

23 AUG 1978

PD-AAB-798-A1

5240114 (3)

AGENCY FOR INTERNATIONAL DEVELOPMENT <b>PROJECT PAPER FACESHEET</b>		1. TRANSACTION CODE <input type="checkbox"/> A - ADD <input type="checkbox"/> C - CHANGE <input type="checkbox"/> D - DELETE		PP 24p. 2. DOCUMENT CODE 3
3. COUNTRY/ENTITY NICARAGUA		4. DOCUMENT REVISION NUMBER <input type="text" value="1"/>		
5. PROJECT NUMBER (7 digits) <input type="text" value="524-0114"/>	6. BUREAU/OFFICE A. SYMBOL <input type="text" value="LA"/>		7. PROJECT TITLE (Maximum 40 characters) <input type="text" value="Rural Health Services"/>	
8. ESTIMATED FY OF PROJECT COMPLETION FY <input type="text" value="80"/>		9. ESTIMATED DATE OF OBLIGATION A. INITIAL FY <input type="text" value="78"/> B. QUARTER <input type="text" value="3"/> C. FINAL FY <input type="text" value="78"/> (Enter 1, 2, 3, or 4)		

10. ESTIMATED COSTS (\$000 OR EQUIVALENT \$1 - )						
A. FUNDING SOURCE	FIRST FY 78			LIFE OF PROJECT		
	B. FX	C. L/C	D. TOTAL	E. FX	F. L/C	G. TOTAL
AID APPROPRIATED TOTAL						
(GRANT)	( 112 )	( 78 )	( 190 )	( 240 )	( 422 )	( 662 )
(LOAN)	( )	( )	( )	( 2550 )	( 2450 )	( 5000 )
OTHER U.S. 1.						
OTHER U.S. 2.						
HOST COUNTRY		185	185		5400	5400
OTHER DONOR(S) PAHO				150		150
TOTALS	112	263	375	2940	8272	11212

11. PROPOSED BUDGET APPROPRIATED FUNDS (\$000)									
A. APPROPRIATION	B. PRIMARY PURPOSE CODE	PRIMARY TECH. CODE		E. 1ST FY 78		H. 2ND FY 79		K. 3RD FY	
		C. GRANT	D. LOAN	F. GRANT	G. LOAN	I. GRANT	J. LOAN	L. GRANT	M. LOAN
(1) PH	533	510	510	190					
(2)									
(3)									
(4)									
TOTALS									

A. APPROPRIATION	N. 4TH FY		O. 5TH FY		LIFE OF PROJECT		12. IN-DEPTH EVALUATION SCHEDULED
	P. GRANT	Q. LOAN	R. GRANT	S. LOAN	T. GRANT	U. LOAN	
(1)							MM   YY <input type="text" value="10"/>   <input type="text" value="81"/>
(2)							
(3)							
(4)							
TOTALS							

13. DATA CHANGE INDICATOR. WERE CHANGES MADE IN THE PID FACESHEET DATA, BLOCKS 12, 13, 14, OR 15 OR IN PRP FACESHEET DATA, BLOCK 12? IF YES, ATTACH CHANGED PID FACESHEET.

NO  
YES

14. ORIGINATING OFFICE CLEARANCE SIGNATURE <i>Barry Sidman</i> TITLE <b>Barry Sidman Mission Director</b>		15. DATE DOCUMENT RECEIVED IN AID/W. OR FOR AID/W OCCU. MENTS. DATE OF DISTRIBUTION DATE SIGNED <input type="text" value="15"/>   <input type="text" value="23"/>   <input type="text" value="78"/>
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JUN 16 1978

**ACTION MEMORANDUM FOR THE ASSISTANT ADMINISTRATOR (LAC)**

**FROM:** LAC/DR, Marshall D. Brown

**Problem:** To authorize a \$190,000 amendment for Nicaragua: Rural Health Institutional Development Grant 524-0114.

**Discussion:** The Rural Health Institutional Grant is part of a combined \$5.5 million loan/grant project which was authorized in June 1976. The purpose of this rural health project is to extend and improve rural health coverage among Nicaragua's rural poor by developing an integrated rural health delivery system. The program stresses community initiative and responsibility for preventive and primary health care; an improved human resource capability for rural public health services; a strengthened referral system based upon the health services provided by the rural hospitals; and upgraded management systems at the national level. The grant component of the program is designed to strengthen the institutional capacities of the Ministry of Health (MOH) in planning, management, evaluation and selected technical skills. Grant activities are to develop and perfect methodologies, curricula, training activities, community development activities and organizations that would assist in the implementation of loan programs.

The Mission is requesting additional grant funds to provide the MOH with financial and technical support to conduct a broad based evaluation of all health/development interventions to measure their impact on low-income groups. This will enable the GON to develop the capacity to allocate its resources for rural health in a more cost effective manner. The evaluation will focus on the community health activities being developed and implemented under Grant 0110 and Loan 032 and, in particular, will study the effect on health indices of providing various combinations of environmental sanitation, potable water, health education, deparasitization activities, nutrition improvement, and village paramedical personnel. The evaluation will also analyze the various methodologies, implementation modalities and resultant outputs in order to more accurately determine the most effective and efficient mixture of health activities for replication on a national scale. The field work of the evaluation will be conducted primarily by local communities and host country personnel with consultant guidance. The results will then be integrated with other statistical and objective data from the health information system into a decision making matrix to provide guidance for national leaders in selecting health interventions and allocating resources.

Funds of \$342,000 for this evaluation activity were originally requested as part of the combined Loan-Grant package but funding limitations at that time resulted in the activity not being included in the authorized program. However, the concept of the evaluation was approved at the time of project approval and the Mission was requested to investigate the feasibility of reducing the cost of the evaluation and/or to seek funds from other sources. In response, the Mission has reduced the proposed cost of the evaluation and has also been able to reduce funding requirements of other project activities. Therefore, the Mission is now requesting only \$190,000 for FY 78 funding. Since this amount was shown in the Congressional Presentation, a Congressional Notification will not be necessary.

Recommendation: That you sign the attached amendment authorizing the increase in grant funding from \$472,000 to \$662,000.

DEPARTMENT OF STATE  
AGENCY FOR INTERNATIONAL DEVELOPMENT  
WASHINGTON, D. C. 20523

ASSISTANT  
ADMINISTRATOR

PROJECT AUTHORIZATION AND REQUEST FOR ALLOTMENT OF FUNDS

Name of Country: NICARAGUA  
Name of Project: Rural Health Institutional  
Development  
Project Number : 524-0114

Pursuant to the authority vested in me as Assistant Administrator, Bureau for Latin America and the Caribbean, by the Foreign Assistance Act of 1961, as amended, and the delegations of authority issued thereunder, I hereby authorize an increase of not to exceed One Hundred Ninety Thousand United States Dollars (\$190,000) to the Grant for the Nicaragua Rural Health Institution Development Project.

Edward W. Coy  
Assistant Administrator  
Bureau for Latin America and the  
Caribbean

June 19 1978  
Date

Clearance:

GC/LAC, J. Kessler	<u>[Signature]</u>	Date	<u>6/14/78</u>
LAC/CEN, R. Garufi	<u>[Signature]</u>	Date	<u>6/13/78</u>
LAC/DR, D. Day	<u>DD</u>	Date	<u>6/9/78</u>
LAC/DR, H. Bassford	<u>[Signature]</u>	Date	<u>        </u>
LAC/DR, J. Sanbrailo	<u>[Signature]</u>	Date	<u>        </u>
LAC/DR, M. Brown	<u>[Signature]</u>	Date	<u>6/13/78</u>

GC/LA:GM: [Signature] ter:lb:6/9/78:  
X29183

PP Amendment for Rural Health Services Grant (524-15-530-114)

PART ONE - PROGRAM SUMMARY AND RECOMMENDATIONS

A. Face Sheet Data

See the preceding face sheet for summary of fiscal data and project purpose.

B. Recommendations

The Mission recommends amendment of the authorization for the Rural Health Services Grant No. 524-15-530-114 to finance the evaluation system component described herein.

Grant Amendment Authorization: \$190,000. As shown on the face sheet, the additional grant amount will be funded by an allotment from FY-1978. It is expected that the majority of the costs to be grant financed will be foreign exchange costs.

C. Borrower/Grantee

The grantee will be the GON. Representing the GON and administering the grant program will be the Ministry of Health (MOH), the MOH will be responsible for the overall management of activities and application of results and will be assisted by members of the Working Group of the National Health Council (Consejo Nacional de Salud).

D. Summary Description of the Program

1. The Integrated Rural Development Strategy

In 1975 the GON initiated a series of integrated rural development activities to provide the rural poor with expanded development resources and services. A.I.D. has supported these initiatives through the Rural Development Sector Loan (524-T-031), Rural Community Health Services Grant (524-0110), the Rural Health Services Loan (524-U-032) and the companion grant (524-0114). All of these activities in a complementary manner are focusing on improving the life of the rural poor in the Central Pacific (Zone 2) and the Central Interior (Zone 5) prior to expansion to the rest of the country.

2. The Rural Health Services Program (A.I.D. Grant 524-0110, A.I.D. Health Loan (524-T-032) and Companion Grant 524-0114).

The various components of the rural health portion of the Integrated Rural Development Strategy share the following goal and purpose:

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a. Goal. The socio-economic goal of the program is to increase the well-being of Nicaragua's rural poor. Intermediate to that goal is the sector goal of achieving declines in the rates of morbidity and mortality that plague the rural poor. A decline in the rates of morbidity and mortality is one of the preconditions that will allow the rural poor to take advantage of the new opportunities that result from rural development.

b. Purpose. The purpose of the rural health program is to extend, improve and integrate rural health coverage in the target areas.

The Loan (032) - Grant (0114) package has four components contributing to this purpose (See Loan-Grant PP for details):

i) Grant Component, Institutional Development - This Grant Component is designed to strengthen the institutional capacities of the MOH and Junta Nacional de Asistencia y Previsión Social (JNAPS) in planning, management, evaluation and selected technical skills.

ii) Loan Component One, Rural Community Action - Component One develops community and MOH capacity to initiate and support community health activities that will reduce basic health problems, especially those amenable to reduction by preventive measures.

iii) Loan Component Two, Rural Human Resources - Component Two improves and expands the human resources capacity of the health sector with emphases on community level health workers, primary care in rural health centers and health education.

iv) Loan Component Three, Referral System Development - Component Three improves rural health referral system based upon more operational and coordinated referral patterns between health facilities and upon strengthened diagnostic, therapeutic and supporting health services provided by the rural departmental hospitals.

3. The Proposed Amendment to the Institutional Development Health Grant.

The proposed new activities to be grant financed support both the purpose and goal stated above. Specifically, by providing the MCH with the additional financial and technical support necessary to conduct a broad based evaluation of all the health/development interventions, the GON will have the capacity to optimize in terms of cost effectiveness its present and future allocation of resources in the area of rural health.

The evaluation will focus on the community health activities being developed and implemented under Grant 0110 and Loan 032 and in particular the effect on health indices of providing various combinations of environmental sanitation, potable water, health education, deparasitization

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activities, nutrition improvement, and village paramedical personnel. It is critical to evaluate thoroughly the various methodologies, implementation modalities and resultant outputs to more accurately determine the most effective and efficient mixture of health activities for replication on a national scale.

The field work of the evaluation will be conducted primarily by local communities and host country personnel with consultant guidance. The results will then be integrated with other statistical and objective data from the health information system into a decision making matrix to provide guidance for national leaders in selecting health interventions and allocating resources.

This type of evaluation has not been undertaken previously in Nicaragua and it is expected that the outcome of this evaluation, particularly the decision matrix will provide an improved basis upon which to select health interventions and allocate resources. In addition, this project will programmatically assist in the development of evaluation methodologies and procedures of the Ministry of Health and the Consejo Nacional de Salud by involving them in the design, planning, implementation and evaluation of the project to include the analysis and presentation of data for health sector and national planning decision makers.

In summary, the main outputs resulting from this grant amendment will be the decision matrix for rural health sector resource allocations; the formulation and application of objective evaluative criteria that may be of worldwide use for determining the impact of health programs on the physiological development of the rural poor; and the installation of continuing technical and administrative capability to conduct similar evaluations of other health programs.

#### 4. Financial Plan for the Grant Amendment

To accomplish the evaluation activities described above it is planned that the following inputs will be necessary:

	<u>AID</u>	<u>GON</u>
Consultant Personnel	\$86,000	
GON Personnel	-	\$111,040
Commodities	21,400	-
Other Costs	<u>82,600</u>	<u>74,000</u>
TOTAL:	<u>\$190,000</u> =====	<u>\$185,040</u> =====

#### E. Summary Findings:

The rural health evaluation program is feasible and ready for implementation. Technologies to be utilized are appropriate to the Nicaraguan

situation and have the potential to be applicable and effective in other developing countries. Additionally, considerable refinement of certain evaluation procedures should take place. Program cost estimates are firmly based on current market conditions and include contingencies for price increases. Recurring costs that are estimated to result from the program are judged to be fully sustainable by and well within the capacity of the GON. The Program meets all applicable statutory criteria.

F. Program Issues

General issues related to this program are the ability of GON personnel to conduct independently the evaluative procedures after instruction from consultant personnel, and the degree to which the objective findings of the evaluation may be politicized.

Detailed technical and operational questions are fully treated in Part III of the paper.

PART II - BACKGROUND OF THE RURAL HEALTH EVALUATION ACTIVITY

A. Introduction:

1. The GON has a long history of providing health services in the rural areas. Many of these health services were initiated with A.I.D. assistance including malaria eradication, operation of mobile health teams, health center and health post construction and management development programs to improve the administration of rural health services.

2. In March of 1976, A.I.D. - GON initiated the Rural Community Health Services Grant (O110) which has successfully developed the methodology and practical experience to sustain active community participation in rural health programs. The activities of this project are being carried out through the PRACS (Program Rural de Acción Comunitaria de Salud) unit of the MOH, centered around the development of:

- a. Health educators who teach community personnel the basic community development skills related to analysis of health problems, estimation of community resources, selection of priority programs, and implementation of community health projects.
- b. Surveys and other diagnostic tools to determine community problems and resources.
- c. Community organizations and organizational operating procedures.

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- d. Rural community health collaborators with specific preventive and curative health skills.
- e. Mass media and educational techniques to motivate community members to active participation.
- f. Interinstitutional committees to coordinate integrated rural development.

3. In August 1976, Loan 032 was signed by the GON and rural health activities under the Loan commenced in January 1977 after Conditions Precedent were met in early December 1976. A major component of Loan 032 activities is being implemented by the MOH through a special task force executing agency PLANSAR (Plan Nacional de Saneamiento Ambiental Rural). PLANSAR, utilizing the methodology developed by PRACS which is described above, is the operational unit for assisting the communities in the actual construction of community health projects, e.g. wells, aqueducts, water distribution systems, latrines, wash areas, malarial drainage, local fabrication of water pumps with local materials, etc. At present PLANSAR has achieved ahead of schedule its first year goal for potable water systems/latrines and has obtained 400% more community input/contribution to the individual health projects than contemplated during loan programming. By December 1977, environmental sanitation systems have been constructed by community personnel which are now providing more than 12,000 rural people with potable water and 1,500 concrete latrines/waste systems serving approximately 10,500 people. It is anticipated that by 1980 over 300 communities will have developed community initiated potable water systems and human waste systems through activities sponsored by this loan.

The World Bank has authorized a \$3 million (GON contribution equals \$3.3 for a total project of \$6.3) loan to expand PLANSAR activities from the limited geographic area of Zones 2 and 5 or the Central Pacific and Central Highlands Zones to a national level program. This is being done as a direct result of the initial strong success of PLANSAR. However, to insure that the remainder of Loan 032 funds are optimally utilized, it is important to evaluate in detail the ultimate outputs of Grant 0110 and Loan 032 activities; e.g. the change in health status.

4. Loan 524-U-029, which is assisting the GON reconstruct the city of Managua, has programmed approximately \$500,000 that, with matching counterpart funding, will finance the construction of the first National Health Laboratory. Additional A.I.D. funding is providing assistance to the GON to study the national laboratory system and provide recommendations for its improvement at local and regional levels in addition to delineation of the referral pattern for specimens and reporting system for laboratory results. The National Health Laboratory should be completed in July 1979 and prior to that personnel will be trained to provide quality services in diagnosis of important (morbidity-mortality) diseases, such as parasitic infestation, which are a focus of community health activities under Loan 032. This grant activity will greatly facilitate the training of laboratory personnel in immunological sampling/testing and provide a permanent nucleus of personnel

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to continue the implementation of these evaluation techniques.

5. The Rural Health Institutional Development Grant (524-0114), which had been programmed originally to include rural health evaluation, assists the GON develop administrative, management and training programs to facilitate loan sponsored activities. The development of an information-evaluation system for the health sector as part of this grant is about to be formalized in an agreement between the four governmental health entities represented in the Consejo Nacional de Salud. This information system will consolidate useful statistical data currently generated in the health sector and special studies to assist health planners and leaders. The Rural Health Evaluation grant will programmatically assist in the development of "special studies methodologies", such as outlined in this paper.

6. Other Projects: Most of the AID collaborative projects with the GON stress an integrated approach to rural development. Programs such as INVIERNO (Loan 031) in the agricultural sector, the Nutrition Improvement Grant (0117) and the Family Planning Grant (0139) and the Nutrition Loan (524-0128) which stress improved health practices and assist in the coordinated delivery of appropriate health services and the pending Education Loan are indices of this effort. Concomitantly, the AID-sponsored health activities stress development principles at the community level, since significant lasting improvement in health status is tied closely to improvements in non-health activities which improve standards of living. INVIERNO basically provides credit to small farmers but many of its supportive activities such as the organization of community committees have been and can be sources for organized health activities. The Nutrition Improvement Grant activities have been closely coordinated with health sector personnel and many nutrition activities which are proposed for financing under the new loan (nutrition education, deparasitization and nutrition surveillance) are closely linked with present health activities. Family Planning programs in addition to their direct focus on fertility control, assist health activities through the training of parteras (indigenous midwives) to stabilize diarrheal diseases/dehydration, administer first aid, and treat minor skin infections, etc. In return, the methods to be developed and used by this evaluation grant should help to evaluate the health and development impact of these projects and determine the best mix and manner of implementing integrated development activities, especially its integration into a decision-making matrix.

Along these lines the Nicaraguan Technical Committee in Nutrition (CTAN) is in a key position to utilize the data to be collected and analyzed during this evaluative project. CTAN's core activity under the Nutrition Improvement Program is to establish and maintain a Nutrition Evaluation and Information System (NEIS) for Nicaragua. Among the expected outputs of the Nutrition Loan is a minimum of ten (10) government institutions linked with NEIS. FLANSAR/FRACS, as principal investigators in the evaluation to be funded in this grant project, will participate in NEIS by transferring quantitative information concerning the incidence and prevalence of nutritional problems (gleaned from Rosette tests, etc.) to NEIS.

B. Epidemiological Profile:

Nicaragua represents a typical developing country epidemiological profile with children under five and pregnant mothers suffering the highest prevalence and incidence of disease. On a macro-scale the following selected summary from the Health Sector Assessment indicates the severity of these problems.

Epidemiological Summary of Maternal and Child Health Indicators,  
Nicaragua, Various Years

<u>Indicator</u>	<u>Year</u>	<u>Level</u>
<u>Population</u>		
Census and Projections	1970	1.832 million
	1975	2.168 million
	1985	3.003 million
Growth Rate per Decade	1970-1980	3.420 %
	1980-1990	3.388 %
Period Population Doubles	1975-1996	20.1 years
Predominantly Dependent		
Population	1975	51.1 %
Less than 15 years	1975	48.1 %
Greater than 85 years	1975	3.0 %
Economically Active Population	1963	474,960
	1971	505,495
Increment in Economically		
Active Population	1963-1971	6.4 %
Increment of total Population	1963-1971	22.2 %
<u>Mortality</u>		
Infant Mortality(estimated)	1974	120+/1,000 live births
Maternal Mortality(estimated)	1974	280+/100,000 live births
Mortality Indicators--Ages		
less than 1 year - Portion		
of Total Deaths	1969	27.7% of all deaths
	1974	23 % of all deaths
Causes: Enteritis, Perinatal		
Mortality, Tetanus,		
Pneumonia, Respiratory		
diseases other than		
Pneumonia		
Mortality Indicators-Ages 1 to		
4 years - Portion of Total		
Deaths	1969	14.3% of all deaths
	1974	17 % of all deaths

Indicator	Year	Level
Causes: Enteritis and Diarrheal Diseases, measles, other infectious diseases and parasites, respiratory diseases, malnutrition		
Mortality Indicators-Ages 5 to 14 Years		
Portion of Total Deaths	1974	4.5%
Causes: Accidents, anemias enteric and diarrheal diseases, homicides, motor vehicle accidents		
<u>Personnel Requirements</u>		
Deficit in Personnel	1975	-1939 person-years 51%
	1985	-2153 person-years 41%
<u>Family Planning</u> Active Users	1970	16,448
	1974	29,055
	1976	36,300

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Health Sector Assessment, 1976  
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On the micro or community scale as reflected by statistics compiled by PRACS relative to enteritic problems in a typical rural community; approximately 70% of the children under 3 years of age had serious symptoms of diarrhea during the year; 30% of that group had bloody diarrhea; 10% of the adult population seeks treatment for prolonged diarrhea during the year; and 63% of the fecal samples at any given time of the total population had positive examination for parasites. Caloric and protein malnourishment is a problem (recommended 2400 cal/day; average intake 1,960 cal/day, and approximately 56.6% of the population under 5 years of age suffering from I, II or III degree malnutrition). Enteric problems which adversely affect the uptake of foods predispose the general population, especially pregnant and lactating women and children, to the ravages of communicable disease and prolong or preclude recovery from most other infirmities or pathological states.

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PART III - DESCRIPTION

A. Beneficiaries:

1. Rural Poor: The Mission's integrated rural development program which includes the health sector activities is designed to directly benefit the rural poor. The initial target population is the rural poor in Zones II and V, and IBRD/GON project plans to extend coverage of PLANSAR programs to the rural poor in a significant portion of the remainder of the country. It is estimated that there are approximately 925,000 rural poor in Nicaragua. Under the A.I.D. Loan, the target is to complete major community potable water and latrine systems and vaccinations in 297 communities with a representative population of 120,000 people. The IBRD assisted potable water activities are scheduled to include some 500 villages with an approximate population of 150,000. Therefore, it is estimated that the program should reach approximately 25% of all rural poor, and if the evaluation findings are available to define the most efficient/effective implementation modalities this percent coverage could be greatly improved.\*

2. Program Implementors: Health and other rural development field workers who are delivering services and interacting with the rural poor should also benefit directly from this evaluation as it should begin to identify more precisely those health and development activities which have the greatest impact on efforts to improve the status of the rural poor. At present, health and rural development programs have a large portfolio of development activities through which they interact with their clients. Great gains in efficiency and effectiveness could be made with their limited time if it were possible to identify with greater precision those activities which correlate more positively with improved physical well being. Rural health and development workers could, therefore, receive more in-depth, pre-service and in-service education, allocate time and energy for relatively higher impact health/development activities, and schedule financial resources in a more efficient manner.

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\* An example of the utility of obtaining early ongoing program evaluative feedback is demonstrated by the initial average contributions of the communities to community health projects. Initial estimates calculated a 10% input by the community. Recent estimates indicate that community contribution are approximately 40% of the cost of any given project. This has allowed for a higher quality water system in most communities and has freed funds for other health interventions and for expanding the list of communities to receive PLANSAR assistance.

B. Detailed Project Description:

1. Introduction

The project will result in the following outputs:

a. The development of a decision matrix to assist health leaders in the more precise allocation of health sector and development resources which will integrate health sector information and special evaluation studies, such as this grant.

b. The development of evaluative methodologies which quantify or formulate objective criteria to determine the impact of health/development programs on:

1) The improvement of the physical well being of the rural poor.

2) Attitudinal/behavioral disposition of the rural poor towards selected health interventions/development activities.

c. The development of programmatic evaluative methodologies and administrative procedures within the health sector which assist in the implementation of effective health sector programs.

2. Detailed Approach

a. Implementation Units and Responsibilities. Under the overall auspices of the Consejo Nacional de Salud, the Rural Health Evaluation Grant will be implemented by the Ministry of Public Health. PRACS/PLANSAR will implement the evaluation in collaboration with selected community health committees. The Ministry of Health will serve as the coordinating agency which will integrate the evaluation methodologies developed and tested in this project with other health sector information to form an evaluation matrix.

The study will be conducted in approximately the following manner:

1) Within 2 months identify and train appropriate personnel to plan and implement the Rural Health Evaluation project activities.

2) Develop evaluation parameters, procedures, facilities, schedules and detailed timetables for the evaluation.

3) Present a detailed interim report within 12 months which prioritizes the effectiveness of different mixtures of rural health/development interventions, especially those related to community development, potable water, environmental sanitation, and nutritional interventions being implemented by PLANSAR and PRACS under Loan O32 and Grant O110.

4) Within 15 months under the supervision of the PLANSAR Director and the Director of Health Education, the Minister of Health and the National Health Council will be presented with a detailed analysis/ decision matrix which demonstrates preferential rating of alternatives for programming and reallocating resources for higher impact rural health interventions.

5) Present a detailed final report within 24 months which refines the reports described in (3) and (4) above and also includes a detailed manual on the procedures for conducting similar evaluation programs in the future.

b. Evaluative Research Technology

1) Determination of Null Hypothesis (Ho): The initial work of the Rural Health Evaluation team will be the establishment of null hypothesis or similar rigorous frames of reference which will be tested throughout the study. It is expected that the following types of null hypotheses will be tested by the Rural Health Evaluation Team:

1.1. General Level of Rural Health Sector Program

1.11 Ho: Health status and availability of PLANSAR/PRACS services are independent, e.g. the availability of PLANSAR/PRACS health services has no significant positive effect on the health/ physiologic state of the individual/community.

Alternative Hypotheses (to be tested if resources are available)

1.12 Ho: Health status and the availability of PLANSAR/PRACS and INVIERNO services are independent.

1.13 Ho: Health status and the availability of PLANSAR/PRACS, INVIERNO and Nutrition Loan interventions are independent.

1.2 Specific Level of Program Activities

1.21 Physiologically Related, e.g. Decline in Morbidity/Mortality

1.211 Ho: Potable Water

1.2111 Ho: Health Status and availability of potable water are independent.

Alternative Hypothesis

1.2112 Ho: Health Status and quantity of potable water utilized (greater than 15 gal/day/person) are independent.

1.2113 Ho: Health status and location of the water outlet, e.g. community source or in the house, are independent.

1.212 Potable Water Availability with Health Education

1.2121 Ho: Health status and availability of potable water combined with health education are independent.

Alternative Hypotheses

1.2122 Ho: Health status and the availability of potable water with only formal education (classes, face-to-face counseling, etc.) are independent.

1.2123 Ho: Health status and the availability of potable water with only mass media education are independent.

1.213 Utilized Standard Slab Latrine Installed, Maintained (SLIM)

1.2131 Ho: Health status and the utilization of a SLIM are independent.

Alternative Hypotheses

1.2132 Ho: Health status and the utilization of SLIM with combined health education are independent.

1.2133 Ho: Health status, the utilization of SLIM, and potable water combined with health education are independent.

1.214 Vaccination Program by MOH Personnel with Health Education

1.2141 Ho: Health status and vaccination combined with health education by MOH are independent.

1.215 Vaccination Program by Rural Collaborators in Health

1.2151 Ho: Health Status and vaccination program by health collaborator are independent.

Alternative Hypotheses

1.2152 Ho: Health status and vaccination program by health collaborator combined with health education are independent.

1.2153 Ho: Health status and vaccination program by health collaborator with only formal health education are independent.

1.2154 Ho: Health status and vaccination program by health collaborator with only mass media education are independent.

1.3 Attitudinal/Behaviorally Related Change or Program Acceptance - e.g. Community Acceptance of the Program

1.31 Participation of community members in the development/implementation of a community potable water project.

1.311 Ho: Participation of community members and attitude change theory employed, combined with health education by PLANSAR/PRACS are independent.

Alternative Hypotheses

1.312 Ho: Participation of community members and attitude change theory employed with only formal health education by PLANSAR/PRACS are independent.

1.313 Ho: Participation of community members and attitude change theory employed with only mass media health education by PLANSAR/PRACS are independent.

1.32 Acceptance of Vaccination given by Health Personnel

1.321 Ho: Individual acceptance of vaccination and attitude change theory employed and combined with health education are independent.

Alternative Hypotheses

1.322 Ho: Individual acceptance of vaccination and attitude change theory with only formal health education are independent.

1.323 Ho: Individual acceptance of vaccination and attitude change theory with only mass media health education are independent.

2) Methodology of Establishing Variables

a) General

Survey methodology utilizing random sampling and judgement/purposive sampling of the rural population will be utilized to

obtain health status and attitude change data from the rural population. During the two (2) years of the study approximately 350 villages are scheduled to begin development of community health projects. It is estimated that the average rural community of 300 people contains approximately 60 children less than 5 years of age. Of those 60 children approximately 56.6% are affected with I, II or III Degree malnutrition according to INCAP statistics. It is estimated that to obtain a sample which will have the possibility of providing a standard error of less than .05 for the sampling distribution, it will be necessary to follow approximately 54 children per village in approximately 7 of the target communities per null hypothesis tested (or an equal total number of children in a greater number of target communities, e.g.  $N \geq (.57) (.43) \left(\frac{1.96}{.05}\right)^2 = 376$  children). Concentrating primarily on four major hypotheses ( $H_0$  1.11,  $H_0$  1.2121,  $H_0$  1.2151 and  $H_0$  1.321) this would require following approximately 1,504 for two years, or approximately 6,016 samplings.

b) Health Status

Health status will be based upon both diagnostic and laboratory determinants, principally in children 5 years of age. Diagnostic indicators are now being kept by PLANSAR/PRACS health educators and collaborators but for the purpose of this evaluation a revised record keeping system will be employed. The major signs and symptoms that will be used will be the presence of diarrhea (3 or more liquid or semi-liquid stools a day) for 3 days and/or the presence of semi-liquid or liquid stools with blood or pus. A second methodology will be to follow child weight charts.

The primary indicator of improved health status will utilize laboratory methods which will be centered upon the microscopic immunological aggregation of patient blood around sensitized sheep erythrocytes or the rosette formation phenomenon. This simple laboratory test is a delicate indicator of the nutritional and general health state of an individual and changes significantly within a matter of weeks (17 days in some investigations) with appropriate health improvement intervention. Assuming that the benefit of any improved economic, environmental or health status of an individual or his surroundings should be rapidly reflected in improved body nourishment and decreased disease (increased well being), this test should inexpensively and definitively provide sufficient quantifiable data to indicate such change in well being.

Microbiological and parasitic testing will also take place in a selected number of cases of infant diarrhea. Traditional sources of pathogenic enteric bacteria, parasites and viruses will be cultured or otherwise identified to determine the responsible pathogenic organisms and locate the focus for repeated diarrheal episodes, especially for children less than 5 years of age.

c) Vaccination Immunological Status

The primary check on the success of vaccination programs will be through the individual's and health service's vaccination records which will accompany the vaccination program. Checks on the effectiveness of vaccine storing, and inoculation techniques will be obtained through laboratory testing of immunological competence of the sample population.

d) Attitude/Behavioral Change - Program Acceptance

A baseline survey will determine previous receipt of immunizations and predisposition toward immunization acceptance. Various attitude change theories will serve as themes for the presentation of health education programs in support of vaccination campaigns. The administration and recording of the immunizations will serve as the ultimate measurement of a positive attitude/behavioral change. Lickert attitude scales will serve as checks on disposition or attitude of selected persons towards immunizations.

The implementation model will be as follows:

STEP	INPUT	ACTION	OUTPUT
1	Social Scientist Health Professionals Community Leaders Representatives of the Target Population  Others Situation (issue, time, place, sub-groups, norms, etc.)	Selection of Expert Committee (Program Planners Program Sponsors)	Expert Committee Selected
2	Attitude Measurement Operations Special Expert Testimony	Determination of Attitudes Hindering Acceptance of the Health Program (Expert Committee)	Attitudes Hindering Program Acceptance Determined
3	Attitudes Hindering Program Acceptance or Program Goals Situation (issue, place, sub-groups, norms, etc.)	Determination of most preferred Attitude Change Theory (Expert Committee)	Preferred Attitude Change Theory/ Theories Selected

STEP	INPUT	ACTION	OUTPUT
4	Preferred Attitude Change Theory/Theories Program Goals Attitudes Hindering Acceptance Situation (issues, time, place, sub-groups, norms, etc.) Resources Available (Mass media, personnel, etc.) Constraints	Determination of Strategy/Strategies (Prepackages) for Program Acceptance (Expert Committee, Program Planners, Health Educators, Media Experts, etc.)	Strategy/Strategies (prepackages) for Program Acceptance Selected
5	Strategy/Strategies (Prepackages) for Program Acceptance Program Goals Program Resources	Development of Alternative Methods for Implementing Program Acceptance (Program Planners, Health Educators, Media Experts, etc.)	Alternative Methods for Implementing "Program Acceptance" Selected
6	Alternative Methods For Implementing Program Acceptance Program Goals Program Resources	Choice of Method for Implementing Acceptance and Evaluation (Program Sponsor, Program Planners)	Method for Implementing Program Acceptance Selected, Tested and Evaluated and most Effective Method refined and improved (Community Education Methods, Mass Media, etc.)

The Expert Committee mentioned in the protocol (Step 1) can consist of any mixture of social scientists, health professionals, community or group leaders, or other member of the target population. The right blend of personnel on this Expert Committee is purely a judgemental factor which might be replaced at a later date by empirical factors gained from previous implementation. The situation, issue, time, place, sub-groups, group norms, culture, etc., are all factors that are related to the implementation of a particular program. It is expected that the Expert Committee which is chosen will be thoroughly familiar with these variables, if not a part of them, and that all judgements/decisions which they make on the choice of methodology will reflect this intimate association in the most balanced manner possible.

The choice of attitude change theories which will be considered to establish a methodology for program acceptance is varied. A battery of theories can be elucidated in conventional terminology and

presented to the Expert Committee. This Committee can then chose between the various methodologies or between mixtures of methodologies for application to a particular village. These attitude change theories have their basis in a variety of studies on the perceptual-cognitive processes which range from Gestalt psychology to cognitive dissonance theories to reflect behavior studies. Listed below are several possible alternatives for initial program designs.

1.0 People are more likely to adopt new health attitudes supportive of health activities if negative reinforcement (disincentives) is utilized, e.g. laws which require immunizations for school attendance.

2.0 People are more likely to adopt new attitudes supportive of health activities if lack of acceptance carries danger/threat of personal pathological harm.

2.1 People are more likely to adopt new attitudes supportive of health activities if lack of acceptance carries danger/threat of pathologic harm to family members.

2.2 People are more likely to adopt new attitudes supportive of health activities if lack of acceptance carries danger/threat of pathologic harm to community members.

3.0 People are more likely to adopt new health attitudes supportive of health activities if enough supporting information on the described change is provided.

4.0 People are more likely to adopt new health attitudes supportive of health activities if the motives behind presently held attitudes are revealed as questionable.

5.0 People are more likely to adopt new health attitudes supportive of health activities if they do not threaten old attitudes or basic lifestyles.

6.0 People are more likely to adopt new health attitudes supportive of health activities if repetition of the desired change is frequent.

7.0 People are more likely to adopt new health attitudes supportive of health activities if the "trial, error and ultimate success" experience of the community is utilized as the rationale for change.

These approaches and others can be further sub-defined, amplified, or further modified for determining the types of methodologies that should be applied to the present programs.

3) Methodology for Establishing Decision-Matrix for Resource Allocation

Present health sector data and those evaluative methodologies described above will provide a basis for comparing the change in health status impact resulting from the selected health sector programs during the evaluation. Loan and grant reporting will form the basis for establishing costs for implementation of specific program activities to be evaluated by the Rural Health Evaluation projects.

The decision matrix which is being formulated at the community level by the "community management methodology development group" of PRACS (Grant 0110) focuses on the inclusion of communities in the development of evaluative data and in development of higher level strategies and programs. This community level planning methodology will assist national level planners to design and form a national level decision matrix for allocating health resources. The decision matrix and evaluation results will be presented to the Minister of Public Health for modification, program prioritization and resource reallocation.

C. Inputs and Financial Plan

AID contribution will be in the form of technical assistance, commodities, and other costs for the support of surveys, seminars and other evaluation costs. GON contribution will be represented in staff salaries, office space, and local transportation costs. Community support will be provided through volunteer work of community health committee members in program planning and implementation.

FINANCIAL PLAN

		<u>AID</u>	<u>GON</u>
Total Costs	Total	US\$ 190,000	185,040
Personnel:	Sub-Total	86,000	111,040
 <u>AID Contract</u>			
Research Project Coordinator/Administrator 18/person/mos) 18 months at \$25,000/year = \$37,500 Round trip transport of family(66 lbs.baggage/person/trip) \$2,000/trip x 2 trips = \$4,000 Round trip air transport of household effects (600 lbs.for family of 4 at \$1,200) = \$1,200 Round trip surface transport of car at \$1,800/ round trip) = \$1,800 Housing allowance (\$600/month x 18 months) = \$10,800 Miscellaneous (travel arrangements, audiovisual aides, special laboratory materials, seminars, etc.) = \$4,500		59,800	
Laboratory Specialist (Immunology) 2 months at \$5,000/month - \$10,000 2 round trips at \$500/round trip = \$1,000 Miscellaneous (Travel arrangements, visas, examinations, audiovisual aides, special laboratory materials, etc.) = \$2,000			13,000
Infectious Disease/Tropical Disease Specialist (Enteric Diseases-Microbial, Viral, Parasitic Organisms) .5 month at \$5,000/month = \$2,500 1 round trip at \$500/round trip - \$500 Miscellaneous (Travel arrangements, visas, examinations, audiovisual aides, special laboratory materials, etc.) = \$500			3,500
Anthropological/Sociological Researcher (Attitude-Behavior Change) 1.5 months at \$5,000/month = \$7,500 2 round trips at \$500/round trip = \$1,000 Miscellaneous (travel arrangements, visas, examinations, audiovisual aides, special laboratory materials, etc.) = \$1,200			9,700
 <u>GON</u>			
Director (\$12,000/year x 2 years) = \$24,000 Assistant Administrator (\$8,000/year x 2 years) = \$16,000			111,040

	<u>AID</u>	<u>GON</u>
Sub-Total	104,000	74,000
 <u>.....GON</u>		
Laboratory Technicians (\$8,000/year x 2 years x 3 per.) = \$48,000		
Survey Personnel ( <u>6016 samples @ 2 hrs. each x</u> <u>8 hrs.day</u> \$10/day) = \$15,040		
Chauffeurs (\$2000/year x 2 years x 2 chauffeurs) = \$8,000		
 <u>Commodities</u>	Sub-Total	
Vehicles (2 - 4 wheel drive Blazer type vehicle at \$7,500/vehicle)	21,400	
Portable specimen containers (10 at \$ 40/container)	15,000	
Laboratory equipment (blood/serum containers, slides, Petri dishes, microscopes, etc.)	400	
	6,000	
	Sub-Total	
	<u>74,592</u>	
 <u>Other Costs</u>		
Local Transport Costs - 2 vehicles x 30,000 miles x 2 years x .15 per mile(gasoline, lubricants, general maintenance)		18,000
Survey and Testing Costs 6016 samples at average cost of \$9/sample	54,144	
Tabulation/Analytic Costs (codifying. analysis of data, computer time 6016 questionnaires at \$3/questionnaire)	18,048	
Office/Laboratory Space (light, water, maintenance)		56,000
Seminar Costs to present project activities and Data Presentation Per Diem, seminar site costs, audiovisual aides, etc.(20 persons/seminar x \$20/day x 6 seminars)	2,400	
 Miscellaneous	Sub-Total	
	<u>8,008</u>	