL		24,438

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III. ALCANCE Y PRESUPUESTO DEL PROGRAMA

El programa general del ESF tendrá como objetivo atender con obras de saneamiento básico a 157 comunidades rurales que por sus características de falta de recursos y ubicación geográfica son consideradas prioritarias para darles acceso a los sistemas de agua potable y letrinización. Los fondos destinados al programa general corresponden a S/.587'675.000,00 del presupuesto ESF 1988 y S/.1.000'000.000,00 del presupuesto ESF 1989. El presupuesto total del programa es de S/.1.587'675.000,00.

Hasta el presente, el programa ESF ha entregado al servicio comunal 29 sistemas rurales de agua potable y letrinización y las actividades futuras consideraran la implementación de dos nuevas etapas de construcción en las que se construirán 128 nuevos sistemas.

La primera etapa, de Junio a Diciembre de 1989. Se construirán 48 nuevos sistemas de Agua Potable y Letrinización que intentarán beneficiar a aproximadamente 24,000 habitantes con una inversión estimada de S/.472'349.000,00.

La segunda etapa, de enero a diciembre de 1990. Se construirán 80 nuevos sistemas de Agua Potable y Letrinización que intentarán beneficiar a aproximadamente 40,000 habitantes con un costo estimado de S/.800'000.000,00.

El programa general de la actividad de construcción de 157 sistemas rurales de agua potable y letrinización durante las gestiones de 1988, 1989 y 1990 se muestran en el Cuadro No. 2. En este cuadro general se presenta el número de proyectos concluidos, la población servida y las inversiones realizadas hasta la fecha y el detalle de la planificación de las futuras primera y segunda etapas del Programa.

Los datos de la primera etapa son el resultado de la información proporcionada por las Jefaturas Provinciales.

El Cuadro No. 3 detalla los costos globales de inversión y los costos de operación de los módulos operativos para las dos etapas del Programa. El aporte comunal será evaluado y cuantificado posteriormente cuando se preparen los diseños respectivos.

El análisis del costo de operación de un módulo operativo se muestra en el Cuadro No. 4.

El módulo operativo constituido por un ingeniero Jefe del Módulo, tres promotores y un asistente administrativo son contratados "por obra cierta"; es decir, su contrato anual que incluye la cancelación de todos sus beneficios sociales, considera la responsabilidad de construir un número de sistemas establecidos en cada módulo. La figura No. 1 muestra el organigrama de trabajo de un módulo operativo.

CUADRO NO. 2

PROGRAMA GENERAL DE LA ACTIVIDAD DE CONSTRUCCION
DE 157 SISTEMAS RURALES DE AGUA POTABLE Y LETRINIZACION
PROGRAMA ESF
(S/.000)

MÓDULO	PROVINCIA	PROGRAMA 1988			PROGRAMA PLANIFICADO PARA 1989-1990						TOTAL PROGRAMA ESF		
		<u>PROYECTOS REALIZADOS</u>			<u>1 ETAPA: 1989</u>			<u>2 ETAPA: 1990</u>			NO. PRY.	POBLACION SERVIDA (APROX.)	COSTO
		NO. PRY.	POBLACION SERVIDA	GASTOS JUSTIFICADOS (ABRIL 1989)	NO. PRY.	POBLACION SERVIDA	COSTO APROX.	NO. PRY.	POBLACION SERVIDA (APROX.)	COSTO APROX.			
1	El Oro	4	2,225	48,527	6	3,300	67,302	10	5,000	100,000	20	10,525	223,586
2	Pichincha	4	2,789	44,280	6	4,010	61,079	10	5,000	100,000	20	11,799	224,625
3	Chimborazo	5	2,105	49,498	6	2,840	62,182	10	5,000	100,000	21	9,945	199,513
4*	Bolívar	4	3,033	48,212	-	-	3,788	-	-	-	4	3,033	52,000
4	Tungurahua	-	-	18,223	6	3,150	49,866	10	5,000	100,000	16	8,150	166,767
5	Azuay	8	3,548	60,122	6	2,720	70,882	10	5,000	100,000	24	11,268	216,004
6	Imbabura	4	997	46,464	6	3,095	56,693	10	5,000	100,000	20	9,092	201,601
7	Cotopaxi	-	-	-	6	2,420	51,124	10	5,000	100,000	16	7,420	150,300
8	Carchi	-	-	-	6	2,903	49,434	10	5,000	100,000	16	7,903	153,300
TOTALES		29	14,697	315,326	48	24,438	472,349	80	40,000	800,000	157	79,135	1,567,000

Módulo operativo de la Provincia de Bolívar (concluido)

CUADRO NO. 3

REPROGRAMACION DEL PRESUPUESTO DE CONSTRUCCION
128 SISTEMAS RURALES DE AGUA POTABLE Y LETRINIZACION

PROGRAMA ESF
(JUNIO 1989 - DICIEMBRE 1990)
(S/.000)

MODULO	PROVINCIA	PRIMERA ETAPA					SEGUNDA ETAPA				
		NO. DE PROYECTO	POBLACION SERVIDA	COSTO INVERSION A.P. Y LET.	COSTO OPERACION	COSTO TOTAL	NO. DE PROYECTO	POBLACION SERVIDA	COSTO INVERSION	COSTO OPERACION	COSTO TOTAL
1	El Oro	6	3,300	62,952	4,350	67,302	10	5,000	91,300	8,700	100,000
2	Pichincha	6	4,010	56,729	4,350	61,079	10	5,000	91,300	8,700	100,000
3	Chimborazo	6	2,840	57,831	4,350	62,181	10	5,000	91,300	8,700	100,000
4*	Bolívar	-	-	3,788	-	3,788					
4	Tungurahua	6	3,150	45,516	4,350	49,866	10	5,000	91,300	8,700	100,000
5	Azuay	6	2,720	66,532	4,350	70,882	10	5,000	91,300	8,700	100,000
6	Imbabura	6	3,095	52,343	4,350	56,693	10	5,000	91,300	8,700	100,000
7	Cotopaxi	6	2,420	46,774	4,350	51,124	10	5,000	91,300	8,700	100,000
8	Carchi	6	2,903	45,084	4,350	49,434	10	5,000	91,300	8,700	100,000
		48	24,438	437,549	34,800	472,349	80	40,000	730,400	69,600	800,000

Módulo operativo de la Provincia de Bolívar (concluido).

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CUADRO No. 4

COSTO ANUAL DE OPERACION DEL

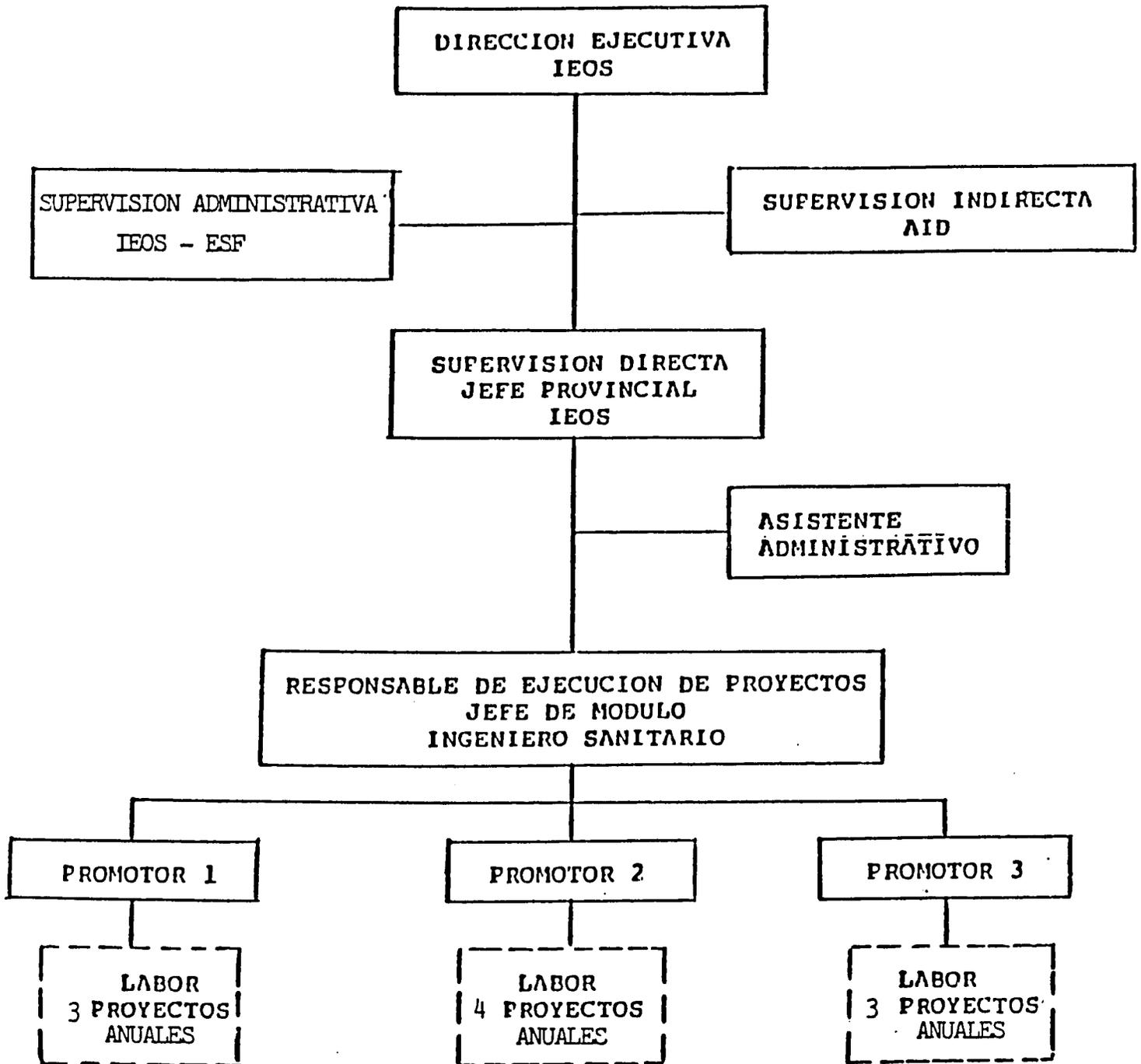
"MODULO OPERATIVO"

1. Sueldo Ingeniero S/.140,000 x 12	S/. 1'680.000
2. Sueldo 3 Promotores S/.105,000 x 3 x 12	S/. 3'780.000
3. Sueldo Asistente Administrativo S/.85,000 x 12	S/. 1'020.000
4. Viáticos - 1 Chofer S/.40,000 x 12	S/. 480.000
Movilización: 1 Supervisor Administrativo S/.10.000 x 12	S/. 120.000
5. Suministros oficina	S/. 620.000
6. Imprevistos (\pm 12%)	S/. 1'000.000
TOTAL	S/. 8'700.000

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FIGURA No. 1

ORGANIGRAMA DE TRABAJO DE UN MODULO OPERATIVO



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IV. CONTROL DE ADMINISTRACION DEL FINANCIAMIENTO

El IEOS central estará encargado del control y seguimiento del financiamiento del Programa. Las Jefaturas Provinciales y los Módulos Operativos serán responsables de la administración de los fondos y de la realización de las obras respectivamente.

El IEOS mantendrá al Supervisor Administrativo del Programa, el cual en forma permanente y a tiempo completo, será responsable de las siguientes actividades:

1. Controlar el manejo y aplicación de los fondos otorgados a las Jefaturas Provinciales, considerando:
 - La revisión del cumplimiento de los procedimientos e instructivos aprobados para la adquisición de materiales y servicios.
 - La revisión de los informes financieros mensuales y de los documentos de respaldo (registros, comprobantes de pago, contratos, recibos u otros).
 - La exigencia de aclaraciones sobre observaciones a los informes financieros mensuales, comunicando oficialmente este trámite a la Jefatura Provincial correspondiente, a la Dirección Ejecutiva del IEOS y a la A.I.D.
 2. Solicitar la revisión y aprobación de los informes financieros mensuales a la A.I.D. y luego al Director Ejecutivo del IEOS.
 3. Preparar y tramitar las solicitudes de desembolsos trimestrales de fondos. Estas solicitudes serán enviadas al Ministerio de Finanzas por el Director Ejecutivo del IEOS con el visto bueno de la A.I.D.
 4. Controlar el envío trimestral de fondos, del IEOS Central a las Jefaturas Provinciales.
 5. Mantener la documentación contable actualizada del Programa y los registros de gastos y saldos de las provincias participantes.
 6. Apoyar a las Jefaturas Provinciales, creando normas uniformes de trabajo contable - administrativo y mecanismos de control y manejo de los materiales adquiridos para el programa.
- b. Funciones de los Módulos Operativos - Las responsabilidades del personal contratado para conformar los módulos operativos serán los siguientes:
- b.1 Ingeniero Sanitario o Jefe de Modulo
 - . Será responsable de la realización de los estudios de campo, estudios y diseños, y de hacerlos aprobar por el Jefe Provincial antes de proceder a su construcción.
 - . Trimestralmente elaborará las listas de materiales, cronograma de adquisiciones, pedidos de compras.

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- . Preparará el cronograma de construcción.
- . Ejecutará la construcción de los proyectos con la cooperación del promotor.
- . Preparará las planillas de pago por mano de obra calificada.
- . Preparará informes mensuales de avance de obra e inversiones de los proyectos con la cooperación del asistente administrativo.
- . Será el directo responsable de la calidad de la obra, de su eficiente funcionamiento, y de hacer cumplir los cronogramas establecidos para su ejecución.

b.2 Promotor Sanitario

- . Realizará las labores de promoción de los servicios a implementarse en las comunidades.
- . Organizará la Junta Administradora de Agua Potable.
- . Coordinará los trabajos tanto de mano de obra calificada a cargo de los maestros de obra, como los de mingas hechas por los comuneros.
- . Informará al ingeniero Jefe de Módulo sobre el avance de obra, las necesidades de materiales, herramientas y otros insumos de los proyectos a su cargo.
- . Realizará labores de promoción y educación sanitaria a los miembros de las comunidades.

b.3 Asistente Administrativo

- . Tendrá a su cargo la contabilidad de los proyectos.
- . Hará cumplir los procedimientos para la adquisición de materiales y servicios.
- . Preparará las solicitudes de desembolso para los proveedores del programa.
- . Preparará mensualmente los informes de inversiones por proyecto y el informe general del módulo.
- . Obtendrá las cotizaciones de materiales.
- . Mantendrá un registro de insumos, en coordinación con el bodeguero provincial.

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Realizará otras actividades relacionadas al proyecto que sean requeridas por el supervisor administrativo.

c. Estudios y Construcciones - La ejecución de los estudios y construcciones de los proyectos será responsabilidad del ingeniero sanitario, jefe del módulo operativo.

El ingeniero sanitario deberá elaborar diseños sencillos de los sistemas a construirse, utilizando para ello la tecnología más apropiada para cada caso. El inicio de la construcción de cada proyecto se efectuará una vez que su estudio, lista de materiales, cronograma de trabajo y compromisos hayan sido aprobados por el Jefe Provincial del IEOS.

d. Supervisión Directa - Las Jefaturas Provinciales del IEOS tendrán bajo su responsabilidad la Supervisión directa de la ejecución de los proyectos. Las obras ejecutadas deberán sujetarse a los planos aprobados y a las especificaciones técnicas y procedimientos constructivos que aseguren obras de buena calidad.

Las Jefaturas Provinciales deberán brindar todo el apoyo logístico y administrativo que sea necesario para el normal desenvolvimiento de cada uno de los proyectos, planificando en coordinación con el Ingeniero Sanitario las adquisiciones de materiales, el pago a contratistas y a los responsables del módulo y el uso de equipo, herramientas y vehículos requeridos en las obras.

e. Administración del Programa

e.1 Fondos - Los fondos otorgados al programa serán administrados directamente por las Jefaturas Provinciales del IEOS de acuerdo al presupuesto general.

El IEOS Central delega a las Jefaturas Provinciales la autoridad para gastos individuales de hasta S/.8'000.000

Para fines de este Programa, el IEOS central y cada Jefatura Provincial abrirán una cuenta bancaria exclusiva para el manejo de sus fondos.

Las Jefaturas Provinciales deberán mantener libros y registros en los cuales se deben asentar las fechas y montos de gastos y depósitos efectuados, y a la vez deberán mantener en archivo los documentos de respaldo de toda la actividad contable. Los documentos deben incluir los justificativos que demuestren que las adquisiciones de bienes y servicios fueron efectuados en competencia abierta y adjudicados en forma justa y adecuada, además que se cumplieron los instructivos preparados para el programa.

El Ministerio de Finanzas desembolsará los fondos de acuerdo al Plan de Financiamiento una vez que la Dirección Ejecutiva del IEOS envíe el informe financiero del trimestre anterior con el visto bueno de la A.I.D.

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El Gobierno y/o la A.I.D. procederán a efectuar auditorías periódicas al programa.

e.2 Procedimientos para adquisición de materiales y servicios - Las Jefaturas Provinciales del IEOS serán las responsables de administrar directamente los fondos del programa siguiendo el instructivo expedido por la Dirección Ejecutiva del IEOS y que se detalla a continuación:

e.2.1 Se delega a las Jefaturas Provinciales que participen en el Programa ESF (IEOS - Ministerio de Finanzas - AID) la autoridad para gastos individuales de hasta S/.8,000,000.

e.2.2 Las Jefaturas Provinciales deberán cumplir estrictamente las siguientes disposiciones:

1. Las adquisiciones urgentes podrán hacerse con fondos de caja chica, hasta por S/.5.000,00, bajo la responsabilidad de la persona designada por el Jefe Provincial.
2. Para adquisiciones de S/.5.001,00 a S/.150.000,00, se requerirán de dos cotizaciones para elaborar la "Orden de Compra", a la cual se adjuntará el original de la factura y el comprobante de cheque correspondiente, con autorización del Jefe Provincial.
3. Para adquisiciones de S/.150.001,00 hasta S/.1'400.000,00 se requerirá de tres cotizaciones y la autorización del Jefe Provincial.
4. Para adquisiciones de S/.1'400.001,00 hasta S/.8'000.000,00 se formará el Comité Provincial de Adquisiciones constituido por:
 - a. El Jefe provincial o su delegado quien lo presidirá.
 - b. El Jefe de Módulo.
 - c. El Asistente Administrativo.
 - d. El Asesor Jurídico en Jefaturas donde existiese, actuará con voz informativa.

Corresponde al Comité la adjudicación en base de por lo menos tres ofertas y un cuadro comparativo e informe técnico del Jefe de Módulo.

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5. Corresponde al Comité Provincial de Adquisiciones:
 - a. La apertura de los sobres de propuestas y elaboración del acta respectiva que contendrá fecha, nombre del oferente, valor de la propuesta, plazo de entrega, garantías y certificado de contraloría sobre cumplimiento con el Estado.
 - b. Nombrar al o los responsables para el estudio y análisis de las ofertas.
 - c. Adjudicar la oferta más conveniente para los intereses de la institución.
 - d. Suscribir el acta de adjudicación con todos los datos necesarios que permita la elaboración del respectivo contrato.
6. Las invitaciones para presentación de ofertas serán preparadas por el Jefe de Módulo y Asistente Administrativo y suscrita por el Jefe Provincial.
7. Para las invitaciones se utilizará el formulario oficial del IEOS, el cual contiene toda la información que da la Institución y requiere de los oferentes.
8. El Secretario del Comité llevará un registro actualizado de invitaciones que contendrá la siguiente información:
 - a. Número, fecha del oficio de invitación.
 - b. Nombre de la Casa Comercial o Profesional al que se invita.
 - c. Fecha de entrega de la invitación.
 - d. Nombre, firma y número de cédula de identidad de la persona que retira la invitación.
9. Las ofertas serán presentadas en sobres cerrados en la Secretaría de la Jefatura Provincial. Se dejará constancia de la recepción de correspondencia anotando el nombre del oferente y la fecha de presentación.

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10. Los contratos serán elaborados de acuerdo a los formatos que para el efecto se ha establecido y estarán bajo responsabilidad de los Jefes Provinciales quienes los suscribirán.
 11. La ampliación de plazo será otorgada únicamente por el Jefe Provincial mediante comunicación escrita basándose en el análisis del pedido expreso del Contratista en la justificación de lo solicitado.
 12. La cuantía y el valor de las adquisiciones y montos de ejecución de obras no podrán fraccionarse con el fin de eludir los límites fijados en este reglamento, normas y procedimientos de la Ley de licitaciones y concurso de ofertas.
 13. El cuadro comparativo e informe técnico del Jefe de Módulo preparado para la selección de la oferta más ventajosa, se fundamentará en la calidad del producto, el precio, las condiciones de entrega y de pago, los servicios de instalación, mantenimiento, operación y rendimiento.
- e.3. Informes - Las Jefaturas Provinciales deberán presentar a la Supervisión Administrativa informes financieros mensuales. La falta de presentación de estos informes financieros en el plazo previsto dará lugar a la suspensión de los desembolsos, con los consiguientes perjuicios de los proyectos hasta que se regularice su presentación.
- Los perjuicios económicos ocasionados por la falta de presentación de descargos o informes financieros deberán ser cubiertos por el IEOS.
- e.4 Restricciones - En caso de comprobarse una incorrecta administración o aplicación de los fondos otorgados, se exigirá la devolución de los mismos y se suspenderá definitivamente el financiamiento a cualquiera de las provincias escogidas en el programa, pudiendo el Módulo ser trasladado a otra provincia.

No podrán ser reconocidos sobregiros con relación al presupuesto en ninguna de las provincias escogidas en el programa.

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El presupuesto aprobado del programa no podrá ser modificado sin previa autorización de la Dirección Ejecutiva del IEOS y aprobada por la A.I.D.

- e.5 Informe Final - Una vez concluido cada proyecto, las Jefaturas Provinciales deberán preparar un informe final de obra tanto técnico como financiero en el que se establezcan las características técnicas de la obra y el inventario valorado generado con los fondos de cada proyecto.

VI. PLAN DE FINANCIAMIENTO

El plan general de financiamiento se muestra en el cuadro No. 5. En él se detalla, para cada módulo operativo, los estimados para adquisición de materiales y contratación de mano de obra calificada y para gastos de operación.

Todos los fondos destinados a cada módulo serán administrados con la exclusiva responsabilidad de las Jefaturas Provinciales del IEOS.

6535D

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CUADRO No. 5

PLAN DE FINANCIAMIENTO (S/. 1000)
PROGRAMA ESF
(S/. 000)

No. de Módulo	PROGRAMA 1988				PROGRAMA 1989-PRIMERA ETAPA									No. de Proy.	** PROGRAMA 1990 - SEGUNDA ETAPA		
	Hasta Abril 1989		Obra en Ejecución y Gastos no Justif. 1988-Abril		No. de Proy.	TRIMESTRE JULIO A SEPTIEMBRE			TRIMESTRE OCT.-DIC.			PROGRAMA ANUAL 1990					
	No. Proy. Concluidos	Gastos Justif. Presupuesto	No. Proy. Presupes. No Justif. a Junio/88	de Adquisición y Mano de Obra		Fondo Operación	Subtotal Presup. 1988	Subtotal Presup. 1989	Adquisición y Mano de Obra	Fondo Operación	Subtotal Presupuesto 1989	Adquisición Materiales y Mano de Obra***	Fondo Operación		Total Presupuesto 1990		
1	4	48,527	2	25,000	4	32,272	2,175	18,025	16,422	5,680	2,175	7,855	10	A definirse	8,700	A definirse	
2	4	44,280	2	25,583	4	22,620	2,175	18,845	5,950	8,526	2,175	10,701	10	A definirse	8,700	A definirse	
3	5	49,498	2	25,000	4	26,831	2,175	16,471	12,535	6,000	2,175	8,175	10	A definirse	8,700	A definirse	
4	4*	48,212	-	3,793	3	22,824	2,175	21,050	3,949	7,692	2,175	9,857	10	A definirse	8,700	A definirse	
	-	18,223	3	15,000													
5	8	60,122	2	25,787	4	29,423	2,175	21,400	10,198	11,322	2,175	13,497	10	A definirse	8,700	A definirse	
6	4	46,464	2	20,000	4	17,028	2,175	11,400	7,803	15,315	2,175	17,490	10	A definirse	8,700	A definirse	
7	-	-	-	-	6	23,065	2,175	-	25,241	23,708	2,175	25,883	10	A definirse	8,700	A definirse	
8	-	-	2	25,000	4	13,059	2,175	-	15,234	7,025	2,175	9,200	10	A definirse	8,700	A definirse	
TOTALES	29	315,326	15	165,158	33	187,123	17,400	107,191	97,332	85,268	17,400	102,668	80	77,400	69,600	803,000	

* Módulo Operativo de la Provincia de Bolívar (concluido)
 ** La distribución presupuestaria por módulos será realizada una vez que se hayan seleccionado las comunidades beneficiarias mediante el proceso de selección a diseñarse por el transcurso de la primera etapa.
 *** Los montos serán definidos luego de la selección de las comunidades y en base al costo de sus proyectos.

Resumen General

- a. Presupuesto programa 1988 (sin justificar)
- b. Presupuesto programa 1988 (último trimestre)
- c. Presupuesto programa 1989 (Julio a Septiembre 1989)
- d. Presupuesto programa 1989 (Octubre a Diciembre 1989)
- e. Presupuesto 2da Etapa Enero a Diciembre 1990
- Total Programa ESF Reformulac

S/. 165,158
 107,191
 97,332
 102,668
 S/. 472,349
 S/. 170,000
 S/. 1,022,349

ANNEX F.2

HYGIENE EDUCATION PROGRAM



AGENCIA DE MERCADEO SOCIAL

AVDA. DE LA REPUBLICA No. 700 . OFICINA 2 . 10 . TELEFONO 560963 . CASILLA 21359 . QUITO

THE IEOS PROGRAMM

1. PROJECT: Sanitary Education Ecuadorean Programm. (Programa nacional de Educación Sanitaria.)
2. PROJECT BACKGROUND.

Since 1970 The Ecuadorean Sanitary Works Institute and the AID constructed around of 900 village-based rural water supply and sanitation systems. Nevertheless, infant and child morbidity and mortality remain high in the rural areas, and diarrhea and waterborne diseases are still a major problem.

Through an agreement between AID and IEOS in 1988 a Sanitary Education Programm was developed by WASH specialists.

The programm was framed in a Social marketing methodology. A baseline survey provided the data for determining 12 goals related to proper use of water, correct human waste disposal, general waste disposal and maintenance of water systems.

Social marketing strategy aims to change the actual behavior for better health. The goals will be attained through a multimedia campaign consisting of interpersonal and massive education-promotion of sanitary commodities for hygienic behavior-incentives and-schools education. Community will be involved from the beginning. The participation of local leaders, teachers, priests, students and local authorities will be the main element of the programm.

The primary target population are mothers with children under five years. The secondary are the rural population with water supply systems. However, a large number of rural and urban population will receive educative messages and will benefit; although that impact will not be measured.

Evaluation will focus on the rise up of the hygienic situation registered by the KAP 1 against the others KAP.

3. BRIEF HISTORY.

The first action was to draw a base line usingg the resources included in the budget of the Technical Assistance provided by WASH. The resoyrces were amplified through the cooperation of the IEOS Divition of Promotion. The base line was obtained by means of a reserach project conducted in five provinces of Ecuador. The results permitted a diagnosis and cuantification of the problem in

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PERFIL

FRONAES:2

the main themes of Sanitary Education: water, latrine, garbage, and water systems maintenance. The following step was to design the strategy for the Social Marketing mix and for the entire program.

4. THE TARGET

The approximated 900 communities with water systems and latrines are the universe. All of them are from rural areas spread out in the 4 regions of Ecuador. Among the inhabitants of these villages ranging from 800 to 2000 persons, the mothers and child keepers are the primary target. The secondary; the leaders of the community specially those which are part of the "Junta" (Water Comitee).

5. THE PRODUCT

Attitudes and practices related with water and sanitation are the "Product" to be promoted in those communities. As a means of favoring the behavior some sanitary objects are going to be offered at low prices. The Juntas are the core of all these actions.

6. THE CONTACT POINT (Positioning).

Sofisticated and accurate logistic is to provide a good distribution and reserve of the promotional materials such posters, booklets etc. The Community Educational Committee will offer periodically mini-courses and will sell the sanitary goods. At the same time family and community contest will be promoted and the mass media will provide the public opinion favor and will teach some of the most common bases for a health practices at a general level in order to foster the hygienic actions.

At the hearth of the program is the interpersonal communication provided through the sanitary community committee (CES). The appropriate actions for dynamizing this complicated mechanism is the training of the different participants: Health workers, IEOS Promoters, Educational Committee of volunteers, Teachers, Promoters from other institutions, and newsmen from the media (R. TV. Press).

7. THE PRICE

Through the research, base line and qualitative surveys

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PRONAES:3

the team is learning that to improve the behaviors has a social cost to the population. So they are in search for the lower social price to charge the audience in order to learn all the aspects we try to transfer. So the Promotion Unit is putting the results of these discoveries in the printed and audiovisual material. They have spent lots of times scheduling actions, researching for the best prices for the sanitary objects going to be introduced and in general in all the actions the people has to go throughout.

8. THE PROMOTION

The approach is the multimedia action resting in two vortices: Educational and Promotional. The educational is splited in: a) Non formal education through the mass media and b) Formal education through the regular scholar system by way of providing audiovisual material to the 900 schools of these targeted communities. To assure that the communicational objects are understood and can be appropriated by the audience, pretesting have been conducted in the past days. The technical resources of publicity agencies and producers of media are going to be used to assure a high quality of the products.

9. THE IMPLEMENTATION

RESOURCES: It is one of the programs with not real resources problem. AID is founding the Communication actions.

Rather than economic the problem is administrative. The IEOS institute has to rule the investments through a complicated procedure of contratation which will slow the actions to such a point that there is a danger pf not using and consequently loosing the grant.

In the other hand the IEOS doesn't have yet enough prepared people in the various disciplines that to carry out the programm requires..

We expect that after the present program has been implemented the IEOS in its Promotion Division would be able to walk they way by their own feet. That is one of the most chalenging but important tasks for the Assistants of WASH

TRAINNING :It has been performed the basic steps: 1) Through an intensive and selective workshop werree prepared.

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PERFIL

PRONAES:4

25 Social Marketers who will be distributed in each of the 20 Ecuatorian provinces.

2) Through the conformation of a unique central team which will be directly assisted by a WASH Advisor the group is going to learn in action.

These trained group is producing interesting products:

- 8 printed material pilots.
- 2 Radio Spots.
- 2 TV. spots.
- 1 Logotipe.
- 1 Slogan.
- 1 Suggestion for a jingle o campaign song.

They themselves produced the 23 questionaries for testing the materials and they conducte the test and produced the itemized reports which will be the guide lines for the future massive production.

They worked with the agency with the artist designer and in the studio with the radio producer and the TV team.

They finally are working on the sketches and outlines of 23 different comunicational objects wich will be massively reproduced and transmitted later on.

Following you may view some charts which resume the process of the Educational Hygienic programm for rural Ecuador.

10. CHARTS

a. HEALTH ISSUE

1. IEOS and AID have finacëd the construction of over 900 village based rural water supply and sanitation systems.

2. Morbidity and mortality rates for infants and children in rural Ecuador remain high and diarrhea and waterborne diseases are still a major problem.

3. Water supply and sanitation facilities now need to be complemented with Public Health Education to encourage behavior change FOR BETTER HEALTH.

THE PROPER SOLUTION WAS THAT:

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PERFIL

PRONAES:5

THE DIVISION OF PROMOTION AND EDUCATION OF IEOS will have the responsibility of conducting A NATIONAL EDUCATIONAL PLAN OF SANITARY EDUCATION

b. ECUADOR PULATION PROFILE.

- * Only 30% of latrines are cleaned daily.
- * Only 28% of children (1-3 years) use the potty
- * Only of children (4-5 years) are trained to use the latrine.
- * Only 50% of children (6 years) are trained to use the latrine.
- * Only 58% of the population drink water directly from the tap or (46%) a clean covered storage container with a long handled dipper.
- * Only 20% of the population wash their hands with soap before: Food preparation-eating-feeding children.
- * Only 20% of the population wash hands with soap after: cleaning children-latrine use.
- * Only 55% of the patios are swept daily
- * Only 20% of refuse is buried
- * Only 40% of dung is worked into the soil.
- * Only 40% of population channel gray water to SUMIDERO.
- * Only 36% of the population understand maintenance costs and pay their bill.

c. PROGRAMM PROFILE

TARGET: RURAL POPULATION FROM THE 900 COMMUNITIES.
SPECIALY Mothers with children from 1 to 5 years old.

PERFIL

PRONAES:6

PURPOSE: Improve the actual hygiene behavior through education on correct use of water, waste disposal, latrines and maintenance of water supply systems.

GOALS : Twelve behavioral changes have been set in relation to water and sanitary practices.

d. THE SOCIAL MARKETING AT
WATER AND SANITATION SERVICE.

1. DRAWING BASE LINE. Aug. 88.
2. STRATEGY PLANN. Sept 88
3. FACTIBILITY ACTIONS: MOH-GoE. Approval
GoE-AID. Funding
4. S.M. Workshop (20 Pr)
Motivation. 25 Ieos CH)
TEAM CONFORMING: Training of Trainers
Department Structuring
- RESEARCH COMMUNICATION TRAINING PROMOTIN
(14 people central team. 70 Promoters)
Contents definition
Descriptive drafts
5. PRE-PRODUCTION: Pilot production
Testing and generating
Lessons & adjustments
6. MASS PRODUCTION. Printed, and A-Visual
7. TRAINING OF INTERPERSONAL WORKERS.
8. PROGRAMM PUBLIC LAUNCHING (Sept 15)
9. FIRST CYCLE: Massive media
Non formal interpersonal
Sanitary objects Promo.

PERFIL

PRONAES: 7

Contests execution
10. SECOND CYCLE: Massive media
Formal Schools Interpr.
Sanitary objects Promo

e. MULTIMEDIA PLAN

PRINTED MEDIA	POSTER.	4	Units
	FLYERS	6	Units
	PHANFLETS	3	Units
	STICKERS	4	Units
	MANUALS	3	Units
	EDUCATIVE POSTER	12	Units
	STAMPS FOR ALBUM	46	Units
	COLLECTION ALBUM	1	Unit
	STUDENT NOTEBOOK	1	Unit
	TEACHERS GUIDE	1	Unit
RADIO	Educational Spots	8	Units
	Taxative Serie	20	Units
	Jingle	1	Song
	Cassette Serie	6	Units
TELEVISION	EDUCATIIONAL SPOT	8	Units
	TAXATIVE SERIE	20	Units
	JINGLE	1	Song
	Minidocumentary	3	Times
TRAINING	Workshops	8	Units
	Congress of juntas.	1	Unit
CONTESTS	Clean House	2	Times
	School Sanitararies	1	Time
	Comittee "Minga"	1	Time
SANITARY OBJECTS	FOR WATER	2	Objects
	FOR LATRINE	2	Objetscs
	GENERAL HYGIENE	2	Objects
	GARBAGE DISPOSSAL	1	Object

MFTV.File:Perfil Pronaes.

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ANNEX F.3

OPERATIONS AND MAINTENANCE PROGRAM

OPERATION AND MAINTENANCE

Technical and Engineering Analysis

In all rural water systems the beneficiary communities are responsible for operating and maintaining the systems. The Community Water Board (CWB) is the administrative vehicle for this purpose. The CWB selects one or two community individuals to be trained by IEOS as system operators/caretakers. One of them is appointed by the CWB as operator to work on a part or full time basis. In general, the RWSS are simple in its functioning, they were constructed using known technology, tapping a water source above the community and piping the water to the village by gravity with a minimum of hidrostatic head provided by a storage tank which is also the point for the water chlorination. The distribution system is complemented by metered household connection. No standpoints are provided in the systems. In the coast areas and when the water sources are at a lower level with respect to the community, pumping equipment is used to pipe the water to a higher elevation from which the community is served by gravity. In those cases; electric, gasoline or diesel power pumps are used. In some cases when the water sources do not meet the minimum safe water quality standards for human consumption, treatment units are installed. Such units could assist of sedimentation to separate coarse materials from water, slow sand filtration and hypochlorination. In almost all the systems the sanitation component is completed by the installation of water sealed (poor-flush) latrines for each dwelling. The construction is similar to a pit latrine that the toilet fixture (bacinete campesino) is connected to the pit by a short length of PVC pipe.

The operator is technically supervised and inservice trained by the IEOS promoters on a periodic basis which seems to became increasingly less frequent over the past years because institutional shortages in transportation facilities and travel expenses. All the operation and preventive maintenance activities are performed by the operator following the "Manual de Operador" and other instruction from IEOS.

The tariff that the consumers are paying for 15 m³ of water per month is set to cover the salary of the operator, a bonus for a part-time clerk, minor repairs as preventive maintenance and the purchasing of hypochlorite plus 10 - 20% as depreciation. In the Sierra such tariff varies from 150 to 250 sucres per month and for the Coastal communities from 300 to 400 sucres which also covers the cost of the necessary energy for the mechanical pumps. Considering the present annual family income, the tariff represents 1.5% to 2% in the sierra and 3% to 4% in the coastal areas. Its evident, that the current tariffs do not cover the escalation in the cost of labor and the cost of hipochlorite. It is necessary to set a new methodology for calculation taking into consideration the international standards for that and the real economic capacity of the users. Major system repairs as well as corrective and emergency maintenance and water meters repairs will be carried out by IEOS provincial mobile O&M units.

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Issues/Constraints to Expanding Effective O&M Program

Under the technical and engineering analysis, two major components are considered in terms of feasibility of implementation: 1) developing a strong institutional capacity within IEOS and the communities to carry out a comprehensive permanent and self supported Plan of O&M; and 2) appropriateness and feasibility of the model plan for O&M. The strengthening of the central and provincial O&M offices, with authority to monitor and coordinate the planning, design, implement and evaluate the O&M activities are technically feasible. The strengthening of a O&M Unit within the IEOS will permit coordination of the rural development without major problems. The work at provincial level will be facilitated through a comprehensive training program for technical and professional staff at all levels. The provision of all necessary ingredients of implementation capability (adequate staffing, logistic support, technology development, data processing support, etc.) will assure that an effective rural O&M program is technically feasible.

Methodology

The O&M rural works will be based on a provincial delivery system supported by a strengthened institutional capacity at provincial and national levels.

At National level the Project will strengthen the rural O&M Unit within the IEOS to coordinate rural activities and promote adoption of appropriate norms, criterias, standards, procedures and the development of appropriate technologies to reduce the costs of rural O&M. The Unit will also coordinate rural training and evaluation of activities. The IEOS will staff the coordination Unit with a chief engineer, a health educator specialized in rural O&M, training, community promotion and management of personnel, it will also be staffed with technical and administrative assistants and secretarial services.

The coordinating Unit will prepare in detail the National Plan for Rural O&M and will develop the strategy for their implementation.

The institutional development of the rural O&M unit at provincial level is critical to overcome present ineffective organizational implementing arrangements. The Project will support the development and strengthen of a very strong rural O&M Unit responsible for the planning, design, promotion, O&M and will develop alternative technologies and procedures leading to cost reduction. It will also coordinate and implement training and evaluation of rural O&M activities.

The provincial rural O&M Unit will be staffed with a qualified sanitary engineer, with experience in rural WS/S esquemes, O&M for rural systems and health work with rural communities; one health-educator promotor; technical and administrative assistants and necessary administrative support. For the implementation of the rural O&M Plan, each province will also be responsible for the establishment of a provincial O&M capacity consisting of one field promotor for a determined number of communities (15 - 20) to be visited on a quarterly basis; one equipped mobil maintenance unit, and the necessary transportation facilities, spare parts and a small warehouse.

The USAID Project support will be primarily as technical assistance, demonstration materials and training. It will provide services of qualified experts on the design and implementation of a National Rural Operation and Maintenance Plan for the eight provinces considered in the project, inclusive of specific procedures for preventive, corrective and emergency maintenance activities. It will also provide assistance for the implementation of adequate warehouses and workshops. All the technical, administrative and managerial aspects will go together with the sanitation component of the project, the design of upgrading alternatives, materials, user education, etc

Training under this component will be all short term and in-country. Training models will be prepared and directed to improve the performance of the health educators, promoters, directive, technical and administrative personnel involved, system operators, CWB members and key community people.

The project will be located in the eight provinces and will be implemented initially in two, then in other three, and finally in the remaining three to have all the rural O&M program operating by the second year.

Estimated Costs

Estimated Cost of the proposed program is as follows:

USAID Technical Assistance	4 months	US\$165,000
Supplies and Materials		100,000
Vehicle (9 pick-up trucks, 20 motorcycles)		170,000
8 warehouse-wareshop (200 m ² ea.)	US\$15,000	120,000
Training		250,000
Vehicle maintenance		<u>20,000</u>
Total		825,000

IEOS:

- Personnel for Rural O&M central and provincial Units 931.0 million sucres
- Operating costs 135.0

Each province will need one pick-up vehicle, 4 x 4, to serve as mobil maintenance unit and motorcycles for the rural O&M promoters and the Coordinating Unit.

The most important output of this component is the development of a complete and sound O&M Plan for the rural water supplies and sanitation schemes that would introduce new technologies and practices to enable the communities to carry out appropriate operation and maintenance of the systems and to organize within the IEOS decentralized units for the implementation of appropriate technologies to assure the proper functioning of the water and sanitation systems installed in rural communities.

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I. ANALYSIS OF THE CURRENT CONDITION OF RURAL WATER SYSTEMS BY PROVINCE

Beginning in 1974, the Instituto Ecuatoriano de Obras Sanitarias (IEOS) implemented the Environmental Health Program, which was targeted to the rural sector of Ecuador. The purpose of the program was to protect public health, based on a sanitation infrastructure which included drinking and waste water systems, given that these are two basic elements with the largest impact on public health.

From 1974 to 1989, IEOS has built 869 rural drinking water systems serving a population of 564,330 residents distributed throughout the 21 provinces of Ecuador.

As a policy of this program, the importance of domestic water connections was taken into consideration, which in most cases included a control system consisting of a domestic water meter. For some cases, usage regulators were adopted for the system.

On March 14, 1979, by Supreme Decree No. 3327, published in Official Register No. 802, March 29, 1979, "Drinking Water and Sewer System Administrative Boards" were created in rural areas. The decree established "that the principal problem in the drinking water supply has been the achievement of continuous operation and the efficient administration of the system, due to the absence of appropriate agencies to manage this function." Through this decree local bodies were established to legally and jointly assume these responsibilities in an organized manner.

Article 6 of this law states that "The Boards will be comprised of members of the community, elected by majority vote of the General Assembly", which implies that the leadership exercised by a given resident is very important to the structure of this body at the community level.

Moreover, Article 7 establishes that the managerial fees of the administrative boards "will be honoraria", given that the funds of the board derive exclusively from the payment of water usage charges. Therefore it would be impossible to determine salaries for these personnel.

The duties and powers of the boards are covered in Chapter II of the Law, as well as in Chapter III of the General Regulation, with advisory and supervisory functions retained by IEOS through the Health Education and Promotion Division.

Until 1986, when the number of drinking water administrative boards was 376, this advisory and supervisory activity was carried out at least twice per year per board, in spite of the fact that the standard program of the Promotion Division required one visit every three months, or four supervisory visits per year.

In order to optimize the administrative and operations and maintenance activities of the rural systems, training courses have been offered for rural operations personnel. There has been high turnover in these operations positions for two principal reasons: low compensation (monthly pay), and low cultural level. At the same time, training courses have been developed for the directors of the boards, specially designed to familiarize them with accounting activities, human relations, parliamentary procedures, etc. These courses must also be offered on a continuing basis, because the membership of the boards changes every two years.

In general, there are a total of seven accounting documents, which are used correctly by 76% of the boards. These documents are:

1. Domestic connection request.
2. Cash flow.
3. User registration.
4. Meter reading.
5. Consumption control device.
6. Account statement.
7. Payment form.

2. IEOS PERSONNEL ASSIGNED TO OPERATIONS AND MAINTENANCE

- 2.1 As noted above, the operations and maintenance program for rural water systems has been the responsibility and purview of the Education and Promotion Division of IEOS. This division has appointed a total of 56 health promoters, and in accordance with program needs, more promoters have been appointed and distributed throughout all of the provinces. Their basic function has been to advise and supervise the drinking water administrative boards. They report the most important information to each IEOS provincial chief, and technical personnel are then responsible for performing expansions, improvements, etc.

There are no technical personnel assigned in any way to this very important activity, which protects the health systems that have been built to benefit rural communities.

At a higher level, the National Administration for Basic Rural Sanitation, an agency of IEOS, there is an Operations and Maintenance Department which has not functioned for several reasons.

As a consequence, personnel from Education and Promotion have continued to implement the following programs:

- a) Training of the directors of the drinking water administrative boards.
- b) Training of operations personnel.
- c) Supervision of drinking water administrative boards.
- d) Water quality control.
- e) Residual chlorine control.

Water source protection activities have been developed less intensely, through tree planting programs.

- 2.2 In order to comply with the principal directives of Promotion personnel who develop operations and maintenance activities, there has been a budget of _____, which has to a certain extent permitted compliance with these directives.

With respect to technical expansion or improvement activities, the Operations and Maintenance Department has had budgets allocated in the FONASA fund, as well as in IEOS' own funds. It has used these funds to respond to the most urgent requirements of the water systems, detected through supervisory visits to the boards, and communicated through the IEOS province chiefs.

- 2.3 As supplemental equipment, certain provinces have been able to obtain a motorbike to transport the promoters involved in this program, but for the most part trips are taken using inter-jurisdictional transportation. In addition, each drinking water administrative board is equipped with an AQUALYTE brand chlorine comparator. This is appropriate for measuring the chlorine in pools, since its scale ranges from 0.4

MINISTRY OF PUBLIC HEALTH
INSTITUTO ECUATORIANO DE OBRAS SANITARIAS

BUDGETS ALLOCATED FOR OPERATIONS AND MAINTENANCE
(IN THOUSANDS OF SUCRES)

	<u>1988</u>	<u>1989</u>
CARCHI	6,000	6,840
IMBABURA	2,500	2,050
PICHINCHA	7,700	4,550
COTOPAXI	13,700	2,070
TUNGURAHUA	5,450	6,350
CHIMBORAZO	5,000	4,600
BOLIVAR	3,150	3,650
CANAR	4,500	2,150
AZUAY	4,550	4,400
LOJA	2,900	1,550
ESMERALDAS	5,400	1,350
MANABI	4,350	1,320
LOS RIOS	2,200	550
GUAYAS	6,400	1,020
EL ORO	2,300	820
NAPO	9,750	2,290
PASTAZA	4,250	1,950
MORONA SANTIAGO	6,900	1,400
ZAMORA CHINCHIPE	4,200	870
GALAPAGOS	1,000	220
NATIONAL LEVEL (DISINFECTION)		10,000
NATIONAL LEVEL COURSES AND/OR AID COUNTERPART		40,000
TOTAL.....	105,000	100,000

SOURCE:

Rural Basic Sanitation Operations and Maintenance Department

to 3 p.p.m. However, there is no other type of comparator available on the domestic market. Despite this, rural operations personnel provide a valuable service each day, because one of their principal activities is the measurement of chlorine in the system.

The problem presented by the use of the chlorine comparator is the lack of orthotolidine, which, because it is not available on the domestic market, is very difficult to supply.

For the bacteriological control program there are seven MILLIPORE brand portable units, which are distributed to the same number of provinces. However, they are not used due to a lack of supplies, primarily monitors and reagents.

3. IMPLEMENTATION OF OPERATIONS AND MAINTENANCE OVER THE LAST THREE YEARS, AND THE NUMBER OF SYSTEMS RECEIVING ASSISTANCE

3.1 Operations and maintenance:

The activities involved in operating drinking water systems at the rural level are the responsibility of community bodies, pursuant to the law creating the drinking water administrative boards.

Operations personnel perform the functions they are responsible for, including:

- a) operation of valves
- b) preparation of chlorine solution
- c) reading meters and residual chlorine
- d) new domestic connections, etc.

These tasks are performed according to the training received by operations personnel.

IEOS has continued technical and advisory assistance in order to optimize the activities of operations personnel, the directors of the drinking water administrative boards, and of office staff, where there is this kind of support personnel.

For its part, the community has always been ready to provide support when its participation has been required, as for example, in:

- Cleaning and maintaining paths
- Washing sand from any filters
- Repairing pipework when there has been breakage, etc.

Nevertheless, some general problems must be considered in the implementation of operations and maintenance, such as:

1. In gravity systems:

- Improvement of spring-capping: blockages, increase in flow.
- Change or expansion of specific units in the drinking water treatment process, including sedimentators, sand filters, slow ascending and descending filters, dynamic filters.
- Training in the preparation of chlorine solutions.
- Together with the above, a regular supply of hypochlorite, especially in small communities where, because of the small number of domestic connections, the community alone cannot supply itself with this disinfectant.
- Management of the most common pipes and accessories in the systems.
- Control and maintenance of meters.

2. In pumping systems:
 - Training in pumping station operation and maintenance: lubrication, pumping periods, disinfection systems, electrical workshops, well cleaning, etc.
 - In both cases, training for the drinking water administrative board directors in administration and personnel relations.
 - The high cost of electrical power.

3. The poor use of waste water sanitation systems is a cause for concern.

3.1. For the last three years, IEOS has increased the number of rural water systems, so that Promotion personnel have had to increase their activities in order to attend to the construction process as well as to operations and maintenance. We can see the results of these activities in Annex No. , in which advisory and supervisory visits to the administrative boards are tabulated.

4. LIMITATIONS WHICH HAVE IMPEDED THE EXPANSION OF THE OPERATIONS AND MAINTENANCE PROGRAM

The good will shown and the efforts made by the operations and maintenance program have had serious limitations, including the following:

4.1 Personnel

Without a doubt this is one of the limitations with the greatest impact on the normal development of the operations and maintenance program. We can analyze this problem in three different aspects:

- a) The community: 54 percent of the drinking water administrative boards in the country are in small rural communities where there are less than 100 domestic connections, so that the monthly consumption charges paid by users are not sufficient to pay an operator. The operations functions must then be the responsibility of the president or treasurer of the administrative board. When these officials assume all of these responsibilities, they cannot perform them all, to the detriment of the operations and maintenance program.

Moreover, 26% of these boards do not have the full complement of members according to the law's requirements, due to lack of motivation to comply with their responsibilities as members of a community organization, because of having left the community, or for other reasons.

- b) Technical level: includes engineers who work in the provincial headquarters of IEOS.

These important personnel have not undertaken any specific activities in operations and maintenance.

In very specific situations determined by the magnitude of the problem, the provincial headquarters has appointed an engineering professional to advise on the work required by the water system, work which is later performed by the promoter and the board.

RURAL AREA DRINKING SYSTEMS BY PROVINCE
AND BY NUMBER OF DOMESTIC CONNECTIONS: APRIL, 1989

PROVINCE	NUMBER OF SYSTEMS	DOMESTIC CONNECTIONS				
		0-50	51-100	101-150	151-200	>201
CARCHI	139	35	43	35	15	11
IMBABURA	50	16	13	7	8	6
PICHINCHA	64	16	21	10	8	9
COTOPAXI	48	7	11	9	10	11
TUNGURAHUA	78	18	25	14	10	11
CHIMBORAZO	118	37	33	13	18	17
BOLIVAR	42	13	10	5	7	7
CANAR	64	12	21	14	8	9
AZUAY	70	18	23	10	11	8
LOJA	21	4	7	4	3	3
ESMERALDAS	17	1	5	4	4	3
MANABI	45	5	16	8	7	9
LOS RIOS	13	4	4	2	-	3
GUAYAS	24	2	7	6	3	6
EL ORO	21	2	4	4	5	6
NAPO	26	8	8	6	1	3
PASTAZA	12	4	5	-	1	2
MORONA	30	10	11	3	4	2
ZAMORA	18	4	6	4	1	3
TOTAL	900	216	273	158	124	129
		24%	30.4%	17.6%	13.8%	14.3%
		54.4%				

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- c) **Support level, health promoters:** These are the personnel resources closest to the rural community. Their presence is the most important because of their status as experts in environmental health and health education.

Although the Promotion and Education Division has been able to continue the operations and maintenance program, the number of promoters assigned per province is small. This makes it impossible to evaluate the status of the systems as a whole on a regular basis, so that their true operational status remains unknown.

The Promotion and Education Division has proposed to IEOS an increase in promoter personnel trained in operations and maintenance. It has also proposed that a promoter take responsibility for the supervision and control of five to eight communities or water systems, so that the operations of these projects is optimized and educational follow-up for the community is continued.

4.2 Institutional

IEOS has suffered notable administrative changes which, for each period, have resulted in various institutional policies affecting the operations and maintenance of rural drinking water systems.

At various times this situation has encouraged building construction and carelessness in operations and maintenance activities. In other situations the program has been able to continue.

In any case, the program has not received the attention required for maintaining the system and the capital invested.

4.3 Financial

For well-known reasons, the budget allocated to the program has been minimal, if we consider that the system has broad requirements, especially in pumping systems, where pumps have presented problems. In other cases, when the systems have been constructed without plans and technical engineering studies, it has been necessary to introduce changes, modifications and supplements which have not been recorded for the benefit of operations and maintenance activities.

4.4 Equipment and Materials

There is not enough equipment and/or specific material of any kind to carry out operations and maintenance activities in rural areas. Nor are there meter repair and calibration facilities. The only items available are a chlorine comparator and supervision forms.

PLANNED OPERATIONS AND MAINTENANCE PROGRAM

1. The Need for an Operations and Maintenance Program

The status of rural operations and maintenance activities in IEOS is impacted by two well defined areas: the first is the capacity of communities to operate and maintain their drinking and waste water systems through the intervention of administrative boards. The second issue is the timeliness of IEOS in providing the necessary technical, administrative, and promotional assistance so that the systems constructed operate in a continuous, efficient way using self-help measures. That is, rural communities should continuously generate sufficient financial resources to cover the direct costs of operating, administering, and maintaining their systems, in addition to capitalizing a certain amount through system depreciation.

In order to create these conditions, it is necessary for IEOS to adapt the current structures of rural system operations and maintenance and develop a long-range or ongoing plan. The plan should be self-financing and make the maximum use of the personnel and technical resources available. Ideas for the formulation of this plan and its implementation during the life of the project are presented in this chapter.

2. Operation and Maintenance of the Systems

The responsibility which IEOS has to the communities that have benefitted from the construction of drinking and waste water systems is to ensure their normal operation and provide them with timely technical assistance. The purpose of the technical assistance is to perform adequate preventive maintenance, as well as to organize, coordinate, and support the implementation of any corrective or emergency maintenance action which may be necessary. IEOS should also perform the expansions which are requested, when technical and financial conditions allow.

A visit on the average of every three months, depending on the type of system, distances, accessibility, etc., is in general considered advisable in order to perform efficient preventive maintenance work. This work will be the responsibility of an operations and maintenance promoter who will be exclusively responsible for preventive operations and maintenance, supervision of the operations of the board, and personnel retraining, when necessary. Technically, an operations and maintenance promoter should not be responsible for more than twenty communities per quarter. Thus, if we project the current situation according to the goals proposed by IEOS, each year it will be necessary to increase the resources targeted to preventive maintenance. One of the greatest, continuing concerns is the financing of these activities. The proposed plan is an alternative which should be evaluated in the field by applying it in one community or more per province, in order to acquire adequate experience to apply it throughout the country.

3. Objectives of the Rural Operations and Maintenance Plan

- Transfer technology to the communities through the administrative boards. This is the technology necessary for the drinking and waste water systems to operate in an efficient, continuous and secure manner, maintaining the plant and equipment in a state of readiness and maximizing their useful life.
- Strengthen the administrative organization of the community boards to perform the tasks of administration, operations and maintenance, the application and collection of appropriate charges, etc.
- Contribute to improving the health of the population and increasing local productivity.

4. **Strategy for Implementing the Rural Operations and Maintenance Plan**

- Establish a unit or department within IEOS at the national level which is responsible for designing the policies, standards, regulations, manuals, inventories, information system, personnel training, etc., which should be applied in the country. This unit should be comprised of full-time personnel and should have economic resources with secure financing, adequate means of transport, and a continuing education component.
- Decentralize administrative, technical, and financial functions and authority to the provincial level so that provincial personnel can provide a rapid and effective response to the communities that are their responsibility, as well as comply with the monthly preventive maintenance plan, improve it, update it, etc.
- Provide assistance to the administrative boards in the purchase of spare parts, chlorine derivatives (when necessary), etc., as well as in the contracting of specialized labor which may be needed by the community in certain circumstances.
- Identify mechanisms which may result in the creation of a Rural Drinking and Waste Water System Operations and Maintenance Fund, with the participation of IEOS, the communities, and other bodies.

5. **Plan of Action**

The implementation of the Rural Operations and Maintenance Plan will be performed in stages, as suggested in the following:

First Stage:

- Organize a unit or department at the national level which will be responsible for the operations and maintenance of rural drinking and waste water systems through provincial units. This unit or department will have sufficient administrative, financial, and technical autonomy and flexibility to be able to work within the outlines of the proposed Plan.
- Allocate to the national unit the minimum full-time personnel necessary to perform the work. The following staff are considered necessary:
 - o A sanitation engineer with wide experience in rural drinking and waste water systems, who will be the chief of the unit.
 - o A promoter/educator, who together with the chief engineer will act as supervisor of provincial rural operations and maintenance activities.
 - o An administrative assistant/analyst.
 - o A technical assistant/analyst.
 - o A secretary.
 - o A driver.

Moreover, the national unit should have the office and travel resources necessary to provide it adequate flexibility to operate.

- Establish rural province operations and maintenance units, and delegate to them administrative, financial, and technical functions which can gradually be implemented during the first year after the provincial unit is organized.

- Define the policies, goals, objectives, strategies, activities, resources, responsibilities, etc. which will be applied in the Rural Operations and Maintenance Plan.
- Prepare the manuals, regulations, instructions, guides, etc. which will be used in the Plan, and design system survey and inventory forms.
- Prepare a training plan for personnel in any way involved in the direct or indirect implementation of the Plan, for support personnel, and for members of the community administrative boards.
- Conduct a complete inventory of the rural drinking and waste water systems in the eight provinces of the project, compile and analyze the results, and incorporate them in the Rural Operations and Maintenance Plan. The Annex to this chapter contains some forms which, when adapted to particular situations, can be used for this purpose.
- Develop a detailed Rural Operations and Maintenance Plan to be explained in seminars and workshops designed for this purpose.

Second Stage:

- Select two provinces from the eight in the project, in which the Rural Operations and Maintenance Pilot Plan will be applied. This will provide the experience necessary for revising and updating the Plan. This activity can be completed during the project's second year.
- Study new charges and negotiate with the community.
- During the project's second year, select and prepare three more provinces to be included in the Plan during the third year.

Third Stage:

- Conduct evaluation seminars and workshops on the Plan with the participation of external consultants. Update the Plan, and prepare a revised version.
- Integrate the last three provinces in which the updated and revised Plan will be applied, so that in the project's fourth year, the eight provinces will be operating under the same Plan.
- Perform a socio-economic-financial study of the charges and the ability of various levels of the population to pay them.

6. Organization of the Rural Operations and Maintenance Provincial Units

In general, the rural operations and maintenance provincial units should have the following specialized personnel:

- An engineer with experience in drinking water and rural sanitation and community projects. The engineer will function as chief of the provincial unit.
- A promoter/educator who will coordinate preventive operations and maintenance activities, provide administrative supervision to the boards, provide all training for staff and community members, provide health education, and promote the health of the population. Eventually, the promoter/educator may assume the combined functions of chief/coordinator.

- A rural operations and maintenance promoter for every twenty communities, more or less, depending on the selection factors.
- An administrative assistant/treasurer.
- A secretary.
- A driver for a workshop vehicle, and one for a pickup truck.
- A statistical analyst.
- A warehouse clerk.
- A two person team to perform corrective and emergency repairs.

Moreover, each provincial unit should have adequate office space, an information system, and transportation equipment which may include:

- A repair vehicle to perform corrective and emergency maintenance activities.
- A pickup truck to transport staff and small materials.
- A motorbike for each rural operations and maintenance promoter.

Each province should also have two support elements which are indispensable to the success of the Plan:

- A workshop mechanic with the tools and materials necessary to perform major repairs, test and calibrate meters, and perform other related duties.
- A warehouse containing the spare parts for the equipment in the rural systems, materials which the boards need and can be supplied by IEOS, necessary forms, automotive spare parts, HTH reserves, and any other disinfectant in use, etc.

The Annex provides some lists of the materials and equipment which are considered necessary to maintain in the provincial warehouses. A mechanism should be designed through which the rural communities can charge back to IEOS the cost of these supplies, based on their value, the financial capability of the community, etc. The essential thing is that the community be educated and its consciousness raised. In this way the population will affirm its decision to keep the system operating properly each day and will take ownership of it.

It is important to create an information system to record all of the resulting operations and maintenance activities and to establish a true data bank which will provide the necessary planning elements required by the Plan. As far as possible, each one of the provinces which come to participate in the project's Pilot Plan should obtain a microcomputer.

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NUMBER OF RURAL OPERATIONS AND MAINTENANCE PROMOTERS BY PROVINCE

Province	Existing Systems	Promoters Needed	Current Promoters	Deficit
Carchi	138	7	2	5
Imbabura	49	3	1	2
Pichincha	61	3	3	0
Cotopaxi	52	3	7	0
Tungurahua	75	4	6	0
Chimborazo	114	6	6	0
Azuay	62	3	2	1
El Oro	11	1	7	0

Source: Education and Promotion Division

According to the information obtained, the promoters shown as existing or assigned to operations and maintenance also perform other functions within the department. It is necessary to carefully research the availability of personnel to devote their activities exclusively to rural operations and maintenance within the proposed Plan.

7. Technical Assistance

The participation of short-term consultants will be necessary in the following areas:

- Organization of rural O & M	3 months	\$25,000 US
- Preventive maintenance	2 months	\$17,000 US
- Corrective & emergency maintenance	1 month	\$ 8,500 US
- Workshops and warehouses	1 month	\$ 8,500 US

8. Personnel Training

It will be necessary to provide training to the following personnel who are directly or indirectly involved in rural operations and maintenance:

- Province engineers
- Chief engineers of the rural O & M provincial unit
- Rural O & M promoters/educators/coordinators
- Rural operations and maintenance promoters
- Rural operations and maintenance administrative support personnel
- Administrative board personnel
- Rural drinking and waste water system operators
- Rural system emergency and corrective maintenance team personnel, in each province

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The training will be performed in each province as the provinces become part of the Rural Operations and Maintenance Pilot Plan, and will have the support of specialized international technical assistance.

9. Cost Estimate

NATIONAL COMPONENT

The above analysis of the Rural Operations and Maintenance Pilot Plan specified the requirements for integrating the central and provincial units, the composition of the emergency and corrective maintenance teams, the need for rural operations and maintenance personnel by province, and support personnel. The final requirements can be established only when the plan is drawn up and implemented.

INTERNATIONAL COMPONENT

The technical assistance necessary for the design, implementation and evaluation of the Rural Operations and Maintenance Plan is fundamental to the success of the Plan. This technical assistance is detailed in number 7. above. The participation of the project will also be necessary to implement the Plan, in the following ways:

- One workshop/warehouse for each province of the project	\$240,000 US
- Tools and materials	\$100,000 US
- Implementation of an information system	\$ 20,000 US
- 9 Microcomputers	\$ 50,000 US
- 9 pickups, 4 X 4	\$180,000 US
- 30 motorbikes	\$150,000 US

ANNEX F.4

APPROPRIATE TECHNOLOGY PROGRAM

APPROPRIATE TECHNOLOGY

Technical and Engineering Analysis

For many years IEOS is applying known technologies, standards and especifications ~~for~~ to design, construct, operate and maintain rural water supply and sanitation services. They do not include new, low cost technologies simple to desing and construct and easy to O&M by the same communities aiming to cost reduction both in the construction and O&M costs. any of the new technologies now in use are not been expemented y IEOS beca se the lack of experience and the opportunity to develop a comprehensive plan for inves tigation and the developmet of appropriate, low cost new technologies.

IEOS and USAID have identified several aspects that need to be investigated and evalua- ted for their application in future programs. The first activity would be the organization of a central coordinating unit for the investigation of new technologies for the rural area of the country (UCETA for their siglas in spanish). This unit will identify real needs for appropriate technology development, coordinate activities with Universities and other institutions involved in research and pilot investigations.

The following investigation areas have been identified as options for appropriate techno- logy development funded by the Project:

- Review and updating of Norms and Specifications for Design, Construction, O&M of rural water and sanitation services.
- Low cost appropriate methods for domestic use water disinfection and water qua- lity control.
- Alternative options for providing WS&S services in coastal areas and investigation of new low cost methods of pumping water in rural areas.
- Socio economic analysis of appropriate low cost options for collection, treatment and final disposal of excretas, waste water and garbage in rural areas of the country.

The first intervencion would be directed to provide IEOS with the necessary logical frame and mechanisms for the design, construction and O&M of community water and sanita- tion services at the lower possible cost and at the higher level of efficiency. This component will require field studies and investigations which will include analysis on the water and latrines as a basic comunity human need; the relationship of those ser- vices and the human health, water hygiene and water contact diseases. It would also in- clude appropriate methods for evaluating the effectiveness of rural WS/S services and potential health impacts of them. On the engineering aspects the study would conside- re sanitary surveys, groundwater and surface water sources, water quality problems, monitoring water quality, system capacity, design periods, population estimates, levels of services, household demand variations and allowances, climatological variations, se- lection of sources, wells and intakes, pumps nd alternative power sources, transmission mains, distribution systems and storage, appropriate low cost treatmen technology, de- sinfection, sanitation facilities, wastewater collection and disposal, O&M procedures, equipment facilities, shops and garages, economic and financial considerations for se- lecting the least cost alternatives, logistic and human resources support and the pre- paration of Design, Construction and O&M manuals.

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The second intervention could include field studies of the actual water disinfection practices, the evaluation of the public health role and goals of water disinfection, methods for evaluating the quality of drinking water, alternative methods for disinfecting community water and household drinking water, appropriate low cost devices for disinfecting water in the rural areas of the country.

The third identified investigation is a twofold project : identification of alternative options that could be applied in coastal areas for WS/S purposes and development of new low-cost alternatives for pumping water in rural areas. The investigation would cover aspects like environmental analysis, estudy of socio-cultural and economic conditions, geographical and logistic conditions, financial and human resources, operational management, community participation, etc.

Through the fourth project is intended to investigate the potentiality of low-cost alternatives for integrated rural sanitation projects which would incorporate analysis of effectiveness of rural excreta and wastewater treatment and disposal, potential health impacts, mechanisms for reducing health risks, studies to minimize discharges to surface water bodies, disinfection, new advanced garbage treatment and disposal, recycling, economic implications and impact on rural communities of the country.

Methodology

The first step in the development of this component will be the establishment and staffing of the Appropriate Technology Studies Coordination Unit (UCETA) which would prepare necessary policies, procedures, terms of referene for AT studies, training of support staff at central and provincial levels, analyze AT studies proposals, prioritize, implement, evaluate and report the results and findings.

This project could be contracted with private firms or developed y IEOS with USAID TA

Estimated Costs

1. Appropriate Technology Studies Coordinating Unit (UCETA)

- IEOS: Staff and Operating Costs	35.7	(S/.000,000)
- AID: STTA (6 pm)	75.0	(US\$000)
Office Equipment	20.0	(US\$000)

2. Appropriate Technology Proposed Studies

	<u>IEOS</u> <u>(S/.000,000)</u>	<u>AID</u> <u>(US\$000)</u>
- Norms and Specifications	7.8	29.5
- Water Quality and Disinfection	12.4	105.0
- Coastal Areas Technologies	16.8	230.0
- Waste Disposal Technologies	10.8	24.5

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MINISTERIO DE SALUD PUBLICA
INSTITUTO ECUATORIANO DE OBRAS SANITARIAS

PLAN NACIONAL DE CAPACITACION DEL IEOS
DIRIGIDO AL AREA RURAL

Objetivo General

Desarrollar al recurso humano del área rural tendiente a un mejor aprovechamiento de los recursos financieros, materiales y tecnológicos existentes, en función de un mejor servicio a la comunidad y fortalecimiento de las actividades de capacitación mediante la creación de una Unidad de Capacitación.

Políticas

1. Las autoridades del Instituto conscientes de la necesidad de capacitar al recurso humano del área rural, darán todo el respaldo para que se lleven a cabo actividades planificadas de capacitación.
2. La Institución establecerá los fondos económicos indispensables para cada ejercicio financiero con el afán de conseguir la Institucionalización de la capacitación.
3. Conformar un banco de instructores del personal del Instituto para mantener un efecto de autogestión.
4. Capacitación de los miembros de Juntas de Agua Potable y Operadores de las mismas.
5. Con el propósito de fortalecer las actividades de capacitación en el Instituto, se considera fundamental el establecer una estructura orgánica y funcional que desarrolle esas funciones específicas.

Estrategias

1. Se dará a conocer a todos los niveles estructurales el plan de capacitación.
2. Conseguir todo el respaldo posible del personal involucrado en la capacitación, para esto se facilitará su participación a todo evento programado.
3. Determinar en el presupuesto del IEOS una partida específica para capacitación del personal.
4. Se buscará mediante convenios con organismos nacionales e internacionales el apoyo económico para la capacitación.
5. Seleccionar y capacitar el recurso humano más idóneo en el campo de la formación de Instructores.

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6. Los instructores que dicten cursos tendrán un estímulo económico en el Escalafón de acuerdo al número de horas a dictarse.
7. determinar los lugares adecuados en donde se llevarán a cabo los eventos.
8. El Instituto incurrirá con los gastos económicos que demande la asistencia de los participantes, sin embargo no descarta el apoyo que se puede tener de las Juntas Administradoras.
9. La Dirección de Recursos Humanos presentará un proyecto de estructura de la Unidad de capacitación a la Dirección Nacional de Planificación.
10. Los Directivos del Instituto realizarán todas las acciones conducentes a implementar la Unidad.

Alcance del Plan

El Plan de Capacitación tendrá una duración de 4 años y cubrirá a los niveles de Jefatura, profesional, técnico, administrativo y de servicios del área rural y también a ciertas áreas específicas del nivel central que tiene ingerencia directa en su funcionamiento. Además se capacitará a 1.400 Juntas de Agua Potable.

Meta del Plan

El Plan contempla la realización de 208 eventos de capacitación formal, pasantías y la creación de la Unidad que se encargará del proceso de la capacitación.

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P R O G R A M A N º 1

**CAPACITACION DE LOS SERVIDORES DEL IEOS Y MIEMBROS DE LAS
JUNTAS ADMINISTRADORAS DE AGUA POTABLE**

Objetivo General

Desarrollar el recurso humano en forma sistemática en las fases de estudios, diseño, ejecución y operación - mantenimiento de los abastecimientos de agua potable y disposición de excretas en el área rural del país.

Objetivos Específicos

1. Desarrollar los conocimientos, habilidades y destrezas tendientes a un cambio de actitudes y comportamiento del personal de las Jefaturas Provinciales.
2. Conseguir una mejor comunicación y agilidad de los trámites entre la Oficina central y las Jefaturas Provinciales.
3. Desarrollar tecnologías apropiadas a fin de optimizar los recursos en las fases de estudios, diseño y construcción de abastecimiento de agua potable y eliminación de excretas.
4. Conocer los objetivos y metas institucionales para en función de éstas, tener una mejor visión del aporte individual.
5. Motivar y concientizar el autodesarrollo de las comunidades, aprovechando sus propios recursos para mantener de manera óptima las obras entregadas por el IEOS.
6. Programar y ejecutar anualmente las actividades de operación y mantenimiento de los sistemas de agua y eliminación de excretas conforme a las normas del IEOS.
7. administrar en forma adecuada las obras de infraestructura sanitaria construídas en el sector rural aplicando las normas técnicas del IEOS.

Responsables del Programa

La Unidad de Capacitación y la asistencia técnica que determine AID.

Actividades a Desarrollarse

Dentro de esta fase se determinarán temas de los eventos de capacitación a cumplirse dentro del tiempo que está planeado los mismos que están divididos por niveles.

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TEMAS	CONTENIDOS	DIRIGIDO A	Horas Evto.	Dias Evto.	Total Part.	No.de Eventos	No. Part. por Evto.	Costo por Evento (S/.000)	Costo total de eventos (S/.000)
<u>CONSTRUCCION/DECENTRALIZACION</u>									
1. Gestion gerencial en Administr. Publica	- Metodos y Tecnicas Gerenciales: - El Ejecutivo y su rol - Estilo de direccion y toma de decisiones - Entorno Juridico Global	- Directores Nacion. - Jefes Provinc.(JP) - Jefes de Division de S.B. Rural	24	3	90	3	30	1.700	5.100
2. Idem	- Metodos y tecnicas gerenciales	- Supervisores de construccion - Asistentes de JP	16	2	75	3	25	1.100	3.300
3. Elaboracion de Terminos de Referencia para Contratacion de Estudios y Obras	- Estudios de factibilidad de proyectos - Diseño del Proyectos	- Jefes de Proyect. de Jefaturas Prv. - Jefe de Módulo	40	5	40	2	20	2.500	5.000
4. Supervision de Obras	- Tecnicas de Supervision y Control - Analisis y aprobacion de planillas - Sistemas de supervision - Sistemas de evaluacion	- Supervisores de construccion - Supervisores de promocion y educacion	40	5	80	4	20	2.500	10.000
5. Administracion y control de bodegas	- Funciones especificas de bodega - Elementos de control y responsabilidades - Inventarios de activos fijos	- Bodegueros - Asistentes Administrativos	32	4	40	2	20	2.000	4.000

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TEMAS	CONTENIDOS	DIRIGIDO A	Horas Evto.	Dias Evto.	Total Part.	No.de Eventos	No. Part. por Evto.	Costo por Evento (\$/.000)	Costo total de eventos (\$/.000)
6. Supervision de Juntas Administradoras de Agua Potable (JAAP)	- Normas tecnicas de supervision - Revision tecnica de las unidades del sistema - Supervision del sistema contable de JAAP	- Promotores sanitarios	40	4	80	4	20	1750	7.000
7. Procedimientos de Adquisicion de bienes	- Programacion de compras - Ley de Licitaciones y Concurso Ofertas - Contabilidad de existencias	- Comprador Prov. - Asistentes Administr. Prov.	16	2	40	2	20	880	1760
8. Relaciones Humanas y Motivacion	- Escenarios de relacionamientos grupales - La comunicacion como elemento integrador - Las motivaciones sociales - La organizacion humana	Personal 8 Jefaturas							
		Azuay	16	2	60	2	30	300	600
		Carchi	16	2	60	2	30	300	600
		Chimbor.	16	2	60	2	30	300	600
		Imbabura	16	2	30	1	30	300	300
		El Oro	16	2	30	1	30	300	300
		Quito	16	2	120	4	30	300	1200
		Tungurah.	16	2	30	1	30	300	300
		Cotopaxi	16	2	30	1	30	300	300
9. Hidraulica Aplicada	- Actualizacion de conocimientos en hidraulica	- Divisiones DSBR - DINEFONASA - Estudios: Auxil. y Asst. de Ingenieros - Jefes Modulos	40	5	75	3	25	2.500	7.500
10. Costos de construccion	- Costos Unitarios, globales, reajustes (aspectos legales/ financieros)	- Divisiones DSBR - DINEFONASA - Estudios: Auxil. y Asist. de Ingenieros	24	3	75	3	25	1.500	4.500

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TEMAS	CONTENIDOS	DIRIGIDO A	<u>Horas</u> <u>Evto.</u>	<u>Dias</u> <u>Evto.</u>	<u>Total</u> <u>Part.</u>	<u>No.de</u> <u>Eventos</u>	<u>No. Part.</u> <u>por Evto.</u>	<u>Costo por</u> <u>Evento</u> (S/.000)	<u>Costo total</u> <u>de eventos</u> (S/.000)
11. Normas y Reglamentos Financieros	- Actualizacion sobre normas y reglamentacion afines al area financiera	- Personal del área financiera central y prov.	24	3	40	2	20	1.000	2000
12. Programas Financieros	- Evaluacion de Proyectos y elaboracion de programas financieros	- Personal del área financiera central y provincial	24	3	80	4	20	1.000	4.000
13. Inversiones	- Planificacion y programacion de inversiones	- Personal del área financiera central y provincial	24	3	80	4	20	1.000	4.000
14. Informatica	Procesamiento y presentacion de información, registro y control oportuno de datos de los módulos de AP y saneamiento rural	- Person. central y provincial - Jefes de Módulos - Analistas Administrativos	40	5	80	4	20	2.000	8.000
15. Control y Evaluacion de Proyectos	- Eval. Tecnica - Eval. financiera - Eval. de Impacto	- Personal central - Jefes Provinciales - Asistentes JP	32	4	80	4	20	2.000	8.000
Subtotales					1375	58		78.360 /US\$1=500	US\$156,720

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TEMAS	CONTENIDOS	DIRIGIDO A	<u>Horas</u> <u>Evto.</u>	<u>Dias</u> <u>Evto.</u>	<u>Total</u> <u>Part.</u>	<u>No.de</u> <u>Eventos</u>	<u>No. Part.</u> <u>por Evto.</u>	<u>Costo por</u> <u>Evento</u> (\$/ .000)	<u>Costo total</u> <u>de eventos</u> (\$/ .000)
<u>OPERACION Y MANTENIMIENTO</u>									
16. OyM de Agua Potable y Saneamiento Rural	<ul style="list-style-type: none"> - Factibilidad del Proyecto - Normas Tecnicas de OyM - Componentes de los sistemas de AP y saneamiento rural - Desinfeccion y cloracion - Operacion - Mantenimiento (P.C.E.) - Conceptos basicos sobre construccion - Responsabilidades de la JAAP - Tarifas - Responsabilidad de la comunidad en OyM 	<ul style="list-style-type: none"> - Promotores de Jefaturas Provinc. - Ings. de OyM de sistemas de AP y saneamiento (central y provincial) 	40	5	75	3	25	2.500	7.500
17. Operacion y mantenimiento de sistemas de Agua Potable	<ul style="list-style-type: none"> - Componentes basicos de AP - OyM de instalaciones - OyM de fuentes de AP - Limpieza y mantenim. de fuente de agua - Desinfeccion - Mantenimiento y reparacion de medidores - Metodos y Tecnicas para la educ. ambient. - Programacion de eventos de educ. ambient. - Recoleccion de muestras para control de calidad de agua - Analisis fisico-quimico y bacteriologico del agua - Manejo del equipo portatil 	<ul style="list-style-type: none"> - Operadores de sistemas de AP de JAAPs 	40	5	1,000	40	25	810	32.400

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TEMAS	CONTENIDOS	DIRIGIDO A	Horas	Dias	Total	No.de	No. Part.	Costo por	Costo total
			Evto.	Evto.	Part.	Eventos	por Evto.	Evento	de eventos
							(S/.000)		(S/.000)
18. Administracion de Sistemas de Agua Potable	<ul style="list-style-type: none"> - Tecnicas de Administ. - Tecnicas de supervis. - Elementos basicos - Documentos contables - Procedim. parlamentarios - Implantacion de planes tarifarios 	<ul style="list-style-type: none"> - Administradores de Juntas de AP (JAAP) 	40	5	2.000	40	50	1.620	64.800
19. Plomeria Medidores y Tuberia	<ul style="list-style-type: none"> - Conexiones domiciliarias - Materiales y accesr. - Medidores, reparacion y mantenimiento - Componentes de los sistemas de AP y saneamiento rural - Desinfeccion y cloracion - Operacion - Mantenimiento (P.C.E.) - Conceptos basicos sobre construccion - Responsabilidades de la JAAP - Tarifas - Responsabilidad de la comunidad en OyM - Metodos y Tecnicas para la educ. ambient. - Programacion de eventos de educ. ambient. - Recoleccion de muestras para control de calidad de agua - Analisis fisico-quimico y bacteriologico del agua - Manejo del equipo portatil 	<ul style="list-style-type: none"> - Supervisores de Promocion - Promotores Sanitarios - Ayudantes de Promocion 	40	5	90	3	30	2.500	7.500

Subtotales

3165 86

117,200/ US\$1=500
US\$224,400

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TEMAS	CONTENIDOS	DIRIGIDO A	<u>Horas</u> <u>Evto.</u>	<u>Dias</u> <u>Evto.</u>	<u>Total</u> <u>Part.</u>	<u>No.de</u> <u>Eventos</u>	<u>No. Part.</u> <u>por Evto.</u>	<u>Costo por</u> <u>Evento</u> (S/.000)	<u>Costo total</u> <u>de eventos</u> (S/.000)
<u>TECNOLOGIA APROPIADA</u>									
20. Estudios de calidad de agua y metodos de desinfeccion	<ul style="list-style-type: none"> - Guias para el control de calidad de agua en comunidades rurales - Tecnicas de muestreo - Analisis e interpretacion de resultados - Utilizacion de equipos HACH y MILLIPORE - Metodos de Desinfeccion y dosificacion - Desinfeccion domestica de agua en consumo humano - Cloro residual y derivados de cloro 	<ul style="list-style-type: none"> - Laboratoristas - Auxiliar Laboratoristas - Promotores (nivel central y provincial) 	40	5	80	3	27	2.000	6.000
21. Estudio de Alternativas Tecnologicas	<ul style="list-style-type: none"> - Utilizacion de energia Eolica - Utilizacion de Energia Solar - Utilizacion de Agua Lluvia - Desalinizacion de Agua de Consumo Humano - Seleccion de Equipos Economicos para Bombeo 	<ul style="list-style-type: none"> - Personal de estudio e investigacion central (UCETA) y provincial 	80	10	40	2	20	2.000	4.000
22. Estudio y Analisis Socioeconomico de Metodologias Apropriadas y de Bajo Costo	<ul style="list-style-type: none"> - Recoleccion, tratamiento y disposicion final de excretas, de aguas servidas y basuras 	<ul style="list-style-type: none"> - Personal de estudio e investigacion (UCETA) - Ingen. Provinciales 	40	5	20	2	10	1.000	2.000
23. Organizacion de la Unidad de Coordinacion del Plan de Tecnologia Apropriada	<ul style="list-style-type: none"> - Seminario para informacion sobre la infraestructura organizacional y responsabilidades de UCETA 	<ul style="list-style-type: none"> - Personal de UCETA central y provincial 	24	3	50	2	25	750	<u>1.500</u>
			Subtotal		170	9		13.500 / US\$1 = 500	US\$ 27.000

TEMAS	CONTENIDOS	DIRIGIDO A	<u>Horas</u> <u>Evto.</u>	<u>Dias</u> <u>Evto.</u>	<u>Total</u> <u>Part.</u>	<u>No.de</u> <u>Eventos</u>	<u>No. Part.</u> <u>por Evto.</u>	<u>Costo por</u> <u>Evento</u> (S/.000)	<u>Costo total</u> <u>de eventos</u> (S/.000)
<u>EDUCACION SANITARIA</u>									
24. Talleres para Promotor.	- Entrenamiento para difusion del programa de Educación Sanitaria - Técnicas de comunicación y relaciones comunales	- Promotores de Educación Sanitaria	24	3	420	12	35	700	8.400
25. Talleres para Miembros de Juntas Administradoras (NOTA: Los temas del taller se incluyen en el curso de OyM 18)	- Información y Entrenamiento para Difusión del Programa de Educación Sanitaria	- Presidentes y Tesoreros de las Juntas Administradoras de AP	-	-	-	-	-	-	-
26. Taller para Operadores (NOTA: Los temas del taller se incluyen en el curso de OyM 17)	- Información sobre el Programa de Educación Sanitaria	- Operadores de Sistemas de AP	-	-	-	-	-	-	-
27. Congreso Nacional de Juntas de Agua y Saneamiento	- Presentación del Programa de Educación Sanitaria	- Presidentes de de Juntas Administradoras de Agua Potable	8	1	1124	16	71	500	8.000
28. Taller para Ministerios de Salud y Educación	- Presentación e Información sobre el Programa de Educación Sanitaria	- Autoridades de Ministerios de Salud y Educación	16	2	60	4	30	1.200	4.800
29. Taller para Escuelas Primarias (NOTA: La movilización y Viáticos serán financiados por el Ministerio de Educación. Los cursos serán programados con el MDE. Se incluye costos de materiales	- Presentación y entrenamiento para difusión del Programa de Educación Sanitaria	- Profesores de Escuelas Rurales	16	2	1124	16	71		15.000

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TEMAS	CONTENIDOS	DIRIGIDO A	Horas Evto.	Dias Evto.	Total Part.	No.de Eventos	No. Part. por Evto.	Costo por Evento (S/.000)	Costo total de eventos (S/.000)
30. Talle: para personal de servicio de salud, Ministerio de Salud (NOTA: Los cursos serán programados con el Ministerio de Salud. Se incluye costos de materiales)	- Presentación y entrenamiento para difusión del Programa de Educación Sanitaria	- Promotores de Salud	16	2	400	2	200		4.300
31. Taller con Periodistas	- Presentación del Programa de Educación Sanitaria	- Periodistas	4	1	120	4	30	250	1.000
32. Taller de motivación personal, IEOS	- Presentación e información del Programa de Educación Sanitaria	- Directores Nacionales - Jefes Provinciales	16	2	50	2	25	1.100	2.200
			Subtotal		3298	56			43.700 / US\$1=500
									US\$87,400
	TOTAL GENERAL								S/.247.310.000/500 =
					8056*	209			US\$494,620
	- Personal del IEOS entrenado durante el Proyecto								2288
	- Miembros de comunidades rurales, profesores rurales, promotores de salud entrenados durante el Proyecto								5768
	Total				8056				

2321M

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CRONOGRAMA DE EVENTOS DE CAPACITACION

ACTIVIDADES		M E S E S 1990																																																			
		Enero				Febrero				Marzo				Abril				Mayo				Junio				Julio				Agosto				Septiem.				Octubre				Noviem.				Diciem.							
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
1 GESTION GERENCIAL EN ADM. PUBLICA	1																																																				
2 GESTION GERENCIAL	1																																																				
3 ELABORACION TERMINOS DE REFERENCIA PARA CONTRATACION DE BIENES Y SERVICIOS	1																																																				
4 SUPERVISION DE OBRAS	1																																																				
5 ADMINISTRACION Y CONTROL DE BODEGAS	1																																																				
6 SUPERVISION DE JUNTAS	1																																																				
7 PROCEDIMIENTOS DE ADQUISICION DE BIENES	1																																																				
8 RELACIONES HUMANAS Y MOTIVACION	8																																																				
9 HIDRAULICA APLICADA	1																																																				
10 COSTOS DE CONSTRUCCION	1																																																				
11 NORMAS Y REGLAMENTOS FINANCIEROS	1																																																				
12 PROGRAMAS FINANCIEROS	1																																																				
13 INVERSIONES	1																																																				
14 INFORMATICA	2																																																				
15 CONTROL Y EVALUACION DE PROYECTOS	1																																																				
16 O&M SISTEMAS DE AGUA POTABLE PROMOTORES	1																																																				
17 O&M SISTEMAS DE AGUA POTABLE OPERADORES	10																																																				



MINISTERIO DE SALUD PUBLICA
INSTITUTO ECUATORIANO DE OBRAS SANITARIAS

PROGRAMA Nº 2
CONFORMACION DE LA UNIDAD DE CAPACITACION

Objetivos :

General

Implementar la Unidad de Capacitación del IEOS

Específicos

1. Presentar un proyecto de estructura orgánico-funcional por parte de la Dirección de Recursos Humanos (Nota: Adjunto copia de proyecto).
2. Contar con los recursos humanos especializados en el área de capacitación.
3. Conseguir de las autoridades del Instituto el financiamiento necesario para el funcionamiento de la Unidad.
4. Obtener la infraestructura y demás equipos e implementos indispensables para dar capacitación.

Meta

La Unidad de Capacitación estará en funcionamiento en octubre de 1989.

Responsable del Programa

Dirección de Recursos Humanos y Dirección Nacional de Planificación

Duración del Programa

Se considera un tiempo de 4 meses de junio hasta septiembre del presente año.

Actividades a Cumplirse

1. El proyecto de estructura está enviado por parte de la Dirección de Recursos Humanos a la Dirección Nacional de Planificación para su revisión y trámite correspondiente.
2. Determinación del personal indispensable para la Unidad de acuerdo a la estructura del proyecto presentado.
3. Elaborar el presupuesto requerido para conformar la plantilla de personal.
4. El Director de Recursos Humanos realizará el seguimiento del trámite respectivo con el fin de que la Dirección Ejecutiva y la Di-

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INSTITUTO ECUATORIANO DE OBRAS SANITARIAS

rección Nacional de Planificación revisen el proyecto.

5. Aprobado por la Junta Directiva el proyecto se solicitará a la Dirección Nacional de Personal - Ministerio de Finanzas - la creación de la Jefatura.
6. El Director Nacional de Planificación conjuntamente con el Director de Recursos Humanos serán los encargados de coordinar con el Presidente de la Asociación de Empleados para que en el menor tiempo posible estén terminadas las aulas de capacitación en la Sede Social del IEOS.

Desarrollo de Actividades

Actividad Nº 1 : Esta actividad está realizada

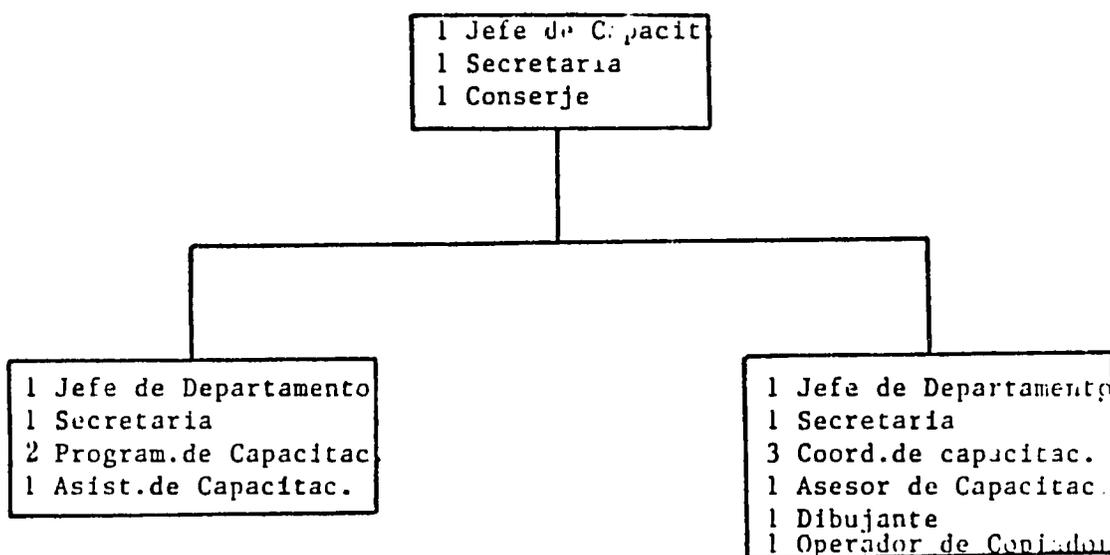
Actividad Nº 2 : Personal requerido

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ORGANIGRAMA DE POSICION DE LA DIVISION DE CAPACITACION



DIVISION DE CAPACITACION

1 Jefe de Capacitación
1 Secretaria
1 Conserje

DEPARTAMENTO DE PROGRAMACION

1 Jefe de Departamento
1 Secretaria
2 Programadores de capacitación
1 Asistente de capacitación

DEPARTAMENTO DE EJECUCION, EVALUACION Y SEGUIMIENTO

1 Jefe de Departamento
1 Secretaria
3 Coordinadores de capacitación
1 Asistente de capacitación
1 Dibujante
1 Operador de copiadora

TOTAL DE PERSONAL POR NIVELES

NIVEL DE JEFATURA : 3 personas

NIVEL PROFESIONAL : 7 personas

NIVEL TECNICO : 1 persona

NIVEL ADMINISTRATIVO DE APOYO : 3 personas

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NIVEL DE SERVICIOS : 2 personas

TOTAL DE PERSONAS : 16

Consideramos que como estrategia para no contratar todo el personal señalado hemos creído conveniente el seleccionar personal de algunas unidades, los mismos que tienen conocimientos, aptitudes y habilidades para desempeñarse eficientemente en esta área.

Siendo así se contaría con el siguiente recurso humano :

- 2 Jefes de Departamento
 - 1 De la Dirección de Recursos Humanos
 - 1 De la Dirección Nacional de Planificación
- 7 Programadores de capacitación
 - 2 de Recursos Humanos
 - 1 de la División de Promoción
 - 1 Talleres de Mantenimiento
 - 1 de Saneamiento Básico Rural
 - 1 de la Dirección Nac. de Establecimientos de Salud
 - 1 Saneamiento Urbano
- 1 Dibujante
 - 1 Saneamiento Básico Urbano
- 3 Secretarias
 - 1 de Recursos Humanos
 - 1 de Saneamiento Básico Rural
 - 1 de la Dirección Nacional de Establecimientos de salud
- 2 Nivel de servicios
 - 2 de servicios generales

De acuerdo a este resumen solo es necesario contratar un Jefe de la División de Capacitación el mismo que debería tener una amplia experiencia sobre el manejo y administración de la capacitación.

ACTIVIDAD # 3

Elaboración de presupuesto :

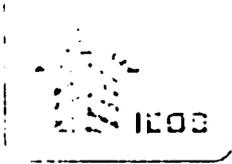
Jefe de División

Sueldo mensual S/. 180.000 x 3 meses = S/. 540.000
de octubre a diciembre de 1989

Equipos :

El presupuesto de la compra de los equipos está financiado en el Programa Adecuación del Centro de Capacitación.

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5
El resto de actividades mencionadas se desarrollarán de manera permanente hasta conseguir el objetivo general del programa ya que son actividades de apoyo .

Presupuesto

Costo J^o e Capacitación 51 meses S/.10'200.000,00

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ACTIVIDADES	RESPONSABLES	ABRIL				MAYO				JUNIO				JULIO				AGOSTO				SEPTIEMBRE				OBSERVACIONES
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
Elaboración de Proyecto de estructura Orgánica-Funcional	Lcdo. H.Orquera																									Actividad realizada
Determinación de número de personas (Organigrama de Posición).	Lcdo. H. Orquera Lcdo. J. Jiménez																									Actividad realizada
Elaboración de presupuesto	Lcdo. H. Orquera Lcdo. J. Jiménez																									Actividad realizada
Trámite para la aprobación del proyecto de estructura.																										
a) Revisión del Proyecto	Dir. Nac. Planif.																									
b) Presentar el proyecto a la Secretaría Nacional de la Administración	Dir. Nac. Planif.																									
c) Aprobación por Junta Directiva	Dir. Ejecutiva Dir. RR.HH. Dir. Nac. Planif.																									
d) Legalización del trámite y publicación en Registro Oficial.	Dir. Nac. Planif.																									
e) Solicitud de creación de la Jefatura a la D.N.Personal	Dir. Ejecutiva Dir. RR.HH. Dir. Nac. Planific.																									
f) Justificación económica para la creación del cargo al Ministerio de Finanzas.																										

ANNEX H

ENVIRONMENTAL ASSESSMENT

13

ACTION AID2 INFO DCM/3

VZCZCQTO657
CO RUEHQT
DE RUEHC #0998 1742204
ZNR UUUUU ZZH
O 240159Z JUN 89
FM SECSTATE WASHDC
O AMEMBASSY QUITO IMMEDIATE 6018
BT
UNCLAS STATE 220998

REPLY DUE	5 27 89
<input type="checkbox"/> NO REPLY NEEDED	
<input checked="" type="checkbox"/> REPLY BY	QU170
ON	6/28 WRG.
DATE	INITIALS
FILE 518-C081-WASHDC	

LOC: 024 499
24 JUN 89 2226
CN: 32015
CHRG: AID
DIST: AID

AIDAC QUITO FOR B. GOLDMAN, M. DEAL, H. CLARK

E.O. 12356: N/A

TAGS:

SUBJECT: IEE APPROVAL - WATER AND SANITATION FOR HEALTH AND DEVELOPMENT (WASHED) PROJECT (518-2071)

1. LAC CHIEF ENVIRONMENTAL OFFICER (LAC CEO) HESTER HAS REVIEWED AND MADE A POSITIVE DETERMINATION FOR THE SUBJECT PROJECT ON JUNE 23, 1989. IEE NUMBER IS LAC-IEE-89-48. COPY OF IEE BEING POUCHED TO MISSION FOR INCLUSION IN PROJECT FILES.

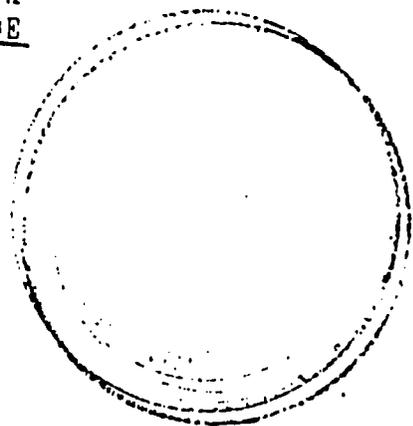
2. A POSITIVE DETERMINATION WAS REQUIRED PER AID ENVIRONMENTAL REGULATIONS (22 CFR 216.2(D) - CLASSES OF ACTIONS NORMALLY HAVING A SIGNIFICANT EFFECT ON THE ENVIRONMENT), WHICH STIPULATES PREPARATION OF AN ENVIRONMENTAL ASSESSMENT FOR POTABLE WATER AND SEWERAGE PROJECTS OTHER THAN THOSE THAT ARE SMALL SCALE. THIS PROJECT, THROUGH ESF AND HOST COUNTRY GOVERNMENT FUNDING, WILL PROVIDE ASSISTANCE FOR CONSTRUCTION OF APPROXIMATELY 640 WATER SYSTEMS IN EIGHT PROVINCES OF ECUADOR, SERVING ROUGHLY 320,000 PERSONS.

3. AID/W UNDERSTANDS THAT PREPARATION OF PROJECT PAPER IS FAR ADVANCED. TO PERMIT MISSION TO PROCEED WITH

PROJECT PAPER AUTHORIZATION IN A TIMELY MANNER, YET ENSURE THAT ENVIRONMENTAL CONSIDERATIONS ARE INCORPORATED INTO PROJECT DESIGN AND IMPLEMENTATION, LAC CEO HESTER REQUESTS THAT THE PROJECT PAPER INCLUDE AS A CONDITION PRECEDENT THE CONDITION THAT NO FUNDS WILL BE DISBURSED FOR CONSTRUCTION OF WATER SYSTEMS UNTIL THE ENVIRONMENTAL ASSESSMENT HAS BEEN COMPLETED, AND RECOMMENDATIONS OF THE EA HAVE BEEN INCORPORATED INTO PROJECT IMPLEMENTATION.

INFO	
FIN	
PLA	
RCO	
EXO	
CONT	
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GDO/PSD	
ARDO	
FHD	
RH/DO	
HUM	
RI	
VA	
ENV	
WASH	

4. PER REG. 16, PRIOR TO CONDUCTING THE ENVIRONMENTAL ASSESSMENT, MISSION IS REQUESTED TO CABLE SCOPE OF WORK FOR ENVIRONMENTAL ASSESSMENT TO LAC CEO HESTER FOR HIS REVIEW AND APPROVAL AS SOON AS SCOPING EXERCISE FOR EA IS COMPLETED. REMS/SA, H. CLARK SHOULD PARTICIPATE IN THIS EXERCISE AND IN PREPARATION OF EA. LAC CEO ALSO SUGGESTS THAT MISSION USE WASH PROJECT TO ASSIST IN PREPARATION OF EA SCOPE OF WORK, AND CONDUCT OF EA. WASH RECENTLY COMPLETED AN EA FOR A RURAL WATER AND



SANITATION PROJECT FOR USAID/HONDURAS, AND DID AN EXCELLENT JOB. DENNIS LONG, ST/H PROJECT MANAGER FOR WASH, SUGGESTED USE OF MISSION P&S FUNDS FOR PROCUREMENT OF WASH SERVICES TO EXPEDITE CONTRACTING, AND NOTES THAT S&T CONTRACTS HAS ESTABLISHED A JUNE 30 DEADLINE FOR BUY-INS USING PROJECT FUNDS. IT IS ESTIMATED THAT THE SERVICES OF TWO PEOPLE FROM WASH, WORKING TOGETHER WITH REMS/SA, H. CLARK COULD COMPLETE THE EA IN TWO TO THREE WEEKS. THE WASH TEAM LEADER SHOULD BE SOMEONE WITH EXPERIENCE IN THE PREPARATION OF EAs FOR RURAL WATER AND SANITATION PROJECTS, AND IN WORKING IN LATIN AMERICA.

5. IT IS ANTICIPATED THAT THE POTENTIAL FOR ADVERSE ENVIRONMENTAL IMPACTS EXISTS DUE TO CONSTRUCTION OF SOME 640 WATER SYSTEMS, BUT THAT THESE IMPACTS CAN BE MINIMIZED. POTENTIAL IMPACTS WILL BE CONTROLLED OR AVOIDED USING PRUDENT CONSTRUCTION PRACTICES FOR WATER INTAKE STRUCTURES AND LOCATING LATRINES AT MAXIMUM DISTANCE AND AT THE RIGHT TOPOGRAPHICAL LOCATIONS FROM WELLS AND/OR WATER TABLE. ANALYSIS AND MONITORING OF WATER QUALITY WILL HELP REDUCE HEALTH IMPACTS BY PROTECTING AGAINST TOXIC SUBSTANCES IN WATER SUPPLIES. THE ENVIRONMENTAL ASSESSMENT SHOULD ADDRESS THESE CONCERNS BY 1) REVIEWING CURRENT CRITERIA USED BY THE IPOS (ECUADORIAN INSTITUTE FOR SANITARY WORKS) IN LOCATING WATER INTAKE STRUCTURES, LATRINES AND WELLS AND SUBMITTING RECOMMENDATIONS FOR IMPROVEMENT; 2) PREPARING RECOMMENDATIONS FOR CONSTRUCTION PRACTICES WHICH WILL

REDUCE EROSION OF RUNOFF WATER FROM STORAGE TANKS, WELL AND HOUSEHOLD CONNECTIONS AND ELIMINATE POOLS OF WATER ASSOCIATED WITH POOR DRAINAGE; 3) VISIT PAST SITES WHERE WATER AND SANITATION FACILITIES HAVE BEEN CONSTRUCTED UNDER THE EARLIER RURAL WATER SUPPLY AND SANITATION PROJECT (318-2015), EVALUATE THE ENVIRONMENTAL IMPACTS OF SUCH ACTIVITIES, AND MAKE RECOMMENDATIONS TO MITIGATE ANY SUCH IMPACTS; AND 4) RECOMMEND WATER QUALITY MONITORING PROGRAMS AND PROGRAMS FOR PROTECTION OF WATER SUPPLIES, AS APPROPRIATE.

6. LAC CEO LOOKS FORWARD TO RECEIVING EA SCOPE OF WORK AND WILL EXPEDITE REVIEW AND APPROVAL OF EA. BAKER

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0998

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UNCLASSIFIED

STATE 215272

ANNEX H

Page 4 of 4

ACTION AID2 INFO DCM/3

VZCZCQTO893
PP RUEHQ
DE RUEHC #5272 1882157
ZNR UUUUU ZZH
P 072152Z JUL 89
FM SECSTATE WASHDC
O AMEMBASSY QUITO PRIORITY 6209
BT
UNCLAS STATE 215272

REPLY DUE	7/12/89
<input type="checkbox"/>	NO REPLY NEEDED
<input type="checkbox"/>	REPLY BY
ON	DATE INITIALS
FILE	

LOC: 023 616
07 JUL 89 2159
CN: 34219
CHRG: AID
DIST: AID

AIDAC Q I O FOR B. GOLDMAN, M. DEAL, H. CLARK

E.O. 12356: N/A

TABS:

SUBJECT: IEE APPROVAL AND PROJECT COVENANT FOR WATER AND SANITATION FOR HEALTH AND ECUADOREAN DEVELOPMENT (WASHED) PROJECT (518-0081)

REF: QUITO 8583

1. LAC CEO HESTER APPRECIATES MISSION RESPONSIVENESS TO ENVIRONMENTAL ISSUES UNDER SUBJECT PROJECT, WILLINGNESS TO CONDUCT ENVIRONMENTAL ASSESSMENT (EA), AND LOOKS FORWARD TO RECEIVING EA IN THE NEAR FUTURE. BASED ON PAST EXPERIENCE WITH WASH PROJECT, WE EXPECT TIMELY COMPLETION OF EA WHICH WILL CONTRIBUTE SIGNIFICANTLY TO DEVELOPMENT OF ENVIRONMENTALLY-SOUND WATER AND SEWERAGE SYSTEMS IN ECUADOR. LAC/DR/E WILL EXPEDITE REVIEW AND APPROVAL OF ENVIRONMENTAL ASSESSMENT.

2. PER REFTTEL, WE UNDERSTAND CONSTRUCTION OF WATER SYSTEMS IS ONGOING AND SUPPORTED BY FUNDS MANAGED BY GOE FROM EXISTING LOCAL CURRENCY AGREEMENTS. IT IS FURTHER UNDERSTOOD THAT FUTURE CONSTRUCTION WILL BE FINANCED BY LOCAL FUNDS ATTRIBUTED AS AID FUNDED CONSTRUCTION COSTS. GIVEN LACK OF DIRECT CONTROL OVER THESE FUNDS,

THAT CONSTRUCTION IS ONGOING, AND THAT INTERRUPTION OF CONSTRUCTION COULD NEGATIVELY IMPACT LEVERAGE OF GOE CONSTRUCTION FUNDS AND REACHING AGREEMENT, LAC CEO HESTER CONCURS WITH MISSION REQUEST TO ESTABLISH COVENANT, RATHER THAN CONDITION PRECEDENT, REQUIRING THAT RECOMMENDATIONS FROM THE EA BE INCLUDED IN PROJECT DESIGN OR INITIATED IN IMPLEMENTATION PLAN BY A FIXED DATE, NO LATER THAN FOUR MONTHS AFTER AGREEMENT IS SIGNED. MISSION MUST REPORT BY CABLE TO LAC/DR/E WHEN TERMS OF COVENANT ARE MET AND TAKE ALL ACTIONS POSSIBLE TO ENSURE TERMS ARE MET WITHIN THE FOUR MONTH TIME FRAME. EAGLEBURGER

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WASH	F.H.L.
DDI	
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RHUDO	
HURO	
RE	5
WER	
EMO	
WASH	

UNCLASSIFIED

STATE 215272

ANNEX I

FINAL EVALUATION REPORT

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Executive Summary
Final Evaluation
of
Integrated Rural Health Delivery System Project (518-0015)
Rural Water Supply and Sanitation Component

Conducted by WASH III Project

March, 1989

EXECUTIVE SUMMARY

At the request of USAID/Ecuador, the Water and Sanitation for Health (WASH) Project sent a three-person team to Ecuador for three weeks in March 1989 to conduct a final evaluation of the Integrated Rural Health Delivery System Project. The focus of the evaluation was primarily on the past two years of the project, from the signing of Project Amendment 9 in July 1987.

The following is a summary of the team's findings, conclusions, and recommendations.

Findings:

1. USAID has used a team construction method called an "operational module" to demonstrate the effectiveness of decentralizing rural water supply and sanitation systems (RWSS).
2. Decentralization is not a current policy for projects not funded by USAID, but the government is interested in reestablishing it with a USAID-assisted project.
3. During the past year, the Ecuadorian Institute of Sanitary Works (IEOS) has trained approximately 1,200 project-related personnel.
4. This training has been effective in manual skills, less so in promotional skills and hygiene and health.
5. One of the strongest achievements of the project has been to establish community ownership and management of RWSS.
6. The WASH team estimates that community water systems and community water boards are being operated and maintained in the proportion of 60 percent good, 20 percent fair, and 20 percent poor.
7. Community-determined and enforced tariffs are too low to cover recurrent costs in most systems.
8. Communities have demonstrated the ability to maintain their own systems.
9. Promotion of health and hygiene education for community members and board officials has been weak.
10. The modular system has proven to be an efficient means of organizing construction. USAID has demonstrated that a team of one engineer, three promotores, and one administrator can construct six to seven systems a year.

11. The average cost of each RWSS is \$22,000.
12. A number of appropriate technology experiments have been tried without positive results.
13. Sector coverage for RWSS is currently estimated to be between 32 and 37 percent.
14. Long-term technical assistance has influenced policy towards decentralization and community participation and ownership.
15. Sustainability of constructed systems could be enhanced with better promotion and more in-depth knowledge of community culture.
16. The social marketing approach to health education is to be attempted in the final year of the project. It will require community-level interventions in addition to publicity. The current plan takes this into account to its great credit.
17. Health messages on radio and television tailored for survey communities will not prove effective for communities outside the target area that have a different water use/cultural-community profile.
18. The prospective social marketing approach does not target the usual caretakers of children such as older children, grandparents, and other extended family members.
19. The team was unable to determine whether the current project has had a significant impact on health.
20. The linkage of the water and sanitation project to other efforts to improve child survival (ORT, family spacing, immunizations) is important. Any follow-on project should support child survival activities.
21. The project has had a favorable impact on women, saving them time in carrying water, and improving personal and family hygiene.

Conclusions:

1. The concept of local participation, ownership, and self-management has been totally institutionalized.
2. The operational module should be part of any new project.
3. The delegation of authority to provincial-level decision makers is integral to decentralization.
4. FONASA funding has been erratic and projects depending on these funds have sometimes been left uncompleted.

5. Although it has made a good beginning, the training department will need strengthening in curriculum development and higher-level skill training for *promotores* and engineers.
6. The relatively high level of community maintenance of constructed systems (50-60 percent) is a good indicator of project success.
7. The follow-up by IEOS staff of community operation and maintenance has been weak.
8. User education in sanitation needs improvement, particularly in latrine promotion, construction, and water usage.
9. Construction targets of 18 systems per year for each operational module are unrealistic.
10. Logistical problems and lack of transportation have hampered the achievement of construction and promotion goals.
11. Latrines with concrete pour-flush devices are not being used because they are hard to keep clean and are aesthetically unappealing.
12. Appropriate technology has yielded few results but should be continued with more organization and supervision.
13. Future technical assistance should separate the USAID monitoring function from training and institution building.
14. There is evidence that 900 communities registered by IEOS are willing to undertake the responsibility of administration and maintenance of their RWSS.
15. Sociocultural factors must be considered in the optimum use of water and sanitation. Too many communities do not understand the health benefits of latrine use.
16. The team was unable to find evidence that health had been improved as a direct result of water and sanitation facilities.
17. Women play a prominent role as community leaders but are underrepresented as IEOS *promotores* and on community water boards.
18. Little attention has been given to health education in the project. The current corps of *promotores* is not large enough to provide health education as well as operation and maintenance supervision. Furthermore, health messages from male *promotores* are highly unlikely to win the acceptance of community women.
19. The plan for a social marketing approach to health education has been well designed for communities with water systems. It is not targeted to reach a larger Ecuadorian audience.

Recommendations:

1. A decentralized rural water and sanitation delivery system through IEOS is the key to effecting 70 percent sectoral coverage by 1995.
2. Enhanced operation and maintenance through systems development and stronger health and hygiene education should be an integral part of the follow-on project.
3. The operational module concept and the delegation of financial, technical, and community selection authority should also be major elements.
4. Counterpart funds from FONASA should be essential for the financing of RWSS. USAID should provide enough construction funding to allow assured demonstration and training.
5. Attention to lessons learned should be structured into a project learning system for project participants.
6. Increased technical assistance should be provided in the follow-on project by a mixture of local and external staff, depending upon locally available skills.
7. Training and human resource development should target 90 percent of current operators and water board members and all new system communities.
8. All existing and future systems should be targeted to raise operation and maintenance to an 80 percent level of efficiency.
9. The construction and use of latrines should be targeted in the follow-on project, and options for latrine improvement packages should be developed by IEOS.
10. Construction targets for each operational module should be set at a minimum of nine systems per year.
11. Research in appropriate technology should be continued for alternatives to chlorine or for lowering chlorine costs, for low-cost construction, and for other areas of emerging need.
12. IEOS should increase the number of *promotores*, at least 50 percent of whom eventually should be women. The number of its women engineers should also be proportionate to the percentage of female engineering graduates in the country.
13. A social anthropologist should be hired as a permanent member of the IEOS promotion and education staff to assist in tailoring promotional and health messages to the realities of Ecuadorian community diversity.

ANNEX J

STATUTORY CHECKLIST

PROJECT CHECKLIST

A. GENERAL CRITERIA FOR PROJECT

1. FY 1988 Continuing Resolution Sec. 523; FAA Sec. 634A. If money is sought to obligate for an activity not previously justified to Congress, or for an amount in excess of amount previously justified to Congress, has Congress been properly notified? 1. N/A.
2. FAA Sec. 611(a)(1). Prior to obligation in excess of \$500,000, will there be (a) engineering, financial or other plans necessary to carry out the assistance, and (b) a reasonably firm estimate of the cost to the U.S. of the assistance? 2. Yes. This Project Paper includes a detailed Project budget.
3. FAA Sec. 611(a)(2). If 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? 3. No legislative action by the Government of Ecuador is required.
4. FAA Sec. 611(b); FY 1987 Continuing Resolution Sec. 501. If project is for water or water-related land resource construction, have benefits and costs been computed to the extent practicable in accordance with the principles, standards, and procedures established pursuant to the Water Resources Planning Act (42 U.S.C. 1962, et seq.)? (See AID Handbook 3 for guidelines.) 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.

- 2 -

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

5. N/A
6. FAA Sec. 209. Is project susceptible to execution as part of regional or multilateral project? If so, why is project not so executed? Information and conclusion whether assistance will encourage regional development programs.

6. The Mission does not consider this Project to be susceptible to execution as part of a regional or multilateral project.
7. FAA Sec. 601(a). Information and conclusions on whether projects will encourage efforts of the country to: (a) increase the flow of international trade; (b) foster private initiative and competition; (c) encourage development and use of cooperatives, credit unions, and savings and loan associations; (d) discourage monopolistic practices; (e) improve technical efficiency of industry, agriculture and commerce; and (f) strengthen free labor unions.

7. N/A.
8. FAA Sec. 601(b). Information and conclusions on how project will encourage U.S. private trade and investment abroad and encourage private U.S. participation in foreign assistance programs (including use of private trade channels and the services of U.S. private enterprise).

8. Project procurement is to take place from the U.S. and Ecuador. Technical assistance is to be partially provided by the U.S.

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|---|--|
| 9. <u>FAA Sec. 612(b), 636(h)</u> . 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. | 9. The host country will provide local currency resources to finance 63% of total Project costs. |
| 10. <u>FAA Sec. 612(d)</u> . Does the U.S. own excess foreign currency of the country and, if so, what arrangements have been made for its release? | 10. No, the U.S. does not own excess Ecuadorian currency. |
| 11. <u>FY 1988 Continuing Resolution Section 521</u> . 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 the U.S. producers of the same, similar or competing commodity? | 11. N/A. |
| 12. <u>FY 1988 Continuing Resolution Sec. 541</u> . If assistance is being made available to a PVO, has that organization provided upon timely request any document, file, or record necessary to the auditing requirements of AID, and is the PVO registered with AID? | 12. N/A. |
| 13. <u>FY 1988 Continuing Resolution Sec. 553</u> . Will the assistance (except for programs in Caribbean Basin Initiative countries under U.S. Tariff Schedule "Section 807," which allows reduced tariffs on articles assembled abroad from U.S.-made components) be used directly to procure | 13. No. |

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- 4 -

feasibility studies, prefeasibility studies, or project profiles of potential investment in, or to assist the establishment of facilities specifically designed for, the manufacture for export to the United States or to third country markets in direct competition with U.S. exports, of textile, apparel, footwear, handbags, flat goods (such as wallets or coin purses worn on the person), work gloves or leather wearing apparel?

14. FAA Sec. 118(c). Does the assistance comply with the environmental procedures set forth in AID Regulation 16? Does the assistance place a high priority on conservation and sustainable management of tropical forests? Specifically, does the assistance, to the fullest extent feasible: (a) stress the importance of conserving and sustainably managing forest resources; (b) support activities which offer employment and income alternatives to those who otherwise would cause destruction and loss of forests, and help countries identify and implement alternatives to colonizing forested areas; (c) support training programs, educational efforts, and the establishment or strengthening of institutions to improve forest management; (d) help end destructive slash-and-burn agriculture by supporting stable and productive farming practices; (e) help conserve forests which have not yet been degraded, by helping to increase production on lands

14. An IEE was prepared following PID preparation which recommended a preliminary analysis of the potential impacts by sampling some of the systems already installed by IEOS. The preliminary analysis, conducted in June 1989, concluded that there are not present or potential impacts. However, the LAC/CEO determined that the potential for adverse environmental impacts from project activities warrants the preparation of a full environmental assessment for the Project. Accordingly, USAID has made arrangements for a team of WASH III experts to conduct the EA in August 1989. The recommendations from the EA will be incorporated into the project design and implementation.
- (a) N/A
(b) N/A
(c) N/A
(d) N/A
(e) N/A
(f) N/A
(g) N/A
(h) N/A

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

(i) N/A
(j) N/A
(k) N/A

15. FAA Sec. 119(g)(4)-(6). Will the assistance (a) support training and education efforts which improve the capacity of recipient countries to prevent loss of biological diversity; (b) be provided under a long-term agreement in which

15. (a) No.
(b) No.
(c) No.
(d) No.

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- 6 -

the recipient country agrees to protect ecosystems or other wildlife habitats; (c) support efforts to identify and survey ecosystems in recipient countries worthy of protection; or (d) by any direct or indirect means significantly degrade national parks or similar protected areas or introduce exotic plants or animals into such areas?

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| 16. <u>FAA 121(d)</u> ; If a Sahel project, has a determination been made that the host government has an adequate system for accounting for and controlling receipt and expenditure of project funds (either dollars or local currency generated therefrom)? | 16. N/A |
| 17. <u>FY 1988 Continuing Resolution Sec. 514</u> . If funds are being obligated under an appropriation account to which they were not appropriated, has prior approval of the Appropriations Committees of Congress been obtained? | 17. N/A |
| 18. <u>FY Continuing Resolution Sec. 515</u> . If deob/reob authority is sought to be exercised in the provision of assistance, are the funds being obligated for the same general purpose, and for countries within the same general region as originally obligated, and have the Appropriations Committees of both Houses of Congress been properly notified? | 18. N/A |
| 19. <u>State Authorization Sec. 139</u> (as interpreted by conference report). Will confirmation of the date of signing of the project agreement, including the amount involved, be cabled | 19. No, the grant agreement is for less than \$25 million and the project is not unusually significant for reasons other than the size of the financial commitment. |

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to State L/T and AID LEG within 60 days of the agreement's entry into force with respect to the United States, and will the full text of the agreement be pouched to those same offices? (See Handbook 3, Appendix 6G for agreements covered by this provision).

20. FY 1988 Continuing

Resolution. If assistance is to be made to a United States PVO (other than a cooperative development organization), does it obtain at least 20 percent of its total annual funding for international activities from sources other than the United States Government?

20. N/A

B. FUNDING CRITERIA FOR PROJECT

1. Development Assistance Project Criteria

a. FAA Sec. 102(b), 111, 113, 281(a). Describe extent to which activity will (a) effectively involve the poor in development, by extending access to economy at local level, increasing labor-intensive production and the use of appropriate technology, dispersing investment from cities to small towns and rural areas, and insuring wide participation of the poor in the benefits of development on a sustained basis, using the appropriate U.S. institutions; (b) help develop cooperatives, especially by technical assistance, to assist rural and urban poor to help themselves toward

a. (a) The project will have a direct impact on the quality of life of the poor by improving the accessibility and affordability of potable water and sanitation services in rural areas of Ecuador; (b) this project will continue to promote the formation of village water boards to operate and maintain the systems; (c) this project will support child survival activities and GOE efforts to improve the health status of Ecuadorian; (d) project will improve situation of women in two ways: by making clean water available thus reducing time spent hauling water; and by reducing infant morbidity and mortality, and thus reducing the amount of time that

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- 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, 120-21. Does the project fit the criteria for the source of funds (functional account) being used?
- c. FAA Sec. 107. Is emphasis placed on use of appropriate technology (relatively smaller, cost-saving, labor-using technologies that are generally most appropriate for the small farms, small businesses, and small incomes of the poor)?
- d. FAA Sec. 110, 124(d). Will the recipient country provide at least 25% of the costs of the program, project, or activity with respect to which the assistance is to be furnished (or is the latter cost-sharing requirement being waived for a "relatively least developed" country)?
- e. FAA Sec. 128(b). If the activity attempts to increase the institutional capabilities of private organizations or the women must spent caring for the sick; (e) N/A.
- b. Yes. This Project fits the criteria for Health funds.
- c. Yes. The project focuses on development and implementation of appropriate technologies for RWS/S.
- d. Yes. The recipient country will provide 63 percent of the costs of the program.
- e. Yes. The Project has been so designed and includes an extensive monitoring and evaluation component to assess the impact of project

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government of the country, or if it attempts to stimulate scientific and technological research, has it been designed and will it be monitored to ensure that the ultimate beneficiaries are the poor majority?

activities in the target provinces.

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.

f. The Project responds to a request from the Government of Ecuador and in seeking to improve the effectiveness of RWS/S programs will utilize local expertise for the provision of technical assistance and support training for program interventions and effective management.

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

g. No.

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

No.

Are any of the funds to be used to pay for any biomedical research which relates, in whole or in part, to methods of, or

No.

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the performance of, abortions or involuntary sterilization as a means of family planning?

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| h. <u>FY 1988 Continuing Resolution</u> . Is the assistance being made available to any organization or program which has been determined to support or participate in the management of a program of coercive abortion or involuntary sterilization? | h. No. |
| If assistance is from the population functional account, are any of the funds to be made available to voluntary family planning projects which do not offer, either directly or through referral to or information about access to, a broad range of family planning methods and services? | N/A |
| i. <u>FAA Sec. 601(e)</u> . Will the project utilize competitive selection procedures for the awarding of contracts, except where applicable procurement rules allow otherwise? | i. Yes. Technical assistance contracts are to be awarded on a competitive basis. |
| j. <u>FY 1988 Continuing Resolution</u> . What portion of the funds will be available only for activities of economically and socially disadvantaged enterprises, historically black colleges and universities, and private and voluntary organizations which are controlled by individuals who are black Americans, | j. No set-asides have been identified but the IEOS will be encouraged to draw upon these sources to the extent practicable. |

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Hispanic Americans, or Native Americans, or who are economically or socially disadvantaged (including women)?

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| <p>k. <u>FAA Sec. 118 (c) (13)</u>. If the assistance will support a program or project significantly affecting tropical forests (including projects involving the planting of exotic plant species), will the program or project (a) be based upon careful analysis of the alternatives available to achieve the best sustainable use of the land, and (b) take full account of the environmental impacts of the proposed activities on biological diversity?</p> | <p>k. N/A</p> |
| <p>1. <u>FAA Sec. 118(c) (14)</u>. Will assistance be used for (a) the procurement or use of logging equipment, unless an environmental assessment indicates that all timber harvesting operations involved will be conducted in an environmentally sound manner and that the proposed activity will produce positive economic benefits and sustainable forest management systems; or (b) actions which significantly degrade national parks or similar protected areas which contain tropical forests, or introduce exotic plants or animals into such areas?</p> | <p>1. a) No.
b) No.</p> |

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

- m. a) No.
- b) No.
- c) No.
- d) No.

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

n. N/A.

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contained in section 102 of the FAA; (c) being provided, when consistent with the objectives of such assistance, through African, United States and other PVOs that have demonstrated effectiveness in the promotion of local grassroots activities on behalf of long-term development in Sub-Saharan Africa; (d) being used to help overcome shorter-term constraints to long-term development, to promote reform of sectoral economic policies, to support the critical sector priorities of agricultural production and natural resources, health, voluntary family planning services, education, and income generating opportunities, to bring about appropriate sectoral restructuring of the Sub-Saharan African economies, to support reform in public administration and finances and to establish a favorable environment for individual enterprise and self-sustaining development, and to take into account, in assisted policy reforms, the need to protect vulnerable groups; (e) being used to increase agricultural production in ways that protect and restore the natural resource base, especially food production, to maintain and improve basic transportation and communication networks, to maintain and restore the natural resource base in

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ways that increase agricultural production, to improve health conditions with special emphasis on meeting the health needs of mothers and children, including the establishment of self-sustaining primary health care systems that give priority to preventive care, to provide increased access to voluntary family planning services, to improve basic literacy and mathematics especially to those outside the formal educational system and to improve primary education, and to develop income-generating opportunities for the unemployed and underemployed in urban and rural areas?

- o. FY 1988 Continuing Resolution Sec. 552 (as interpreted by conference report). If assistance is for agricultural development activities (specifically, any testing or breeding feasibility study, variety improvement or introduction, consultancy, publication, conference, or training), are such activities (a) specifically and principally designed to increase agricultural exports by the host country to a country other than the United States, where the export would lead to direct competition in that third country with exports of a similar commodity grown or produced in the United

o. N/A.

States, and can the activities reasonably be expected to cause substantial injury to U.S. exporters of a similar agricultural commodity; or (b) in support of research that is intended primarily to benefit U.S. producers?

2. Development Assistance Project Criteria (Loans Only)

2. Project is DA grant-funded

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

a. N/A.

b. FAA Sec. 620(d). If assistance is for any productive enterprise which will compete with U.S. enterprises, is there an agreement by the recipient country to prevent export to the U.S. of more than 20 percent of the enterprise's annual production during the life of the loan, or has the requirement to enter into such an agreement been waived by the President because of a national security interest?

b. N/A.

c. FY 1987 Continuing Resolution. If for a loan to a private sector institution from funds made available to carry out the provisions of FAA Sections 103 through 106, will loan be provided, to the maximum extent practicable, at or near the prevailing interest rate paid on Treasury obligations of similar maturity at the time of obligating such funds?

c. N/A.

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|---|--------------------------------|
| d. <u>FAA Sec. 122(b)</u> . Does the activity give reasonable promise of assisting long-range plans and programs designed to develop economic resources and increase productive capacities? | d. N/A. |
| 3. <u>Economic Support Fund Project Criteria</u> | 3. Project is DA grant-funded. |
| a. <u>FAA Sec. 531(a)</u> . Will this assistance promote economic and political stability? To the maximum extent feasible, is this assistance consistent with the policy directions, purposes, and programs of part I of the FAA? | a. N/A. |
| b. <u>FAA Sec. 531(e)</u> . Will this assistance be used for military or paramilitary purposes? | b. N/A. |
| c. <u>FAA Sec. 609</u> . If commodities are to be granted so that sale proceeds will accrue to the recipient country, have Special Account (counterpart) arrangements been made? | c. N/A. |

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5C(3) - STANDARD ITEM CHECKLIST

A. PROCUREMENT

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| 1. <u>FAA Sec. 602(a)</u> . Are there arrangements to permit U.S. small business to participate equitably in the furnishing of commodities and services financed? | 1. The project specifies that the acquisition of commodities and services be made through competitive means which permit participation by U.S. small business. |
| 2. <u>FAA Sec. 604(a)</u> . Will all procurement be from the U.S. except as otherwise determined by the President or under delegation from him? | 2. Procurement will be from the U.S. or Ecuador, as authorized for AID Grant funds. A waiver will be approved in the Project Authorization for procurement from Code 935 countries of 20 motorcycles (175 cc.). |
| 3. <u>FAA Sec. 604(d)</u> . If the cooperating country discriminates against marine insurance companies authorized to do business in the U.S., will commodities be insured in the United States against marine risk with such a company? | 3. Ecuador does not so discriminate. |
| 4. <u>FAA Sec. 604(e); ISDCA of 1980 Sec. 705(a)</u> . If non-U.S. procurement of agricultural commodity or product hereof 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. N/A |
| 5. <u>FAA Sec. 604(g)</u> . Will construction or engineering services be procured from firms of advanced developing countries which are otherwise eligible under Code 941 and which have attained a competitive capability in international markets in one of these areas? (Exception | 5. No. |

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for those countries which receive direct economic assistance under the FAA and permit United States firms to compete for construction or engineering services financed from assistance programs of these countries.)

6. FAA Sec. 603. Is the shipping excluded from compliance with requirement in section 901(b) of the Merchant Marine Act of 1936, as amended, that at least 50 percent 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 such vessels are available at fair and reasonable rates?
6. No. Shipping is not excluded from these requirements.
7. FAA Sec. 621(a). If technical assistance is financed, will such assistance be furnished by private enterprise on a contract basis to the fullest extent practicable? Will the facilities and resources of other Federal agencies be utilized, when they are particularly suitable, not competitive with private enterprise, and made available without undue interference with domestic programs?
7. Yes. All technical services will be procured from private sources.
8. International Air Transportation Fair Competitive Practices Act, 1974. If air transportation of persons or property is financed on grant basis, will U.S. carriers be used to the extent such service is available?
8. Yes.

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9. FY 1988 Continuing Resolution Sec. 504. If the U.S. Government is a party to a contract for procurement, does the contract contain a provision authorizing termination of such contract for the convenience of the United States?

9. Yes. All U.S. government contracts will contain such clauses.

10. FY 1988 Continuing Resolution Sec. 524. If assistance is for consulting service through procurement contract pursuant to 5 U.S.C. 3109, are contract expenditures a matter of public record and available for public inspection (unless otherwise provided by law or Executive order)?

10. Yes, they will be.

B. CONSTRUCTION

B. Construction is not be financed under the project.

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

1. N/A.

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. N/A.

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 (except for productive enterprises in Egypt that were described in the CP), or does assistance have the express approval of Congress?

3. N/A.

C. OTHER RESTRICTIONS

1. FAA Sec. 122(b). If development loan repayable in dollars, is interest rate at

1. N/A.

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least 2 percent per annum during a grace period which is not to exceed ten years, and at least 3 percent per annum thereafter?

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| 2. <u>FAA Sec. 301(d)</u> . If fund is established solely by U.S. contributions and administered by an international organization, does Controller General have audit rights? | 2. N/A. |
| 3. <u>FAA Sec. 620(h)</u> . 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 or activities of the Communist-bloc countries? | 3. Yes. |
| 4. Will arrangements preclude use of financing: | 4. The Project will not finance any of the items listed below. |
| a. <u>FAA Sec. 104(f); FY 1987 Continuing Resolution Sec. 525, 538</u> . (1) To pay for performance of abortions as a method of family planning or to motivate or coerce persons to practice abortions; (2) to pay for performance of involuntary sterilization as method of family planning, or to coerce or provide financial incentive to any person to undergo sterilization; (3) to pay for any biomedical research which relates, in whole or part, to methods or the performance of abortions or involuntary sterilizations as a means of family planning; or (4) to lobby for abortion? | |

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- b. FAA Sec. 483. To make reimbursements, in the form of cash payments, to persons whose illicit drug crops are eradicated?
- c. FAA Sec. 620(g). To compensate owners for expropriated or nationalized property, except to compensate foreign nationals in accordance with a land reform program certified by the President?
- d. FAA Sec. 660. To provide training, advice, or any financial support for police, prisons, or other law enforcement forces, except for narcotics programs?
- e. FAA Sec. 6t2. For CIA activities?
- f. 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?
- g. FY 1988 Continuing Resolution, Sec. 503. To pay pensions, annuities, retirement pay, or adjusted service compensation for military personnel?
- h. FY 1988 Continuing Resolution, Sec. 505. To pay U.N. assessments arrearages or dues?
- i. FY 1988 Continuing Resolution, Sec. 506. To carry out provisions of

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FAA section 209(d)
(Transfer of FAA funds to
multilateral organizations
for lending)?

- j. FY 1988 Continuing Resolution, Sec. 510. To finance the export of nuclear equipment, fuel, or technology?
- k. FY 1988 Continuing Resolution, Sec. 511. 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.?
- l. FY 1988 Continuing Resolution, Sec. 516; State Authorization Sec. 109. To be used for publicity or propaganda purposes designed to support or defeat legislation pending before Congress, to influence in any way the outcome of a political election in the United States, or for any publicity or propaganda purposes not authorized by Congress?

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likely to change, AID should seriously consider reducing the level of activity in the affected sector, or, if necessary, in the general development program. It makes little sense to invest in programs that are predicated on a given level of recurrent financial support, if that support is unlikely to be forthcoming. AID activities, in such an environment, should be, wherever possible, designed so as to be insulated from government budget problems. Moreover, even small pilot projects are of limited value, if the financial resources are not available to broaden their reach, if they are successful.

VI. Conclusions and Recommendations

We have seen that recurrent cost problems are the result of inappropriate policies on the part of donors or LDC governments. The existence of a recurrent cost problem is *prima facie* evidence of a misallocation of resources.

The recommendations for policy that are suggested by the paper can be divided into five categories: analysis, project design, policy reform, reallocation of assistance, and recurrent cost funding.

A. Analysis

1. In order to argue that a given country is suffering from a recurrent cost problem, Missions must provide evidence (not necessarily quantitative) that indicates that the stream of returns to recurrent financing is greater than that to new investments.
2. In determining whether or not there will be recurrent cost problems in the future, it is necessary to carefully project key *ex ante* budget categories. These include:
 - (a) taxes by various types
 - (b) non-tax revenues
 - (c) foreign assistance
 - (d) expenditure by type
 - (e) transfers and subsidies
 - (f) interest and debt repayment
 - (g) capital expenditures
 - (h) recurrent expenditures implicit in the development plan
3. Analysis should also include some discussion of the causes of the recurrent cost problem. It is necessary therefore to discuss:
 - (a) the efficiency of the tax administration system
 - (b) the degree of subsidization of various programs
 - (c) the allocation of government expenditures by various categories
 - (d) the costs and technologies adopted in producing of government services

(e) the degree to which public sector activities are a drain on, rather than a support of, the economy

(f) the impact of government macro policy on recurrent cost problems

4. All Project papers should analyze the recurrent cost implications of the project.

(B) Project design

If design is the cause of the problem, A.I.D. and LDC governments should work to design projects so as to assure that their recurrent cost components are consistent with economic feasibility.

(1) In countries suffering from a recurrent cost problem, the economic analysis of projects should use prices for government expenditures and revenues that reflect the scarcity value of government resources;

(2) Projects should be designed, to the extent possible, to maximize the revenues from service charges (or contributions of labor or in kind) consistent with the capacity of the beneficiaries to pay; and

(3) Where possible, government activities should be turned over to the market economy. This is generally desirable in all agricultural and industrial productive activities as well as marketing, distribution, trade and many services.

(C) Policy Reform

If LDC policies are the cause of the problem, the Missions should:

(1) attempt to persuade governments to make necessary reforms;

(2) enlist the support of the donor community for policy reform; and

(3) provide technical assistance in the form of expertise and training to support reforms, including such areas as fiscal policies and tax administration.

(D) Recurrent Cost Support

If recurrent costs constitute a serious problem and LDC government policies are appropriate and projects designed correctly, or requisite steps are taken to move toward appropriate policies and designs, then Missions should consider funding a portion of the recurrent costs of host country projects through a variety of mechanisms at the project, sectoral or macro levels for a period up to ten years, providing the country agrees to shoulder an increasing share of total costs over this period. Policy performance should be monitored closely and frequently to determine whether such assistance should be continued.

It is important to note, that direct funding of recurrent costs, either at the project or budget

level, is only justifiable under fairly narrow conditions. These conditions, which have been spelled out in this paper include:

- (a) An acceptable policy framework or clear movement toward such a policy framework;
- (b) An assurance that recurrent cost support has higher development impact than new investments;
- (c) An inability of the host country to undertake recurrent cost financing;

(d) A carefully phased plan exists for shifting the entire burden to the host government.

(E) Reallocation of Assistance

If the host government refuses to take sufficient action on project design and/or policy reform, then AID should seriously consider reducing the level of assistance to the affected sector or country.

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(a). Are there arrangements to permit U.S. small business to participate equitably in the furnishing of commodities and services financed? YES
2. FAA Sec. 604(a). Will all procurement be from the U.S. except as otherwise determined by the President or determined under delegation from him? YES
3. FAA Sec. 604(d). If the cooperating country discriminates against marine insurance companies authorized to do business in the U.S., will commodities be insured in the United States against marine risk with such a company? N.A.
4. FAA Sec. 604(e); ISDCA of 1980 Sec. 705(a). If non-U.S. procurement of agricultural commodity or product thereof 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.) N.A.

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5. FAA Sec. 604(q). Will construction or engineering services be procured from firms of advanced developing countries which are otherwise eligible under Code 941 and which have attained a competitive capability in international markets in one of these areas? (Exception for those countries which receive direct economic assistance under the FAA and permit United States firms to compete for construction or engineering services financed from assistance programs of these countries.) NO
6. FAA Sec. 603. Is the shipping excluded from compliance with the requirement in section 901(b) of the Merchant Marine Act of 1936, as amended, that at least 50 percent 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 such vessels are available at fair and reasonable rates? NO.
7. FAA Sec. 621(a). If technical assistance is financed, will such assistance be furnished by private enterprise on a contract basis to the fullest extent practicable? Will the facilities and resources of other Federal agencies be utilized, when they are particularly suitable, not competitive with private enterprise, and made available without undue interference with domestic programs? YES
8. International Air Transportation Fair Competitive Practices Act, 1974. If air transportation of persons or property is financed on grant basis, will U.S. carriers be used to the extent such service is available? YES
9. FY 1989 Appropriations Act Sec. 504. If the U.S. Government is a party to a contract for procurement, does the contract contain a provision authorizing termination of such contract for the convenience of the United States? YES

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10. FY 1989 Appropriations Act Sec. 524. If assistance is for consulting service through procurement contract pursuant to 5 U.S.C. 3109, are contract expenditures a matter of public record and available for public inspection (unless otherwise provided by law or Executive order)? N.A.

B. CONSTRUCTION

1. FAA Sec. 601(d). If capital (e.g., construction) project, will U.S. engineering and professional services be used? NO
2. FAA Sec. 611(c). If contracts for construction are to be financed, will they be let on a competitive basis to maximum extent practicable? YES
3. FAA Sec. 620(k). If for construction of productive enterprise, will aggregate value of assistance to be furnished by the U.S. not exceed \$100 million (except for productive enterprises in Egypt that were described in the CP), or does assistance have the express approval of Congress? N.A.

C. OTHER RESTRICTIONS

1. FAA Sec. 122(b). If development loan repayable in dollars, is interest rate at least 2 percent per annum during a grace period which is not to exceed ten years, and at least 3 percent per annum thereafter? N.A.
2. FAA Sec. 301(d). If fund is established solely by U.S. contributions and administered by an international organization, does Comptroller General have audit rights? N.A.

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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 or activities of the Communist-bloc countries? YES
4. Will arrangements preclude use of financing:
- a. FAA Sec. 104(f); FY 1989 Appropriations Act Secs. 525, 536. (1) To pay for performance of abortions as a method of family planning or to motivate or coerce persons to practice abortions; (2) to pay for performance of involuntary sterilization as method of family planning, or to coerce or provide financial incentive to any person to undergo sterilization; (3) to pay for any biomedical research which relates, in whole or part, to methods or the performance of abortions or involuntary sterilizations as a means of family planning; or (4) to lobby for abortion? N.A.
- b. FAA Sec. 403. To make reimbursements, in the form of cash payments, to persons whose illicit drug crops are eradicated? N.A.
- c. FAA Sec. 620(g). To compensate owners for expropriated or nationalized property, except to compensate foreign nationals in accordance with a land reform program certified by the President? N.A.
- d. FAA Sec. 660. To provide training, advice, or any financial support for police, prisons, or other law enforcement forces, except for narcotics programs? N.A.
- e. FAA Sec. 662. For CIA activities? N.A.

- f. 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? YES
- g. FY 1989 Appropriations Act Sec. 503. To pay pensions, annuities, retirement pay, or adjusted service compensation for prior or current military personnel? YES
- h. FY 1989 Appropriations Act Sec. 505. To pay U.N. assessments, arrearages or dues? YES
- i. FY 1989 Appropriations Act Sec. 506. To carry out provisions of FAA section 209(d) (transfer of FAA funds to multilateral organizations for lending)? YES
- j. FY 1989 Appropriations Act Sec. 510. To finance the export of nuclear equipment, fuel, or technology? YES
- k. FY 1989 Appropriations Act Sec. 511. 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? YES
- l. FY 1989 Appropriations Act Sec. 516; State Authorization Sec. 109. To be used for publicity or propaganda purposes designed to support or defeat legislation pending before Congress, to influence in any way the outcome of a political election in the United States, or for any publicity or propaganda purposes not authorized by Congress? YES
- 5. FY 1989 Appropriations Act Sec. 584. Will any A.I.D. contract and solicitation, and subcontract entered into under such contract, include a clause requiring that U.S. marine insurance companies have a fair opportunity to bid for marine insurance when such insurance is necessary or appropriate? YES

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