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SUBJECT: DAEC REVIEW - NICARAGUA RURAL COMMUNITY HEALTH SERVICES PROJECT PAPER (GRANT)

1. THE PP FOR THIS INNOVATIVE PROJECT WAS REVIEWED BY THE DAEC ON NOVEMBER 21, 1975, AND WAS APPROVED BY THE AA FOR FUNDING THROUGH FY 1977.
2. PROGRAM COSTS. MISSION IS REMINDED THAT IN IMPLEMENTING THE PROJECT, SPECIAL ATTENTION BE DEVOTED TO RECORDING ALL COSTS TO THE GOVERNMENT AND TO THE COMMUNITIES OF ESTAB-

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LISHING THE PROTOTYPE SYSTEM IN ESTELI DEPARTMENT. THIS WOULD INCLUDE BOTH INITIAL INVESTMENT COSTS AND OPERATING COSTS, INCLUDING DONATIONS, IN ORDER TO PERMIT A JUDGMENT AS TO THE FEASIBILITY OF REPLICATION IN TERMS OF THE GON'S BUDGET, AS WELL AS PROVIDE A BASIS FOR THE SUBSEQUENT LOAN FINANCIAL PLAN. IT WILL ALSO PROVIDE A BASIS FOR DETERMINING WHETHER OR NOT THIS IS, IN FACT, A QUOTE LOW COST UNQUOTE SYSTEM.

3. CONSULTANT ASSISTANCE. IF REQUIRED AID/W CAN ASSIST MISSION IN IDENTIFYING APPROPRIATE CONSULTANTS. THESE INCLUDE THE MANAGEMENT CONSULTANT IN THE HEALTH EDUCATION DIVISION TO BE PROVIDED UNDER A USAID-FUNDED TASK ORDER WITH APHA, AS WELL AS OTHERS (HEALTH PLANNER, ECONOMIST, EPIDEMIOLOGIST) REQUIRED TO SET UP THE INFORMATION AND EVALUATION SYSTEM. MISSION MAY ALSO WISH TO TAKE ADVANTAGE OF ALTERNATIVE FUNDING SOURCES FOR TECHNICAL ASSISTANCE IN ORDER TO AUGMENT THE PROJECT BUDGET.

4. AN ALLOTMENT INCREASE IN HEALTH AND POPULATION OF DOLLARS 85,000 FOR THIS PROJECT WILL BE FORWARDED ASAP BY SEPTEL. INGERSOLL

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I SUMMARY AND RECOMMENDATIONS

A. See Project Paper face sheet for summary of fiscal data and project purpose.

B. Recommendations

Grant Activities	385,000
Total new AID Obligations	385,000

C. Description of the Project

This project will establish a viable model of an integrated rural health delivery system. The components of the system are the development of rural health promoters for the delivery of basic preventive and curative health services in isolated rural areas; the establishment of a community health committee in each of the target area communities for the support of community health activities; a micro-analysis of the community health problems and resources; community implementation of selected health projects, primarily potable, water supply and waste disposal; personal and community oriented preventive health education activities which will feature a radiophonic school with regularly scheduled broadcasts (approximately 3 times weekly for 15 minutes); a redesigned curriculum for health educators and a strengthened curriculum for rural health promoters; and improved administrative support system for rural health programs to include improved coordination between GON agencies directly charged with bettering the living conditions of the rural poor.

To assist in the attainment of high level performance in the above areas, it will be necessary to finance the following technical assistance with AID grant funds: a health educator with experience in radio broadcast health education, administration, and experience with the Nicaraguan health sector, 36 man months; a health administrator with experience in coordinated supervision, 4 man months; a paramedical educational team for implementing a paramedical training and evaluation program, 26 man months; and an epidemiologist for establishing data measurement criteria and evaluating the epidemiological impact of program, 4 man months. The following technical assistance

will be obtained with GON counterpart funds: a maternal and child health consultant, 6 man months; a nutritionist, 3 man months; an agriculture extension agent, 3 man months; a health statistician, 3 man months; an epidemiologist/statistician, 6 man months; a sanitary engineer, 3 man months; a civil engineer, 1.5 man months; a malariologist, 2.25 man months; a physician in tropical medicine, 1.5 man months; a general practice physician, 3 man months; a social worker, 3 man months; and a radio programmer, 6 man months.

The Health Education Section of the Ministry of Health will be the principal implementing agent for the project. Full time central office and regional coordinators will be assigned to the project by the health education section. A full time health educator consultant will assist the personnel of the Ministry in the direction of the project. CEPAD, a local Private Voluntary Organization (PVO) associated with Church World Service, will utilize their considerable experience in the education of paramedics to train and evaluate the progress of the community health promoters. Trained health educators will be responsible for motivating communities to form community health committees, select community health promoters for training, and to evaluate the health status and resources of the community. The community health committees, guided by the health educators, selected MOH consultants and other rurally oriented representatives of GON agencies, will implement the community health projects and health education activities. The radio education programs will be developed after an analysis of the community health surveys by the health educator consultant, MOH and Radio Nacional personnel.

It is expected that the combined inputs of technical and financial assistance will provide a suitable medium for the development of a national model for an integrated community health delivery system. The many phases of evaluation which are integrated into the project will provide constant feedback by which to adjust the project model. The overall project model will be evaluated from the baseline and final data collected through the community health surveys which should indicate both lower incidence of prevalent diseases (enteritis, communicable diseases, etc.) and basic improvement of living conditions (potable water, waste disposal, etc.) during the life of the project.

The end of project status which will contribute to this improved health situation and living conditions in the community are:

1. Forty-five villages of under 1500 people will be developing an integrated health program.

2. Community health committees will be established in each of these 45 locations.

3. Community health statistics will be completed and analyzed on all 45 rural communities before the start of health projects and at yearly intervals.

4. Primary and preventive care will be extended to the community members by community promoters.

5. The level of health knowledge in the community will improve with the combined personal and mass media health education approval.

6. Community health projects will be completed which will reduce health dangers in the community. Approximately 80% of the target population will be innoculated, 60 wells installed and 3,000 latrines completed.

7. Educational models for rural health promoters will be defined by job description and curriculum.

8. Overall evaluation of the project will include recommendations for augmentation or modification of appropriate GON health programs.

D. Summary Findings

This project is a vital step for synthesizing an integrated rural health delivery system by the GON. At present the GON has given priority to rural health development as set forth in the recent Ministry of Health (MOH) 5 year plan (published in July, 1975) but has yet to develop a community level policy. The MOH has been preparing and is ready to begin, at the earliest moment, implementation of this project which will attempt to integrate many of the successful aspects of previous or present private and GON health policies. The project meets all applicable statutory criteria, as determined by MOH officials.

E. Project Issues

The major issues related to this project are: the degree to which the community members can be motivated to participation; the degree to which the program may be politicized; the ability of MOH personnel to manage and evaluate this program; and the ability of the MOH to transfer the applicable parts of this model into a functioning national rural health program.

II BACKGROUND AND PROJECT DESCRIPTION

A. The rural health program in Nicaragua has been the focus of increasing governmental, voluntary and international agency attention over the last ten years. The Ministry of Health (MOH) has extended limited health care through its health centers to approximately 120 permanent locations. The National Hospital Board (JNAPS) has initiated realistic steps to upgrade the rural hospital system by establishing minimum level of services, maintenance, administration and personnel for every in-patient facility and also improving the referral network. Private voluntary organizations, especially the Church World Service (CEPAD), the Moravian Mission, the Catholic Church of Zelaya and CARE, have pioneered in the development projects. The international agencies have encouraged rural health delivery with sizeable contributions by the UNDP-PAHO for clinic and sanitation project construction in rural areas and by USAID for health center construction, mobile clinics, and a malaria program implementation loan.

The USAID loan of \$3.0 million for the construction of 56 health centers was completed in December 1974. This has provided the base from which the GON now hopes to increase the coverage and services to the rural population.

The expanded health center system has vigorously tested the administrative, financial, human resources capacity, and philosophy of the MOH and the health sector. The Ministry has sought consultant help (including AID sponsored management consultants) and is in the process of planning for additional assistance to increase the effectiveness of present services. To improve the administrative infrastructure of the MOH, AID is presently planning a grant financed health sector training and institutional development project. Additionally, as put forth in its July 1975, 5 year plan, the MOH is planning to initiate several ambitious and innovative programs to assist it in increasing coverage of the population from an estimated 40% in 1975 to 90% by 1980.

B. Description of the New Project

The new project is an attempt by the MOH to develop and refine an extended rural health delivery system through the use of paramedical personnel, village health committees, and mass media instructional assistance in coordination with existing health sector and other community resources. This project will be carried out north of Managua in the mountaneous, densely populated, but geographically small, department of Estelí which is within the rural area of concentration of the Mission and the newly initiated AID-financed INVIERNO program (Agriculture Sector Development Loan 52+-031).

The project intends to utilize in its design the successful results of other public and voluntary health related programs undertaken in Nicaragua and Central America. The project will be managed by a project director from the health education office of the MOH with a regional office in Esteli.

The basic human element of the extended health system will be the "promotor rural de salud" who will serve in every community below 1,500 people. The promoter will be selected by the local village health committee to attend a two month course in basic medicine and community organization. The promoter will then assist the committee in detecting its health problems and initiating collective solutions, coordinating actions of health or health related agencies, and providing basic preventive and curative health services. The model curriculum and text will be adopted from the excellent course now in process in-country under the sponsorship of CEPAD, a FVO organization which is part of Church World Services, and is staffed by highly qualified educational and medical personnel. The basic supervisory and leadership unit is the community health committee, a representative and responsible health body. Members of the committee will be initially chosen by local officials to include health, education, and religious leaders or by village vote. These committees will be responsible for supervising and assisting all health workers and health activities to include the initial and continuous analysis of community health problems with the assistance of the local promoter and health educator, who will decide on feasible courses of action, and generate community resources to achieve solutions to the health problems.

An extremely successful community health committee model was recently generated as a spin-off from an AID sponsored management improvement program. This project demonstrated the ability of the MOH to operate successfully in the rural areas, and to motivate the local populous to support and even initiate health programs. This model will be utilized as a basic framework for the operation of the community health committees. Technical and administrative support will be supplemented (promoter, health educator, local consultants, mass media education, and inter-intra-agency coordination) to provide a more dynamic program.

A major product of the efforts of the community health committee will be community action projects (wells, latrines, health posts, vaccination campaigns, gardens, etc) which enlist the active participation of a large number of citizens. A program of adequate maintenance for these projects will also be stressed to insure continued utilization and health impact.

The basic coordinating elements for the MOH will be rural health educators who will be retrained or trained under the project to activate and supervise the community health committees, promoters, and community projects within their areas. An important portion of their work will be the community health diagnosis which will assess the major health problems, community economic/physical resources and health manpower resources and establish base line statistics. The initial formation of the village health committees, the collective establishment of a community health plan, the liason to bring adequate technical and economic resources to the assistance of the health committee, and the health education activities through the village health committees to include mass media education program will be additional responsibilities of the health educator.

The mass media health education program is designed, utilizing as its model, the successful Accion Cultural Popular (Radio Sutatenza) in Colombia and will utilize the experience of the recently successful agricultural program in Guatemala. Additionally, the project will utilize the mass media expertise that has been developing in Nicaragua under the present AID sponsored standard mathematical education program and the soon to be initiated Manoff nutrition program. The 1/4 to 1/2 hour regularly scheduled A.M. broadcasts from a local Esteli station will be received in organized classes with accompanying visual aids and texts. Formal class participants will be initially supervised under the leadership of the village promoter, health educator or interested citizen. These classes will complement the village based health education efforts. Informal listening will also be encouraged in the target area. Additionally, a short local health news bulletin will provide motivational messages by acknowledging the accomplishments of various committees or health personnel.

The effect of these classes on the level of health information and knowledge will be measured at yearly intervals between control and participating communities. For purposes of evaluation the communities will be separated into:

- Type A - personal, community, and mass media radio education with formal classes.
- Type B - personal, community, and mass media without formal classes.
- Type C - personal health education only.
- Type D - mass media health education only.

Type E - Community health education only.

The null hypothesis is that there is no difference between the level of health knowledge information, between types of communities.

To facilitate administrative cooperation within the MOH, the project manager will be given an equal administrative status on the "Consejo Técnico" or decision making body for the MOH. A health administrator/ consultant will assist in the design of an effective and efficient management component by stressing coordinated supervision and resolution of problem areas. The consultant will also assist the MOH develop contingency plans for expanding this project to a national scale. Additionally, an interagency governmental committee will be formed to insure that a coordinated effort will be made at the ministerial and community level.

1. Statement of Project Goal:

a. Goal Statement: The principal aim of this project is to provide a national implementation model of an integrated community health program that improves the living conditions and health level of the rural and marginal sub-urban population.

b. Measures of Goal Achievement: The measurement of goal achievement will include:

A decrease in the morbidity rates for majority prevalent diseases (enteritis, malaria, communicable diseases, abortions, etc.) as determined by repeated community health assessments; a demonstration of increased community participation in community health activities to improve living conditions, such as new potable water supplies, waste disposal facilities, and immunization campaigns.

c. Means of Verification: The basic mechanism for verification is the community health survey which will be conducted by the health promoters in coordination with the community health committee, health educators, and other health personnel.

d. Assumptions About Goal Achievement: (1) the rural population can be motivated to effective participation. (2) there will be reasonable political tranquility and political support in the rural area of the project. (3) the MOH and AID will have an adequate administrative response to the needs of the program.

2. Statement of Project Purpose

a. Project Purpose: To stimulate participation of the population in the development and implementation of health programs through the formation of village health committees to oversee the delivery of health information, health services, and simplified medicine to the rural, isolated population through the development of an effective and efficient cadre of community level health workers and through the integration of health related governmental and voluntary agency activities at the community level.

b. End of Project Status

1) Forty-five communities of under 1,500 people developing an integrated community health program.

1.1) A community health committee established in each of 45 rural communities.

1.2) Community health statistics collected and analyzed in all 45 rural communities before the start of projects and at yearly intervals.

1.3) The extension of primary and preventive health care by community promoters in communities with the assistance of MOH personnel, particularly health educators.

1.4) The upgrading of community health knowledge.

1.5) Successful implementation and maintenance of community health projects, including approximately 60 wells operating and serving 200 people per well; approximately 3,000 latrines improved; 80% of the population immunized

2) Educational courses designed for rural health promoters and health educators.

3) A complete evaluation of the project model for the purpose of augmenting or modifying appropriate GON health programs.

c. Means of Verification

1.1) Minutes and records of community health committees.

1.2) Statistics from the village health survey and report of micro epidemiological analysis for each community.

1.3) Personal health records and health education records (immunizations, prenatal visits, breast feeding, family planning participants, etc.)

1.4) A comparison of questionnaire administered to the population which demonstrates an increased level of health knowledge among the populations of selected communities.

1.5) Inspection of reports for the 45 village health projects.

1.6) Job description for promoters and rural health educators in MSP operational administrative regulations.

1.7) Yearly evaluation report of the project with recommendations to GON health agencies for utilization of the successful aspects of the project and a description of their incorporation into other GON health programs.

d. Assumptions

1) That the MOH can recruit and motivate high quality human resources at all levels for the project.

2) That the present level of integragency operation created by current health leaders will be maintained and improved during the course of the project.

3) That increased knowledge of health problems and health solutions will begin to modify poor health practices.

3. Statement of Outputs

a. Outputs

1) Approximately 20 trained health educators with special abilities in developing integrated community level health programs.

1.1) Development of an ongoing curriculum which stresses community analysis, motivation, organization, implementation of self-help projects and evaluation of health projects.

1.2) Development of a continuing education program for health educators in rural health system skills.

1.3) Program standardization in the form of "cookbook" procedures for the basic steps in the development of community health projects undertaken during the project period.

1.4) Quarterly/annual evaluation meetings of the health educators, promoters, health committee, and MOH direct administrative support for continuous evaluation of ongoing projects.

2) Approximately 45 locally trained health promoters with basic skills in community health analysis, first aid, basic primary-preventive care, and basic community health organization.

2.1) Refinement and modification of the basic curriculum and instructional material now being utilized by voluntary groups within the country.

2.2) Refinement and modification of the promoter "community kit" with supplies of basic medicines, medical-dental equipment, self-instruction medical education materials, and audio-visual equipment for community health education.

2.3) Development of a continuing-education program for rural health promoters.

2.4) Quarterly/annual evaluation meetings of health educators, promoters, health committee and MOH direct support administrative personnel.

3) Diagnostic and analytic methodology being utilized for determining community health problems and health resources.

3.1) Continuous micro-epidemiological study for the establishment of major morbidity-mortality indicators to include; infant death rate; maternal death rate; birth rate; death rate; infant weights.

3.2) Basic micro-sociocultural economic study undertaken each year to determine major sociocultural influences on major disease problems, patterned after present health sector analysis survey.

3.3) Basic micro-health resource evaluation of institutional, human resource, and program capacity undertaken each year to determine the status of community health programs, and the relationship of the community with the nearest referral hospital, clinic, or health organization/facility.

3.4) Quarterly community level analysis are conducted to ascertain status of health problems and community health programs, and to modify community health programs to better utilize community resources.

3.5) Yearly MOH report on the health status and problems of the communities.

4) Community health education program (motivation, organization and training) to energize community participation in the health system.

4.1) Personal level (person to person) health education program through promoter and GON health related personnel (sanitary engineers; malaria sprayers; health center and PUMAR doctors, nurses, auxiliaries, etc.) that emphasizes improvement of personal or family health habits, e.g. specific health education with the service being received.

4.2) Community level health education programs directed at community health committees and health leaders through the health educators and specific.

4.3) GON officials and consultants assisting and instructing a community in a health project.

4.4) Combined personal and community health education programs through the utilization of radiophonic schools which emphasize the format of Radio Sutatenza (radio script which follows a predistributed picture book format.)

5) Specific community action projects which are organized through the community health committees and which address the most important community and personal health problems determined by the health survey and analysis. The program will focus, but will not limit itself, on the following:

5.1) Environmental Sanitation

(a) Latrification

(b) Wells and small aqueducts

(c) Vector extermination

5.2) Nutrition (assistance from PRODESAR, FMA, and Caritas).

- (a) Organization of family vegetable gardens.
- (b) Organization of school vegetable gardens
- (c) Club de Madres, preparation and handling of foods.

5.3) Maternal and Child Health

- (a) Immunization programs
- (b) Combined program against enteritis (education, latrinification, potable water, etc.)
- (c) Family planning services to include identification of fertile age and pregnant women for prenatal, delivery and puerperal assistance and educational; stressing of breast feeding; and well baby visits.

6) Improved intra and interagency administration and coordination.

6.1) Biweekly meetings of the Committee for Coordinated Supervision within the MOH to identify and resolve program problems.

6.2) Monthly meetings of interministerial/inter-agency committee for program coordination to include as a minimum the PRODESAR component of MOH, Ministry of Agriculture and Ministry of Education personnel to identify and resolve program problems.

b. Means of Verification

1) MOH personnel records

Minutes of village health committees for attendance of health educators.

Number of Health education activities organized.

1.1) Curriculum for health educators

Manual for health educators which parallels curriculum

1.2) Curriculum for continuing education program for health educators.

Schedule for health education and continuing education program.

1.3) Manual for the development of community health projects.

1.4) Minutes of annual evaluation meeting.

Per diem records for annual evaluation meeting.

2) Community health committee records on reimbursement of health promoters for medicines. MOH records of supervisory visits to health promoter:

Health promoters records of patients. Monthly statistics forwarded to MOH on reportable diseases.

Community health analysis updated every six months by the health committee and promoter.

2.1) Published curriculum and instructional material.

2.2) MOH records on distributed and resupplied "promoter kits".

2.3) Published curriculum and schedule for continuing education program.

2.4) Minutes from annual evaluation session.

Per diem records from MOH on promoter attendance

3) Published "Cookbook guide" to community health analysis for determining health problems and health resources.

3.1) Annual published report by MOH on major morbidity-mortality data for 45 communities by month.

3.2) Annual published report by MOH of the micro sociocultural economic influences on disease.

3.3) Annual published report by MOH on health resource data (institutional, human resource, program) and effectiveness of referral pattern.

3.4) Copies of quarterly community health committee analysis.

3.5) Annual published report by the MOH on the health status and problems of the target communities.

4) Schedule of community health activities for each participating community which is based upon the community health survey and developed from the "Cookbook" standard formats which is modified for each community.

4.1) List of patient contacts.

Activity list for health education by promoters and clinics. PUMAR personnel publication of standard health education components for the major personal health problems is cookbook format.

4.2) Activity schedule for GON health officials providing technical assistance for community health projects.

Per diem records for technical assistance.

4.3) Schedule of broadcasting. Scripts for community health and personal health messages over radio.

"Classroom" records for individuals participating at the local level in the formal classes.

Distribution schedule for accompanying visual aids and programmed text.

5) Quarterly community health committee plan of action developed from the quarterly analysis and survey, community health records of the scheduling and completion of projects.

Financial allocation and disbursement of funds for projects at MSP level and community level. Per diem allocation for technical assistance for projects.

6) Minutes of inter (MOH, MOA, MOE) and interagency (Consejo Técnico) groups meetings which demonstrate timely identification and resolution of problems. Minutes of community health committee meetings which demonstrate assistance provided by higher level GON health personnel in the identification and resolution of problems.

4. Inputs

a. AID inputs will be in the form of travel and maintenance costs for participant training, continuing education activities, and technical assistance; commodity purchases design material, and transportation costs for community projects; and costs related to the radio-
phonic school for the sum of \$385,000.

b. MOH/GON inputs will be in the form of salaries, office equipment and space, maintenance of equipment, cement latrines, and gasoline transportation. For the sum of approximately \$268,400.

c. The individual communities will make inputs in the form of basic medical supplies and medicines for the promoter; basic indigenous materials in construction, and labor for community health projects for a total of approximately \$76,005.

d. Details on the specific inputs and their costs are shown on the following pages.

A. I. D.

	1976	1977	1978	Total
<u>TECHNICAL ASSISTANCE</u>				
Health Educator (12 mm x 1,5000/m) (10% increase 3 rd year)	\$ 20,000	20,000	22,000	62,000
Health Administrator in Coordinated Super- vision 4 mm.	5,000	7,500	7,500	20,000
Rural Health Paramedical Training Team (16 mm) CEPAD	8,000	8,800	9,600	26,400
Epidemiologist (4 mm)	5,000	7,500	7,500	20,000
Sub-Total	\$ 38,000	43,800	46,600	128,400

FOREIGN TRAVEL

Radiophonic School Bogotá, Colombia (\$359 round trip x 3 persons) + (5 days x 40/per day x 3 people)	1,400	1,540	1,700	4,640
Agriculture Radio School and Quirigua School, Guate- mala (\$130/round trip x 3) + (3 people x 5 x 40)	1,000	1,100	1,250	3,350
Community Health Committees Panamá (\$150/round trip x 3) + (3 x 5 x 40)	1,100	1,250	1,400	3,750
Sub-Total	\$ 3,500	3,890	4,350	11,740

	1976	1977	1978	Total
<u>LOCAL TRAVEL AND PER DIEM</u>				
Consultants	\$ 1,000	1,000	2,500	4,500
Program Coordinators	2,000	1,500	1,000	4,500
Technical Assistance/Local (21 mm x \$140/mm)	3,000	3,000	3,000	9,000
Sub-Total	\$ 6,000	5,500	6,500	18,000
<u>Miscellaneous</u>	\$ 2,000	2,000	3,000	7,000
	\$ 49,500	55,190	60,450	165,140

EDUCATION COURSES

Promoters - Basic Course (15 promoters x 56 days x \$5/day)	\$ 4,200	4,620	5,000	13,820
Health Educators - Basic Course (5 x 176 days x 6.50/day)	5,720			5,720
Promoters - Continuing Education \$5/day x 6 days	450 (15 promoters)	900 (30)	1,400 (45)	2,750
Health Educators - Continuing Education \$6.50/day x 12 days x (2 x yr.)	1,860 (12 health educators)	2,700 (17)	2,700 (17)	7,260
Lecturers (\$15/hr for special classes not given by regular lecturers)	1,800	750	750	3,300
	14,030	8,970	9,850	32,850

	1976	1977	1978	Total
<u>RADIOPHONIC SCHOOL</u>				
Broadcast Time	8,000	8,800	9,600	26,400
Tape Preparation	1,200	1,300	1,440	3,960
Radiophonic Texts 50 families x 10 subjects x 15 promoters x \$.75/text (30 promoters in second year and 45 in third)	5,700	11,400	17,100	34,200
Total	14,900	21,520	28,140	64,560

EVALUATION REPORT

Data Collection			800	
Analysis			560	
Publication/Binding of Report			800	
Total			2,160	2,160
	28,930	30,490	40,150	99,570

EVALUATION SEMINARS

Community Health Committees and Promoters (Semi-annual)				
Community Per Diem (7 people/village x \$5 day x 3 days)	3,200 (15 vil- lages)	6,400 (30 vil- lages)	12,800 (45 vil- lages)	22,400
Lecturers	600	800	1,000	2,400
Material Costs (Publications, special dis- plays)	600	800	1,000	2,400
Total	4,400	8,000	14,800	27,200

	1976	1977	1978	Total
Health Education (Semi-annual)				
Educator Per Diem (15 Educators x \$7 x 3 days)	630	700	800	2,130
Lecturers	600	700	800	2,100
Materials (as above)	150	200	250	600
	<u> </u>	<u> </u>	<u> </u>	<u> </u>
Total	1,380	1,600	1,850	4,830
 Inter-Intra Ministerial (Semi-annual)				
Lecturers (INCAE) (5 days x 138/day x 2 lecturers)		1,400	1,500	2,900
Lodging (\$25 x 15 x 3 days)		2,250	2,400	4,650
Materials (as above)		200	250	450
		<u> </u>	<u> </u>	<u> </u>
		3,850	4,150	8,000
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Total	5,780	13,450	20,800	40,030

	1976	1977	1978	Total
<u>COMMODITIES</u>				
AM Radios, portable, 4" C" Batteries \$25/radio	400 (16)	440 (16)	440 (16)	1,280
Batteries "C" \$.40 each x 4/radio x 10/year	250	550	850	1,650
Multigraph	580			580
Projectors, 16 mm, Sound portable, 60 cycles C\$420. each	880 (2 ea)	480 (1 ea)	520 (1 ea)	1,880
Screens, 60" x 60", steel case, Tripod (\$50/ea)	120 (2 ea)	70 (1 ea)	80 (1 ea)	270
Power Plant, portable, gasoline, 13455 watts, 115 V, 60 cycles \$250 ea	600 (2 ea)	330 (1 ea)	360 (1 ea)	1,290
Extension Cords, 14 gauge, 13 amp, 100 ft. length	120 (4 ea)	70 (2 ea)	80 (2 ea)	270
Vehicles				
Audio-visual, 4 wheel, 4 - 6 passenger/ea	9,000 (1 ea)	18,000 (2 ea)		27,200
Typewriter, large carriage, electric	1,000			1,000
Teaching Materials				
Health Educator Texts	700	200	220	1,120
Promoter Texts	600	900	1,200	2,700
Community Teaching Aids (Texts, Visual Aides, Films, Blackboards, Writing Ma- terials)	1,500	3,000	4,500	9,000

	1976	1977	1978	Total
Water Pumps, hand (350/ea)	1,200 (3 ea)	11,850 (28)	11,645 (25)	24,695
Design Improvement (design assistance, drilling, cement pipes, tanks, etc.) (\$125/ each)	375 (3 ea)	3,540 (28)	3,610 (25)	7,825
	<hr/>	<hr/>	<hr/>	<hr/>
Total	17,325	39,430	23,505	80,260
TOTAL	101,535	138,560	144,905	385,000

	1976	1977	1978	Total
<u>PERSONNEL</u>				
<u>Salaries</u>				
Health Educators (10)	17,742	17,742	17,742	53,226
Central Coordinator (1)	4,286	4,286	4,286	12,858
Regional Coordinator (1)	4,286	4,286	4,286	12,858
Departmental Supervisor (2)	4,286	4,286	8,572	17,147
Drivers (4)	8,000	8,000	8,000	24,000
Sanitary Inspectors (3)	7,715	7,715	7,715	23,145
Nurse Auxiliaries (3)	7,715	7,715	7,715	23,145
Artists (1)	1,715	1,715	1,715	5,145
Total	55,745	55,745	60,031	171,521

TECHNICAL ASSISTANCE
(MSP, MOA, MO, Radio Nacional)

2500/mm Material (Child Health (2 mm/year)	715	715	715	2,145
2500/mm Nutritionist (1 mm/year)	360	360	360	1,080
2500/mm Agriculture Extension Agent (1 mm/year)	360	360	360	1,080

	1976	1977	1978	Total
3000/mm Health Statistician (1 mm/year)				
4000/mm Epidemiologist Statistician (2 mm/year)	1,142	1,142	1,142	3,426
5000/mm Sanitary Engineer (1 mm/year)	714	714	714	2,142
7000/mm Civil Engineer (5 mm/year)	500	500	500	1,500
6000/mm Malarialogist (.75 mm/year)	642	642	642	1,926
3000/mm Radio Programmer (2 mm/year)	860	860	860	2,580
3500/mm Social Workers (1 mm/year)	360	360	360	1,080
5000/mm Physician - Tropical Diseases (.5 mm/year)	600	600	600	1,800
5000/mm Physician - General Practice (1 mm/year)	715	715	715	2,145
Total	6,968	6,968	6,968	20,904

MATERIALS AND SUPPLIES

Cement Latrines 5 latrines/month x \$7/latrine	3,150 (15 promoters x 6 months)	9,450 (15 x 12 months) (15 x 6 months)	9,450 (15 x 12 months) (15 x 6 months)	22,050
Office Equipment and Materials	5,715	5,715	5,715	17,145
Typewriter	580	0	0	580
Office Paper	5,000	3,930	3,930	12,860
Total	11,295	9,645	9,645	30,585

	1976	1977	1978	Total
<u>TRANSPORTATION</u>				
Gasoline and Vehicle Maintenance	6,000	8,000	9,000	23,000
<u>AUDIO VISUAL MAINTENANCE</u>		200	200	400
	<hr/>	<hr/>	<hr/>	<hr/>
Total	83,158	90,008	95,294	268,460

	1976	1977	1978	Total
<u>COMMUNITY HEALTH COMMITTEES</u>				
Promoter Basic	525	550	575	1,575
Medical Kit	(15)	(15)	(15)	
\$35				
Restack Kit		1,100	1,150	2,250
<u>PROJECTS</u>				
Well	1,290	12,040	10,700	24,030
Construction and	(3)	(25)	(25)	(56)
Installation 430 ea				
Latrine	8,400	21,000	21,000	50,400
Construction and				
Installation 7 latrines	(1200)	(3000)	(3000)	(7200)
	<hr/>	<hr/>	<hr/>	<hr/>
Total Community Contribution	10,215	34,690	33,425	78,255

III PROJECT ANALYSIS

A. Technical Analysis including Environmental Assessment

The technology involved in this project is well within the technical abilities of the personnel involved and the technical framework of the GON health related agencies, particularly the MOH. For many years the MOH has been involved in various short term efforts to develop integrated community health programs. This project represents the first time sufficient resources, energy, and planning have been concentrated to develop a feasible model. The feasibility for replicating this system for the entire country will be constantly evaluated throughout the project by MOH personnel and consultants with an estimation of the resources required presented along with the recommendations in the final report.

The medical technology required is a basic medical knowledge of first aid, and preventive and curative medicine. The texts and teaching materials have been developed for the promoter by various programs throughout Central America and for Nicaragua by CFPAD. CEPAD, a voluntary organization, will act as the instructional cadre for the promoters trained in the program. In addition, CEPAD will complete a series of instructional or "cookbook" manuals which will be in the form of indexed flow charts with yes or no choices. These will be addressed to the basic medical problems confronting the isolated rural promoter.

The technology required for the community health survey is available in many forms. This project will base its health survey on the Guatemala Quirigua model with amplification of the epidemiological analysis. This will be done in coordination with CEPAD, the consultant epidemiologist, the CDC epidemiological field team stationed in El Salvador, and hopefully the AID/W unit now engaged in Progress Indicator Retrieval Programs (IA/DP/ES). The health sector assessment team has recently developed a macro health survey instrument under AID financing which will be utilized along with the Colombian health survey to identify appropriate inputs into the micro health resource, and socio-economic survey to be utilized at the community level.

The radio mass media health education program will involve technology that is relatively new for the MOH. Previous radio educational efforts have been in the form of a family planning motivational program through spot messages and advertisements for polio and other vaccination programs. Survey studies of Radio listening habits/schedules and of radio ownership exist for the major urban areas of

Nicaragua but not for the isolated rural sections. The ownership of radios and listening schedules will be ascertained by the micro community surveys as part of the economic analysis. An approximation of popular listening times from the urban areas indicates 6-8 A.M., 1-2 P.M. and 9-10 P.M. as the high use hours. These are thought to radically differ in the evening hours for the rural population, 6-8 P.M. being the peak hours.

The health messages prepared for radio broadcast and the accompanying texts have been in development and use for over 15 years by Radio Sutatenza of Colombia. The methodology for developing the radio messages has also been carefully documented. An attempt will be made to integrate the recent successes of the AID agrarian radio program in Guatemala by means of repeated technical visits. The development of this program will employ the full time consultant services of a health educator familiar with the methodology of Radio Sutatenza. The experience gained with AID-financed Stanford University math project in Nicaragua will also be utilized and Stanford personnel will be asked to review material prior to taping and broadcast. The evaluation of the increment gain in health information will be made through a questionnaire to be administered by MOH personnel trained during the Health Sector Assessment and developed through methodology. No attempts will be made to evaluate attitudes in the classical Lazars Field manner. The assumption to be utilized is that the attitude change theory concerning comprehension of information will lead to an attitudinal and then a behavioral change.

The engineering skills requested for latrine installation, water table analysis, design of wells and other community health projects are within the capability of the GON professionals to be utilized by the project.

The environmental impact of this project is minimal in terms of the ecosystem but significantly positive in terms of the human organisms benefiting from the programs. The elimination of human wastes under the supervision of the sanitary engineers and sanitary inspectors will not endanger any potable water supplies. The soil absorptive capacity should be adequate in all areas of this mountainous region. The effect of the proposed ground wells on the water tables should also be minimal, as the pumping devices, when needed, will be manual and intended for human and household needs. Protective sleeves will be installed on all ground wells to prevent surface contamination. These projects will come under the supervision of consultant engineers for technical conformation to sound environmental practices.

COSTING OF PROJECT OUTPUTS

PROJECT No. 524-0110 RURAL HEALTH DEVELOPMENT

PROJECT OUTPUTS	1	2	3	4	5	6	All
AID	44,760	68,200	71,890	111,300	58,800	30,050	385,000
GON	38,500	38,500	44,068	41,480	55,272	50,640	268,460
COMMUNITY HEALTH COMMITTEES	3,825				74,430		78,255
TOTAL	83,260	110,525	115,958	152,780	188,502	80,690	731,715

.R. Financial Analysis

The MOH is capable of meeting the financial obligations of this program which primarily involve personnel costs. The personnel problem for the MOH is essentially one of efficient utilization of present personnel. In addition to the full time personnel to be reassigned and hired for the project, we expect that the MOH will provide project personnel by reassigning presently underutilized personnel from lower priority activities to work full time on this project.

The impact on the MOH for implementing this program countrywide is significant and well beyond the present capacity of the Ministry. However, it must be remembered that the MOH is committed by its goals to increase its coverage of the population by 100% over the next five years. This project, as designed, represents a relatively low cost methodology to achieve this coverage and at the same time improve the quality of the present coverage for rural health care. This is done by maximizing community participation and contribution of personnel services.

The financial plan for the program places the greatest allocation of funds (26%) into the development of community health projects. This is appropriate since an objective of this project is to develop community participation in correcting the health problems of the community.

The next largest expenditure of funds (21%) is directed towards community and personal health education activities. To deliver low cost health services, one of the most important aspects is to sensitize the population to the health problems and then to motivate the population at risk to adopt the appropriate preventive health and curative measures. This expenditure of funds should insure an adequate awareness of the major health problems and feasible alternatives for their resolution.

Approximately 16% of the funds are spent for evaluation and monitoring of the project. One of the objectives of the project is to see it expanded for use in other rural areas of the country. This percentage needs to be programmed to insure adequate and reliable data, timely feedback and an in-depth analysis prior to the presentation of feasible recommendations for a national program.

Approximately 15% of the funds are devoted to the training and the activities of the rural health promoter with the remainder

evenly divided between the administration requirements of the project (11%) and the training of health educators (11%).

The financial plan appears adequate to accomplish the purpose of the program and to develop the base from which the GON can, with minimal costs, adapt the project to a country wide program.

C. Social Soundness Analysis

The rural population in the region of Esteli has an estimated per capita income of approximately \$120/year. They are, for the most part, small subsistence farmers, Ladino in origin, and Catholic by religion. They live in unsanitary housing (Type C dwellings) with dirt floors, and walls and roofs of inferior materials which deteriorate rapidly. They endure crowded living conditions of some four people to a small room. Approximately half of the dwellings are without adequate waste disposal and only about 6% have direct access to potable water supplies. Only about 8% of the population finished elementary school and approximately 40% of the population is illiterate.

The village health structure is usually headed by the partera or curandero who earn a small income from dispensing herbs and medicines and from attending deliveries. There is a belief in the effectiveness of modern medical methods, but the expense and difficulty of entering the system usually preclude involvement until a medical crisis has developed and traditional homeopathy fails. The campesino usually comes into contact with the formal health services in the terminal state of illness, if at all. This behavioral pattern tends to be the basis of the common view of the hospital as a place to die. Family planning has generally been heard of, but few women actively participate. Fertility is usually controlled by breast feeding or by taking ineffective means such as purges and herbal medicines. The average number of children is approximately 7 and the number of pregnancies 11. Approximately 16% of the fertile women have utilized modern contraceptive techniques. The infant death rate is approximately 127/1000 with a high morbidity pattern involving the communicable disease. The average caloric intake is 1980 cal/day (minimum recommended 2700 cal/day, and the most prominent vitamin/element deficiencies concern iodine, Vitamin A, and iron.

The social structure and formal organization of the village, as analyzed by the agriculture study group (UNASEC), usually responds readily to outside stimulus but rarely shows initiative in adopting or sustaining programs which require behavioral modification. Approxi-

mately 75% of family heads show unfavorable attitudes towards social participation without strong motivational stimuli.

The project attempts to utilize existing community leadership and personnel as much as possible to evaluate the health problems, plan a course of community actions, and develop the human resources to achieve the project goals. The project will encourage the training of parteras or curanderos to be promoters, when feasible. The project will utilize successful models of community participation projects, such as Cinco Pinos, Prodesar, PMA, and voluntary agency programs, as its basis, for the program development.

The acceptance and participation in this project by the community will present a new opportunity for community leadership. It is anticipated that this opportunity will be seized upon by members of the political party in power to insure their power base. As a result of these actions, it is doubtful whether this project will greatly alter the formal organization of the community. It is not anticipated that this association with the political party in power will significantly damage the effectiveness of the project.

D. Economic Analysis

The budget of the MOH represents 10% of the total budget for the GON. This represents approximately \$16.3 million. The MOH has experienced a relative increase in its budget of 15% yearly over the past 10 years or approximately \$2.8 million in terms of the current budget. This probably represents in real disposable investment potential approximately 5% yearly, when considering population and inflation, or \$840,000 in terms of the current budget.

The cost of the project is approximately \$217,000 per year which includes the start up costs of training and the initiation and maintenance of basic services for 45 communities of less than 1,500 population (an approximate target group population of 67,500). The average expenditure by the MOH per person served is \$7.63; the average expenditure under the project is estimated at \$3.20 per person. There are approximately 1.1 million rural inhabitants in Nicaragua and the MOH estimates that some 45% or 90,000 have access to rural care. The MOH wishes to double this number by 1980. The cost of doubling the coverage of the population utilizing the design of the project would be approximately \$1.57 million, within the anticipated yearly budgetary increase of the MOH, but nearly 1.9 times the real disposable increase.

The cost to the MOH utilizing its current programmatic approval would be \$3.74 million which is 1.3 times greater than the anticipated yearly increase and 4.5 times greater than the anticipated disposable income. Utilizing this analysis, the benefits of such a low cost delivery system become readily apparent. The costs for reaching the 90% coverage called for in the 5 year plan are more realistically achieved under present budgeting expectations, by the adoption of a low cost delivery system along the design of this project model.

IV IMPLEMENTATION ARRANGEMENTS

A. Analysis of the Recipient's and AID Administrative Arrangements

The MOH is the implementing agent for the project. Its internal administration for this project will utilize a project director from the health education office who will coordinate the overall project with concentration on the central administrative procedures of the MOH and the requirements of AID. A regional coordinator will operate from a regional center in Esteli and be responsible for the field performance and coordination of personnel, and the utilization of resources. The health educators will operate under the direction of the regional coordinator and will be responsible for the support and motivation of the community health committees. The community health committees will be responsible for generating community financial, material and human resources in support of its activities.

The MOH will receive all reports and problems from the project in the Consejo Técnico. The project director will have a coequal status in its membership. The Consejo Técnico, which consists of all of the program directors and section chiefs from the Ministry, will assign responsibility for the resolution of problems to the appropriate section or program director.

The MOH will also establish a bimonthly intra agency ^{meeting} for the maximization of resources and resolution of problems. The MOH, the Ministry of Agriculture, the Ministry of Education are the basic agencies of the GON which will be in attendance.

There are several basic administrative problems inherent in the MOH organization which will have direct relevance to this project, the most important being a failure to insure coordinated supervision and quick resolution of identified problems. The Health Adminis-

tration consultant in this area should strengthen the MOH's ability to react more favorable in these areas.

The MOH with the proposed technical assistance assigned by the project should be capable of carrying out its assigned administrative responsibilities.

AID

AID will monitor the progress of the projects through: the community health surveys; regular meetings of community health committees; evaluation conferences of promoters, health committee members and health educators; coordination meetings of the Consejo Técnico; and regular meetings of the interagency coordination committee in addition to the normal financial monitoring through the voucher receipt system, and regular reports of consultants.

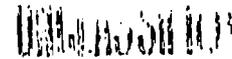
B. Implementation Plan (See Chart).

- #1 NOTIFICATION OF PROJECT APPROVAL
- #2 NOTIFICATION OF WAIVER FOR HEALTH EDUCATOR
- #3 COMPLETION OF NEGOTIATIONS WITH CONSULTANTS ESTABLISHING AVAILABILITY
- #4 SIGNING CONTRACT WITH CONSULTANTS
- #5 ESTABLISHMENT OF REGIONAL AND CENTRAL OFFICE DIRECTORS
- #6 ESTABLISHMENT OF FINANCIAL ACCOUNTING SYSTEM
- #7 ESTABLISHMENT OF FINAL CURRICULUM FOR HEALTH EDUCATOR COURSE
- #8 ESTABLISHMENT OF FINAL CURRICULUM FOR PROMOTER COURSE
- #9 MEETINGS OF CONSEJO TÉCNICO FOR INTERNAL ADMINISTRATION
- #10 ASSIGNMENT OF PROGRAM EQUIPMENT AND FINANCING BY MOH
- #11 PROJECT AGREEMENT --FUND ALLOCATION
- #12 BEGINNING OF HEALTH EDUCATOR TRAINING
- #13 TERMINATION OF DIDACTIC PORTION OF TRAINING
- #14 TERMINATION OF PRACTICAL PORTION OF TRAINING
- #15-16 COMMITTEE FORMATION, 15 COMMITTEES
- #17 COMMITTEE MEETINGS
- #18-19 ANNUAL COMMUNITY HEALTH SURVEYS
- #20-21 QUARTERLY COMMUNITY HEALTH SURVEYS
- #22-23 TRAINING OF PROMOTERS
- #24 COMMODITY PIO/C
- #25 DELIVERY OF PIO/C MATERIALS
- #26-27 PROJECT PERIOD OF EMPHASIS (WELLS, LATRINES, VACCINATIONS, ETC.)
- #28-29 PREPARATION OF RADIO MESSAGES
- #30 INCORPORATION OF HEALTH SURVEY INFORMATION
- #31-32 ANALYSIS OF HEALTH KNOWLEDGE OF POPULATION
- #33-34 RADIO BROADCASTING
- #35-36 RADIO SATUTENZA, BOGOTÁ, COLOMBIA
- #37-38 QUIRIGUÁ, GUATEMALA AND AID AGRICULTURE RADIO
- #39-40 COMMUNITY HEALTH COMMITTEES, PANAMÁ
- #41-42 EPIDEMIOLOGIST
- #43-44 HEALTH ADMINISTRATOR
- #45-47 CEPAD TRAINING UNIT
- #48-49 EVALUATION SEMINARS
- #50-50 INTERAGENCY SEMINARS
- #51 INTERAGENCY MEETINGS

Jean Pease
TA/H
JUN 4 11 39 AM '76

N I C A R A G U A
RURAL HEALTH SERVICES
Selected
ANNEXES

THE HEALTH SECTOR ANALYSIS GROUP WILL ALSO FOCUS ON RESOURCE COMMITMENTS.



ANNEX I A

PAGE 2

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THE DAEC WAS PARTICULARLY INTERESTED IN MINISTRY OF HEALTH BUDGET PROJECTIONS WHICH WOULD INDICATE A WILLINGNESS ON THE PART OF THE GOVERNMENT TO INVEST SIGNIFICANTLY IN THOSE SERVICES UTILIZED BY THE RURAL POOR. AT THE MARGIN, BUDGET INCREASES FOR THE OVERALL HEALTH SECTOR SHOULD INDICATE GREATER EMPHASIS ON REACHING THE POOR MAJORITY THAN ON PROVIDING SERVICES TO GROUPS WHICH HAVE TRADITIONALLY BENEFITED MOST HEAVILY, E.G., THROUGH THE SOCIAL SECURITY SYSTEM. FURTHERMORE, THE DAEC WAS INTERESTED IN ASSURING THAT THE GOVERNMENT HAD THE FINANCIAL CAPABILITY TO PROVIDE FUNDS NEEDED TO SUSTAIN THE NEW DEMAND FOR SERVICES EXPECTED TO RESULT FROM THE EXPANDED HEALTH COVERAGE.

2. PLANNING AND COORDINATION: THE DAEC REVIEWED THE LACK

OF DEMONSTRATED COORDINATION AMONG THE AUTONOMOUS HEALTH SECTOR AGENCIES. CONCERN WAS EXPRESSED WITH THE LACK OF AN ESTABLISHED EFFECTIVE INTER-AGENCY PLANNING AND POLICY GROUP. THE DAEC CONSIDERED THE APPARENT LACK OF GOVERNMENT PLANS TO CREATE A PERMANENT HEALTH SECTOR PLANNING UNIT. THOUGH IT WAS RECOGNIZED THAT ADMINISTRATIVE COORDINATION EXISTS WITHIN THE SECTOR, THE EFFECTIVENESS OF SUCH COORDINATION WITHOUT THE SUPPORT OF A STRONG PLANNING CAPABILITY WAS QUESTIONED. IN ADDITION, SUCH A PLANNING UNIT MUST HAVE AN INFORMATION SYSTEM TO SUPPORT CROSS-AGENCY PLANNING AND TRAINED PERSONNEL TO CARRY OUT PLANNING REQUIRED BY THE PROGRAM. THESE CONCERNS SHOULD BE ADDRESSED AND RESOLVED DURING INTENSIVE REVIEW AND BE REFLECTED IN THE PROJECT DESIGN. IT IS UNDERSTOOD THE HEALTH GRANT WILL ADDRESS THE STRENGTHENING OF INTER-AGENCY AND AGENCY PLANNING AND MANAGEMENT CAPABILITIES.

3. SUBMISSION OF AID PROJECT: IT WAS EXPECTED THAT A GRANT/LOAN PP WOULD BE SUBMITTED BY MAY 31 FOR AUTHORIZATION BY JUNE 30 SUBJECT TO THE AVAILABILITY OF FUNDS.

4. NUTRITION: -THE DAEC DISCUSSED ALTERNATE STRATEGIES FOR ACHIEVING MAXIMUM IMPACT ON THE NUTRITION PROBLEMS IDENTIFIED IN THE HEALTH SECTOR ASSESSMENT. WHILE RECOGNIZING THE CLOSE RELATIONSHIP BETWEEN NUTRITION AND HEALTH, THE DAEC CONCLUDED THAT A NUTRITION LOAN PROGRAM SHOULD AWAIT FURTHER ANALYSIS AND PROGRAM DEVELOPMENT WORK THAT COULD BE INITIATED BY A SEPARATE AID GRANT PROJECT APPROVED IN MAY FOR OBLIGATION PRIOR TO JUNE 30, 1976. IT WOULD SEEM APPROPRIATE FOR THE GRANT PROJECT TO BE ORIENTED TOWARDS: A) DEVELOPING A FY '77 AID NUTRITION LOAN PROJECT IN TERMS OF STUDIES

AND DESIGN OF NUTRITION PROGRAMS TO BE FUNDED, B) FORMULATING A NATIONAL FOOD AND NUTRITION POLICY AND PROGRAM, C) OBTAINING AND REFINING DATA ON NUTRITION PROBLEMS D) PREPARING THE HUMAN AND INSTITUTIONAL RESOURCES TO PLAN AND CARRY OUT NUTRITION PROGRAMS. A NUTRITION ASSESSMENT BASED ON CON/INCAP STUDY WILL BE SUBMITTED TOGETHER WITH THE GRANT IN MID-MAY.

THE DAEC REQUESTED AN EVALUATION OF TITLE II PROGRAMS, IN VIEW OF THE FACT THAT U.S. CONTRIBUTIONS TO THESE PROGRAMS ARE PHASING OUT IN JUNE. WHICH ASPECT OF THESE PROGRAMS HAVE PROVED THEMSELVES TO BE ESSENTIAL AND VALUABLE NUTRITION INTERVENTIONS? WHAT ARE GON PLANS TO CONTINUE THE MOST VALUABLE OF THESE EFFORTS? IF EFFECTIVE IN TERMS OF BENEFITS AND COSTS IN COMPARISON TO OTHER NUTRITION INTERVENTIONS WE WOULD HOPE THAT THE GON WOULD CONSIDER

FINANCING THEIR CONTINUATION. IDEALLY, THIS EVALUATION SHOULD BE INCLUDED IN THE ASSESSMENT. HOWEVER, IT IS RECOGNIZED THAT THE MAY SUBMISSION DATE AND FUNDING AVAILABILITIES MIGHT REQUIRE THAT THIS EVALUATION BE CARRIED OUT AS PART OF THE PROPOSED GRANT.

POPULATION: THE DAEC UNDERSTANDS THE MISSION WILL SUBMIT A POPULATION PP WHICH WILL PROVIDE THE ANALYSIS OF THE POPULATION PROBLEM NOT COVERED IN THE ASSESSMENT. KISSINGER

Cap

OFFICE AND G
AFD
AMB
DCM
CHRON



ANNEX I A - 3
AID/W APPROVAL MESSAGES
2) IRR Approval

CONTROL: 317

APR 15, 1975

S/SGL

R 142102Z APR 75
FM SECSTATE WASHDC
TO AMEMBASSY MANAGUA 3077
BT
UNCLAS STATE 084756

ADDAC

C.O. 11652: UZA

TAGS:

SUBJECT: DAEC REVIEW - IRR AND PPP - HEALTH SECTOR LOAN

1. ON THE BASIS OF THE DAEC'S REVIEW, THE SUBJECT IRR AND PPP WERE APPROVED. LOAN INTENSIVE REVIEW AND PROP PREPARATION MAY PROCEED SUBJECT TO THE FOLLOWING GUIDANCE.

2. PLANNING/COORDINATION: AN ANALYSIS WILL BE REQUIRED OF THE GON CAPABILITY TO PLAN AND COORDINATE THE SEVERAL ONGOING AND PROPOSED A.I.D. LOAN PROJECTS. THIS ANALYSIS SHOULD INCLUDE A DISCUSSION OF THE OVERALL RELATION AMONG GON PLANNING ORGANIZATIONS AT DIFFERENT LEVELS: E.G., GON CENTRAL PLANNING DEPARTMENT; SECTORAL PLANNING GROUPS SUCH AS UNASEC; AND INTERNAL PLANNING STAFFS OF AGENCIES. THE CAP SHOULD ELABORATE THE METHOD OF FUNCTIONING OF THE HEALTH SECTOR PLANNING AND COORDINATING UNIT AND THE RELATIONSHIP OF THIS UNIT TO THE INTERNAL PLANNING UNITS OF MOH, JRAPS, AND INSS.

3. PRIORITY OF PROJECT/ABSORPTIVE CAPACITY: THE CAP SHOULD ANALYZE THE RELATIVE PRIORITY ACCORDED BY THE GON TO THIS PROJECT, VIS-A-VIS OTHER RECONSTRUCTION AND/OR DEVELOPMENT ACTIVITIES, INCLUDING PROPOSED A.I.D. LOAN FUNDED PROGRAMS IN EDUCATION AND NUTRITION. THE CAP SHOULD INCLUDE AN ANALYSIS OF HOST COUNTRY HUMAN AND INSTITUTIONAL ABSORPTIVE CAPACITY CONSTRAINTS AND THE MEANS PROPOSED, INCLUDING POSSIBLE DEFERRAL OF LOWER PRIORITY PROGRAMS, TO OVERCOME THESE CONSTRAINTS.

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... A FULLY FINANCED...
... PRIORITIES WILL BE...
... THE FINANCIAL CAPACITY OF THE...
... ALL SUCH ACTIVITIES DURING THE...
... TO CHOOSE CERTAIN OF THEM FOR...
... WHILE DEFERRING OTHERS.

6. SCOPE OF PROGRAM: THE PROGRAM AS A WHOLE SHOULD...
... AND THE GRANT FUNDED...
... BUILDING AND DEVELOPING...
... THE ACTUAL OPERATIONAL...
... WHICH MAY BE...
... SHOULD BE COMPLEMENTARY TO THE ABOVE.

8. TIME FRAMING OF THE PROGRAM: DETERMINATION SHOULD BE...
... EARLY STAGES OF INTENSIVE REVIEW, AND THE...
... PRESENTED IN THE PROP, OF THE DEGREE TO WHICH...
... OF THE PROGRAM WILL BE DEPENDENT UPON...
... ASPECTS; AND WHETHER PROGRAMMED GRANT...
... BY LENGTHENING THE IMPLEMENTA-
... PERIOD OF THE LOAN TO FOUR OR FIVE YEARS.

7. REPLICABILITY OF PROGRAM: THE CAP SHOULD PRESENT AN...
... DEGREE TO WHICH THE AREA-LIMITED ASPECTS...
... CAPABLE OF REPLICATION IN OTHER...
... IN TERMS OF COSTS AND TYPES OF SERVICES...
... SUCCESSFUL. THIS ANALYSIS SHOULD FOCUS...
... TO REPLICATE THIS PROGRAM...
... AS WELL AS THEIR CAPABI-
... TO DO SO.

9. FAMILY PLANNING: FAMILY PLANNING SERVICES TO BE...
... DELIVERED BY THE HEALTH SYSTEM

... AS A WHOLE; THE ROLE OF...
... UNDER THE PROPOSED PROGRAM; AND THE RELA-
... OF THE PROPOSED PROGRAM TO THE ONGOING FAMILY...
... PROGRAM SHOULD BE DISCUSSED IN THE CAP.

10. HEALTH CARE IN DELIVERY SCHOOLS: THE CAP SHOULD...
... BENEFITS OF SUPPORTING A SPECIAL...
... PERSONNEL, AS CONTRASTED...
... AT THE HEALTH CENTERS, USE OF OTHER...
... OF OTHER...
... SHOULD BE MADE WITH PARA-
... PROGRAMS ALREADY UNDER WAY IN OTHER...
... (E.G., GUATEMALA, COSTA RICA AND PANAMA). THE...
... SHOULD PROVIDE THE REQUIRED NUMBER OF...
... THE HEALTH CENTERS ESPECIALLY IN...
... IN ADDITION TO ASSURING SATISFACTORY...
... ANALYSIS SHOULD ALSO BE MADE OF THE...
... FROM INCLUDING AUXILIARY AND GRADUATE...
... IN THE SPECIAL SCHOOL.

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... WORK OF ... MEDICAL TASKS. ... NECESSARY USE OF ... UTILIZING ... ASPECTS OF THE PROGRAM.

11. RETENTION OF PERSONNEL IN RURAL AREAS: ANALYSIS SHOULD BE MADE OF THE VARIOUS TYPES OF MEDICAL

PERSONNEL ... OBTAINED ... AND RETAINED IN RURAL SERVICE. THIS ANALYSIS SHOULD INCLUDE AN EXAMINATION

OF OTHER L.A. PROGRAMS; GUATEMALA, PANAMA AND COLOMBIA.

12. PROJECT DESIGN AND EVALUATION: DEVELOPMENT OF THE DETAILED PROJECT DESIGN AND EVALUATION PLAN DURING INTERMEDIATE REVIEW SHOULD FIRST, EMPHASIZE ON THE NEED TO OBTAIN AND REALIZE THE MAXIMUM FEASIBLE DEGREE OF CONCRETE AND QUANTIFIED INFORMATION CONCERNING EXISTING HEALTH AND HEALTH SERVICES CONDITIONS, I.E., BASELINE INFORMATION; SECOND, PROVIDE FOR SETTING FORTH AND QUANTIFYING TO THE DEGREE REASONABLY POSSIBLE THE PROJECTED RESULTS OF THE PROGRAM, IMMEDIATE AND LONGER TERM, ALONG WITH THEIR ESTIMATED TIMING; AND THIRD, INCLUDE INTERIM TARGETS FOR THE PURPOSE OF EVALUATING ONGOING PROGRAM PROGRESS. WHAT-EVER TECHNICAL ASSISTANCE MAY BE NEEDED TO MEET THIS REQUIREMENT SHOULD BE INCLUDED IN THE PROJECT.

13. SPECIAL RURAL HEALTH RESEARCH FUND: THE DAEC WAS CONCERNED WITH THE PROPOSED ALLOCATION OF SOURCE RESOURCES TO THIS ACTIVITY IN THE ABSENCE OF A CLEAR PRIORITY NEED. ACCORDINGLY, INTENSIVE REVIEW IS NOT AUTHORIZED FOR SUCH A FUND IN THE FORM PRESENTED IN THE IRR. HOWEVER, THE COMMISSION MAY INVESTIGATE THE POSSIBILITY OF ASSISTING THE GOV AND THE NICARAGUAN PRIVATE SECTOR AS APPROPRIATE IN THE CREATION AND INITIAL FINANCING OF A PERMANENT, REPEAT FUNDING SCHEME OF MIXED PUBLIC/PRIVATE INSTITUTIONAL CHARACTER IN THE AREA OF SPECIAL RURAL HEALTH RESEARCH. THE CAP WOULD HAVE TO DEMONSTRATE: (A) A CLEAR PRIORITY FOR THE COUNTRY, BY ESTABLISHING A LINK BETWEEN THE RESEARCH AND KEY SECTORAL PROBLEMS WHICH THE RESEARCH CAN EFFECTIVELY ADDRESS; (B) A PLAN FOR THE CREATION OF A VIABLE INSTITUTION; (C) A PLAN TO PROVIDE THE NECESSARY HUMAN RESOURCES; AND (D) A CONTINUING SOURCE OR SOURCES OF DOMESTIC FINANCING.

14. LOCAL LEVEL COORDINATION AND THE ROLE OF THE COMMUNITY HEALTH COMMITTEES: THE CAP SHOULD ELABORATE THE ROLE OF THE COMMUNITY HEALTH COMMITTEES AND DESCRIBE THE MECHANISMS FOR EFFECTIVE COORDINATION ON THE LOCAL LEVEL WITH THE

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... INSTITUTIONAL ACTIVITIES UNDER ...
... TO IMPROVE OPTIMUM EFFECTIVENESS IN DEALING
WITH INTERNAL AND EXTERNAL PROBLEMS.

THE ROLE OF THE COMMUNITY LEADERS VIS-A-VIS PARAMEDICAL
AND MEDICAL PERSONNEL FROM THE NATIONAL ...

... HEALTH SYSTEM IN
IDENTIFYING AND IMPLEMENTING RURAL HEALTH SERVICE ACTIVI-
TIES SHOULD ALSO BE DISCUSSED.

15. ROLE OF WOMEN: AS REQUIRED BY THE PAA, THE CAP
SHOULD ANALYZE THE ROLE OF WOMEN AS AGENTS AND AS BENEFI-
FIARIES OF THE PROJECT AND DESCRIBE HOW THIS PROJECT PARTI-
CIPATION WILL IMPROVE THEIR INVOLVEMENT IN THE DEVELOPMENT
PROCESS. THIS DESCRIPTION SHOULD NOT BE LIMITED TO AN
IMPACT STATEMENT, BUT SHOULD DEMONSTRATE THE WAYS IN WHICH
SUCH PARTICIPATION WILL TAKE PLACE.

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16. OTHER ASPECTS: THOSE ASPECTS RELATIVE TO CENTRALIZED
HEALTH FACILITIES AND OTHER HEALTH RELATED INFRASTRUCTURE
TO BE CONSTRUCTED IN MANAGUA, INCLUDING THEIR FUNDING AND
TIME-PHASING WILL BE DISCUSSED (SEPTEL)

17. GRANT FUND ALLOCATIONS: SPECIFIC FUNDING ALLOCATIONS
BETWEEN THE DOLS \$75,000 PROPOSED GRANT FOR THE PILOT INTE-
GRADED RURAL

HEALTH SERVICES PROJECT AND THE DOLS \$50,000
PROPOSED GRANT FOR RURAL HEALTH INSTITUTIONAL DEVELOPMENT
WILL BE DISCUSSED SEPTEL. KISSINGER

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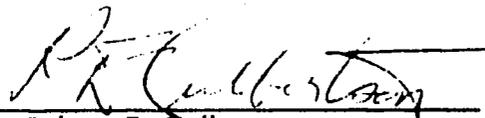
ANNEX I C

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

I CERTIFY to the Administrator of the Agency for International Development that, to the best of my knowledge and belief, Nicaragua possesses both the financial capability and human resources to maintain and utilize effectively the project to be undertaken pursuant to the terms of the A.I.D. Loan proposed in this paper. This Loan, between the United States of America and the Government of Nicaragua, will assist said Government in extending, improving and integrating health services in its rural areas. It should be noted that, in so certifying, provision is being made under the program for extensive technical assistance for each program component in order to ensure effective utilization of a development project of this nature and magnitude. I have also taken into account the maintenance and utilization of projects in Nicaragua previously financed or assisted by the United States, the capability of the institutions of Nicaragua, and the activities of other external donors with which the activities under this Loan are closely interrelated.

May 28, 1976

Date



Robert E. Culbertson

Director

A.I.D. Mission to Nicaragua



UNITED STATES AID MISSION TO NICARAGUA

AGENCY FOR INTERNATIONAL DEVELOPMENT

AMERICAN EMBASSY

MANAGUA, NICARAGUA

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ANNEX I D

Page 1 of 4

A.I.D. Loan No. 524-U-032
(AID-DCL/P-)

CAPITAL ASSISTANCE LOAN AUTHORIZATION

Provided from: FAA Section 104 ("Population
Planning and Health")

NICARAGUA: Rural Health Services

Pursuant to the authority vested in the Administrator, Agency for International Development, by the Assistance Act of 1961, as amended, and the delegations of authority issued thereunder, I hereby authorize the establishment of a Loan pursuant to Section 104 of said Act, and in furtherance of the Alliance for Progress, to the Republic of Nicaragua ("Borrower") of not to exceed five million United States dollars (\$5,000,000) to assist in financing the United States dollar and local currency costs of Rural Health Services ("Program"). The Loan shall be subject to the following terms and conditions:

I Interest and Terms of Repayment

Borrower shall repay the Loan to the Agency for International Development ("A.I.D.") within forty (40) years from the date of first disbursement under the Loan, including a grace period of not to exceed ten (10) years. Borrower shall pay to A.I.D. in United States Dollars on the outstanding balance of the Loan interest at the rate of two (2%) percent per annum during the grace period and three percent (3%) per annum thereafter.

II Other Terms and Conditions

- A. Goods and services (except for ocean shipping) and marine insurance financed under the Loan shall have their source and origin in countries which are members of the Central American Common Market or countries included in Code 941 of the A.I.D. Geographic Code Book. Marine insurance may be financed under the Loan only if it is obtained on a

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competitive basis and any claims thereunder are payable in freely convertible currencies. Ocean shipping financed under the Loan shall be procured in any country included in Code 941 of the A.I.D. Geographic Code Book, excluding countries which are members of the Central American Common Market.

- B. United States Dollars utilized under the Loan to finance Local Currency costs shall be made available pursuant to procedures satisfactory to A.I.D.
- C. Prior to the issuance of any commitment document, or to any disbursement under the Loan, Borrower shall furnish in form and satisfactory to A.I.D., a general time phased implementation plan, for all program activities.
- D. Prior to the issuance of any commitment document, or to any disbursement under the Loan for technical assistance services and commodities for the Rural Community Action Component One, Borrower shall provide evidence satisfactory to A.I.D. that PLANSAR has an adequately qualified staff and that sufficient funds have been budgeted therefor.
- E. Prior to the issuance of any commitment document, or to any disbursement under the Loan for equipment or materials for community projects under Component One, Borrower shall provide a detailed, time-phased implementation plan, satisfactory to A.I.D, for the first year of operations and a general plan for subsequent years. This plan shall include inter alia :
 - i Evidence that Borrower has adequately budgeted for community project costs.
 - ii. A regional plan for delivering integrated development resources and services in the target areas of concentration, including procedures for coordinating with INVIERNO.
 - iii A plan for providing rural beneficiaries with technical assistance and field promotion services.

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- iv. Final criteria , including least cost criteria , that will be employed in selecting and utilizing the technologies for core environmental sanitation projects (wells and latrines).
 - v. Detailed plans for receiving, storing, insuring, and transporting A.I.D.-financed equipment and materials to the point of their use in the program.
 - vi. Final criteria that will utilized in securing community contributions to these core projects.
- F. Prior to the issuance of any commitment document, or to any disbursement under the Loan for technical assistance services and commodities for the Rural Human Resources Component Two, Borrower shall provide evidence satisfactory to A.I.D. that its counterpart contribution to this Component has been approved and budgeted.
- G. Prior to the issuance of any commitment document, or to any disbursement under the Loan for school equipment, construction or engineering services, or scholarships, for Component Two, Borrower shall provide a plan satisfactory to A.I.D. for the recruitment, training and placement of health workers in the target rural areas,
- H. Prior to the issuance of any commitment document, or to any disbursement, or to any disbursement under the Loan for technical assistance services or commodities, or construction of maintenance facilities for the Referral System Development Component Three, Borrower shall provide a plan, satisfactory to A.I.D., for the maintenance of target rural facilities, including their equipment and physical structures.
- I. Prior to the issuance of any commitment document, or to any disbursement under the Loan for medical equipment or facilities, Borrower shall provide a plan satisfactory to A.I.D., for the development and strengthening of referral patterns between health centers and posts and departmental and regional hospitals.

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- J. Borrower shall covenant that:
- (1) It will adequately maintain, operate, equip and staff the new National Health Delivery School.
 - (2) It will adequately maintain, operate, equip and staff the Maintenance Subcenters.
- K. The Loan shall be subject to such other terms and conditions as A.I.D. may deem advisable.

Deputy Administrator

Clearances:

ANNEX IE

OFFICIAL TRANSLATION OF GON
LETTER OF APPLICATION FOR LOAN AND GRANT
AND ASSISTANCE

The Honorable
James D. Theberge
U. S. Ambassador to Nicaragua
Managua, D.N.

Dear Mr. Ambassador:

The purpose of this letter is to confirm the discussions held between representatives of the Government of Nicaragua and the United States Agency for International Development (A.I.D.) concerning the Nicaraguan Government's proposal for an integrated rural health program and the need for A.I.D. assistance to support this program.

As you know, the public health delivery system in Nicaragua provides limited coverage of the rural population. The 1975 Nicaraguan Health Sector Assessment and the related objectives and strategies developed by our Government show important ways of extending, improving and integrating health coverage in rural areas. It is the objective of the GON and in particular the Ministry of Health, as stated in our Health Plan 1976-1980, to expand as quickly as possible the coverage of vital health services to these more isolated areas. Our normal resource allocation at this time limits the development of the costly infrastructure which is vital to the effective operation of an expanded rural health system. Thus, capital assistance from A.I.D. and other international development agencies will be necessary to help finance our development efforts in the health sector over the next five years, in particular the efforts of the Ministry of Health and the JNAPS.

Therefore, the Government of Nicaragua requests an A.I.D. loan of \$5.0 million on the most concessionary terms possible to assist in the integrated rural health program that has been jointly designed by our Government and A.I.D. This program will consist of three interrelated components.

1. Rural Community Action Component

The objective of this component is to help lower the mortality and morbidity caused by prevalent diseases through the development of community health organizations and the carrying out of health improvements projects by them. Two classes of activities are contemplated for financing.

a. Community-based rural health delivery system: Loan funds are needed to help establish community health systems. These systems will begin to develop the human and technical resources necessary to control the micro-epidemiological problems confronting their communities. These activities will build upon the Rural Community Health Services Grant Project being implemented in Esteli and other limited but successful programs in rural health delivery.

b. Community Health Improvement Project: Loan funds are also needed for specific village-level health projects such as the improvement of environmental - sanitary hygiene through the installation of wells and latrines, immunization campaigns, and A.I.D. assistance will be instrumental in carrying out these projects. These activities will be carried out in coordination with INVIERNO in accordance with the Nicaraguan policy of integrated rural development.

The Government of Nicaragua plans to contribute to this component an approximate minimum of C\$14.0 million in additional budgetary support over the period 1977-1980. These counterpart funds will provide or finance all of the contract services needed to carry out these activities and all operating costs of the new PLANSAR Unit, health education and promotion activities as well as other necessary costs. To carry out this component and to provide necessary complementary financing we request that approximately \$2.0 million in A.I.D. loan funds be made available.

II. Rural Human Resource Component

The objective of this component is to develop Nicaragua's institutional capacity to produce trained health sector personnel - currently in very short supply - qualified and willing to serve in rural areas. Such personnel include nurses, nurse specialists for the rural area, laboratory technicians and other para-medical personnel such as sanitarians, health collaborators, health educators, auxiliary nurses, and community health leaders. An important aspect of this program will be the integration of training for selected parteras empiricas and other community-level practitioners in basic medical techniques and preventive and primary health care. The following three activities have been tentatively programmed for financing under this loan component.

a. Curriculum Development. This activity will include financing for advisory services and training material (e.g. audio-visual materials) needed to develop the curriculum for a new national health delivery school. It will naturally build upon the curriculum currently in use at the National Nursing School. Moreover, a continuing education curriculum will be designed containing refresher courses for in-service health sector personnel.

b. National Health Delivery School. This activity will provide a modern, much-needed facility for the training of health sector personnel such as those mentioned above. It will be located near Jinotepe, Carazo.

c. Professional Criteria Development. In this activity, the GON should develop professional criteria for health sector personnel (e.g. nurse specialist for the rural area, laboratory technician, etc.) that would insure that these professionals develop the necessary skills prior to public practice and maintain those skills at a high level during their professional careers. These professional criteria should be upheld through a national registry of licensed professionals. The criteria would be developed by Nicaraguan committees with the assistance of technical advisors when necessary.

We request that approximately \$1.7 million of loan funds be used for the above component. The Government of Nicaragua will allocate at least an approximate C\$16.5 million in additional budgetary support over the period 1977-1980 to provide for the personnel and operating costs for the National Delivery School (C\$10.5 million) along with the personnel costs for the additional nurses, health educators, and sanitation and staff workers trained at the School and placed in health centers, health posts and the rural areas (C\$6.5 million).

III. Referral System Component

The objective of this component is to improve and strengthen the referral system, particularly for rural hospitals, to better attend to the major morbidity-mortality problems in rural areas. Four activities are programmed for financing under this component.

a. The most important for these is the development of a national maintenance system for medical equipment which will be supervised by the Junta Nacional de Asistencia Social. This maintenance system is vital to insure for a high continuing operating capacity in the health sector, especially for the rural hospitals. This national maintenance system will have a core teaching and reference facility in Managua, and supporting shops with trained personnel at every hospital. Support for this system will be on a prorated basis between the health agencies. As part of this improved maintenance base, it is important that vital equipment and installation charges be made.

b. Rural Facility Improvement Activity. This activity contemplates the development of selected, epidemiologically-based improvements in rural hospitals of the JNAPS system. Such improvements might include minor remodeling jobs - such as the addition of a rehydration room to a hospital serving an area plagued by enteritis - or re-equipping a hospital to better respond to general disease patterns in the surrounding communities. The activity will thus prepare selected hospitals to handle the higher volume of referrals expected as a result of Component I activities described above and will be coordinated with the preparation of maintenance personnel.

c. Betterment of support services (kitchens, laundry, etc.) supply and laboratory systems. To facilitate the extended health care system described in Component I above, the capacity and effectiveness of these support systems need to be further developed. Loan-funded assistance is planned in designing and implementing new support facilities, and human resource development in laboratory-diagnostic services, statistics, information systems, and management activities.

c. Communications and Transportation. Systems Activity. Loan funds should be available for improving the system of communications between rural hospitals and health centers and clinics. Closely related will be efforts to facilitate the timely provision of essential transportation services between rural health facilities.

Loan funds of approximately \$1.3 million should be available for this component. The Junta Nacional de Asistencia y Prevision Social (JNAPS) and ten Juntas Locales (JLASs) have agreed to provide counterpart funding for construction services and all ongoing operating costs in the amount of C\$5.0 million over the period 1977-1980.

The total amount of A.I.D. loan funds requested is thus \$5.0 million. This amount is based upon our program collaboration with A.I.D. The Government of Nicaragua will supply approximately the same amount in additional counterpart as explained above. In this regard, to better implement and integrate the varied but vital activities it is requested that the loan be extended with a four year disbursement period, which we estimate as a reasonable time to utilize it.

In addition to the loan, our Government hereby also requests a donation of approximately \$930,000 in accordance with our discussions with A.I.D. These funds would help implement selected parts of the loan program as well as assist in evaluation efforts and in the technical assistance needs of our Government's planned consolidation of health sector agencies into a new health complex. These activities have been fully discussed with A.I.D.

We would like to assure the Government of the United States that all funds that will support project activities will be used in an economically and technically sound manner. We are now designing a special implementation mechanism for this project.

We are pleased to inform you that His Excellency President of the Republic, General Anastasio Somoza Debayle, has authorized us to present this request, copy of which is being sent to the President as well as to the Honorable Minister of Finance, General Gustavo A. Montiel.

We ask your kind consideration of this request and look forward to working with you and your Mission staff on this important project.

Sincerely yours,

Adan Cajina
Minister of Public Health

cc: His Excellency
President of the Republic

The Honorable
Minister of Finance

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PROJECT GOALS	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATIONS	IMPORTANT ASSUMPTIONS
SOCIO-ECONOMIC PROGRAM GOAL			
To improve the health & status well-being of Nicaraguan's rural poor.	1. A decrease in the incidence/prevalence of enteric disease related health problems.	1. Pre & post epidemiological surveys	That political stability will provide continuity of program effort.
<u>Sector Goal</u>	2. A decrease in the incidence/prevalence of communicable disease related health problems.	2. Records of community health committee & collaborators.	That the major disease problems will not significantly change in the next 5 years.
To achieve declines in the rates of morbidity and mortality among the rural poor.	3. A decrease in the incidence/prevalence of accidents related health problems.	3. Morbidity-mortality yearly report of the MOH.	That the allocation of health sector resources will parallel efforts described in the loan & grant.
		4. Patient & cumulative records of rural health centers.	That A.I.D. support of the program described will be timely & consistent.
		5. Patient & cumulative records of the rural hospitals.	
		6. Immunization records of individuals & the MOH showing 80% coverage of the population.	

PROJECT PURPOSE	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATIONS	IMPORTANT ASSUMPTIONS
LOAN COMPONENT ONE			
1) Develop community & MOH capacity to initiate & support community health activities which focus on major morbidity-mortality problems, especially those diseases amenable to environmental sanitation improvements.	1.01 Community health strategy established which identifies priority health programs.	1.001 Community health records containing health programs & strategy applied.	1.0001 That communities in the target area represent a generally homogeneous group of health problems which reflects national morbidity-mortality statistics.
	1.02 Communities receiving benefits from community health projects.	1.002 MOH records & listings indicating, & communities receiving them.	1.0002 That communities in the target area represent a generally homogeneous group in their desire to take positive action to alleviate major health problems, as reflected by the positive attitude of pilot communities.
	1.021 Potable water available to inhabitants of approximately 297 INVIERNO villages.	1.0021 PLANSAR activity records.	
	1.022 Human waste disposal available to approximately 8200 families (57,400 people)	1.0022 PLANSAR & MOH activity records.	
	1.023 Immunological protection for approximately 65,000 children, 0-4 years of target area population.	1.0023 MOH epidemiological records.	
	1.024 Priority health improvements in approximately 8,200 families dwellings (57,400 people)	1.0024 PLANSAR activity records.	
LOAN COMPONENT TWO			
2) Improve the human resource capacity of the health sector with emphasis on community health workers, primary-secondary care in rural health centers, & health education to achieve improved rural health services.	2.01 Approximately 120 communities/year capable of organizing community health programs with local personnel providing basic skills base/e.g. health promoter.	2.001 MOH statistics & community statistics of health project leadership.	2.0001 That the human resources of the target area communities are sufficient to attend to health problem definition & resolution with the adequate technical assistance, as has taken place in other similar rural communities.

- 2.02 Approximately 30 communities/year with improved delivery capabilities & guidance on MCH-FP basic services through the improvement of skills in the local midwife.
- 2.03 Approximately 30 health centers/year offering full time basic services in preventive & curative health services through nurse practitioners.
- 2.04 Approximately 120 communities/year (12 communities/educators) receiving health educational messages & community health program organization through health educators.
- 2.05 Approximately 15 health centers/health posts/year offering improved MCH-FP services with the addition of nurse auxiliaries with specialties in MCH-FP.
- 2.06 Basic knowledge of rural health sector personnel improved through the initiation of a comprehensive continuing education program.
- 2.002 MCH statistics & community health statistics on midwife activities & patient referral data for MCH-FP problems.
- 2.003 H.C. reports indicating # of cases, type of services, etc. with accompanying staffing pattern.
- 2.004 Community health statistics Health Educator Reports. Surveys of the population to measure Program efficacy.
- 2.005 H.C.'s, H.P.'s reports & records MSP-FPP records & statistics.
- 2.006 Health manpower registry with continuing education requirements of personnel achieved.

LOAN COMPONENT THREE

3) To strengthen the health referral system based upon the improvement of referral patterns between health facilities, improvement of the basic diagnostic, therapeutic & supporting health services & improvement of the maintenance capability of the rural hospital system.

- 3.01 Health agencies & units providing comprehensive health care especially in the rural areas through an improved referral system of coordinated care.
- 3.02 Rural health patients especially in Zones II, IV & V receiving prompt diagnosis & therapy for basic health problems.
- 3.03 Increased operational capacity of major equipment in the rural hospitals.
- 3.001 Health sector documents & records which define inter & intra-institutional responsibilities, e.g. year MOH, JNAPS, INSS health plans.
- 3.002 Rural Health guidelines for referral of patients from H.C.'s or H.P.'s to Rural or Regional Hospitals, patient referral records.
- 3.003 Maintenance Management System records.
- 3.0001 That sufficient education & motivation of health sector personnel can take place to successfully define & implement a comprehensive rural health system.

GRANT COMPONENT

4) Strengthen the institutional capacities of the MOH & JNAPS in planning, management, evaluation & selected technical skills.

- 4.01 All participating middle level managers contributing positive program proposals based upon seminar continuing education material.
- 4.02 Information system providing the President & high level health officials with information to make national resource allocation, decisions & providing program implementers with information to make programs modifications & improvements.
- 4.001 Copy of seminar proposals for program, made by all MOH & JNAPS, participating middle level Managers, e.g. "Participant Papers".
- 4.002 Health system records & resources allocation in health sector (national budget).
- 4.0001 That sufficient and high quality technical assistance can be obtained & concentrated which will be effective in assisting to bring about necessary improvements in health sector capabilities.

- 4.03 Evaluation framework being utilized to improve the operations of health sector program particularly in the rural areas.
- 4.04 Horizontal drilling techniques being utilized in peripheral/marginal communities with appropriate geological strata.
- 4.05 Low Cost drilling techniques being utilized in peripheral/marginal communities with appropriate soil conditions.
- 4.06 Replicability costs & essential inputs for the optimum mixture of Component I activities determined & prepared for implementation on a national scale.
- 4.07 Model acute care/emergency care unit established & utilized as a training site for expanded acute care/emergency care personnel training.
- 4.08 Radiological diagnostic services being provided on a regular basis in approximately 15 rural hospitals & training course available.
- 4.09 Improved MCH-FP services being given in approximately 36 health posts & health centers & nurse auxiliary MCH-FP specialists being trained each year (Approximately 15/year).
- 4.010 Continuing education curricula being implemented by GON for health sector professionals & health manpower utilization patterns assisting Consejo Nacional de Salud to systematically determine human resource requirements of the health sector.
- 4.003 Positive program recommendations to modify health services (national budget).
- 4.004 Record of horizontal drilling sites in utilization (PLANSAR-MOH & community records).
- 4.005 Record of low cost drilling sites in utilization (PLANSAR-MOH & community records).
- 4.006 Evaluation study indicating cost benefit-effectiveness of Component I technical mixtures.
- 4.007 Records of acute care facility utilization, patient records, & training records of students.
- 4.008 Diagnosis records & reports originated in the rural hospitals.
- 4.009 MCH-FP records of MOH by Health clinic & accompanying staffing pattern.
- 4.0010 Evaluation study which recommends a general continuing education model for the health sector & optimum utilization model for health manpower in the rural areas.

PROJECT OUTPUTS	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<p>1.1 Community Health committees established and operational</p>	<p>1.01 Approximately 250 community health committees established.</p>	<p>1.001 Records of community health committee meetings.</p>	<p>1.0001 That the planned inputs and financial resources will be sufficient to achieve the expected project outputs.</p>
<p>1.11 Identification of the community health leaders from educational, agricultural, political, religious, sociocultural, health, and agroindustrial activities.</p>			
<p>1.12 Education and motivation of the community to identify and implement community action to improve health conditions.</p>			
<p>1.13 Organize community assemblies to select community health committee members.</p>			
<p>1.14 Establishment of liaison and lines of communication between MOH and community health committee for various types of technical assistance.</p>			
<p>1.15 Establish financial procedures for contributing to the implementation and maintenance of community health projects.</p>			
<p>1.16 Nomination of community personnel for health training especially the community health promoter/ collaborators.</p>			
<p>1.17 Supervision and evaluation of community health projects with the assistance of community health collaborators and health educators.</p>			
<p>1.2 Health Diagnosis of each community utilizing community health committee and MOH health educators.</p>	<p>1.02 Approximately 250 community health diagnosis completed utilizing micro-epidemiological health resources methodology.</p>	<p>1.002. Individual community analysis health problems and compiled community statistics at MOH.</p>	<p>1.0002 That the planned inputs and financial resources will be sufficient to achieve the expected project outputs.</p>
<p>1.21 Elaboration of the model of investigation based upon the Rural Health Project model in Estel to include epidemiological studies health resource identification and community/personal health practices.</p>			
<p>1.22 Education of the community health committees in the implementation of the above diagnostic tools.</p>			
<p>1.23 Tabulation and analysis of the data by community health committee and health educator.</p>			
<p>1.24 Preparation of health strategy and priority health projects by community health committee.</p>			
<p>1.3 Development of community health education program in support of health strategy and community health projects by community health committee, collaborators and health educators.</p>	<p>1.03 Approximately 20 health educators working full time in the target community health activities and delivering health educator messages.</p>	<p>1.003 MOH staffing records and MOH community records on health education activities.</p>	<p>1.0003 That the planned inputs and financial resources will be sufficient to achieve the expected project outputs.</p>
<p>1.31 Identification of target groups, priority health problems and current health practices in need of health educational efforts.</p>			
<p>1.32 Establishment of health education activities directed at individual community, primary-secondary school, and through mass media components, especially radio schools modelled after the community health grant.</p>			
<p>1.33 Development of educational audio-visual aides</p>			

to include manuals of operations for equipment to be installed in community health projects.

1.34 Establishment of specialized health educational material to support health projects of the communities to include radiophonic schools.

1.4 Development of a support system by the MOH to assist community health activities and to provide adequate technical and physical resources for community health project implementation.

1.41 Establishment of a corps of health educators (approximately 25 health educators for this project) responsible for stimulating educating and supporting the community in the development of appropriate health projects.

1.42 Establishment of a corps of "on call" technical assistance to assist with technical components of health projects.

1.43 Integration of the activities of the community health committees into the planning, implementing, evaluation & budgetary process of the MOH through the Consejo Técnico (initial coordinating offices for the Health Committees will be Plansar and the Health Education Office)

1.44 Reinforcement of the activities of the interdisciplinary National Health Committee to support the activities of the community health committees to include an improved input from the MOH, INVIERNO.

1.45 Establishment of a system of technical supervision through the development of a consultant pool of qualified GOM personnel such as engineers, physicians, nutritionists, nurses, educators to support community health projects and development of appropriate technical assistance either "on call" or packaged to assist community health committees implement community health projects.

1 1.451 Development of a list of "on call" GOM consultants and employment mechanism to assist with the development of community health project in need of technical assistance.

1.452 Development of a set of "prepackage" intervention based on prevalent morbidity mortality patterns in the rural areas.

1.4521 Development of appropriate "prepackage" technical assistance for improving the community organizational capacity to support community health projects (Estefi Rural Health Model).

1.45222 Project implementation "prepackage" for potable water with gravity feed water distribution system to include construction, utilization, education, and maintenance method.

1.45223 Project implementation "prepackage" for waste disposal & latrine installation.

1.45224 Project implementation "prepackage" for basic home improvements to include sewage disposal floor and roof.

1.45225 Project implementation "prepackage" for community laundry areas, wash areas, and animal watering areas.

1.04 Full operational capacity of PLANSAR (National Environmental Health Plan) and augmented capacity of Department of Health Education and other support services with appropriate budget (see Component for details)

1.004 MOH staffing records & consultant reports, per diem slips.

1.0004 That the planned inputs and financial resources will be sufficient to achieve the expected project outputs.

1.4523 Development of appropriate "prepackage " technical assistance for preventive immunization programs.

1.45231 Project implementation "prepackage " for mass vaccinations programs.

1.45232 Project implementation "prepackage " for yearly vaccinations through community health committees.

1.4524 Development of appropriate "prepackage " for construction of a health post.

1.45241 Project implementation "prepackage " for equipping a health post.

1.4525 Development of appropriate "prepackage " preventive health education" programs..

1.45251 Community/individual & environmental sanitation.

1.45252 Community/individual & communicable diseases.

1.45253 Community/individual & malaria.

1.45254 Community/individual & accidents.

1.45255 Community/individual & family planning.

1.45256 Community/individual & MCH.

1.45257 Community/individual & care for the aged.

1.46 Establish a system of evaluation on the utilization of health projects & the activities of the community health committees through health educators and other MOH/GON personnel with community health responsibilities.

<p>2.1 Community health promoters trained and participating in improving the health status of the communities.</p>	<p>2.01 Approximately 120 health promoters/year graduated or scheduled to attend promoter course after assisting with community health projects and cooperating with MOH or other GON agencies.</p>	<p>2.001 Graduated diplomas promoter teacher reports involved health agency reports.</p>	<p>2.0001 That the planned inputs & financial resources will be sufficient to achieve the expected project outputs.</p>
<p>2.11 Community health promoter selected by the community to attend 2 month course of training by community health committee.</p>			
<p>2.12 Refinement of curriculum for teaching community health promoters which stresses community development, preventive health methodologies, and basic first aid.</p>			
<p>2.13 Coordination of health promoters activities with GON development programs and MOH health programs.</p>			
<p>2.14 Participation of health promoters in regular regional evaluation seminars of community health activities, and continuing education programs.</p>			
<p>2.2 Community parteras trained through NHDS system and delivering improved community health care.</p>	<p>2.02 Approximately 30 community parteras/year graduated from training course and coordinating activities with MOH or other GON health units.</p>	<p>2.002 Parteras diplomas MOH or other GON units involved, diplomas.</p>	<p>2.0002 That the planned inputs & financial resources will be sufficient to achieve the expected project outputs.</p>
<p>2.21 Midwives selected for additional specialized training from those midwives who show exceeding promise in rural training classes offered by Family Planning program.</p>			
<p>2.22 Partera occupies key role in deliveries in rural areas in coordination with nurse aux. and in referral of complicated deliveries to rural health center or hospital.</p>			
<p>2.23 Parteras delivering family planning services to include oral, condom, and foam contraceptives.</p>			
<p>2.24 Parteras delivering basic MCH services in absence of supporting services of health post and health center nurse auxiliary.</p>			
<p>2.25 Refinement of curriculum for continuing education of parteras and evaluation of activities.</p>			
<p>2.3 Nurse practitioners trained and providing basic preventive and curative care through health centers.</p>	<p>2.03 Approximately 30 nurse practitioners/year graduated from NHDS and assisting to develop community health projects.</p>	<p>2.003 Graduates diplomas NHDS reports</p>	<p>2.0003 That the planned inputs & financial resources will be sufficient to achieve the expected project outputs.</p>
<p>2.31 Recruitment and selection of nursing candidates to receive training as nurse practitioners.</p>			
<p>2.32 Refinement of curriculum which emphasizes basic curative and preventive medicine to include diagnostic and therapeutic medical-paramedical skills.</p>			
<p>2.33 Nurse practitioners occupying the key role for continuity of care in the health centers.</p>			
<p>2.34 Refinement of the continuing education program & curriculum</p>			
<p>2.4 Health educators trained and providing the basic emphasis & motivation for the development of the community support for health projects.</p>	<p>2.04 Approximately 10 health educators/year graduated from NHDS and assisting to develop community health projects.</p>	<p>2.004 Graduates diplomas</p>	<p>2.0004 That the planned inputs & financial resources will be sufficient to achieve the expected project outputs</p>

2.41 Recruitment & Selection of health educator candidates to receive training who will predominantly work in rural areas health development

2.42 Refinement of curriculum which stresses community development, community health analysis & micro-studies "prepackaged" health programs, and preventive curative health activities.

2.43 Health educators occupying the key role in communities motivation to recognize & act upon health problems.

2.44 Health educators occupying the key link in the relationship of the community with the MOH through the nearest health institution.

2.45 Refinement of the curriculum for the health educators continuing education program.

2.5 Nurse auxiliaries with special skills in maternal child health trained and delivering services in rural health centers and health posts.

2.51 N.A. selected to receive training with emphasis on candidates oriented towards receiving in the rural areas.

2.52 Refinement of curriculum which stresses basic maternal child health and family planning methods.

2.53 Nurse auxiliaries occupying key roles in assisting with the flow of MCH-FP patients in health centers and being key health care specialists in rural health posts.

2.54 Refinement of continuing education program for nurse auxiliaries.

2.05 Approximately 15 nurse auxiliaries year graduated from NHDS assisting to deliver MCH-FP services.

2.005 Graduates diplomas NHDS reports.

2.005 That the planned inputs and financial resources will be sufficient to achieve the expected project outputs.

3.1 Improved referral system between hospitals, health centers & communities through the establishment of coordination & definitive guide lines for responsibilities & activities in the health system.

3.11 Establishment, levels of Health Care & appropriate activities/institutions.

3.111 Level I, activities established for community extension representing strong preventive activities & basic curative activities.

3.112 Level II, activities established for community health post & health center representing a balance of strong curative & preventive care activities.

3.113 Level III, activities established for rural departmental hospital representing strong curative care activities & preventive activities within the appropriate city & in support of health centers.

3.114 Level IV, activities established for regional hospitals representing strong curative care activities & preventive activities for the city only with-in supporting.

3.115 Level V, activities established for national reference centers with strong curative orientation & preventive activities limited to patient related health problems.

3.12 Establishment of personnel assignment & personnel responsibilities.

3.121 Level I, personnel responsibilities established for community interaction for health projects through community volunteer personnel (community health committee, community health promoters) SNEM volunteer worker, midwife, & primarily MOH health educators with assistance from technical consultant pool.

3.122 Level II, personnel responsibilities established for community interaction for specific preventive & curative care through health posts (nurse auxiliary) & health centers (nurse practitioners, nurse auxiliary, laboratory technician & appropriate mix of other personnel such as sanitary engineers, SNEM workers, radiology technicians, dental technicians & physicians depending on A, B, C, D classification of centers & the patient load of the center)

3.123 Level III, personnel responsibilities established for health center, community interaction with the departmental hospital (typical staffing pattern for basic services of emergency care, obstetrics gynecology, pediatric, general medicine, surgery, psychiatric & maintenance).

3.01 Patients referred to a higher level of health care receive prompt service & effective diagnostic & therapeutic care, & lower level service receives timely notice of the disposition of the patient.

3.011 Consejo Nacional de Salud officially refines, institutionalizes, & adopts a methodology to regularly modify the responsibilities of the referral system of health as initially designed by the Junta Nacional de Salud.

3.001 Patient care records; referral records of health units.

3.00111 Official proceedings of the Consejo Nacional de Salud.

3.00112 Administrative manuals of health sector agencies.

3.0001 That the planned inputs & financial resources will be sufficient to achieve the expected project outputs.

3.012 Consejo Nacional de Salud officially refines, institutionalizes, & adopts a methodology to regularly modify the staffing patterns of the referral system of health as initially designed by the Junta Nacional de Salud.

3.00121 Official proceeding of the Consejo Nacional de Salud.

3.00122 Staffing patterns of health sector agencies.

3.0002 That the planned inputs & financial resources will be sufficient to achieve the expected project outputs.

- 3.124 Level IV, personnel responsibilities established for community departmental hospital & health centers interacting with regional hospital staff (some as departmental staff but more specialties) e.g. thoracic surgery.
- 3.125 Level V, same as above but more specializations.
- 3.13 Establishment of administrative, maintenance & budgetary guidelines, to insure balanced system & effective coordination mechanisms.
- 3.14 Establishment of training programs guidelines to maintain necessary skill levels.
- 3.15 Establishment of necessary physical & equipment base guidelines to maintain sufficient operational capacity.
- 3.2 Equipment, facilities & health service priority improvements made on the basis of health facility analysis.
- 3.21 Prioritization made on the basis of area health problems.
- 3.22 Prioritization made on the basis of quality of health services being delivered.
- 3.23 Prioritization made on the basis of human/financial/economic capacity of area to deliver quality health services.
- 3.24 Others.
- 3.3 Institution of maintenance management system for the health services.
- 3.31 Maintenance management administrative system.
- 3.311 Equipment located & classified.
- 3.312 On-going operational status of equipment followed.
- 3.313 Disfunctional equipment rapidly identified & repair parts made readily available.
- 3.314 Planning for equipment, renovations & new facilities on on-going basis.
- 3.315 Resources justification & budgetary on regular basis.
- 3.013 Consejo Nacional de Salud officially reviews & recommend adjustments of budgetary allocations of health sector agencies.
- 3.014 Consejo Nacional de Salud officially refines, institutionalizes & adopts a methodology to regulate type, quantity & quality of pre service.
- 3.015 Consejo Nacional de Salud officially refines, institutionalizes & adopts a methodology to regularly modify the construction & equipment purchases of the health sector.
- 3.02 Rural hospital in Region II, IV & V receive equipment & alterations primarily for emergency services, radiological services, sterilization services, kitchen-nutritional services, laundry-sterilization services.
- (See Component II for details)
- 3.03 Maintenance activities being sponsored by all rural hospitals in Zones II, IV & V.
- 3.0311 Maintenance activities at the rural hospitals being conducted & supervised in a systematic fashion at the local level.
- 3.0312 Maintenance activities at the local level being monitored at the central level & assistance provided when indicated.
- 3.00131 Official proceedings of the Consejo Nacional de Salud & National Planning Council.
- 3.00132 Budget allocations for each health agencies.
- 3.00141 Official proceedings of the Consejo Nacional de Salud.
- 3.00142 Curriculum & throughput of students at National health training schools.
- 3.0015 Construction records of health agencies.
- 3.002 Equipment index of hospitals Maintenance index of equipment.
- 3.003 Health facility & health sector budgets for maintenance activities.
- 3.00311 Local Maintenance system records; operational time of equipment.
- 3.00312 Central maintenance records/Central maintenance consultant assistance to rural hospitals.
- 3.0003 That the planned inputs & financial resources will be sufficient to achieve the expected project outputs.
- 3.0005 That the planned inputs & financial resources will be sufficient to achieve the expected project outputs.
- 3.0002 That the planned inputs & financial resources will be sufficient to achieve the expected project outputs.
- 3.0003 That the planned inputs & financial resources will be sufficient to achieve the expected project outputs.

- 3.32 Maintenance training program instituted.
- 3.321 Selection of candidates for training with emphasis on current technical skills needed.
- 3.322 Refinement of curriculum which through a series of selection mechanisms produces maintenance personnel in proportion to needs of the system & the demonstrated learning skills of the students.
- 3.3221 General Physical facilities training curriculum.
- 3.3222 Specialized facilities curriculum.
- 3.12221 Electrical circuiting.
- 3.12222 Plumbing.
- 3.3223 Laundry facilities curriculum.
- 3.3224 Kitchen facilities curriculum.
- 3.3225 Refrigerator & air conditioning curriculum.
- 3.3226 Boilers & steam equipment curriculum.
- 3.3227 Emergency power equipment curriculum.
- 3.3228 Elevator equipment curriculum.
- 3.3229 Radiological equipment curriculum.
- 3.32291 Electromedical equipment cur.
- 3.323 Maintenance personnel occupying key support roles in operational capacity of each rural departmental hospital & for repair of referred equipment.
- 3.323 Continued education program for maintenance personnel in operation.
- 3.33 Preventive maintenance program established for priority equipment within the health sector.
- 3.331 Operating manual with maintenance instructions & spare parts cataloguing.
- 3.332 Scheduling of preventive maintenance for all equipment & assigning equipment responsibilities to all chief operators.
- 3.333 Maintenance mini-curriculum in all health teaching facilities to teach preventive maintenance to all operators of health equipment.
- 3.334 Malfunctions identified on regular preventive maintenance checks initiates repair services system.
- 3.34 Protocol for repairs established.
- 3.341 Repair requests processed & maintenance responsibility assigned to the lowest level possible.
- 3.342 Repair costs & spare parts billed to appropriate agency.
- 3.343 Spare parts warehousing established based upon life expecting & number of equipment items in the system.
- 3.35 Equipment & facilities repair & replacement planned with maintenance management information & skill inputs.
- 3.351 Maintenance system assessment of facilities & equipment to determine status of equipment.
- 3.032 Qualified maintenance personnel trained & delivering quality services.
- 3.0032 Hospital staffing patterns records of equipment repair.
- 3.0033 Preventive maintenance cards; operational time of equipment.
- 3.0034 Records of equipment repairs. Records of spare parts purchasing.
- 3.0035 Equipment installation records Field observation.
- 3.034 Repairs of equipment being carried out in a timely fashion & being reported to Central Administration.

3.352 Prioritization of equipment & repairs needed to meet basic operational criteria determined by JHAPS and MOH.

3.353 Utilization of local maintenance personnel for component and family alteration.

3.354 Ordering and scheduling of vital repairs & equipment purchase scheduled.

3.36 Library/reference system established at central support level.

3.036 Library/reference system utilized by all maintenance personnel & other health sector individuals.

3.0036 Bibliography cards
Book lending cards.

3.361 Development & cataloguing of repair manuals for priority equipment.

3.362 Development & cataloguing of appropriate reference material/bibliography for support of maintenance programs & training activities.

4.1 Training of middle level managers & development of a continuing education model for middle level managers.

4.01 Approximately 80% of all health sector middle level managers participating in the management improvement seminars.

4.001 Seminar attendance
Participant papers

4.0001 That the planned inputs & financial resources will be sufficient to achieve the expected project outputs.

4.11 Refinement of priority areas for administrative skill development.

4.12 Refinement of appropriate curriculum for developing management skills.

4.121 Seminar I - 2 weeks Epidemiology & Health Systems Analysis.

4.122 Seminar II - 2 weeks Basic Health Administration I & Health Planning.

4.123 Seminar III - 2 weeks Advanced Health Administration & Rural Health services.

4.124 Case Studies of on-going health programs.

4.13 "Participant Paper" development between seminars (approximately 3 months each between I, II, & III) groups which highlight positive development of health programs in areas stressed during the seminars.

4.14 Publishing of seminar procedures which takes the best "Participant Papers" or parts of papers to highlight positive innovative approaches to comprehensive health care.

4.15 Development of methodology out of seminar process to establish on-going continuing education program for health sector managers.

4.2 Design & implementation of an integrated information system which provides decision makers, planners & deliverers of health care basic epidemiological & support service data on a timely basis.

4.02 Consejo Nacional de Salud officially refines, institutionalizes & adopts a methodology to modify the health information system.

4.0021 Proceeding of the Consejo Nacional de Salud.

4.0022 Operational manual for combined health sector information system.

4.21 Improvement in the capacity & effectiveness of the information system for the health sector.

4.211 Refinement of the focus of statistical coverage & types of statistical data necessary for appropriate decision/resource allocation levels & for appropriate modification of on-going programs.

4.212 Refinement of organization of data collection & analysis system.

- 4.213 Refinement of types & format of data inputs from various health levels.
- 4.214 Refinement of appropriate software & hardware needs for timely processing of information.
- 4.215 Refinement of methodology for disseminating health statistical information to decision makers & deliverers of health care.
- 4.216 Development of seminars for instructions on new methodologies for data collection utilization processing.
- 4.3 Evaluation framework/methodology established for application to the comprehensive health care program of the health sector.
- 4.31 Improved evaluation capability to determine most beneficial program components for replication on national level.
- 4.311 Amplification of the evaluation unit in the MOH, JNAPS, & INSS to include faculty of new NHDS, National Medical School & other GON health agencies.
- 4.312 Improved methodology & skills in the design, implementation, & data analysis for evaluation in the following areas.
- 4.3121 Determination of causal epidemiological relationships in selected programs.
- 4.3122 Determination if constraints identify for program designs were appropriate.
- 4.3123 Determination if program planning properly defined problems & selected solutions.
- 4.3124 Determination if technology employed in programs was correct & fully utilized.
- 4.3125 Determination if resources allocated in programs was sufficient for plan/goals.
- 4.3126 Determination if efficiency methods utilized fewest resources to achieve desired results.
- 4.3127 Determination if effectiveness of program led to maximum goal attainments.
- 4.3128 Determination if attitude modification as a result of the programs were sufficient.
- 4.321 Publication of positive, "success stories" of program outputs & calculation of cost for successful methodologies to be replicated on a national scale, especially for rural health programs.
- 4.33 Integration of recommendations into planning & budgeting process.
- 4.4 Horizontal drilling techniques developed for utilization by PLANSAR.
- 4.41 Methodology developed for finding dyked water supplies.
- 4.03 Consejo Nacional de Salud officially refines, institutionalizes & adopts a methodology to modify the evaluation framework for health sector activities & programs.
- 4.0031 Proceedings of the Consejo Nacional de Salud.
- 4.0032 Operational guidelines for Health sector evaluation system.
- 4.004 Site visits
Records of PLANSAR
- 4.0041 Maps of PLANSAR localizing potential horizontal drilling sites.
- 4.0004 That the planned inputs and financial resources will be sufficient to achieve the expected project outputs.

4.42 Methodology for training crew members established	4.042 Approximately 4 drilling crew members of PLANSAR trained & prepared to instruct others.	4.0042 PLANSAR Staffing records Records of training.	
4.43 Methodology for drilling & capping developed.	4.043 Manual for horizontal drilling completed.	4.0043 MOH library reference file PLANSAR archives.	
4.44 Equipment needs for drilling determined.	4.044 Two drilling rigs with appropriate spare parts available for work.	4.0044 Site visits Equipment transfer records.	
4.5 Low cost drilling techniques developed & area utilization studies performed.	4.05 Approximately 10-15 low cost wells drilled and utilized as water sources & examples of successful application.	4.005 Site visits Records of PLANSAR Records of Sanitary Engineers Records of Health Educators	4.0005 That the planned inputs & financial resources will be sufficient to achieve the expected project outputs.
4.51 Methodology developed for identification of favorable soil conditions & water table for low cost drilling conditions.	4.051 Potential areas for low cost drilling techniques identified & marked on maps.	4.0051 Maps of PLANSAR & MOH Manuals for installations	
4.52 Methodologies developed for training village health workers to utilize low cost drilling methods especially "slugger", hand dug methods, & jetting methods.	4.052 Approximately 8-10 sanitary engineers & educators trained in low cost drilling techniques.	4.0052 Training records of MOH	
4.53 Equipment needs for low cost drilling techniques determined.	4.053 Low cost drilling equipment available through PLANSAR or technical assistance available to instruct personnel on constructions of drilling equipment.	4.0053 Technical assistance records of MOH for community health projects.	
4.6 Evaluation studies on replicability of Component I activities.	4.06 Evaluation study published.	4.006 MOH archives.	4.0006 That the planned inputs & financial resources will be sufficient to achieve the expected project outputs.
4.61 Program acceptance activities evaluated.	4.061 Program acceptance study & backup data published.	4.0061 MOH archives MOH library Subsequent health education budgeting.	
4.611 Identification of important sociocultural influences on program acceptance.			
4.612 Identification of major program strategies to improve program acceptance.			
4.613 Identification of the important resources needed to implement program strategies.			
4.614 Development of program acceptance evaluation skills of the MOH.			
4.62 Disease Incidence/prevalence activities evaluated.	4.062 Disease prevalence/incidence study & backup data published.	4.0062 MOH archives MOH library Subsequent environmental sanitation budgeting.	
4.621 Determination of the prevalence/incidence of enteric pathogenic organisms affecting the rural populations.			
4.622 Identification of the major program strategies & technical systems most effective in reducing enteric pathogens/diseases.			
4.623 Development of epidemiological evaluation skills of the health sector.			
4.7 Development of emergency care services & training program.	4.07 Approximately 6 emergency care specialists trained & regular training of emergency care specialists programmed.	4.007 Training records of JNAPS Training certificates of specialists	4.0007 That the planned inputs & financial resources will be sufficient to achieve the expected project outputs.
4.71 Development of a nucleus of emergency care/intensive care nurses & support personnel through international training & technical assistance.			

4. Emergency care/intensive care training course established with capability of training approximately 12 nurses/year.
- 4.721 Teaching staff & physicians identified & trained
- 4.722 Curriculum developed & institutionalized.
- 4.723 Participants selected according to demonstrated intellectual abilities & trained at international training site (Gorgas Hospital).
- 4.724 Graduates placed in appropriate emergency care/intensive care services.
- 4.73 Continuing education program established & institutionalized.
- 4.8 Development of a radiological technician diagnostic course.
- 4.81 Course curriculum established on basis of HEW (HS 0057) successful experimentation grant.
- 4.82 Radiological diagnostic technicians trained in feasibility study.
- 4.83 Continuing education course for radiological technicians established.
- 4.9 Development of improved MCH-FP human resources for health sector programs.
- 4.91 Development of improved MCH-FP curriculums for health sector training courses.
- 4.911 Refinement of MCH-FP services to be performed at each level of health care.
- 4.912 Refinement of MCH-FP activities to be performed by health workers.
- 4.913 Refinement of MCH-FP curriculums.
- 4.914 Development of audiovisual, special instruction base.
- 4.92 Development of nurse auxiliary specialist in MCH-FP for rural health centers/health posts.
- 4.921 Development of training program for the nurse auxiliary with specialization in MCH-FP.
- 4.9211 Refinement of curriculum modelled from Costa Rica & Harbor General Hospital training program.
- 4.9212 Faculty assignment & development from family trained (Harbor Hospital) personnel.
- 4.9213 Trained nurse auxiliaries occupying key positions in health center/health post delivery of health care.
- 4.9214 Continuing education program established.
- 4.922 Staffing patterns for MCH-FP specialists established based upon work capacity determined during grant.
- 4.93 Training curriculum refined for nurse auxiliary specialist in MCH-FP & approximately 15 specialist in MCH-FP graduated each year.
- 4.08 Approximately 15 radiological diagnostic technicians trained & regular training of diagnostic technicians programmed.
- 4.008 Training records of JNAPS Training certificates of technicians.
- 4.0008 That the planned inputs & financial resources will be sufficient to achieve the expected project outputs.
- 4.09 Increased number of trained MCH-FP specialists & increased capability throughout health sector to deliver MCH-FP services.
- 4.009 Health sector training records. Health sector statistics on MCH-FP services.
- 4.0009 That the planned inputs & financial resources will be sufficient to achieve the expected project outputs.
- 4.0091 MCH-FP curriculum improvements for NHDS, National Medical School, MOH, JNAPS & INSS training courses instituted.
- 4.0091 Training curriculums of NHDS, National Medical School, MOH, JNAPS & INSS training courses.
- 4.092 Approximately 36 nurse aux. trained & being utilized in health posts/health centers.
- 4.0092 Training records of MOH Training certificates of specialists.
- 4.0093 Training curriculum instituted in NHDS. Training certificates of nurse aux. specialist.

4.10 Improved utilization of health sector human resources.

4.101 Development of continuing education curriculums for health professionals.

4.1011 Determination of health task responsibility (see 4.102).

4.1012 Determination of curriculums to improve health service task execution.

4.1013 Determination of methodology/incentives to encourage continuing education participation.

4.1014 Determination of curricula, special training courses, special lectures, special publications necessary to support continuing education programs.

4.102 Development of systematic health manpower utilization patterns.

4.1021 Refinement of epidemiological & health service indicators which identify shifts in manpower requirements.

4.1022 Refinement of methodologies for assignment of professional responsibility for health service task performance.

4.1023 Refinement of methodologies for developing professionals curriculums & continuing education curriculums from assigned health service task.

being trained/year.

4.010 Health service responsibilities systematically assigned & health service skills systematically improved.

4.0101 Continuing education courses designed & feasibility studies executed.

4.0102 Consejo Nacional de Salud refines, institutionalizes & adopts systematic methodology to determine health manpower requirements.

4.001 Health sector Job descriptions Health sector pre-service training records, Health sector continuing education records.

4.00101 Evaluation reports of feasibility studies by MOH.

4.00010 That the planned inputs & financial resources will be sufficient to achieve the expected project outputs.

4.00102 Proceedings of Consejo Nacional de Salud, Manual of Health manpower analysis.

I N P U T S	OBJECTIVELY VERIFIABLE INDICATORS
1.0 Component I	1.00
Finances	
A.I.D.	2.0 million
GON	1.9 million
(See description & budget for details)	(See description & budget for details)
2.0 Component II	2.00
Finances	
A.I.D.	1.7 million
GON	2.35 million
3.0 Component III	3.00
Finances	
A.I.D.	1.3 million
GON	.715 million
(See description & budget for details)	(See description & budget for details)
4.0 Grant Component	4.00
Finances	

A.I.D.

GON

(See description & budget for details)

.960 million

.612 million

(See description & budget for details)

ANNEX III - D

SUPPORTING MATERIALS FOR GRANT COMPONENT

This Annex contains the following sub-annexes which support the described aspects of the grant Component:

<u>Sub-annex</u>	<u>Description</u>
1	Illustrative course content - Management Development Training Course
2	Letter regarding feasibility of horizontal drilling
3	Attitude - model
4	Testing for enteric diseases
5	Budgets Timetables for Program Acceptance and Disease Prevalence Surveys
6	Budgets/Timetables for Technical Skills Development Element
7	Program for Social Statistics Survey, including Health Statistics
8	Curriculum for Radiological Diagnostic Technician
9	Grant Component Implementation Bar Chart

5. Budgets/Timetables for Program Acceptance and Disease Prevalence Surveys

Input Budgets

Program Acceptance Evaluation

<u>Technical Assistance:</u>	<u>AID</u>	<u>GON</u>
Medical Sociologist (12 pm over 3 years)	\$ 60,000	
Technical Assistance GON (36 pm over 3 years)		\$72,000
Six round trips, U.S. - Managua	3,000	

Survey Costs for Attitude Survey (Basic Data for Prevalence/Incidence of Disease).

<u>Permanent Personnel - Local (1/2 time x 36 months)</u>		
Director of Investigations (\$600/month x 18 months)	\$ 10,800	
Health Associate Director (\$400/month x 18 months)	7,200	
Social Associate Director (\$400/month x 18 months)	7,200	
Secretary (\$250/month x 36 months)	9,000	

Temporary Personnel (1 hr. ea. interview)

Supervisor of interviews (\$400/month x 18 months)	\$ 7,200	
Group Supervisors (10 ea. x 120 hrs. x \$2.50/hr x 3 surveys)	9,000	
Interviewers (40 ea. x 60 hrs. x \$2/hr. x 3 surveys)	14,400	
Coders (15 in/sheet) (10 ea. x 400 hrs. x \$1.50/hr. x 3 surveys)	18,000	

Transportation of Personnel \$ 9,000

Contracted Services

Perforators of IBC cards (30,000 cards at \$100/thousand)	\$ 3,000	
Tables and Correlations (processing)	6,000	
Office Space (\$6,000/year at 3 years)		18,000
Supplies (Paper, printing, etc).	5,000	
Miscellaneous	5,200	4,000
Total	\$174,000	\$94,000

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5. Budgets/Timetables for Program Acceptance and Disease Prevalence Surveys

Input BudgetsProgram Acceptance Evaluation

<u>Technical Assistance:</u>	<u>AID</u>	<u>GON</u>
Medical Sociologist (12 pm over 3 years)	\$ 60,000	
Technical Assistance GON (36 pm over 3 years)		\$72,000
Six round trips, U.S. - Managua	3,000	
<u>Survey Costs for Attitude Survey (Basic Data for Prevalence/Incidence of Disease).</u>		
<u>Permanent Personnel - Local (1/2 time x 36 months)</u>		
Director of Investigations (\$600/month x 18 months)	\$ 10,800	
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Supervisor of interviews (\$400/month x 18 months)	\$ 7,200	
Group Supervisors (10 ea. x 120 hrs. x \$2.50/hr x 3 surveys)	9,000	
Interviewers (40 ea. x 60 hrs. x \$2/hr. x 3 surveys)	14,400	
Coders (15 in/sheet) (10 ea. x 400 hrs. x \$1.50/hr. x 3 surveys)	18,000	
<u>Transportation of Personnel</u>	\$ 9,000	
<u>Contracted Services</u>		
Perforators of IBC cards (30,000 cards at \$100/thousand)	\$ 3,000	
Tables and Correlations (processing)	6,000	
Office Space (\$6,000/year at 3 years)		18,000
Supplies (Paper, printing, etc).	5,000	
Miscellaneous	5,200	4,000
Total	\$174,000	\$94,000

Prevalence/Incidence Disease Reduction Evaluation

Technical Assistance:

Epidemiologists/Biostatistician (8 pm at 5,000)	\$ 40,000	
Technical Assistance GON (40 pm at 2,000)		\$80,000
12 round trips San Salvador-Managua (at 150)	1,800	
2 round trips - U.S. - Managua (at 550)	1,100	
Local transport	4,000	

Sampling Costs for Biological Data for Disease Prevalence/Incidence

<u>Permanent Personnel</u> - Local (1/2 time x 36 months)		
Director of Investigations (\$600/month x 18 months)	\$ 10,800	
Laboratory Testing Associate Director (\$400/month x 18 months)	7,200	
Administrative Coordinator (\$400/month x 18 months)	7,200	
Secretary (\$250/month x 36 months)	9,000	
Statistician (\$250/month x 36 months)	9,000	

Temporary Personnel (30 min/sample collection)

Director of Biological Collection (1 x 120 hrs. x \$2.50/hr x 6)	1,800
Group Directors of Biological Collection (4 x 80 hrs. x \$2./hr. x 6)	3,840
Samplers (40 samples x 40 hrs. x \$1.5 hr. x 6)	14,400
Laboratory Technicians (.50/specimen x 1600 x 6)	4,800

Equipment

200 Petri Dishes at .30/ea.	600
2000 Culture tubes at .30 ea.	600
Ingredients for blood agar, peptone agar, alkaline hemoglobin agar, MacConkeys or EMB, tetrothyconate broth, triple sugar iron agar 1600 at 0.25 ea. x 6	2,400
1600 vacum tubes for serological testing at 0.80/ea.	1,280
70 gross of microscopic slides at \$24/gross	1,680
Temperature controlled culture oven	420
Miscellaneous lab. equipment	400
Vehicles, 2 Blazer type, 4 Wheel Drive	13,620

Contract

Serological Method Identification (CDC) (\$5 x 300 x 6)	\$ 9,000	
Viral Cultures (300/cultives x 6/types x 4)	7,200	
Building Space and Administrative Space (40 months at 500)		\$20,000

Mailing Freight

Serological/Viral Samples to CDC, Atlanta, Georgia (\$1.00/sample x 3600 samples)	3,600	
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Contracted Services

Contracted Computer Services	\$ 9,000	
Miscellaneous	3,260	
Total	\$168,000	\$100,000

Timetable

Selection of evaluation directors and technical assistance	1 - 3 months
Design of projects for attitude/health knowledge	3 - 7 months
Knowledge attitude survey, sampling procedures, selection of expert committee and determination of attitude change theory to be utilized, design of survey instrument and attitude change methodology to be utilized (see schematic), selection of interviewers; design of disease prevalence/incidence survey, incorporation of basic data needs into attitude/health knowledge survey, organization and training of laboratory evaluation team for cultures, slides and specimen preparations, organization of samples gatherers from health personnel.	
Initiation, implementation and completion of first survey	8 - 9 months
Collection of first biological samples, examination of samples and relating cohort of samples to cohort of attitude/knowledge survey	8 - 10 months
Tabulation of data	9 - 36 months
Initiation of post health project survey in communities receiving technical assistance mix (approximately 40 interviewers/village, approximately 40 communities, 4 communities/month)	12 - 22 months

Collection of second biological samples to coincide with peak diarrhea/enteric infections for the beginning of or end of the rainy season)	10 - 16 months
Collection of third through sixth biological samples (To coincide with collection of 2nd sample)	18, 23, 28, 33 months
Initiation implementation of third attitude/knowledge survey data processing, analysis of information	30 - 31 months 30 - 34 months
Preparation of final document	30 - 36 months

6. Budgets/Timetables for Technical Skills Development Element

Input Budget

Emergency Care Specialists

Technical Assistance:

	<u>AID</u>	<u>GON</u>
Technical Assistance (2 pm at 5,000)	\$10,000	
Technical Assistance (6 pm at 2,000)		\$12,000
International Travel (1 round trip US - Managua at 550)	550	
Local Travel	200	

Training Costs

Training costs (24 pm at 1,000)	\$24,000	
Participant Salaries (24 pm at 300)		\$ 7,200
International Travel (6 round-trips Managua-Panama at 220)	1,320	

Equipment

Audio-visual aides	1,400	
Special teaching aide	600	
Reference Material	400	
Emergency Care Facilities Improvement		2,500
Miscellaneous	<u>1,530</u>	<u> </u>
Total	\$40,000	\$21,700

Radiological Diagnostic Technician

Technical Assistance

Technical Assistance (6 months at \$45/day)	\$ 8,100	
Technical Assistance GON (8 mm at \$2,000/pm)		\$16,000
International Travel (4 round trips US-Managua) at 550	2,200	
Local Travel	900	

<u>Equipment</u>	<u>AID</u>	<u>GON</u>
Projector, overhead audio-visual for 14" X-ray	\$ 500	
Projector, Carrousel	400	
Projection Screen	50	
Tape Recorder	150	
Synchronizer for tape and projector	100	
Remote control and cord	20	
Reference Texts		
Radiographic Techniques (40 x 10 texts)	400	
Transparancies/Slides		
Anatomical	950	
Diagnostic Radiology in Pediatrics, Emergency, etc.	\$ 2,000	
 <u>Other Costs</u>		
Local Director/Administrator (1/2 time - \$500 x 24 months)	6,000	
Assistant Instructor (\$400 x 24 months)	9,600	
Technician Salaries (25 x 6 months at 300)		45,000
Technician Per diem (25 x 24/weeks x \$25/week)	15,000	
Technician Salaries (15 x 8 months at 300)		36,000
Per diem (15 x 32/weeks x \$25/week)	12,000	
Building Utilization (14 months at 500)		7,000
Miscellaneous	<u>1,630</u>	
Total	\$60,000	\$104,000
 <u>MCH Curriculum Improvement & Nurse Auxilliary</u> <u>MCH Specialist</u>		
 <u>Technical Assistance</u>		
MCH-FP Curriculum Expert (2.5 pm at 5,000)	\$12,500	
Paramedical MCH-FP Expert (2.5 pm at 5,000)	12,500	
Technical Assistance GON (8 pm at 2,000)		16,000
International Travel (5 round trips US-Managua)	2,750	
Local Travel	500	
 <u>Equipment</u>		
Audio-visual Aides for MCH-FP course development at all GON health training facilities	6,000	
References/Texis	8,000	

<u>Other Costs</u>	<u>AID</u>	<u>GON</u>
Per diem (18 nurse auxiliaries x 72 days at 5)	\$ 6,480	
Salary Nurse Auxiliaries (18 x 2.5 at 200 at 5)		\$ 9,000
Per diem (4 instructors x 72 days at 5)	1,440	
Salaries of Instructors (4 x 2.5 at 300 x 2 courses)		6,000
Building Training Site		2,000
Miscellaneous	<u>4,830</u>	
 Total	 \$55,000	 \$33,000

Timetable

Emergency Care Specialists

Program design refinement for emergency care specialists	0 - 2 months
Emergency care preliminary instruction	3 - 4 months
Emergency care training	5 - 9 months
Emergency care facility prepared	5 - 8 months
Input of emergency care specialists	8 - 14 months
Development of curriculum in coordination with NHDS personnel and JLAS-Managua	10 - 12 months
Institution of Continuous cycle Training of new specialists	13 months

Diagnostic Technicians

Technical Assistance Input	0 - 5 months
Program design refinement for radiological specialist	0 - 2 months
Purchase of equipment	0 - 4 months
Technical Assistance Input	3.5 - 6 months
Initiation of training (first group)	4 - 10 months
Evaluation of training group	10 - 12 months
Technical Assistance Input	11.5 - 14 months
Initiation of training (diagnostic technicians)	12 - 20 months
Technical Assistance Input	19.75 - 20.25 months
Evaluation of personnel	20 - 21 months
Institutionalization of curriculum in Managua/Leon	22 months

MCH-FP Curriculum Improvement and Nurse Auxiliary
Development

Identification of MCH-FP curriculum components in Health Sector primary-secondary school	0 - 3 months
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Input of Technical Assistance MCH-FP, Curriculum Expert	4 - 6 months
Recommendations for changes in MCH-FP curriculum for health sector training schools and primary-secondary school	5 - 6 months
Identification system and purchase of A-V materials	6 - 10 months
Input of paramedical expert in training of MCH-FP nurse auxilliary specialists	5.5 - 7.5 months
Initiation of First Nurse Auxilliary course in MCH-FP	6 - 9 months
Evaluation of nurse auxilliaries in health centers	10 12 months
Inputs of MCH-FP curriculum expert	11.5 - 12.5 months
Initiation of second nurse auxilliary course in MCH-FP	14 - 17 months
Input of paramedical training expert	16 - 18 months
Evaluation of nurse auxilliaries in health centers	17 - 18 months
Evaluation of new curriculum in MCH-FP for other health sector training programs	15 - 18 months
Input of MCH-FP curriculum expert	17 - 18 months
Recommendation for revised MCH-FP training and programs	18 months

28th month

32nd month

36th month

5th Biological
Sampling

6th Biological
Sampling

Community Program Acceptance
of study and processing of information

Data Collection and Tabulation

Preparation of final evaluation
document

DETAIL OF LOAN COMPONENT ONE

This Annex Contains:

1. Partial List of Communities Potentially Eligible for Component One Assistance
2. Distribution of Communities by Population
3. Resource Input Table
4. Potable Water System Cost Estimates
5. Latrine Cost Estimates
6. Immunization Cost Estimates
7. Report on 1965 MOH Well Project

DISTRIBUTION OF COMMUNITIES SERVICED BY INVIERNO

INVIERNO Rural Assistance Centers	Region	Start Up Year	<u>DISTRIBUTION OF COMMUNITIES BY POPULATION</u>							Total
			201-300	301-400	401-500	501-600	601-700	701-800	801-900	
Matiguas	V	1976	3	2	3			1	1	10
San Ramon	V	1976	13	5	3	1		3	1	26
Jinotega	V	1976	12	5	2		1	1	1	22
La Trinidad	V	1976	10	3	1			1		15
Condega	V	1976	12	3	1	1		1		18
Ciudad Dario	V	1977	14	9	2		1	1		27
Wasaka	V	1977	1	5	1	2	1	3	2	15
Esquipulas	V	1977	7	5	2	1		1	2	18
Santa Teresa	II	1977	6	5	3	4	1	2	2	23
Nindiri	II	1977	4	5	3	1	2	3	1	19
Diriomo	II	1977	4	1	6		3	1	3	18
La Trinidad	II	1978	2	1	2	1	1	2	1	10
Nagarote	II	1978	5	1		1	1			8
San Rafael del Sur	II	1979	7	3	5	2	2	1	1	21
Tipitapa (Las Maderas)	II	1979	2	1				1		4
TOTAL:			102	54	34	14	13	22	15	254

COMPONENT ONE RESOURCE INPUTS

	<u>Number</u>	<u>Unit Cost</u>	<u>TOTAL</u>	<u>A.I.D.</u>	<u>GON</u>	<u>Community</u>
1. COMMODITIES & SERVICES						
A. Water Source						
Hand Dug Well	212	500	106,000		77,000	29,000
Drilled Well	228	2,400	547,000	192,000	355,000	
B. Water Supply						
Hand Pumps, 60 Ft. Setting	212	250	53,000	53,000		
Installation		50	11,000		10,000	1,000
Windmill, 10 Ft. Diameter,						
30 Ft. Tower	228	2,700	616,000	616,000		
Installation		250	57,000		46,000	11,000
Elevated Tanks, 1,000-2,000						
Gal.	189	1,300	246,000	246,000		
Installation		200	38,000		30,000	8,000
Windmill Pump 90 Ft. Setting	} (Included in Mill)					
Installation						
C. Water Distribution						
Galv. Steel Pipe, 2,000 Ft.						
(Com. Size 250)	189	1,000	189,000	189,000		
Installation		280	53,000		46,000	7,000
D. Water Supply & Distribution Modi-						
fications for Larger Systems						
Materials to Modify Water Supply						
Equipment			33,000	33,000		
Additional Galv. Steel Pipe	88,000 Ft.	.50	44,000	44,000		

	<u>Number</u>	<u>Unit Cost</u>	<u>TOTAL</u>	<u>A.I.D.</u>	<u>GON</u>	<u>Community</u>
E. Other - Contingency (5%)			106,000	69,000	34,000	3,000
F. PLANSAR Equipment						
Vehicles - 4 Wheel Drive	8	6,000	48,000	48,000		
Vehicles - 3 Ton Stake Truck	2	11,000	22,000	22,000		
Motorcycles	30	800	24,000	24,000		
Office & Engineering Equipment	2 Lots	12,000	24,000	24,000		
Survey Equipment & Supplies	2 Lots	1,500	3,000	3,000		
Dewatering Pump	5	800	4,000	4,000		
G. Biologicals	64,500	4	258,000	258,000		
H. Latrification						
Materials	10,000	15	150,000	50,000	100,000	250,000
Installation		25	250,000			
<u>TOTAL Commodities & Service</u>			<u>2,882,000</u>	<u>1,875,000</u>	<u>698,000</u>	<u>309,000</u>
2. TRAINING & TECHNICAL ASSISTANCE						
A. Community Education and Water Supply Technicians	2 Yrs.	62,500	125,000	125,000		
B. Engineer & Educator Training			208,000		208,000	
<u>TOTAL Training & Technical Assistance</u>			<u>333,000</u>	<u>125,000</u>	<u>208,000</u>	
3. <u>OTHER</u>						
A. PLANSAR Salaries			839,000		839,000	
B. PLANSAR Operating Expenses			131,000		131,000	
C. Immunization Administration			33,000		33,000	
<u>TOTAL Other</u>			<u>1,003,000</u>		<u>1,003,000</u>	
4. TOTAL RESOURCE INPUTS			<u>4,218,000</u>		<u>1,909,000</u>	<u>309,000</u>

DETAIL OF LOAN COMPONENT TWO

This Annex contains:

1. Manpower Tables.
 - a. Number of Physicians, Graduate Nurses, and Nursing Auxiliaries for Selected Latin American Countries, Various Years (From Health Sector Assessment - HSA - Page 72.)
 - b. Distribution of Ministry of Health Workers by Regions, Nicaragua, 1972. from HSA, Page 73).
 - c. Projected Deficit in Health Workers, Nicaragua 1975 to 1985 (From HSA, Page 110).
 - d. Regional Deficit in Health Workers, Nicaragua, 1975 (From HSA, Page 111).
2. Projection of Human resource needs in the health sector, Nicaragua, 1975-1985. From Ministry of Health Report dated May 3, 1976,
3. Proposed Curricula:
 - a. For rural community nurse practitioner
 - b. For nursing auxiliary
 - c. For empiric midwife
 - d. For health educator
 - e. For community collaborator
 - f. For environmental health training
4. Resource Input Table
5. NHDS Preliminary Schedule of Spaces
6. Rural Health Staffing Analysis

COMPONENT TWO

Human Resources Development Input Breakouts

1. MOH Inputs

A. Land. GON will budget approximately \$100,000 to the purchase of land for the sites of the National Health Delivery School and its Subcenter, as follows:

i. National Health Delivery School at Jinotepe, Carazo	\$ 80,000	
ii. Training Subcenter at Matagalpa	<u>20,000</u>	\$100,000

B. Operational Cost for NHDS and Training SubCenter. MOH will budget an estimated \$1.4 million for the operational costs of the NHDS and its affiliated subcenter, as follows:

i. Materials and Supplies	85,000	
ii. Salaries and Expenses for Professors and Staff	1,165,000	
iii. Scholarships for student expenses	<u>150,000</u>	1,400,000

C. Salaries and Related Operating Costs for NHDS Graduates Employed by MOH*

Salaries	385,000	
Operating costs	<u>480,000</u>	865,000

MOH Total		<u><u>\$ 2,365,00</u></u>
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* Salary costs are based on Nurses, Nurse Auxiliaries, and Health Educators, not included in PLANSAR operations, graduated from NHDS beginning in 1979 and MOH proposed salary rates. Operating costs are based on MOH estimates of additional medicines supplies, materials, etc. for these graduates to efficiently carry out their duties.

2. A.I.D. Inputs

A. Construction. Approximately \$850,000 will go toward construction of the National Health Delivery School (NHDS) and an affiliated sub-center, as follows:

i. Construction of National Health Delivery School at Jinotepe, Carazo - 3,000 M ² at \$190/M ²	\$ 570,000
ii. Construction of training, subcenter at Matagalpa - 1,400 M ² at \$190/M ² *	266,000
	<u>\$ 836,000</u>
	(round to \$850,000)

B. Commodities. An estimated \$550,000 will be allocated to the purchase of commodities as follows:

i Laboratory Equipment and Supplies	\$ 200,000
ii. Office Equipment	76,000
iii. Vehicles:	
- 2 Microbuses, capacity 30 persons at \$13,000 each	26,000
- 2 Buses, capacity 60 persons at \$23,000 each	46,000
- 4 4-wheel drive Jeeps at \$7,000 each	28,000
iv. Audiovisual equipment and materials	103,000
v. Library and books	<u>71,000</u>
	\$ 550,000

* Cost of construction per square meter includes A & E work, supervision and allowance for contingencies.

C. Scholarships. Approximately \$150,000 will be used for qualified but needy students to be trained in nursing and other health professions at the NHDS and its affiliated subcenter in Matagalpa \$ 150,000

D. Technical Assistance. An estimated \$150,000 will be used to provide technical assistance for curriculum development and instructor training as follows:

i. Community Development Expert 6 mos/yr for 2 years	\$ 50,000	
ii. Rural Health Education Expert 6 mos/year for 2 years	50,000	
iii. Community Nursing Expert 3 mos/yr for 2 years	25,000	
iv. Pediatric Nurse with emphasis upon family health and planning 3 mos/yr for 2 years	<u>25,000</u>	<u>150,000</u>
A.I.D. Total	\$ 1,700,000	

MOH Total	2,365,000
A.I.D. Total	<u>1,700,000</u>
Total, Component Two	<u>\$ 4,065,000</u>

DETAIL OF LOAN COMPONENT THREE

This Annex contains:

1. Patient Discharges by Hospitals in Regions II, IV and V, Year 1975
2. Maintenance Training Program
3. Prioritization of Equipment Needs in JNAPS/JLAS Hospitals
4. Resource Input Table
5. Illustrative List of Institutions and Areas to Receive A.I.D. Loan Funds

PRIORITIZATION OF EQUIPMENT NEEDS IN JNAPS/JLAS HOSPITALS
IN REGIONS II, IV AND V, BY HOSPITAL AND BY AREA

	Masaya	Granada	Nandaime	Jinotepe	Matagalpa	Matiguas	Jinotega	Estelí	Ocotal	Somoto
I. Emergency Room	1 E	1 J	1 G	4 K	1 D	6 Z	1 C	1 F	1 G	1 H
II. Sterilization	2 H	2 C	2 K	1 C	2 A	2 J	2 B	3 D	2 G	2 F
III. Operating Room	8 G	7 A	7 F	8 K	7 H	4 B	6 J	8 C	8 D	8 E
IV. X-Ray	7	8	8	2	8	3	8	7	7	7
V. Laboratory	3	3	3	3	3	7	3	5	3	3
VI. Kitchen and Laundry	4	4	4	7	4	1	4	4	4	4
VII. Patient Care Area (in patient)	6	5	6	6	6	5	7	2	5	5
VIII. Out Patient Area	5	6	5	5	5	8	5	6	6	6
IX. Administrative Area	9	9	9	9	9	9	9	9	9	9

NOTE: I-IX Lists the areas from greatest to lowest importance.

1-9 Lists promoters for each hospital, from 1 indicating the most deficient area to 9 indicating the least deficient area

A-L Indicates the prioritization of hospitals within a given area, A being the most deficient, L the least

COMPONENT THREE

REFERRAL SYSTEM DEVELOPMENT - INPUT BREAKOUT

1. JNAPS Inputs

A. Construction. Approximately \$15,000 has been budgeted by JNAPS for the construction of a temporary maintenance training center for use until the National Health Complex building is completed, which will house the permanent National Maintenance Center. \$ 15,000

B. JNAPS has recently created a position of Component Manager to be directly responsible for the administration of loan funds. This position is budgeted at \$12,5000 per annum for a four years period.

\$12,500 x 4		\$ 50,000
	Total JNAPS Inputs.....	<u>\$ 65,000</u>

2. JLAS Inputs

Inputs from the ten participating local hospital boards (JLAS) will total approximately \$650,000 and will be used to finance the following:

- Complementary institutional facilities improvement activities, such as renovation, repair, and/or expansion of existing facilities estimated at \$500,000.
- Additional personnel expenses estimated at \$150,000 for expanded staff, to include at each hospital
 - . National Medical Maintenance Center trained Individuals
 - . Dietary Supervisors
 - . Increased Ancillary Personnel, as required.

3. A.I.D. sponsored inputs to Component Three will approximate the following:

A. Construction. Estimated construction costs for maintenance subcenters to support regional and departmental hospitals in Regions II, IV and V, will approximate \$100,000 broken down as follows:

-	2 Regional Maintenance subcenters at \$15,000 each	\$ 30,000
-	6 Departmental Maintenance subcenters at \$10,000 each	60,000
-	2 Departmental Maintenance subcenter at \$5,000 each	10,000
		<u>\$ 100,000</u>

B. Commodities. Approximately \$200,000 on A.I.D. funds will be used to properly equip the National Medical Maintenance Center and area subcenters, allocated as follows:

1. Maintenance Equipment

-	National Medical/Maintenance Center at	\$80,000
-	10 Regional/Departmental Subcenters at	<u>\$30,000</u>
		\$ 110,000

2. Tools

-	National Medical Maintenance Center at	\$28,000
-	10 Regional/Departmental Subcenters at	<u>\$25,000</u>
		\$ 53,000

3. Vehicles Assigned to National Medical Maintenance Center

-	1 Truck	at	\$17,500
-	3 Utility Vehicles (Suburban Vantype) at		<u>\$19,500</u>
			\$ 37,000
		TOTAL.....	<u>\$ 200,000</u>

C. Training and Technical Assistance.

Approximately \$50,000 will be budgeted to provide technical assistance to the National Medical Maintenance Center in the form of instructors who are expert in the more sophisticated aspects of medical maintenance. Up to an additional \$50,000 will be available to provide scholarships for individuals to be trained in maintenance at the Center as well as other priority activities.

D. Facilities Improvement

Approximately \$900,000 will be used to equip selected rural hospitals. A tentative and illustrative list of areas within each of the ten regional/departmental hospitals within Regions II, IV, and V to receive A.I.D. funded equipment is shown in the following Table.

TENTATIVE AND ILLUSTRATIVE LIST OF INSTITUTIONS AND AREAS TO RECEIVE
AID LOAN FUNDS FROM COMPONENT THREE, FACILITIES IMPROVEMENT ACTIVITY

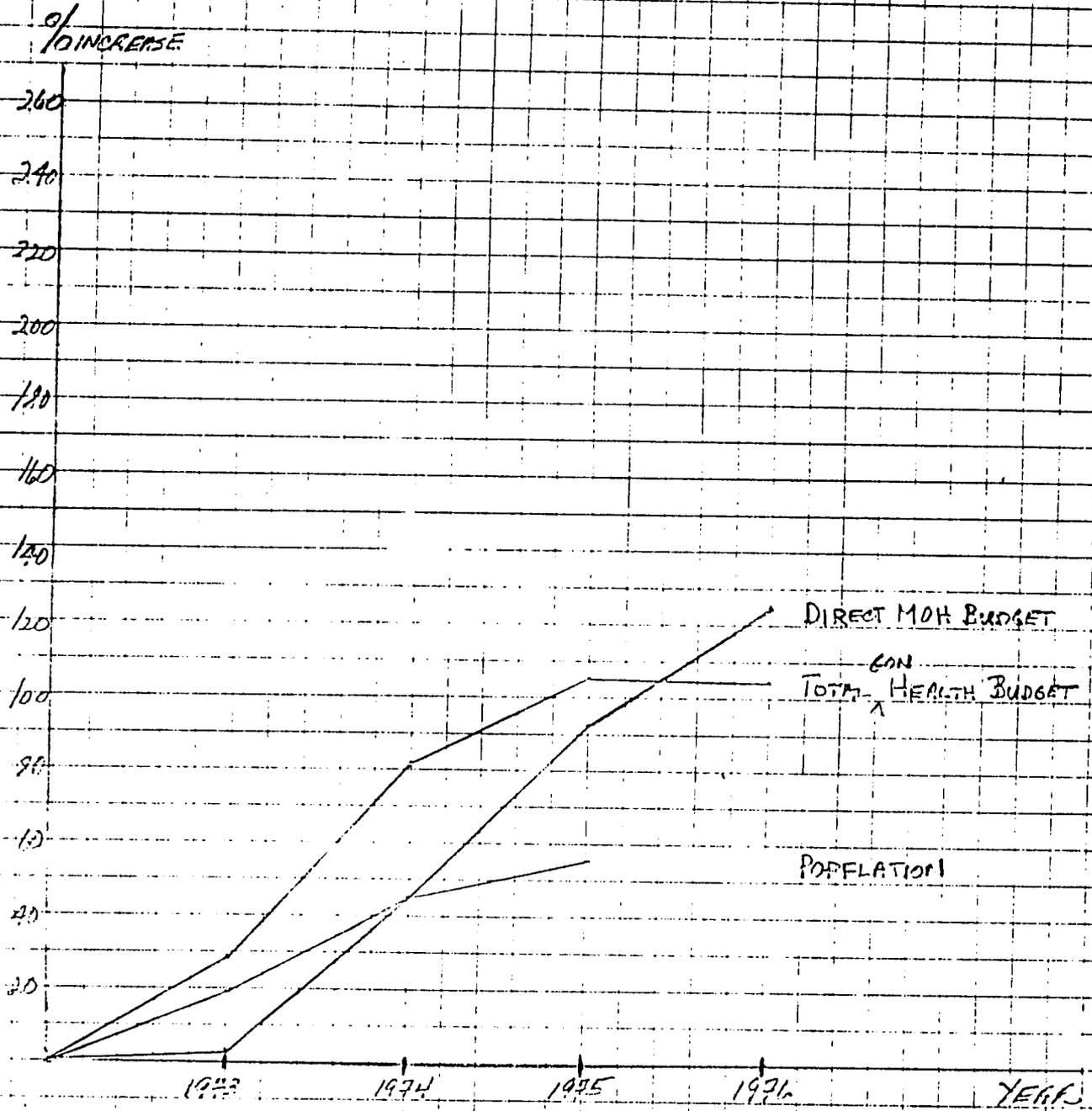
	Masaya	Granada	Nandaime	Jinotepe	Matagalpa	Matiguas	Jinotega	Estelí	Ocotal	Somoto	Total
1. Emergency Room	2,350	2,980	910	385	3,250	3,260	2,900	2,830	2,160	380	21,405
2. Central Equip. & Sterilization	2,780	10,850	4,580	9,075	14,050	11,700	10,700	1,200	11,360	10,630	86,925
3. Operating Room	70	70	-	-	-	12,060	1,620	70	70	35	13,995
4. X-Ray	-	-	110	30,500	220	800	-	220	-	55	31,905
5. Laboratory	-	-	-	-	-	4,000	2,050	1,380	3,000	17,570	28,000
6. Kitchen	15,450	19,150	12,350	9,850	11,250	15,550	13,650	12,650	10,960	14,250	135,100
7. Laundry	68,430	71,230	32,980	-	68,430	16,870	36,700	68,430	36,700	36,700	436,470
8. Patient Care Areas (# of Patients)	1,200	2,250	30	-	1,500	19,400	820	835	1,400	-	27,435
9. Out Patient Area	70	40	-	-	-	70	70	70	70	40	430
10. Administrative Area	630	480	-	1,500	765	3,250	500	525	1,725	300	9,675
TOTALS	90,980	107,050	50,960	51,310	99,465	86,960	69,010	88,210	67,435	79,960	791,340
										+ 10%	<u>79,134</u>
										GRAND TOTAL	: \$870,474

DETAIL OF FINANCIAL ANALYSIS

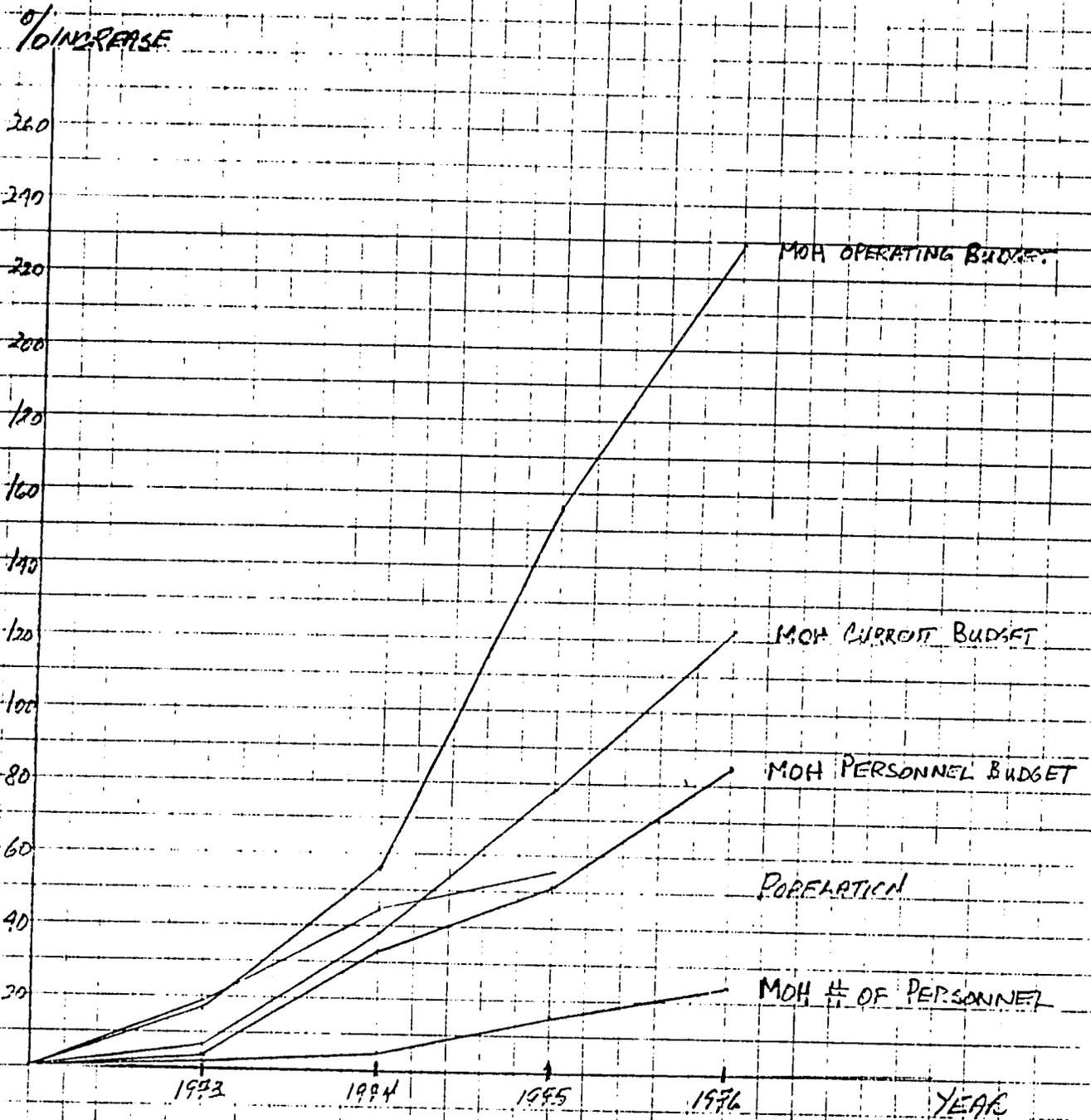
This Annex contains:

1. Historical MOH Budget Tables
2. National Health Plan Financial Tables
3. Historical JNAPS/JLAS Expenditure/Budget Table
4. Component One Estimated Costs and Coverage
5. Component One Replication Costs

GRAPH I
HEALTH BUDGET - CUMULATIVE % INCREASES
BASE YEAR 1972



GRAPH II
MOH BUDGET - CUMULATIVE % INCREASES
BASE YEAR 1932



COMPONENT ONE, SUMMARY OF ESTIMATED COSTS AND COVERAGE

ESTIMATED COSTS

<u>ACTIVITY</u>	<u>AID</u>	<u>GON</u>	<u>COMMUNITY</u>	<u>TOTAL</u>
PLANSAR	\$ 250,000	\$1,178,000		\$1,428,000
POTABLE WATER	1,442,000	598,000	\$ 59,000	2,099,000
LATRINES	50,000	100,000	250,000	400,000
IMMUNIZATIONS	258,000	33,000		291,000
TOTAL	\$2,000,000	\$1,909,000	\$309,000	\$4,218,000

COMPONENT ONE, COVERAGE ESTIMATES

	<u>COMMUNITIES</u>	<u>POPULATION</u>
Population in Communities Serviced	297	113,000
1) Potable Water Systems	297	83,000
2) Latrines	297	62,000
3) Immunizations	-	65,000
4) Total benefitted	-	163,000

- 1) Population coverage based on total population of all communities reached, adjusted for 72% dispersion factor.
- 2) Population coverage based on 10,000 latrines times average family size of 6.1.
- 3) Population coverage based on reaching 80% of rural population in the 0-4 age group in regions serviced.
- 4) Total benefitted is derived as follows: Population in communities serviced (113,000) less % of population immunized in communities serviced ($113,000 \times 17 \times .80 = 15,000$) plus total immunized (65,000) = total benefitted (163,000).

ASSUMPTIONS

1. **Community Size** - Communities with populations between 200 and 900 in Regions II and V were selected as proposed targets because of economic considerations at the lower limit and other GON programs including DENACAL potable water systems coverage at the upper limit.

2. **INVIERNO Program Communities** - Communities in Regions II and V were further prioritized by assuming that health care core projects would be directed first to villages receiving INVIERNO assistance, followed up by other small communities not receiving INVIERNO programs and possible expansion into Region IV.

3. **Community Coverage Expansion** - Prime constraint on coverage expansion is assumed to be health educators in combination with ability to deliver an even flow of resources to communities and communities' willingness to participate. 10 health educators will be available for the first year covering a total of 40 communities. 20 health educators dedicated exclusively to PLANSAR activities are planned for the second year and on covering up to 100 communities in each year.

4. **Potable Water Systems Cost Estimates** - Cost estimates for potable water systems are based on the following criteria. See Annex III E for alternative system unit costs and designs.

a. Communities divided into three categories:

- 1) 51-200 population
- 2) 201-300 population
- 3) 301-900 population

b. For communities with population ranges of 51-200:

- 1) Best cost effective system is a hand dug well servicing 36 to 144 people.
- 2) Dispersion of people in these communities is estimated at 72% clustered and 28% isolated based on 1971 Census statistics

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showing that 28% of rural population live on ranches, thus leading to 36 (51X.72) to 144 (200X.72) as potential potable water consumers or an average of 90 users per system.

3) Estimated cost of a hand dug well is \$845.

c. For a community of 201-300 population:

1) Two basic alternatives were developed: windmill driven, one well system and hand pump, two well system.

2) Applying dispersion factor from above water consumers would range from 144 - 216 people or an average of 180 users per system.

3) 75% of systems hand dug; 25% hand drilled.

4) Estimated cost of hand dug system is \$1680; estimated cost of machine drilled system is \$5,620.

d. For communities with population ranges of 301-900:

1) Systems are distributive instead of single point and assumed to be machine drilled to provide adequate present water supplies and allow for community growth.

2) Applying dispersion factor from above water consumers would range from 180 to 612.

3) Estimated cost of machine drilled distributive system is \$8,540 for 252 average users. Spinoffs on this system design including modifications to windmill and pumping system and additional distribution line costs resulting in economics of scale and lower per capita costs until communities with 540 consumers are reached. It is then assumed that two systems will be installed.

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d. Water System Alternatives Selected for Illustrative Cost Purposes.

<u>#</u>	<u>Communities</u> <u>Population Range</u>	<u>Dispersion</u> <u>Factor</u>	<u>Clustered</u> <u>Population</u> <u>Range</u>	<u>Avg.</u> <u>Clustered</u> <u>Population</u>	<u>Water System*</u> <u>Alternative</u> <u>Selected</u>	<u>Avg. Per</u> <u>Capita</u> <u>Cost</u>
835	51-200	.72	36-144	90	AHD	\$ 9.39
102	201-300	.72	144-216	180	B2HD	9.73
					B1MD	31.22
54	301-400	.72	217-288	252	CMD	33.89
34	401-500	.72	289-360	324	CMD	27.75
14	501-600	.72	361-432	396	CMD	24.91
13	601-700	.72	433-504	468	CMD	22.01
22	701-800	.72	505-576	540	(CMD)2	32.22
15	801-900	.72	577-648	612	(CMD)2	30.68

See Annex III for description and estimation cost of alternatives. Machine drilled Alternative A is too expensive on a per capita basis and is thus excluded.

AHD - Alternative A Hand dug.

B2HD - Alternative B2 hand dug. Assumed to apply to 75% of communities in the 201-300 population range.

B2MD - Alternative B2 machine drilled. Assumed to apply to 25% of communities in the 201-300 population range.

CMD - Alternative C machine drilled.

(CMD)2 - Alternative C machine drilled with two wells to provide coverage to communities with higher population ranges.

5. Latrine Cost Estimates - Latrine costs are estimated at \$40 per unit. (See Annex III E).

6. Immunization Cost Estimates - Immunization costs are estimated at \$4 per series per individual plus \$.50 for administrative and operating costs. (See Annex III E). Immunization estimates are based on projected 1980 rural population amounts to account for new births.

REPLICATION COSTS -- COMPONENT ONE

COMPONENT ONE

1) Replication period is assumed to be four years per capita PLANSAR in order to hold down administrative costs. PLANSAR costs estimated as:

- A) PLANSAR estimated costs over 1977-1980 are projected at \$1,428,000.
- B) Technical assistance costs are figure at \$125,000 over 1977-1980 and assumed not to be needed during replication period.
- C. Training and salary of additional health educators and training only for col-laborators is estimated at \$200,000.
- D) Sum of A (\$1,428,000) B (\$125,000) + C (\$200,000) equals D (\$1,503,000).

2) Environmental Health Core Projects

- A) Coverage in Regions II and V calculated at 24% (Population of Communities covered (113,000) - Region II and V total Rural Population in 1980 (475,000).
- B) Applying 24% factor to total projected rural population for the rest of the country in 1984 (616,000) gives a target group of 146,000 additional people.
- C) Per capita costs are estimated at \$19.38 for environmental health core projects during 1977-1980 program, calculated as follows:

1)	Total Cost Potable Water and Latrines	\$ 2,499,000
	Less Community Contribution	309,000
	Cost to Government	<u>\$ 2,190,000</u>

- 2) Cost to Government (\$2,190,000) - Population of Communities covered (113,000) : \$19.38.

3) Immunizations

- A) 0-4 age group is estimated at 19% of 1983 total rural population (616,000) for other than Regions II and V and 80% of this age group would be targeted for immunization thus giving a total of 94,000 children (.185 X 616,000 X .80).

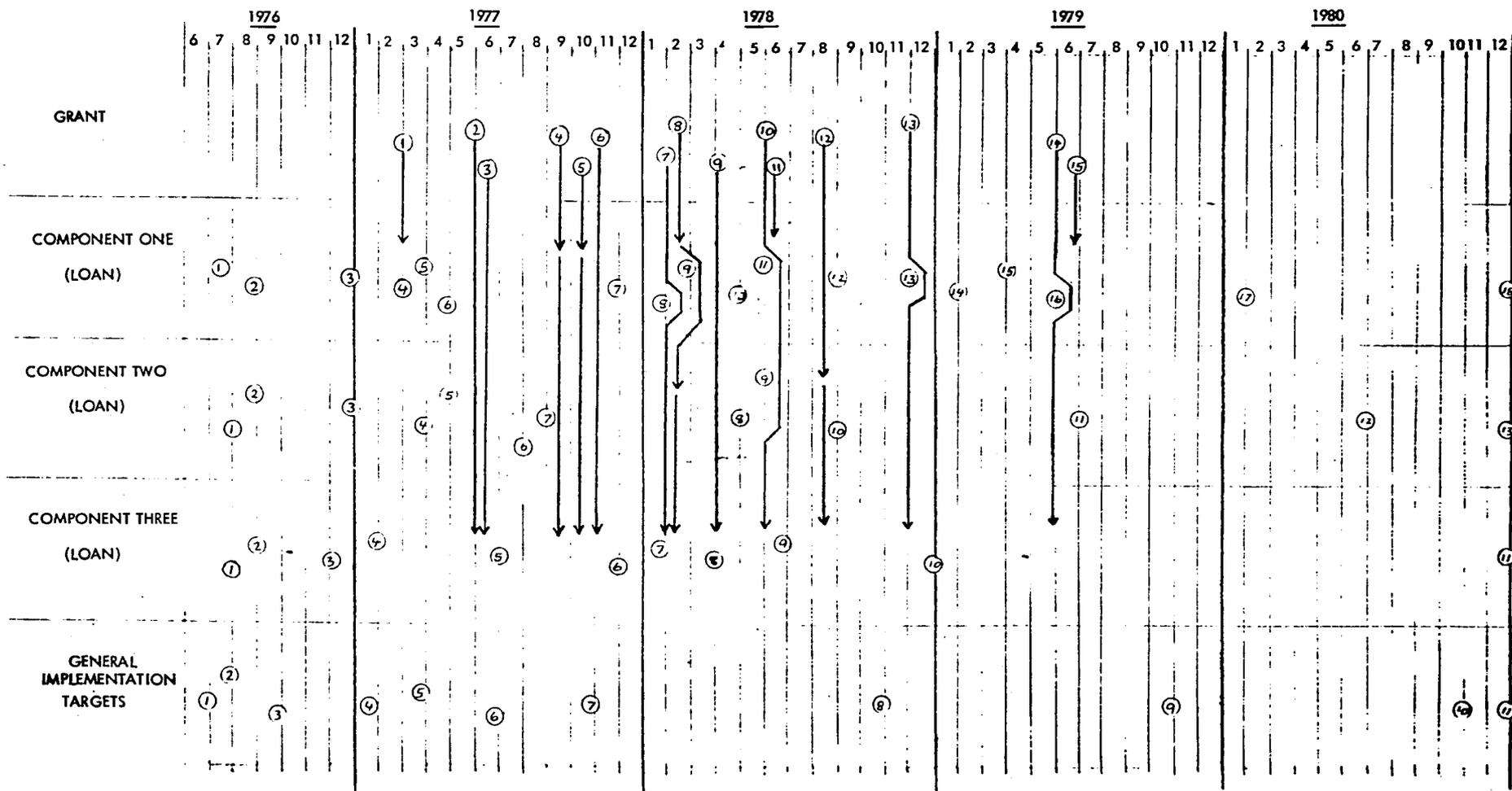
- B) Immunization series cost are estimated at \$4.50 per individual thus giving a total cost of \$423,000 (94,000 X \$ 4.50).
- C) Immunization maintenance in Regions II and V would amount to \$80,000 given total rural population in Regions II and V in 1980 (475,000), a birth rate of 4.6%, coverage (80%) and cost per individual (\$4.50).

4) Assumption

The use of per capita costs ignores a whole host of factors such as physical infrastructure, access, spatial patterns, community size, member of consumers, social considerations, etc., however, given paucity of data it is the best available.

RURAL HEALTH SERVICES LOAN
AND INSTITUTIONAL DEVELOPMENT GRANT

PROJECT PERFORMANCE
NETWORK



PROJECT PERFORMANCE NETWORK CHART
CRITICAL PERFORMANCE INDICATORS

Rural Health Loan and Grant

Row 1 Grant Activities. (Note that on the Project Performance Network Chart critical grant points are linked up to their associated loan-funded components).

- (1) 3/1/77 Horizontal drilling feasibility study completed.
- (2) 6/1/77 First course for radiological technicians completed.
- (3) 6/10/77 First MCH-FP course for nurse auxiliaries completed.
- (4) 9/15/77 Program Evaluation Model for Rural Health Program.
- (5) 10/15/77 Technical Assistance for Information System completed and system is designed.
- (6) 11/1/77 Emergency care specialists have finished training the first group of apprentices, and these apprentices are sent out to rural hospitals.
- (7) 2/1/78 Second MCH-FP auxiliary course completed.
- (8) 2/15/78 Health sector managers have completed final phase of Management Improvement Program.
- (9) 4/1/78 Second Radiological Diagnostician Course completed.
- (10) 6/1/78 Second group of emergency care apprentices complete training.
- (11) 6/15/78 Low Cost Drilling feasibility study completed.
- (12) 8/10/78 Trial continuing education program and innovative training programs completed. Health manpower utilization models have been tested.
- (13) 12/1/78 Third group of emergency care apprentices complete training
- (14) 6/1/79 Fourth group of emergency care apprentices complete training
- (15) 6/25/79 Program acceptance and Disease Prevalence Evaluation completed.

Row 2 Component One Activities

- (1) 6/15/76 Initial staffing of PLANSAR completed.
- (2) 8/31/76 Grant-funded technical assistance to PLANSAR begins.
- (3) 12/13/76 MOH staffs PLANSAR Central Office and meets CPs to initial disbursement (i.e. evidence of sufficient budget and staff plus implementation plan).
- (4) 2/28/77 PLANSAR Regional Office opens in Matagalpa.
- (5) 3/31/77 First disbursement for Component One.
- (6) 4/30/77 First Project Cycle begins.
- (7) 11/30/77 Second Project Cycle begins.
- (8) 1/31/78 PLANSAR ties one on at first annual conference.
- (9) 2/28/78 PLANSAR second regional office opens.
- (10) 4/30/78 First Project Cycle ends.
- (11) 5/31/78 Third Project Cycle begins.
- (12) 8/31/78 Collaborator training begins at new National Health Delivery School.
- (13) 11/31/78 Second Project Cycle ends.
- (14) 1/31/79 Fourth Project Cycle begins.
- (15) 3/31/79 Immunization Campaign begins.
- (16) 5/31/79 Third Project Cycle ends.
- (17) 1/31/80 Fourth Project Cycle ends.

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- (18) 12/31/80 All collaborators trained; final immunization campaign completed; final loan funded projects completed; and final loan disbursements.

Row 3 Component Two Activities

- (1) 7/31/76 Component Two Manager appointed.
- (2) 8/31/76 Detailed planning for NHDS curriculum and facility begin.
- (3) 12/31/76 CP to Initial Disbursement met (Implementation Plan).
Special CP to Disbursement for A&E met (rural staffing plan).
- (4) 3/31/77 Final site selection for NHDS (Jinotepe) and teaching sub-center (Matagalpa).
- (5) 4/30/77 A&E work begins on NHDS and subcenter.
- (6) 7/31/77 Land Preparation and construction begins.
- (7) 8/31/77 IFB for equipment issued.
- (8) 4/30/78 Construction completed and equipment installed.
- (9) 5/31/78 Classes begin at NHDS and center. Scholarships available.
- (10) 8/31/78 Collaborator training in NHDS begins (from Comp. One).
- (11) 6/30/79 End of first full year NHDS operations.
- (12) 6/30/80 End of second full year of NHDS operations.
- (13) 12/31/80 Final loan disbursement for scholarships.

Row 4 Component Three Activities

- (1) 7/31/76 Component Three manager appointed.
- (2) 8/31/76 Detailed planning for maintenance mgt system begins.

- (3) 12/3/76 CP to Initial Disbursement met (Implementation Plan).
- (4) 1/31/77 First maintenance training cycle begins.
- (5) 6/30/77 First IFB for equipment issued.
- (6) 11/30/77 First maintenance training cycle ends.
- (7) 1/31/78 Second maintenance training cycle begins.
- (8) 3/31/78 First equipment orders arrive and installed.
- (9) 6/30/78 Second IFB for equipment issued.
- (10) 11/30/78 Second maintenance training cycle ends.
- (11) 12/31/80 Final maintenance training and equipment ordering cycles completed.

Row 5 General Implementation Targets

- (1) 6/30/76 Grant Project Agreement Signed and Loan Authorized.
- (2) 8/31/76 Grant-funded services begin.
- (3) 9/30/76 Loan Agreement signed.
- (4) 12/31/76 CPs to Initial Loan Disbursement met.
- (5) 2/28/77 First Loan Disbursement for Program.
- (6) 6/30/77 Special CPs to Loan Disbursement met.
- (7) 10/31/77 First Evaluation of Program completed.
- (8) 10/31/78 Second Evaluation of Program completed.
- (9) 10/31/79 Third Evaluation of Program completed.

- (10) 10/31/80 Fourth Evaluation of Program completed.
- (11) 12/31/80 Final grant or loan disbursement.

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