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

PD-AAB-267-B1

UNCLASSIFIED

AID-DLC/P-1048

October 3, 1972

MEMORANDUM FOR THE DEVELOPMENT LOAN COMMITTEE

SUBJECT: Panama - Rural Community Health and Nutrition

Attached for your review are the recommendations for authorization of a loan in an amount not to exceed \$3,800,000 to the Government of Panama for the United States dollar and local costs of goods and services, including \$80,000 to be used only for technical assistance, to assist the Borrower in improving the provision of health services, potable water and nutrition to small rural communities.

Please advise us as early as possible but in no event later than close of business on Friday, October 6, 1972, if you have a basic policy issue arising out of this proposal.

Rachel R. Agee  
Secretary  
Development Loan Committee

Attachments:  
Summary and Recommendations  
Project Analysis  
ANNEXES I-X

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



UNITED STATES COORDINATOR  
ALLIANCE FOR PROGRESS

A.I.D. Loan No. 525-L-040  
(Ref.: AID-DLC/P-1048)

PD-AAB-267-B1

LOAN AUTHORIZATION

Provided from: Alliance for Progress Funds  
PANAMA: Rural Community Health and Nutrition

Pursuant to the authority vested in the Deputy U.S. Coordinator, Alliance for Progress, by the Foreign Assistance Act of 1961, as amended, and the delegations of authority issued thereunder, I hereby authorize the establishment of a loan ("Loan") pursuant to Part I, Chapter 2, Title VI, Alliance for Progress, of said Act to the Government of Panama ("Borrower") of not to exceed three million eight hundred thousand dollars (\$3,800,000) to assist in financing the United States dollar and local currency costs of a project to improve rural health conditions through the provision of additional health services, potable water and nutritional foods ("Project"). Eighty thousand dollars (\$80,000) of the Loan may be used only for technical assistance. The Loan is subject to the following terms and conditions:

1. Interest and Terms of Repayment

Borrower shall repay the Loan to the Agency for International Development ("A.I.D.") in United States dollars within forty (40) years from the date of the 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 percent (2%) per annum during the grace period and three percent (3%) per annum thereafter.

2. Other Terms and Conditions

- (a) Goods, services (except for ocean shipping) and marine insurance financed under the Loan shall have their source and origin in Panama and countries included in AID Geographic Code 941. Marine insurance may be financed under the Loan only if it is obtained on a 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 AID Geographic Code 941.

- (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 first disbursement or the issuance of any commitment documents under the Loan, Borrower shall submit to A.I.D. in form and substance satisfactory to A.I.D., an implementation and evaluation plan which shall include, but not necessarily be limited to, provision for semi-annual reviews of the Project covering targets, progress, budgetary requirements, procurement, and coordination with and support from other governmental, private and international agencies.
- (d) Borrower shall covenant to review with A.I.D. at least semi-annually the execution of the implementation and evaluation plan referred to in section 2(c) above.
- (e) The Loan shall be subject to such other terms and conditions as A.I.D. may deem advisable.

  
\_\_\_\_\_  
Deputy U. S. Coordinator

  
\_\_\_\_\_  
Date

RURAL COMMUNITY HEALTH AND NUTRITION LOAN

PANAMA

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PART I - SUMMARY AND RECOMMENDATIONS

1. BORROWER: The Government of Panama (GOP)
  - EXECUTING AGENCY: The Ministry of Health (MOH)
  2. A. AMOUNT: Not to exceed three million eight hundred thousand U.S. Dollars (\$3,800,000)
  - B. TERMS: The loan will be repayable in 40 years, including a grace period of 10 years, at an interest rate of two percent (2%) during the grace period and three percent (3%) thereafter.
  3. DESCRIPTION OF THE PROJECT: To provide more effective health services and to reach formerly inaccessible members of the population, the MOH has decentralized its activities and transferred personnel and resources into the rural areas. The proposed loan will provide resources to the MOH integrated community health program both for potable water and community garden plot segments. The loan funds will also provide some transportation in support of basic health efforts in maternal/child care, adult health and health education.
- Community Health Committees (CHC's) are being established at the village level to achieve a more effective combined use of Ministry resources and community self-help resources. Composed entirely of members of the community, the CHC is responsible for setting the level of health services for which it is willing to pay and for mobilizing community support in confronting their own health problems.
- The Community Health Program is divided into three basic components: (a) Health Services, (b) Nutrition, and (c) Water Supply. In component (a) teams of MOH technicians

will work with the CHC's in providing immunizations, health education, maternal/child care, adult medicine, family planning, and improving sanitation. Component (b), Nutrition, is designed to combat wide-spread malnutrition by educating the communities in the importance of a balanced diet and teaching them how to grow more and more nutritious foods. Equipment, fertilizer, insecticides and seeds will be supplied in conjunction with training in modern agricultural techniques to establish community gardens to produce additional food for those who participate and provide a demonstration of the benefits of modern agricultural practices to the entire community. Component (c), Water Supply, will assist the CHC's to build 200 rural aqueducts and install over 900 hand operated wells in those communities willing to provide the labor and able to pay the costs of maintaining the system.

4. PURPOSE: To raise the level of health in rural communities through organized and active participation of their inhabitants. This will be accomplished by:
1. Promoting the organization of the community through Community Health Committee, making them conscious of their health problems in general with particular emphasis placed on nutrition and potable water.
  2. Combining community efforts in solving their own health problems with those of the Health Teams composed of MOH technicians provided from regional and district offices, decentralized to bring services to the communities and thus to meet more effectively the MOH responsibilities.
  3. Demonstrating improvements over traditional agricultural methods and techniques so as to increase subsistence production and diminish community food shortages.
  4. Developing at the community level the basic health programs of the MOH: environmental sanitation, maternal-child care, adult medicine, nutrition and health education.

5. **SECTOR ANALYSIS:** The three major problems on the demand side of the health sector in Panama are the lack of basic environmental sanitation, dysnutrition, and the high incidence of easily preventable diseases such as measles. The problem on the supply side has been the maldistribution of basic services including those related to disease prevention such as inoculation programs, health education and environmental improvement. In all these, the rural areas have suffered through inaccessibility, ignorance and the absence of even the minimum of community organization necessary to permit making effective use of the services that have been available.

The new MOH Community Health program is aimed at solving these problems by improving the quality and quantity of health services offered to the rural areas. Malnutrition is being attacked in a three-fold program of food distribution, education in food preparation and the importance of a balanced diet, and instruction in how to grow more nutritional food. Basic environmental sanitation is being carried out by the CHC's with MOH technical assistance.

6. **SECTOR STRATEGY:** The PJG has taken a key development policy decision to assure a more equitable distribution of government resources and services as between urban and rural Panama. To remedy what the PJG considers a failure in past governments, the PJG is providing, with informational assistance, additional resources to the small farmer in remote areas, all weather (where possible) access to isolated communities, a decentralized educational system, adjusted and relevant to rural needs, and a public health system designed to assure services to the traditionally unserved.

The Ministry of Health is working to establish and to strengthen relationships between the service providing units of the Ministry and the rural communities. The Ministry has been decentralized into three regional health offices under which are eighteen district health offices. MOH medical, para medical, educational, engineering and other personnel are involved in the mobile health program, visiting isolated communities on a regular schedule. To relate to and to work with the MOH, Community Health Committees have been formed.

It is this mobilization and energizing of the community to face its own health problems, and to participate in working out the solutions, especially the environmental solutions to their own community health problems, that is at the heart of the strategy and also the heart of this loan project.

7. ROLE OF THE PROJECT

WITHIN THE SECTOR:

The project will: (1) promote the organization of Community Health Committees (CHC) through assisting the development of community projects; (2) expand health services by transporting medical and para-medical personnel out to the rural villages; and (3) improve sanitation services by providing over 900 hand pump water installations and central running water systems in 200 other communities. The establishment of community gardens and improved water systems not only improves the health of the individual, but because neither the gardens nor the water systems can be established without the creation and effort of the CHC, it also induces the village to create a CHC, it teaches the community the value of organization, and builds community self-confidence.

The project is consequently a direct response to, and directly related to, the policy decisions regarding decentralization of health facilities, wider and more equitable distribution of health services, central government responsiveness to the needs of the rural communities, and the hopes for improvement of the quality of rural life.

8. FINANCIAL PLAN:

	A.I.D.		\$		
			G O P	UNICEF	TOTAL
	Local	Off shore			
Salaries & Related Costs			3,369,000		3,369,000
Equipment	65,000	527,000	61,000	400,000	1,053,000
Vehicles		212,000			212,000
Agric. Supplies	197,000	1,329,000			1,526,000
Other Supplies & Materials	390,000	893,000	1,804,000		3,087,000
Training		100,000	113,000		213,000
Technical Assistance		80,000			80,000
<b>TOTAL</b>	<b>652,000</b>	<b>3,141,000</b>	<b>5,347,000</b>	<b>400,000</b>	<b>9,540,000</b>
Percentage of Contribution		39%	56%	5%	100%

9. OTHER SOURCES OF FUNDS: With the exception of UNICEF no other international agencies have expressed an interest in financing any portion of the project. By letter dated July 14, 1972 the IDB expressed no intent in undertaking this financing. Similarly, by letter dated July 26, 1972 the IBRD indicated that this loan could not be included in their Panama program. On June 19, 1972 the Export-Import Bank also expressed no interest in financing this project.
10. STATUTORY CRITERIA: All Statutory Criteria, as set forth in Annex II of this paper, have been met.
11. VIEWS OF THE COUNTRY TEAM: The Country Team has recommended approval of the loan.
12. MAJOR SECTOR ACHIEVEMENTS: The MOH has decentralized its activities and provided increased health services to the rural portion of the population which has traditionally suffered from a lack of health care. The GOP continues to devote an appropriate and substantial proportion of budgetary resources to health services.
13. LOAN ADMINISTRATION: Usual procurement and disbursement procedures will be followed. Joint planning and project review meetings on a semi-annual basis will provide the bases for the Borrower's procurement actions.
14. RECOMMENDATIONS: On the basis of the conclusions of the Capital Assistance Committee that the project is technically, economically, and financially justified, it is recommended that a loan to the Government of the Republic of Panama for an amount not to exceed three million eight hundred thousand dollars (\$3,800,000) be authorized subject to the usual conditions and covenants.

15. BIBLIOGRAPHY: The major source of information used to prepare the sector analysis was an extensive, in-depth study of Panama's health situation done by the Office of International Health of the U. S. Department of Health, Education and Welfare in 1970 at AID request. The study examines the health conditions of Panama, their impact upon socio-economic development, and defines and evaluates the population's health problems. Its major recommendations were either in agreement with, or accepted by, the MOH and are being put into effect. Other works consulted are included in the following list:

SYNCRISIS: THE DYNAMICS OF HEALTH I: PANAMA -  
U. S. Dept. of Health, Education and Welfare, 1970

PROYECCIONES CUADRIENALES DE ACTIVIDADES DE SALUD, 1971/1974  
Ministerio de Salud, Panama 1971, Volumes I and II

ESTUDIO GEOGRAFICO PRELIMINAR SOBRE EL AREA SANITARIA DE CHEPO -  
Ministerio de Salud, 1971

CHILD NUTRITION IN DEVELOPING COUNTRIES -  
U.S. Department of State Office of the War on Hunger, 1969

UNICEF NEWS - NUTRITION MARCH 1972

ESTADISTICAS DE SALUD - Encuesta Institucional Sobre Recursos de Salud, Ministerio de Salud, Panamá, 1972

THE SAMAKA GUIDE TO HOMESITE FARMING  
The Samaka Service Center, Manila - 1962

## PART II - THE PROJECT

### Section I - Project Analysis

#### Introduction to the Program

The Mission recommends supporting this program because:

a) It is an innovative Panamanian response to their own problems; (b) it shows how to make new and more efficient use of scarce health resources; (c) It assists people who hitherto have been outside the mainstream of modern life, the rural poor, and (d) It is based upon popular participation and the development of community organization.

The program addresses itself to a new constituency largely ignored by prior regimes which the PJG is attempting to reach and represent, the previously inaccessible and relatively disregarded rural population. The decentralization of health services is being taken as an example by other (e.g. education, public works, water supply) government entities as the PJG attempts to assist a larger segment of the population throughout the country with government services formerly available only in Panama City.

It is an unusual health project in that it operates upon the premise that most people are born healthy and that the best way to keep them that way is not to build additional hospitals, but to create a healthy environment. The Ministry of Health views a sick person as a failure of the system and its goal is not to cure the sick but to prevent them from becoming sick. The achievement of this goal depends upon the direct involvement of the people affected. It is a program assisting people to help themselves and make the improvements needed to make their local ambiente a better, more healthy place to live. This project is based upon the direct involvement of the individual and supplies basic inputs which must be united with the self-help efforts of the community.

Utilization of the disease prevention approach to health means that doctors, a scarce resource, can be substituted by lesser trained and more readily available personnel. A sanitary technician can teach people how to construct simple but clean water systems thus reducing the number of gastro-enteric cases in the local hospitals and freeing medical personnel for other duties.

The environmental approach to health services, if it continues to be successful in Panama can be a model to countries throughout Latin America. Just as the Phillipine experience with subsistence farmers using improved agricultural methods at the community level and improving the nutritional level of the community became known to and influenced the Ministry of Health, we believe that this project can serve as a bridge across international and disciplinary boundaries to stimulate self-help efforts in other countries facing similar problems in health, agriculture development or community development.

The very nature of involving relatively untrained, volunteer personnel to carry out the major portion of this project creates difficulties in obtaining precise answers to some questions concerning the experience gained in the existing community health program. No detailed records have been kept as to how much fertilizer was used per hectare or how many pounds of tomatoes were harvested. Although there is a general similarity of approach, these are community action programs in which action and response will be different in every case.

Neither Panama nor the Mission wants to delay this project for additional studies to be made. It is our judgment that the change which has occurred in the spirit of the people participating and their increased optimism in their ability to improve their living standards dictates a continuation and expansion of the project. This new approach is aimed directly at assisting the poor by encouraging them to mobilize their resources.

#### A. Description

This project forms an integral part of the GOP's efforts to improve the quality of rural life and the Ministry of Health's efforts to provide more effective health services to rural areas. It is based upon the following assumptions: (1) resources are limited; (2) the MOH must de-centralize in order to relieve shortages of health services in the rural areas; (3) it is less expensive to educate a person in disease prevention techniques than cure him after he is sick; (4) because the causes of illness lie in the

environment, community self-help efforts should be directed toward improving their environment. The project supports integrated programs of health, nutrition, sanitation, maternal and child care, family planning and adult medicine which will be introduced, supplied with necessary resources, and developed within a framework of community organization and self-help.

In order to carry out this program, some form of organization within the village is imperative. Without it the community cannot take advantage of the assistance the MOH offers. The Community Health Committee fills this vital role and thus forms the keystone of this project.

The CHC is an organization composed of ~~the members of~~ the community whose major purpose is to better utilize the services offered by the MOH. Its role has been defined by cabinet decree. (See Annex III).

The CHC structure consists of: (a) the General Assembly, (b) the Board of Directors, and (c) the several Work Commissions.

The General Assembly, composed of all the members of the community, is the ruling body. It is responsible for: (a) electing the Board of Directors, (b) electing the work commissions, (c) approving the statutes of the reforms that are to be introduced, (d) evaluating and approving the reports of the Work Commissions and the Board of Directors, and, (e) approving the annual budget prepared by the Board of Directors, the Work Commission, and the technical team of the MOH at the local levels.

The Board of Directors, elected by the General Assembly, is charged with carrying out the plans and other decisions of the General Assembly. It has a President, Treasurer, and a varying number of delegates. The Board of Directors is not allowed to make decisions which obligate the Health Committee without prior approval of the General Assembly. The members of the Board of Directors are elected for one year and are responsible for involving the community in ~~the health program offered by the MOH MOH for administering~~ the funds that are received from community activities.

Work Commissions are composed of three or more community members assigned to a specific health project within the community. At a minimum there are four work commissions within a CHC: maternal-child care, adult medicine, sanitation, and administration. As other projects, such as community gardens, are formed within the village, additional commissions are elected by the General Assembly.

Initial steps in forming the Committee involve a community seminar<sup>1/</sup> organized by the MOH to discuss the community's problems, followed by a general meeting and public election of a Board of Directors, including a President and Treasurer. A set of bylaws are then developed and approved by the membership. Continuing assistance is provided by MOH community health workers during the organizational phase of the new committee. Once the bylaws are approved by the MOH, the committee is granted corporate status and can borrow and deposit funds in the Banco Nacional. Such funds can only be used by the CHC.

Sixty-four Community Health Committees have health centers located in their village and they are closely coordinated with their activities. The health center is actually a small clinic with a resident MOH doctor and staff. The CHC contributes custodial and maintenance personnel. 145 CHCs have health sub-centers in their communities. A sub-center is a building, usually provided by the community, which contains a small supply of medicines and equipment and is used as a base by visiting MOH doctors and technicians.

Health centers and sub-centers also serve as auditoriums for CHC meetings. In communities with health centers and sub-centers, health committee revenue is generated by nominal charges for medical consultations, laboratory tests, and other services. The committee functions as a purchasing cooperative in the procurement and resale of all medicines dispensed in their health center. To better perform this latter obligation, regional and municipal Federations of Health Committees have been formed and bulk purchasing is now underway with notable economies in drug costs to the local CHC's and ultimately, to consumer. Although the MOH pays professional salaries and construction costs for the Health Centers, it is a committee obligation to pay the salary of maintenance workers and cashiers. Most committees have also contributed money to their Centers for the purpose of

<sup>1/</sup> See Annex IV Exhibit 3

adding air conditioning, expanding or remodelling interiors, and purchasing needed equipment and furniture. Many of the remaining 266 CHC's without health centers or sub-centers are presently collecting funds from raffles or donations, and their meetings are held in private houses.

The Rural Mobile Health team, a highly flexible unit drawn from personnel located at area and district offices of the MOH, is the health service providing side of the equation. These teams contain, in addition to doctors and nurses, community development specialists, veterinarians, agronomists, health educators, sanitation engineers and sanitation workers, and nutritionists. The teams visit the various communities, both those with sub-health centers and those without, on a regular schedule using, among other means, vehicles and boats provided through AID financing under the PUMAR Loan (525-L-029). Other vehicles and one launch have been provided from MOH funds, and in twenty cases the communities themselves have provided vehicles.

It should be noted that all team specialists will not necessarily be represented on any single visit. Visits are usually keyed to a combination of community needs, community programs, personnel availability and program timing. For example, a visit to a particular community might combine an out patient clinic, an immunization program and an agronomist visit. However, all rural health programs tend to fall under one of the four technical areas with which the regional and district health offices are concerned: maternal and child care, adult health, environmental sanitation and nutrition.

The resources provided under this loan proposal are directed mostly at two parts of the integrated program, nutrition and environmental sanitation. But all parts of the whole are mutually supportive. A community organized around a water system or a well can be mobilized in support of an inoculation program. A community garden supports health education and instruction in child care and nutrition, and vice versa. Consequently, in describing the parts, all of them must be considered to show the place in the program of the parts which will be loan supported.

#### 1. Maternal and Child Care

The following are some of the essential elements of this segment of the program. These activities are carried out down to the

village level as well as at the health centers and sub-centers.

Pregnant women receive physical examinations and are instructed in pre-natal care and child care including personal hygiene, breastfeeding, proper diet for mother and child. Medicines, such as iron for anemia, are prescribed. Village mid-wife training is given, important since the use of medical facilities for births obviously varies inversely with the distance to the nearest facility and the economic status of the mother.

Mothers and babies are examined after birth. Family planning information is provided to all interested parents. Continued nutrition in infant and child care is given with emphasis on diet and the causes and treatment of diarrhea, the great child killer. Infant and pre-school food program are carried out. Children are vaccinated. School health programs are conducted with emphasis on health education, school lunch programs, further vaccination programs, physical examination and health records and referrals, where necessary to health centers.

## 2. Adult Medicine

This program is also carried out at the community level, using visiting PUMAR teams\*, health sub-centers and centers. While there is some continued emphasis on disease prevention this aspect of the program places more emphasis on diagnostic and curative medicine.

Out patient clinics are carried on and patients either prescribed for or referred for hospitalization. The Public Health responsibility for examining food handlers comes under this program. There will be no direct loan funded support for this program but it is part of bringing health care to the rural communities.

## 3. Environmental Sanitation

Rural water systems will be constructed in approximately 200 communities during 1972 through 1975 and will benefit roughly 80,000 persons. 148 communities already have been selected according to the existing priorities in the country. The remaining 52 will be selected after additional study. Annex VI lists the name and location of these communities already selected. In addition to installing 70 rural water supply and distribution systems per year, the

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\* See page 101 regarding the PUMAR program supported by A.I.D. Loan 525-L-029.

program will drill and install 300 manually operated wells in smaller communities. Approximately 50 people will use each well, thus the total rural water program, composed of water systems and wells, is designed to provide 15,000 people per year with potable water.

While larger population centers are served by the Instituto Nacional de Acueductos y Alcantarillados (IDAAN), the Sanitary Engineering Section of the Ministry of Health is charged with the responsibility for assisting communities under 500 inhabitants to secure a potable water supply. As a result, about 44% of Panama's population, which lives in over 8,000 locations with less than 500 inhabitants, must rely on the MOH for provision of potable water. Using equipment which is over 30 years old in some cases, the MOH assisted construction of 32 rural community water systems, 397 rural wells, and repaired 2,400 existing wells in 1971. Severe problems have been experienced not only with outdated drilling rigs, but also with lack of transport for rigs and equipment from site to site.

Again, as in all MOH programs at community level, the chief local administrative agency is the Community Health Committee in collaboration with the technical staff of the Ministry. With guidance from field representatives of the MOH staff of 12 sanitary engineers and 149 sanitation workers, the Health Committee conducts a survey to determine clean water needs in terms of volume and distribution. Next, a meeting is held with Ministry technicians to discuss the type of system required and methods of construction. The community is responsible for providing all hand labor and the purchase of a water storage tank for the system. Where distribution systems are built, major emphasis is placed on the desirability of installing intradomiciliary water taps by as many individuals as possible as a community contribution. In several recent projects over 80% of village houses have been provided with inside taps in addition to the more traditional streetcorner outlets.

In addition to purchase of a tank where required, an administrative sub-committee is elected and collects regular payments from the users. These payments are used to cover maintenance expenses and improvements to the system.

A variety of water systems may be used depending upon the needs, situation, and resources of the community involved. Some communities may only need an irrigation type pump to pull water from a nearby stream into a settlement basin. Others in more arid areas will require deep wells, catchment basins for springs, or improvements to their existing system, such as a new pump with diesel engine, or plastic pipe to replace a rusted system. Whatever the need, the community must decide and take action as outlined above.

It is estimated that 50 to 75 small community aqueducts can be constructed annually if the MOH receives the additional equipment needed to expand their program from its present base of 32 units installed in 1971. In addition, perforation of single rural wells would be markedly augmented as a consequence of improved equipment transportation capability. The Sanitary Engineering Section of the MOH currently employs 34 drill workers and 30 mechanics with responsibility for maintaining equipment, pumps, and systems. MOH garages are situated at several locations around the country.

Another element of the sanitation/environmental aspect of the program is the malaria eradication program for spraying dwellings and larvae breeding areas. Communities are educated in both mosquito control and in recognizing the need for treatment of persons suffering from malaria so as to reduce the spread of the disease. A veterinary health program is conducted to improve control of animals and the sanitary conditions in pig and chicken yards. The Health Committees are also educated in the impact of housing on health, ideal village housing plans, construction of stoves as improvements over cooking over fires or the floor, and the need for family latrines. The sanitary aspects of school yards and school latrines receive special attention.

#### 4. Nutrition

In support of the Ministries efforts to improve nutrition, based primarily on developing an awareness within the community of nutritional needs and ways to meet those needs, it is planned to develop,

with the Community Health Committees 200 community nutrition projects over the next three years. Garden plots as well as small animal projects are planned.

It is the community's responsibility to supply the labor and a plot of good soil (3 to 15 hectares depending on the size of the community), preferably next to a permanent water source to permit dry season production utilizing irrigation.

The communities that will participate in the program will be those that: (a) are organized or are susceptible to rapid organization, (b) have nutritional problems, (c) are accessible on a year round basis so that regular MOH agricultural assistance can be provided and, (d) possess sufficient basic agricultural resources (i.e. workable land, water, etc.).

The MOH agronomy consultants assist the community in obtaining soil analyses by taking soil samples and sending them to the Ministry of Agriculture (MAG) Soil Laboratory. After receiving the result the MOH technician formulates a cultivation plan for the garden in accord with nutritional requirements determined by a community health survey and discussed in detail at a community health seminar. Again, all technical disciplines of the MOH participate with the Committee in determining needed action programs. Necessary agricultural equipment and materials are then delivered by the MOH so that cultivation may commence. Characteristically, a small, diesel two wheeled cultivator, seeds, fertilizers, and insecticides are provided.

Because of the wide variety of resources and needs, it is necessary to prepare a separate "package" for each community initially and periodically thereafter. A list of agricultural inputs has been attached based upon the 3 year estimated requirements of 200 7.5 hectare garden plots.

In order for the applied nutrition projects to succeed, training in improved agricultural methods and village technology is being offered in various manners. It has been demonstrated in the existing

pilot projects that modern methods can be successfully transferred via short community demonstration courses. In addition, encouragement of visits by members of one project to another has borne gratifying results. Satellite house gardens tended by housewives have begun to appear. In another case, certain elements of a successful San Blas Indian project are being applied in other tribal areas. Twenty Health Education Auxillaries have been given a short horticulture course at the Centro Internacional de Agricultura Tropical, Colombia, to enable them to participate more significantly with garden cooperatives. A MOH veterinarian and architect have now obtained aquaculture training at Turrialba, Costa Rica. Further training of participants at community and professional level and utilization of technical consultation is envisioned under this loan. Extensive use of RTAC materials and films is also planned.

The MOH has assembled three mobile agricultural training teams at the present time. It will expand this number to ten. The teams will be composed of MOH community action workers and vocational level agronomists who will initiate and follow the progress of the projects organized in participating communities. Initial agricultural inputs to begin each nutrition project will be supplied by the MOH. Many of the small and subsistence farmers in these communities already expend funds on these inputs but misuse them. One objective of this aspect of the project is to teach them how to farm properly and introduce new techniques and products which will better serve their health needs.

All equipment and supplies utilized in these projects are simple, economic and easy to manage so that the majority of the people can be trained to use them quickly. Maintenance of the motor cultivators has been successfully performed by the communities after minimal instruction. The 30 man garage staff of the MOH Sanitary Engineering Section has received training in maintenance and repair of the diesel cultivators as well as through arrangement with the manufacturer. These same mechanics are also involved in the commu-

nity aqueduct projects that usually progress simultaneously with the gardens as an additional Health Committee effort.

Currently the gardens are producing vegetables and grains; programs are now being planned for the inclusion of animal products which are indispensable for a balanced diet. Community fish ponds have been started in three locations on an experimental basis. Two courses in rabbit raising at community level have already been offered to 80 Committee members by the Divisa Agricultural Institute. Bee-keeping, poultry and various horticulture and fruit cultivation courses have been arranged for the remainder of this year with heavy inscription of Health Committee members in each.

Once the garden is operating, distribution of food products proceeds in accord with the particular pattern of organization chosen by the community. The family cooperatives have generally divided their harvests based on hours worked with distribution supervised by their elected president. In the case of the San Blas pre-school feeding center, all members of the community had worked at one time or another, and all village pre-school children were being benefited. In this case, traditional tribal patterns were followed in assigning tasks, performing work and using outputs.

In some cases, part of the harvest is being sold to obtain money for small investments in the garden such as diesel fuel or other required items. The sales often take place within the same community or even to the nearest hospital. The program does not seek to promote commercial production, an activity more suitable for the MAG, but merely to promote production of subsistence foods in sufficient quantity and nutrient value to improve the health of the immediate community.

During the initial production phase, in addition to training in agricultural techniques, an extensive program in food preparation is to be given. Changing dietary habits, admittedly one of the most

rigid of the social customs, is difficult, but the pilot programs have proven that it is not impossible. Food preparation instruction is geared to demonstrate taste value of the new products when prepared correctly. Interestingly, the kitchen staff of some MOH hospitals is beginning to assist with food preparation demonstrations for community women's groups. This represents a significant innovation in using a previously ignored group of MOH employees. The School of Home Economics, Faculty of Agronomy, University of Panama, has also agreed to participate in this field.

The nutrition program is not designed to operate as a separate program but within a framework of inter-related activities coordinated by the Community Health Committee. Other programs of the Ministry of Health: Maternal and Child Care, Adult Medicine, Environmental Health, Malaria and Water Supply will take place in conjunction with the nutrition program and sometimes utilize the same technicians and vehicles. Other government agencies are already participating in these activities.

During the last 12 months 73 community nutrition projects have been established in Panama. Production of crops has been quite satisfactory. In the first 21 nutrition projects over 30 crops have been produced with at least 3 plots in continuous production. All projects which sowed one crop have gone on to continue cultivation of future crops. Two communities which were unable to secure satisfactory land for the garden have been dropped from the program and their tractors assigned to new villages. In both cases the only input provided had been the tractors.

Of the 73 tractors provided to date 32 were donated by local businessmen and institutions while the remaining 41 have been contributed by UNICEF. Irrigation pumps for use on the tractors have been supplied to 20 projects. An additional 50 pumps are now being procured with GOP funds. Because of the severe drought that has affected Central America in the first half of this year, those gardens provided irrigation pumps have fared better than the 50 plots without them.

An irrigation study of Panama under MOH auspices has now been completed by Professor Jerald E. Christiansen, Utah State University, with particular emphasis on systems for community garden plots. Dr. Christiansen's suggestions are being implemented through a joint arrangement linking the MOH engineering Section and personnel of the 3rd Civil Affairs Unit, U.S. Army. (Two veterinarians of this latter group are also collaborating with MOH veterinary physicians on animal raising aspects of the community nutrition project.)

In addition to garden plots a group of 90 women from the original 21 communities have now attended a course in rabbit raising and 40 pairs of breeding rabbits have been received by the MOH for distribution of first litter to the projects. This was a donation of the Friends of the Alliance, Delaware. Two poultry projects and two pig raising projects are underway as well as five tilapia fish ponds. A Ministry of Health veterinarian and architect have attended formal training in tilapia culture in Turrialba, Costa Rica.

Cooperation from the Ministry of Agriculture has been freely given in the areas of soil analysis and provision of grafted fruit trees. The Minister of Agriculture has shown himself personally favorable to this MOH effort and sees no conflict between the nutrition portion of the program and the objectives of the Ministry of Agriculture.

Possible Future Self-financing Alternatives

1. A potential local market exists within every community selected for participation in the project. Since only about 20% of the families will be actively cultivating, the remaining 80% of the population, as well as the inhabitants of immediately adjacent villages, represent a source of additional consumer demand for produce. The Ministry of Health's community medicine efforts are directed at the total population of each locality and consequently felt needs for nutritious foods will be developed through meetings and other promotional activities which have already begun throughout the country. Health Centers and hospitals near community garden plots have also become customers for produce that surpasses the immediate needs of participating families.
2. Even the poorest families involved in this project generally have some small sources of income available to them. The training in improved agricultural methods as well as the income potential of crops cultivated will result in both augmented production on individual personal plots and possible economic gain from sale of crops excess to the needs of participating groups.
3. Sale of produce outside the community of participating families is an additional source of income toward self-sufficiency, however this obviously depends upon the location and accessibility of proposed markets.
4. It is expected that the increase in agricultural skills accruing to participants will encourage them to become clients for institutionalized credit. Several possibilities present themselves along these lines. CHC's possessing personeria juridica, corporate status enabling them to borrow money, are eligible for governmental and bank loans. The regional and national federations of Health Committees might well organize to administer a credit program within their own financing capabilities or through affiliation with present external sources of funds.
5. In far too many cases, lack of convenient sources of seed, fertilizers and other necessary products has served to dissuade small subsistence farmers from venturing away from traditional patterns of cultivation. It is expected that continuing channels of supply will be established so that small cultivators will be able to conveniently obtain these commodities at reasonable prices in the future. An arrangement to this end with COAGRO, an A.I.D. assisted farm supply cooperative, is now being discussed. In addition, the participation of the Ministry of Agriculture

in the annual project reviews provides an opportunity for MAG personnel to assess the best credit risks among the communities and small farmers participating and enroll them in government supported credit programs.

6. Upon termination of the loan period, a reasonable expectation exists that GOP funds would be made available to continue providing inputs to those potentially viable community garden projects requiring additional limited assistance.

Considering the wide variance from community to community, both in needs and resources, it has been desirable to establish a model which can be employed to project the total level program inputs. This model is based on the needs and resource requirements which have been demonstrated in the existing gardens and consists of a 7.5 hectare plot of land in a community of about 100 families. Approximately twenty families of this number will be organized to participate in the nutrition activity. A plot size of 7.5 hectares has been chosen because it represents an expanse appropriate for cultivation by 20 families with a small diesel powered tiller, using family labor. The output which can be expected from such a plot will of course vary from crop to crop, but will be adequate to supplement the diet of participating families. Sub-units of the plot may also be conveniently irrigated by sprinkler or furrow. Any additional vegetables produced would be available for the needs of other community members. Our planning is based on the requirements for cultivation of 200 such plots which will be provided agricultural inputs sufficient for an average of two crop cycles yearly for three years.

Total project costs have been calculated on the basis of the model and a list of agricultural equipment and supply inputs needed for such a model. Agricultural supply requirements are based on experience factors available to the MOH agronomists and verified by the USAID/Panama technicians. The equipment lists are based on minimum requirements for such tools and equipment needed to supplement the small supply of such tools already available to the community.

The requirement for agricultural expendable supplies is based on a project concept that envisages direct support to each community plot over the first three years of its life. It is also assumed that each plot in the model will produce two crops per year. After this initial three-year period there is a reasonable expectation

that the plots may become self-sustaining as far as expendable supplies are concerned; i.e., either having sufficient sales within the community, or outside it, to purchase necessary inputs from sales proceeds, or inputs would be purchased from CHC proceeds and from small contributions by the participants.

In view of the 70 to 75 projects underway at the present time, it is proposed that regular, planned inputs will be provided this first group immediately upon commencement of loan disbursements. An additional 100 projects will be initiated de novo during the first 12 months of this loan in consonance with delivery of that number of new UNICEF diesel cultivators now on order. The remainder of the projects will commence during the second and third years of the loan period in accord with a continuing assessment of total program progress as determined at the annual and semi-annual program review meetings. This last increment of projects will be oriented toward the perfected application of all techniques and lessons learned by the MOH implementation organization during prior project activities. The purpose of these last health projects will be to establish optimal trial conditions stimulating organizational, technical, and financial independence for the community projects concerned. Evaluation will be carried out under established program criteria with inclusion of any additional parameters the Programming and Evaluation group may desire to include.

The following chart lists the items of the nutrition program requiring A.I.D. financing:

AGRICULTURAL EQUIPMENT

\$ 354,000

<u>No. of Units</u>	<u>Item</u>	<u>Unit Price</u>	<u>Amount</u>
200	Fences	\$ 75	\$ 15,000
200	Storerooms	100	20,000
200	Irrigation Systems Includes pipe and sprinklers only	1000	200,000
200	Seed drills	120	24,000
200	Misc. Garden Tools		30,400
	6 hoes	15	\$ 3000
	2 pitchforks	7.50	1400
	2 axes	5	1000
	6 rakes	25	5000
	6 shovels	25	5000
	2 sprayers	50	10000
	6 pruning shears	25	5000
10	Pick-up trucks	5000	50,000
2	House Trailers (Mobile Training Facilities)	5000	10,000
2	Audio-Visual Systems	2500	5,000

AGRICULTURAL EXPENDABLE SUPPLIES

\$1,520,000

200	Fertilizer (\$131 per hectare x 2 crops x 3 yrs x 7.5 hectares average plot size)	\$5795	\$1,179,000
200	Pesticides (\$25 per hectare x 2 crops x 3 yrs x 7.5 hectares)	1125	225,000
200	Seeds (\$8 per hectare x 2 crops x 3 yrs x 7.5 hectares)	360	72,000
200	Animals (Rabbits, piglets, chicks, fish)	25	50,000
<u>Training and Technical Assistance</u>			
	Training (Materials, Tuition, Travel, Per diem)		100,000
	Technical Assistance		80,000

\$ 180,000

TOTAL

\$2,060,000

Number of Communities to be Assisted by the Project

Approximately 800 communities will receive some form of assistance under this project. All these communities will receive improved health services, either from the expanded program planned by the MOH, or from its ongoing program. Approximately 200 of the communities will be assisted in establishing a community nutrition activity. Two hundred will be assisted in constructing running water systems and between 600 - 800 communities will benefit from the installation of over 900 hand-operated wells. Because requirements for the gardens and water systems differ, some communities may have a CHC and a well with health services provided by occasional visits from mobile health teams.

Under these conditions it is difficult to estimate the exact number of people to be affected by the project. It is our judgment that the minimum number of people to be directly affected by some phase of the project is 220,000<sup>1/</sup>. The demonstration effect, an important project goal, has been proven in the existing community gardens to have a ~~strong~~ influence on additional communities. Friends and relatives visiting communities with gardens or water systems have returned as change agents to their own villages to induce similar environmental improvements. As the project expands this effect is expected to continue and increase.

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<sup>1/</sup>Based upon 300 communities with an average population of 500 inhabitants and 600 - 800 communities with approximately 100 inhabitants.

Loan Inputs

Inputs to carry out the program are listed below. The GOP contribution to the program of \$5,347,000 is to finance mainly personnel and local costs during the three year period, while A.I.D. assistance is to finance the major share of cost of equipment and agricultural supplies. The UNICEF contribution is to finance tractors and agricultural inputs.

<u>PROGRAM</u>	<u>GOP</u>	<u>AID</u>	<u>UNICEF</u>
Community Org. & Health Education	1,426		
Maternal-Child Care & Adult Medicine	824		
Environmental Sanitation	2,785	1,733	
Nutrition	<u>312</u>	<u>2,272</u>	<u>400</u>
Total	5,347	3,793	400

A.I.D. financing is needed in the environmental sanitation and nutrition portions of the program to secure (a) well drilling equipment, vehicles, pipe and supplies for the water supply project and (b) fertilizer, technical assistance and participating training, seeds, insecticides and simple agricultural tools for the nutrition project. As mentioned in the following Section on Loan Administration, basic equipment such as vehicles and well drillers will be ordered at the outset. But as each village's community garden will have different requirements, and as data on growing vegetables in Panama are not complete, the remaining agricultural inputs will only be purchased as required and in accordance with the results of joint AID-MOH semi-annual evaluation.

The following budget lists the items to be purchased with A.I.D. financing:

## B. Technical Justification

### 1. Nutrition

The nutrition portion of the project is composed of two main segments, (a) education in better nutrition and (b) technical assistance and modern agricultural equipment and supplies to assist the CHC's in the development of demonstration community gardens. The project fulfills several purposes. First, it is designed to improve the general nutritional level of the community. Second, it serves, as the other community related projects, to demonstrate what can be done through combined effort and to build a sense of community self-confidence. Third, it is designed to demonstrate to the members of the community and the surrounding area, 95% of whom earn their living by farming, the advantages of modern agricultural techniques and the fact that a larger variety of food, including many new nutritious vegetable crops, can be grown successfully. Fourth, the community garden is designed to immediately produce a greater variety of food to supplement the diet of the community.

Nutritional education is a vital part of the MOH program to combat malnutrition because in many instances the proper food is available but through ignorance is not being consumed. For example, many recently weaned infants suffer protein deficiencies because they have been eating only rice pap or oatmeal gruel while the rest of the household is consuming some form of meat once a day. The mothers do not understand the importance of protein and consequently do not mince a portion of the meat for the infant. The MOH has demonstrated that simple lectures by nutritionists to the CHC can change this situation. The MOH is preparing to hire an additional twenty nutritionists to carry out its nutrition education program which will teach the communities how to better use the food available and how to prepare tasty dishes from the vegetables they can grow themselves in the community gardens.

In the communities in which community programs have already been established a noticeable change has occurred in the attitude of the inhabitants. In Cerro Cama, for example, a small village from which many inhabitants had migrated, or were planning to migrate to Panama City, the general outlook of the people has changed from pessimism to a belief that their environment can be improved and

that they have a future in Cerro Cama<sup>1/</sup>. This improvement can be related directly to the efforts of the CHC and the community gardens.

The demonstration and education aspects of the community garden are the most important purposes of the project. The majority of the participants in the community garden are, and will continue to be subsistence farmers. Until the present efforts of the MOH, governmental attempts to reach this group have been neither effectively organized nor particularly successful. Faced with growing food deficits on a national scale, the Ministry of Agriculture's program and resources are already fully committed to other efforts at augmenting commercial production by marginal producers and are, thus, unable to significantly contribute to the tasks here assumed by the MOH and CHC's. The subsistence farmer has been little exposed to modern farming techniques. Inducing change in the present techniques of subsistence farming is difficult because a farmer in a poor community is sceptical when told that his present yield of 500 lbs. of corn per hectare can be increased to 3,500, and he is not willing to risk losing the 500 lbs. he knows he can grow for the promise of increased yields. He lives on such a slim margin of survival that he cannot afford to take a risk. However, in the gardens already established, the subsistence farmers have been eager to test new methods, as long as someone else pays for the inputs, and if he is free to continue working his own land. If the garden produces higher yields at a cost less than the current market prices for these commodities using the modern techniques suggested by the MOH agronomist, then the individual farmer will transfer the first hand knowledge he has gained to his own plot.

In the gardens already established the farmers participating were not aware that it was possible to grow vegetables such as tomatoes or green beans in the low-lands. Many had never grown these vegetables before, but acquired a taste for them after trying them. Among the Cuna Indians at Aligandi, tomatoe plants are being sold to inhabitants outside the garden who are establishing individual plots after learning about tomatoes from the community gardens.

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<sup>1/</sup> See Annex IV Exhibit 1 for a complete description of the Cerro Cama experience.

The success of the community garden plots hinges upon the technical assistance available to supervise the use of the modern agricultural inputs and to assure the development of an adequate educational and production process. The MOH understands the necessity of obtaining additional agricultural advisors and nutritionists to support the program and has requested authorization and funds to hire 20 additional agricultural advisors and 20 nutritionists during the project period.

The existence of the community garden plot and the community committee also makes possible inputs from other agencies such as the School of Agronomy of the University. For example, an agronomy student can fulfill part of his study requirements by working with a community project. This is also true of Home Economics students.

## 2. Water Supply

According to the 1970 census, Panama has 5,897 communities with a population of less than 50 inhabitants; 1,530 communities with 50-99 inhabitants and 1,597 communities with 100-499 inhabitants. All of these communities, totalling 578,334 inhabitants and representing 40.5% of the population are outside of urban water systems and must rely upon local sources of water. In most of these small communities, the lack of running water available to the home, or, and this is true for 60% of the rural population, the lack of any source of potable water, is one of three major environmental health hazards affecting rural life. The other two are nutrition and the incidence of easily preventable diseases such as measles. Only 6.5% of rural inhabitants have a domiciliary source of potable water, well or tap. The effect on routine domestic cleanliness is as much a health problem as the quantity of water.

From a sanitation point of view, although a manually operated pump is a far better source of supply than carrying water in tin cans from a stream or river, as so many small communities now do, it is still inadequate. It does not provide sufficient water for proper cleanliness. Past experience has shown a marked drop in the percentage of gastrointestinal and skin infections, especially in children, after a community replaces its manually operated pump with a running water system. Therefore, the ultimate goal of the MOH is

to provide every household in Panama with running water. Providing running water to a rural community implies digging a large diameter well, installing a motor driven pump, constructing a large storage tank, and laying pipe to each house. The average cost is approximately \$20,000 per system. Unfortunately, there are not sufficient resources available at either the Governmental or private level to provide each community in Panama with running water within the next ten years. Consequently, the MOH is making the most efficient use of the resources at its disposal by providing running water to those larger communities which are able and willing to contribute labor and part of the cost of construction and installing wells with a hand-operated pump at an average cost of \$1,000. In the smaller communities where the cost per family of installing a running water system would be prohibitive.

Because of cost, the hand operated well is the most logical answer in those villages whose inhabitants are few, less than 250, and where individual incomes are not sufficient to pay even a portion of the cost of a more elaborate water system. Therefore, in addition to installing 200 running water systems, the MOH will continue to install and maintain 300 new manually operated wells per year, thus providing a source of safe, drinkable water to 600-800 smaller communities during the course of the project.

In addition to the medical reasons for installing running water, the water supply system program plays an important additional role. Because the method of constructing the system, running water or hand-operated wells, revolves around community organization and labor, the program acts as a catalyst in stimulating realization of other local improvements. It has been found that the construction of a water system using the community, in particular the Health Committee as the center of the project, has created a spirit of self-confidence within the community in their own ability to effect improvements through group effort. After such a program, the majority of villages have gone on to carry out other projects such as: construction of individual and school latrines, improved housing, public laundries, markets and slaughterhouses, etc.

In addition to the medical and economic reasons for installing an aqueduct the installation of running water in a community is an

important step in improving the quality of rural life and reducing the impetus to migrate to the city. The MOH is reducing migration to the city by making a concerted effort to improve the quality of rural life and make living in the rural area more attractive through providing better health services, and by encouraging the community to improve its environment through provision of additional physical and human resources. Running water is an example of an improvement in the environment that can make life in a rural community easier and more attractive.

### C. Economic and Social Justification

#### 1. Impact of Nutritional Deficiency on Health

Available statistical data substantiates the existence of a nutritional deficiency in the rural areas of Panama with its attendant results on disease and mortality. The most important indicators are data showing the prevalence of diseases generally associated with nutritional deficiencies. Secondly, evidence has been developed from nutritional surveys conducted by the Instituto de Nutrición de Centro América y Panamá (INCAP) as well as the Ministry of Health's own survey of February, 1970 confirming the existence and describing the extent of the nutritional deficiency in the rural areas.

Deaths caused by diseases promoted by nutritional deficiency and impure water are presented in Table 3B-1. It is not suggested that nutritional deficiency or contaminated water supply are the sole, direct causes of death from the many diseases listed in that table; it is claimed only that poor nutrition is known to be an important factor in reducing resistance to these diseases, and that the diseases themselves in turn create conditions of secondary malnutrition<sup>1/</sup>, and thus contributes both to their contraction and to resulting mortality. Impure water plays a key role in the transmission of gastro-enteric infections and other diseases of filth<sup>2/</sup>.

Deaths resulting from causes related to nutritional deficiency and impure water accounted for about 39% of total deaths from all defined causes in the Republic of Panama in 1969 (Table 3B-1). Within this group, the most important killers were enteritis and other diarrhetic diseases (8.6% of total deaths), measles (7.6%), pneumonia (6.9%), bronchitis, emphysema and asthma (3.9%), and other infections and parasitic diseases (3.5%). While measles, pneumonia and bronchitis are obviously not caused by malnutrition, the latter is often to blame when death results.

<sup>1/</sup> Syncrisis p. 123

<sup>2/</sup> e.g. intestinal parasites, hepatitis, salmonella, infections and leptospirosis.

TABLE 3B-1

DEATHS CAUSED BY DISEASES PROMOTED BY  
NUTRITIONAL DEFICIENCIES AND IMPURE WATER

1969 DATA

<u>Cause of Death</u>	<u>Total of All Ages</u>		<u>Age Groups</u>						
	<u>Number</u>	<u>%</u>	<u>Less Than 1 Year</u>	<u>1-4</u>	<u>5-14</u>	<u>15-44</u>	<u>45-64</u>	<u>Over 65</u>	<u>Age Not Specified</u>
Grand Total									
All Defined Causes	<u>8,024</u>	<u>100.0</u>	<u>1,628</u>	<u>1,298</u>	<u>475</u>	<u>1,086</u>	<u>1,219</u>	<u>2,228</u>	<u>90</u>
Causes Relating to Nutritional Deficiencies & Impure Water, Total	<u>3,148</u>	<u>39.3</u>	<u>819</u>	<u>1,114</u>	<u>320</u>	<u>289</u>	<u>248</u>	<u>323</u>	<u>35</u>
Tuberculosis	247	3.1	5	29	12	73	61	62	5
Diphtheria	6	0.1	-	4	2	-	-	-	-
Whooping Cough	50	0.6	12	33	4	1	-	-	-
Enteritis & Other Diarrhetic Diseases	689	8.6	265	241	53	40	33	50	7
Influenza	49	0.6	20	10	3	3	4	9	-
Pneumonia	554	6.9	197	163	36	35	44	74	5
Bronchitis, Emphysema & Asthma	310	3.9	120	113	16	12	18	31	-
Other Infectious Parasitic Diseases	281	3.5	79	127	32	16	13	14	-
Avitaminosis & Other Nutritional Diseases	94	1.2	32	37	8	-	3	11	3
Anemia	196	2.4	9	27	18	45	42	50	5
Hepatic Cirrhosis	65	0.8	-	2	-	13	27	21	2
Measles	607	7.6	80	328	136	51	3	1	8

Table 3B-1 also shows that deaths from diseases related to malnutrition and contaminated water take their heaviest toll among infants and young children. Thus, 73% of total deaths from enteritis and other diarrhetic diseases occurred in children under 4. Children under four also accounted for 73% of all deaths from "other infections and parasitic diseases".

The number of deaths per 1000 population in 1969 was 8.2 in the rural areas compared with 5.7 in the urban sector. The infant death rates <sup>2/</sup> were 47.0 and 30.2, respectively.

Further clinical manifestations of malnutrition or malnourishment include an incidence of anemia, attributed primarily to iron and folate deficiency, of five percent in the urban population and seven percent in the rural population as well as endemic goiter with a country wide prevalence of 16.5 percent. In fact, with the exception of Bocas del Toro and Colon (both Atlantic coastal provinces) all provinces exceeded the ten percent level which PAHO defines as a major goiter problem.

The 1970 Ministry of Health survey of nutrition found that in terms of total availability in rural areas there was an absolute scarcity of calcium, Vitamin A and riboflavin. However, this survey also found a wide disparity between average availability of calories and protein and actual consumption of minimum daily requirements by a substantial portion of the population. For example, the average rural per capita consumption of calories for all ages, sexes, sizes, types of activity, etc. was calculated at about 2,100. This is just under a minimum daily survival requirement. However, within the rural population 36 percent consumed less than 90% of the requirement, 15% less than 70% of the requirement and a submerged three percent of the population less than fifty percent of the minimum daily requirement.

On the protein side, with an average daily per capita consumption of sixty grams (about the average minimal daily requirement) it is noteworthy that while only sixteen percent of the rural population consumes less than 70% of the minimal daily requirement nearly forty percent of the protein consumed is derived from cereals rather than from animal protein.

<sup>2/</sup>

Per thousand infants age 1 or under, live births only. Source: Estadística y Censo, Panamá en Cifras, November 5, 1971 Table 13.

Data on infant malnutrition are presented in Table 3B-4. The table indicates that on the basis of the sample study, some 61% of all children under five years of age suffer from some degree of malnutrition. Most of these (49%) suffer only from malnutrition of the first degree 1/, though a significant 11% had also reached the second degree 2/. Note that Panama's situation is not significantly better than that for the rest of Central America. In fact, according to these INCAP data, its nutritional situation is worse than for Costa Rica and Nicaragua.

The malnutrition problem among children is mainly a matter of protein deficiency. There is increasing evidence of a close correlation between prolonged dysnutrition during pregnancy and infancy and damage to the infant's intellectual development and behavior patterns. Originally, it was thought that such damage could be reversed by later proper feeding. Now, it appears irreversible.

The country's food deficiency estimated in relation to nutritional requirements for 1965 as estimated by INCAP is presented in Table 3B-5. Column 2 shows the annual requirements in thousands of kilograms; column 3, domestic production plus imports; and column 4 the requirement as a proportion of total availability. Note that serious deficiencies are reported for all products except corn, wheat, and rice. For these products, high levels of production or import enabled the population to substitute these cheaper products for the protein rich but costlier foodstuffs that they could not afford to purchase.

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1/ Children whose weight is 75%-90% of normal weight.

2/ Children whose weight is 40%-75% of normal. For third degree, under 40%.

TABLE 3B-4

Cases of Protein-Calorie Malnutrition Projected for Population in 1965

Children Under Age 5

Central America

<u>Country</u>	<u>Total Population Under Age Five</u>	<u>Malnutrition 2nd &amp; 3rd Degree Total Cases</u>		<u>Malnutrition 1st Degree Total Cases</u>		<u>Malnutrition 2nd Degree Total Cases</u>		<u>Malnutrition 3rd Degree Total Cases</u>	
		<u>In Country</u>	<u>%</u>	<u>In Country</u>	<u>%</u>	<u>In Country</u>	<u>%</u>	<u>In Country</u>	<u>%</u>
Costa Rica	294,300	168,928	57.4	128,609	43.7	35,904	12.2	4,415	1.5
El Salvador	554,400	413,028	74.5	268,884	48.5	126,958	22.9	17,186	3.1
Guatemala	833,400	678,387	81.4	408,366	49.0	220,851	26.5	49,170	5.9
Honduras	346,900	251,503	72.5	149,167	43.0	94,357	27.2	7,979	2.3
Nicaragua	287,500	163,503	56.8	120,175	41.8	37,950	13.2	5,175	1.8
Panama	207,900	126,195	60.7	101,455	48.8	22,453	10.8	2,287	1.1
<b>TOTAL . . . .</b>	<b>2,524,400</b>	<b>1,801,341</b>	<b>71.4</b>	<b>1,176,656</b>	<b>46.7</b>	<b>538,473</b>	<b>21.3</b>	<b>86,212</b>	<b>3.4</b>

**TABLE 3B-5**  
**FOOD PRODUCTION AND AVAILABILITY IN PANAMA - 1965**

Foods	Recommended Consumption For Adults	Annual Production Required Thousands of kg.	Annual Production Thousands of kg.	Availability %	Unsatisfied Need Thousands of kg.
Milk	300	139,325	71,095	51	68,230
Eggs	25	11,610	5,131	44	6,479
Meat	90	43,998	26,000	59	17,998
Beans	30	13,932	7,200	52	6,732
Potato type veg.	105	48,764	12,198	25	36,566
Fruits	120	55,730	35,397	64	20,333
Plantains	150	69,662	38,744	56	30,918
Tubers	120	55,730	39,187	70	16,543
Corn	50	23,221	82,100	354	58,879*
Wheat**	60	27,865	32,972	118	5,107*
Rice	180	83,595	134,000	160	50,405*
Sugar	50	23,221	10,720	46	12,501
Fats	30	13,932	8,991	65	4,941

Sources: SIECA. Anuario Estadístico Centroamericano de Comercio Exterior, 1965  
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\* Surplus

\*\* Grain in terms of imported flour

## 2. The Food Balance in the 1970s

Is the food deficit established above likely to continue over the next decade? The answer depends, of course, on whether GOP can and will make a determined and effective effort to increase agricultural production. Analysis of the demand and supply situation in terms of historical trends suggest that the food deficit is more likely to increase than to diminish. Two projections are available: One by INCAP<sup>1/</sup>, undertaken in 1967, projects foodstuff requirements (in relation to availabilities) on a nutritional basis, i.e., it estimates the quantities of the various foodstuffs that are needed to meet daily requirements for proteins, vitamins, etc. of the whole population in relation to amounts available. A second study by Dr. Randall A. Hoffman<sup>2/</sup>, undertaken in April 1971, projects "market" demand - supply balances. Demand is estimated in terms of effective demand and includes requirements for feed in the case of corn. While the concepts underlying these two studies are distinct, they both indicate continuing deficiencies. Hoffman's projections of demand, supply and deficit for the principal foodstuffs in 1975 and 1980 are presented in Table 3B-6. Note the substantial increase in the projected deficit between 1969 and 1975, and again between 1975 and 1980, for almost all products. The conclusions of the INCAP study (based on the nutritional requirement concept) are summarized in Table 3B-7 which shows the availability coefficient<sup>3/</sup> for principal crops between 1965 and 1980.

This projection shows a slight improvement in the availability situation for most crops, but substantial nutritional deficits will remain. Thus, Panama is expected to produce only two-thirds of the required amount of milk, eggs and meat by 1980. The large surplus shown for corn and rice are due in part to the fact that the population is expected to continue to substitute these cheaper commodities for the costlier rich foodstuffs; and also because corn is used as animal feed in addition to human consumption.

## 3. Benefits of the Project

Among the benefits expected to be derived from this project are (a) availability of more food and feed crops at the local community level, and a greater

<sup>1/</sup> Evaluación Nutricional de la Población de Centro América y Panama, 1969.

<sup>2/</sup> Agricultural Sector: Analysis and Planning, Panama April 1971.

<sup>3/</sup> Available supply (production plus imports less exports) as a percent of the total estimated nutritional requirement of the population.

Table 3B-6

PROJECTED DEMAND-SUPPLY BALANCES FOR AGRICULTURAL PRODUCTS IN PANAMA, 1975 AND 1980

Product	1969			1975			1980		
	Demand <sup>1/</sup> (In Thousands of Metric Tons)	Supply <sup>2/</sup> (In Thousands of Metric Tons)	Balance	Projected Demand <sup>1/</sup> (In Thousands of Metric Tons)	Projected Supply <sup>2/</sup> (In Thousands of Metric Tons)	Projected Balance	Projected Demand <sup>1/</sup> (In Thousands of Metric Tons)	Projected Supply <sup>2/</sup> (In Thousands of Metric Tons)	Projected Balance
Beef	30.4	33.0	2.6	44.1	42.1	- 2.0	56.1	49.5	- 6.6
Chicken	6.4	6.4	-	10.9	6.98	- 3.9	15.3	8.1	- 7.2
Pork	3.4	3.4	-	5.3	3.6	- 2.7	7.0	3.8	- 3.2
Imported Meat	n.a.	n.a.	n.a.	1.6	(Imported)	- 1.6	2.1	(Imported)	- 2.1
Other Canned Meat	3.7	0.8	-2.9	5.3	1.1	- 4.2	6.9	1.1	- 5.8
Milk	117.4	115.5	-1.9	113.4	101.3	-12.1	144.77	119.96	-24.8
Eggs	7.5	7.6	0.1	8.95	7.8	- 1.15	11.3	8.7	- 2.6
Corn	97.6	95.9	-1.7	122.6	93.4	-29.2	159.3	95.1	-64.2
Rice	169.8	165.2	- 4.6	205.2	186.3	-18.9	250.1	203.1	-47.0
Beans (Frijoles)	6.9	4.9	- 2.0	9.12	5.96	- 3.16	10.8	6.4	- 4.4
Imported Beans (Leguminosas Secas)	3.6	1.4	- 2.2	3.5	(Imported)	- 3.5	4.6	(Imported)	- 4.6
Potatoes	10.7	8.3	- 2.4	12.5	9.98	- 2.5	14.9	11.2	- 3.7

TABLE 3B-7  
PROJECTED AVAILABILITY OF FOODSTUFFS  
IN RELATION TO NUTRITIONAL REQUIREMENTS

	Availability Coefficients <sup>1/</sup>			
	<u>1965</u>	<u>1970</u>	<u>1975</u>	<u>1980</u>
Milk	51	60	65	67
Eggs	44	54	60	64
Meats	59	65	65	64
Beans	52	46	41	36
Legumes	25	31	39	46
Fruits	64	59	55	52
Bananas	56	52	49	45
Root and Tubercular Plants	70	67	64	62
Corn	354	315	280	249
Wheat	118	111	103	97
Rice	160	185	197	202
Sugar and Panela	46	43	40	38
Fats	65	55	46	39

<sup>1/</sup> Available supply (production plus imports less exports) as a percent of the total estimated nutritional requirement of the population.

Source: INCAP, Evaluación Nutricional de la Población de Centro América y Panamá, 1969, tables No. 27, 28, 29 and 30.

variety of vegetables in the rural communities which will assure a more adequate diet, and, although difficult to measure, will assist to offset the projected food shortages; (b) provision of pure water, and in some cases household running water, that should reduce the incidence of (and mortality from) enteritics and other diarrhetic diseases, intestinal parasites, hepatic cirrhosis, and other infectious diseases; (c) better health and increased productivity of the rural population; and (d) spread improved agricultural practices and the use of fertilizer, seeds and other farm supplies on the small privately owned subsistence farms through the demonstration effect of the community nutritional programs funded by this project. In view of the very primitive methods of cultivation presently in force<sup>1/</sup>, the demonstration effect is expected to lead to substantial increases in production by the rural families and subsistence farmers involved and is regarded as a major aspect of the justification of this project.

A quantitative analysis of benefits and costs will be attempted only for crops. The reader must bear in mind that the ratio arrived from the crop calculation is misleadingly low as it fails to include the many intangible benefits described above, e.g., a new attitude toward modern technology, which could well be more substantial than those subject to quantification.

Estimation of benefits and costs expected from crop production is presented in Table 3B-8. This table includes a number of representative crops that the communities are expected to grow but is not designed to be comprehensive. A number of indigenous vegetables most likely will be planted but could not be included in the analysis because no data on yields and costs are available or could be estimated.

The sources of the data used and the basis for the estimates were explained in the footnotes to the table. Only the salient points will be noted here:

a. The lack of experience with many of these crops in Panama compelled us to resort to the best estimates of USAID and Ministry of Health agronomists whenever hard data were lacking. The yield estimates assume irrigation and the use of improved production

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<sup>1/</sup> The current practices of subsistence farmers, as well as the limited number of rural families with garden plots, do not generally include plowing, fertilizing, irrigation or use of improved seeds and insecticides.

techniques but nonetheless postulate results significantly lower than those obtained in the United States. Partial data were available for wholesale prices, while studies by IFE and the Faculty of Agronomy of the Ministry of Agriculture provided data on production costs for many of the products. However, the judgment of USAID and MOH agronomists had to be resorted to in filling the gap.

b. We compensated for the scarcity of hard data by making our projections conservative. Thus, we made conservative estimates with regard to yields and used wholesale prices in lieu of retail prices plus transportation in calculating the value of the output, though farmers would not always be able to purchase these products at wholesale prices if they could not grow them themselves <sup>1/</sup>. Moreover, we deducted a 20% allowance for crop failure from the total value of output before calculating the benefit cost ratio.

c. In estimating costs, we excluded labor costs on the basis of the following rationale: (i) by the very nature of the project, those who contribute the labor are the beneficiaries; labor costs are thus payments they make to themselves; and (ii) as indicated by the prevalence of disguised unemployment in the rural areas, the opportunity cost of labor can be assumed to be very low.

On the other hand, our concept incorporates all other costs, including depreciation of equipment.

d. The gross benefit cost ratio<sup>2/</sup> for the crop phase of the project is a very favorable 2.0 to 1, even after deducting the 20% crop failure allowance and making conservative assumptions on yields and prices.

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<sup>1/</sup> Owing to the scarcity of such products and poor market facilities in the rural areas.

<sup>2/</sup> The benefit-cost ratio used here is simply the ratio of the gross annual value of output over total costs, excluding labor. The calculation is for an average year after the project has been extended to all 280 communities. The use of the standard methodology (which discounts expected future net returns) for calculating the benefit-cost ratio is not readily applicable to this project because: (a) the outlays under this project are for a broad variety of items with very different longevity periods; (b) most of the outlays are for working capital items such as fertilizer and pesticides.

Table 3B-8

Projected Annual Output, Costs and Net  
Benefit from Crops Planted on Community Plots

(1)	(2)	(3)	(4)		(5)	(6)	(7)	(8)	(9)	(10)	(11)
Crop	Yield per Acre <sup>1/</sup>	Number of Crops per Yr. <sup>2/</sup>	Area to be Allocated to Crop <sup>3/</sup>		Total Output per Year	Current Wholesale Price <sup>4/</sup>	Value of Output	Cost per Unit (With Labor) <sup>5/</sup>	Cost per Unit (Excl. Labor) <sup>6/</sup>	Total Cost per Yr. (Excl. Labor) <sup>7/</sup>	Net Benefit per Yr. (Excl. Labor Costs) <sup>8/</sup>
			(A) %	(B) Acres							
					(2) x (3) x (4B)		(5) x (6)			(7) x (8)	(9) - (10)
(plus plus)											
Dry S.	700 lbs.	2	10	210	294,000 lbs.	.12	35,280	.100	.036	10,584	24,696
Corn	8,000 ears	2	10	210	1,680,000 ears	.03	50,400	.025	.015	25,200	25,200
Kidney	1,600 lbs.	2	10	210	672,000 lbs.	.06	40,320	.044	.033	22,176	18,144
Eggplant	7,000 lbs.	2	5	105	1,470,000 lbs.	.08	117,600	.040	.030	44,100	73,500
Squash	6,000 lbs.	2	5	105	1,260,000 lbs.	.10	126,000	.090	.063	85,650	40,350
Squash (local)	4,000 lbs.	2	5	105	840,000 lbs.	.05	42,000	.040	.030	25,200	16,800
Lettuce	12,000 lbs.	3	5	105	3,780,000 lbs.	.06	226,800	.040	.027	102,050	124,750
Cabbage	15,000 lbs.	2	5	105	3,150,000 lbs.	.06	189,000	.030	.019	59,850	129,150
Snap Beans	2,000 lbs.	2	10	210	840,000 lbs.	.13	109,200	.100	.050	30,240	78,960
Tomatoes	12,000 lbs.	2	10	210	5,040,000 lbs.	.15	756,000	.080	.048	241,520	514,480
Green Peppers	6,000 lbs.	2	10	210	2,520,000 lbs.	.11	277,200	.080	.053	133,560	143,640
Watermelon	5,000 lbs.	2	5	105	1,050,000 lbs.	.10	105,000	.066	.050	52,500	52,500
Cantaloupe	5,000 lbs.	2	5	105	1,050,000 lbs.	.10	105,000	.064	.043	50,400	54,600
Pigeon Peas (Guandu)	2,000 lbs.	1	5	105	210,000 lbs.	.25	52,500	.160	.058	12,150	40,350
<b>Total</b>	-	-	100	2,100	-	-	2,232,300	-	-	895,650	1,336,650
Less: Allowance for Failure, 20% <sup>B/</sup>							446,460				
<b>Total</b>							1,785,840			395,650	890,190
<b>Benefit/Cost Ratio</b>							1,785,840 ÷ 895,650 = 2.0				

Footnotes to Table 38-8

- 1/ Yields per acre for eggplant, green peppers, cucumbers, squash, watermelon, canteloupe and pigeon peas were estimated with the help of Dr. Ervin Bullard of the Rural Development Division. Since lands are to be irrigated and cultivated by modern methods, yields were assumed to be significantly higher than those obtained with traditional methods. On the other hand, they were assumed to be well below average yields obtained in the United States. Yields for dry beans, corn, rice, lettuce, cabbage, snap beans and tomatoes were taken from studies conducted by IFE and the Facultad de Agronomia of the University of Panama.
- 2/ The estimated number of crops per year is based on the assumption that irrigation will be available. Estimates by Dr. Bullard.
- 3/ There are no detailed plans for the amount of acreage to be planted to each of these crops. The figures in this column represent the judgment of Ing. Agronomo Ugarte, Agronomist in charge of the project at the Ministry of Health.
- 4/ Wholesale prices for most of these products were obtained from a publication entitled Precios Pagados por Mayoristas a los Agricultores y Traficantes en la Ciudad de Panama por mes, años 1967-1971, published by the Ministry of Agriculture, February 1972. For products not listed in that publication, price estimates were provided by Ing. Ugarte from the Ministry of Health.
- 5/ Column 8 estimates the cost of production per unit (pound except for corn) with labor included, while Column 9 shows the cost with labor excluded. The basis for these estimates for some products are cost estimates provided by IFE and the Faculty of Agronomy of the University of Panama on the basis of field experience. Cost estimates for a number of products were missing however. To fill this gap, estimates were supplied by Dr. Bullard and Dr. Randall Hoffmann of the USAID Rural Development Division, and Ing. Ugarte of the Ministry of Health.
- 6/ Total production cost per year in Column 10 excludes labor costs. The rationale for excluding it is that: (a) labor is itself the beneficiary of this project; and (b) its value in alternative uses is probably very low.
- 7/ The net benefit per year in Column 11 is simply the difference between columns 7 and 10.
- 8/ On the basis of discussions with some farmers with experience in these crops, it was felt that it would be prudent to deduct 20% from the gross value of the output to allow for the crop failure of certain crops. Some crops are likely to fail for a variety of reasons. Note that even with such allowance, the benefit cost ratio is still a very favorable 2.0 to 1.

Product	1969			1975			1980		
	Demand <sup>1/</sup> (In Thousands of Metric Tons)	Supply <sup>2/</sup> (In Thousands of Metric Tons)	Balance	Projected Demand <sup>1/</sup> (In Thousands of Metric Tons)	Projected Supply <sup>2/</sup> (In Thousands of Metric Tons)	Projected Balance	Projected Demand <sup>1/</sup> (In Thousands of Metric Tons)	Projected Supply <sup>2/</sup> (In Thousands of Metric Tons)	Projected Balance
Yuca	24.2	24.2	-	30.4	29.4	- 1.0	36.5	34.0	- 2.5
Otoe	5.9	5.9	-	8.0	7.3	- 0.7	10.0	8.5	- 1.5
Ñame	14.5	14.5	-	19.6	18.3	- 1.3	24.4	21.3	- 3.1
Tomatoes	28.9	28.9	-	43.2	34.5	- 8.7	47.4	41.4	- 6.01
Onions	7.5	5.9	-1.6	8.7	6.0	- 1.7	10.6	8.0	- 2.6
Lettuce	4.8	4.8	-	6.9	6.5	- 0.4	9.0	8.3	- 0.7
Cabbage	3.9	3.9	-	4.7	4.5	- 0.2	5.6	5.00	- 0.6
Pineapple	7.4	7.4	-	10.4	8.4	- 2.0	13.3	10.1	- 3.2
Oranges	41.7	41.7	-	49.7	43.0	- 6.7	57.3	45.0	-12.3
Plantains (Platanos)	104.9	104.9	-	122.0	110.2	-11.8	148.9	126.5	-22.4

<sup>1/</sup> Based on projected per capita income and estimated income elasticity coefficients derived from historical data. These per capita consumption figures were then multiplied by the projected population.

<sup>2/</sup> Projected supplies were estimated from linear trend equations based on the period 1960-1969, with the exceptions of corn, rice and beans. Estimates for corn, rice and beans were based on projected yields in 1972 and 1980, based on the 1960-1969 trends and the total hectares for each crop in 1970.

Source: For 1969, Estadística y Censo, Projections for 1975 and 1980, Randall A. Hoffmann, Agricultural Sector: Analysis and Planning, Panama, Table 3.

**D. Relationship Between Nutrition Component And PL 480 'Food For Peace Program'.**

USAID/Panama has administered the PL 480 Title II program in conjunction with CARE and Catholic Relief Services since 1953 and 1961 respectively. U.S. donated cereals, powdered milk, and cooking oil are supplied to these two voluntary agencies for use in approved nutrition activities, largely supplemental and relief feeding programs to correct the dietary deficiencies of those benefited. Incentive grants for innovative projects aimed at nutritional improvement have also been available.

At present, about 300,000 persons are being reached by one or more program activities. Of this total, school feeding programs benefit about 225,000 primary students and an additional 49,000 mothers and pre-school children are benefited through feeding centers and health committees. The remainder of program efforts are directed toward various institutional feeding projects and "Food for Work" activities.

The FY 73 food for Peace Program represents an increased emphasis on pre-school feeding and improved distribution of the school feeding commodities. In addition, nutrition education and GOP coordination of PL 480 end use has been improved. CRS, and its counterpart organization CARITAS, regularly benefit 5,200 pre-school children in feeding centers and Maternal/Child Health projects organized in close collaboration with the MOH and its Health Committees. A full-time CRS Nutrition Coordinator with many years of experience in Public Health work regularly visits these 70 centers to instruct and supervise distribution methods. At one such center, in Aligandi, San Blas, the PL 480 cereals and milk are significantly supplemented by a daily supply of fresh vegetables from the community garden plot. About 250 pre-schoolers are thus fed a nutritious lunch in an area typified by 30% caloric deficiencies and even higher rates of protein deficit.

An additional 3,800 children are reached among the recipient families of "Food for Work" programs in 35 Asentamientos Campesinos. This project represents an effort of the Panamanian Bishops to collaborate with the GOP on rural communal self-help plantations.

CARE's school feeding project has recently obtained renewed support from the MOE and the Guardia Nacional. A careful analysis of past years' delivery shortfalls has resulted in additional transportation being assigned by the GOP. Ten provincial school feeding directors have been trained and placed by the MOE. Community participation in this project has been solicited vigorously so that pre-schoolers may also be fed from primary school kitchens at the same time as their older sisters and brothers. Local contribution of fresh foods to supplement the cereals, oil and dry milk provided by PL 480 is an essential feature of this effort.

As may be seen, the MOH's community health conferences and seminars as well as the more routine nutrition efforts implemented within health centers and hospitals have served to focus national attention on Panama's nutritional problems. Additionally, the sensitization of Community Health Committees to these problems has in turn made available an organized pool of knowledgeable citizens to participate in all such efforts of the GOP. In most cases, members of rural Health Committees are also active in "Padres de Familia", "Amas de Casa", and other self-help groups. This overlapping membership facilitates effective community utilization of all offered nutritional resources and opportunities. Health Committees are also offering prepared milk to mothers and children attending many local health centers. PL 480 foods are also used on a prescription basis for treatment of diagnosed malnutrition among MOH clinic patients.

As can be seen, the bulk of FFP recipients is comprised of primary school students who receive milk and lesser amounts of certain cereals during the school year. An enormous task remains in the area of both pre-school feeding and the supplementation of PL 480 foods with essential crops cultivated locally for preparation of more nutritious school lunches. The simultaneous involvement of many community leaders in both local "PTA" groups and Health Committees, as well as the constantly increasing awareness of community nutritional necessities fostered by MOH education programs, serve to complement presently organized feeding efforts. Additional projects in small animal raising will also introduce more animal protein into many rural areas with no ready source at the present time.

Overall, the "Food for Peace" program is an organized effort to effect wide distribution of basic, limited nutrients of maximum food value. Because of its nature, the school feeding program is focussed on all public school students, not just those with marked nutritional needs. In view of this situation, CARE is now planning to phase out of this project over the next five years. It is hoped that the GOP will proceed with measures required to assume the burden of an appropriate school lunch project. Meanwhile, the advance of the MOH rural nutrition program should also permit increasingly heavy emphasis on newborn and pre-school feeding patterns followed by rural mothers using locally produced foods.

The following tables, A-FFP through E-FFP, show the quantities and distribution of P.L. 480 commodities in Panama during the last three years.

TABLE A-FFP  
DISTRIBUTION OF P.L. 480 (FOOD FOR PEACE) COMMODITIES  
BY C,A,R,E.

(Quantities stated in Pounds)

<u>FY 1970</u>	<u>NFDM</u>	<u>WSB</u>	<u>Oil</u>	<u>Rolled Wheat</u>	<u>Total</u>
<u>Maternal Child Feeding:</u>					
Mothers/Pre School Age Children	527,426	16,115	576	57,321	601,438
School Feeding	1,465,070	82,562	19,545	284,253	1,851,430
Summer Camps	4,041	249	1,536		5,826
<u>Self-Help:</u>					
Community Development	2,455	8,580	10,146	24,594	45,775
<u>Welfare &amp; Relief:</u>					
Institutions	60,647	60,564	153,655	112,044	386,910
Health Cases	35,396	44,997	315		80,708
	<u>2,095,035</u>	<u>213,067</u>	<u>185,773</u>	<u>478,212</u>	<u>2,972,087</u>

TABLE B-FFP

DISTRIBUTION OF P.L. 480 (FOOD FOR PEACE) COMMODITIES  
BY C.A.R.E.

(Quantities stated in Pounds)

<u>FY 1971</u>	<u>NFDM</u>	<u>WSB</u>	<u>OIL</u>	<u>Rolled wheat</u>	<u>Total</u>
<u>Maternal Child Feeding:</u>					
Mothers/Pre School Age Children	473,499	43,151	2,288		518,938
School Feeding	1,400,316	555,038	37,645	25,590	2,018,589
Boarding Schools	24,391	11,325	20,665	3,194	59,575
Summer Camps	2,543	2,842	2,075		7,460
Institutions (Orphanages)	26,609	17,958	18,150	1,197	63,914
Other Child Feeding	34,512	2,044	3,767		40,323
<u>Self-Help:</u>					
Economic Development	1,795	9,079	1,751		12,625
Community Development	400	1,648	1,833		3,881
<u>Welfare &amp; Relief:</u>					
Institutions (Adults)	8,580	43,604	162,254	127,910	342,348
Health Cases		47,839	191		48,030
	<u>1,972,445</u>	<u>714,528</u>	<u>180,619</u>	<u>157,891</u>	<u>3,115,683</u>

TABLE C-FFP

DISTRIBUTION OF P.L. 480 (FOOD FOR PEACE) COMMODITIES  
BY C.A.R.E.

(Quantities stated in Pounds)

<u>FY 1972 (First Half)</u>	<u>NFDM</u>	<u>WSB</u>	<u>OIL</u>	<u>TOTAL</u>
<u>Maternal Child Feeding:</u>				
Mothers/Pre School Age Children	345,050	116,584	152	461,786
School Feeding	562,822	350,603	19,400	932,825
Boarding Schools	8,380	4,090	6,338	18,808
Institutions (Orphanages)	15,224	12,071	8,336	35,631
Other Child Feeding	42,132	598	1,575	44,305
<u>Welfare &amp; Relief:</u>				
Institutions (Adults)	11,323	24,893	29,462	65,678
Health Cases		46,097	748	46,845
	<u>984,931</u>	<u>554,936</u>	<u>66,011</u>	<u>1,605,878</u>

TABLE D-FFP

DISTRIBUTION OF P.L. 480 (FOOD FOR PEACE) COMMODITIES  
BY C.R.S.

(Quantities stated in Pounds)

	<u>Flour</u>	<u>Cornmeal</u>	<u>Rolled Wheat (Oats)</u>	<u>Bulgur</u>	<u>NFDM</u>	<u>CSM</u>	<u>OII</u>	<u>Other</u>	<u>al</u>
<u>FY 1970</u>									
<u>Maternal Child Feeding:</u> Mothers/Pre School Age Children	69,150	56,950		56,164	103,855	66,488	87,645	65,254	505,506
<u>Self-Help:</u> Community Development	28,600	26,950		27,900	12,646	35,750	17,234	27,500	176,580
Educational Development	4,950	4,300		4,250	1,836	400	3,326	4,650	23,712
<u>Welfare &amp; Relief:</u> Emergency Feeding	7,900	7,500	10,850	8,000	7,290	6,000	7,484		55,024
Family Welfare	131,937	110,660	114,136	108,008	58,141	193,324	118,870		835,076
	<u>242,537</u>	<u>206,360</u>	<u>124,986</u>	<u>204,322</u>	<u>183,768</u>	<u>301,962</u>	<u>234,559</u>	<u>97,404</u>	<u>1,595,898</u>
<u>FY 1971</u>									
<u>Maternal Child Feeding:</u> Mothers/Pre School Age Children	6,400	52,400	20,100	45,728	81,734	85,500	44,954		336,816
<u>Self-Help:</u> Economic Development	7,200	60,800	27,900	70,350	7,236	210,968	68,745		453,199
Community Development		16,000		14,050	4,374	7,950	10,117		52,491
Educational Development	12,650	52,950	24,250	36,850	3,402	74,500	47,215		251,217
<u>Welfare &amp; Relief:</u> Emergency Feeding		78,550	18,200	93,050		80,800	970		271,570
	<u>25,650</u>	<u>260,700</u>	<u>90,450</u>	<u>260,028</u>	<u>96,746</u>	<u>459,718</u>	<u>172,001</u>		<u>1,365,293</u>

TABLE E-FFP

DISTRIBUTION OF P.L. 480 (FOOD FOR PEACE) COMMODITIES  
BY C.R.S.

(Quantities stated in Pounds)

<u>FY 1972 (First Half)</u>	<u>Cornmeal</u>	<u>Bulgur</u>	<u>NFDM</u>	<u>CSM</u>	<u>Oil</u>	<u>Total</u>
<u>Maternal Child Feeding:</u> Mothers/Pre School Age Children	25,550	22,450	55,890	31,050	20,527	155,467
<u>Self-Help:</u> Economic Development	76,216	60,150	11,394	91,313	62,351	301,424
Community Development	1,600	1,850		2,150	1,478	7,078
Educational Development	11,200	10,300	2,106	11,450	8,525	43,581
	<u>114,566</u>	<u>94,750</u>	<u>69,390</u>	<u>135,963</u>	<u>92,881</u>	<u>507,550</u>

E. ENGINEERING ANALYSIS

1. General Description

The Engineering and Construction phase, in which AID is expected to participate, will entail routine planning, design and construction of relatively simple and rudimentary community water supply projects to serve both domestic and irrigation needs for communities of less than 500 population. The proposed work is generally a continuation and expansion of that performed by the Ministry of Health independently, with CARE, and in collaboration with the national community development program financed under A.I.D. Loan 525-N-021.

Technical and professional guidance and assistance for planning, design, procurement, construction and operation will be furnished by the Ministry through its sanitary engineering division. This group has effectively performed this work in the previous Ministry programs of this type. It maintains a complete staff with well drilling and other equipment for this work, includes engineers, draftsmen, surveyors, well drillers, a limited inventory of materials, and contracts, as needed, skilled tradesmen (plumbers, masons, carpenters).

From 1970-1971, together with systems projected for completion in 1972, the Ministry will have constructed 154 domestic water supply systems, of which 38 were completed in 1970, 82 in 1971, and 34 will be completed in 1972. It is based on this experience that the Ministry staff has planned and developed the program for the proposed community water supply systems.

Domestic Water Supply Systems:

The domestic water supply systems will comprise the following:

- (a) a source, usually a 6-inch or 8-inch cased, well with slotted-pipe or prefabricated screen, and over 50 feet deep;
- (b) a pumping facility, usually a 3½ inch, piston-type, diesel-driven pump installed within the well casing;

- (c) a supply main and distribution network with individual house connections;
- (d) and a storage and distribution reservoir.

Basic design criteria will be as follows:

- (a) a supply capable of furnishing 30 gallons per capita per day (gpcd).
- (b) a pumping capacity, coordinated with storage, to limit pumping to 8 to 10 hours per day.
- (c) a minimum distribution system pressure of 10 pounds per square inch.
- (d) individual house connections and limited public taps.

Since no treatment is contemplated, efforts will be concentrated in the development of the deeper ground-water sources to minimize contamination hazards. However, where the needed quantities can be readily and more economically developed from adjacent surface flows, either perennial flowing and uncontaminated streams and/or springs, these sources will be utilized.

The pumping facility to be installed, either within the well casing or a pump suction pit supplied from surface flow, will be housed for protection of the unit, both from vandalism and the elements.

The source will be developed as close to the center of usage as practicable. This will minimize the length of the supply main. This main, together with the distribution network, will consist of either polyvinyl chloride (PVC) plastic tubing and/or galvanized steel pipe. Experience has shown that, in the lower pressure ranges below 20 pounds per square inch (psi), locally manufactured PVC pipe has performed well. In the higher pressure ranges and in the more complex piping layouts, such as for pump discharges and for inlets and outlets to tanks, imported galvanized steel pipe is to be preferred.

The distribution network, heretofore, has been usually limited to that needed to supply a selected number of public water taps scattered throughout the community. This type of supply could represent a health hazard since it is vulnerable to contamination through repeated handling. Under this program, it is proposed, as practicable, to eliminate public taps and provide individual house connections to bring the water supply into the household. Closed storage and distribution tanks of either reinforced-concrete or welded steel-plate are proposed. Where the topography permits, a reinforced-concrete reservoir will be located and constructed on the ground at a selected high point near the center of consumption, and thus will serve as an elevated tank. Where this is not practicable, a pre-fabricated, welded, steel-plate reservoir will be installed on a reinforced-concrete or welded steel pipe tower.

#### Hand-Pump Water Supply Systems

Rural population centers of 50 to 100 inhabitants, with a scattered and dispersed housing layout, may not fully justify expenditures for a complete system with distribution and storage. Under these conditions, the Ministry proposes to locate up to two 3-inch or 4-inch diameter wells per system in which hand pumps will be installed for public usage.

#### 2. Implementation Plan

The implementation of the engineering planning and design, construction and operation phases of the water supply projects will be based on the procedures established and followed in the previous domestic water supply accomplishment of the Ministry.

Basically, this will consist of the planning and construction of 200 domestic community water supply systems over a three-year period, rudimentary in limits and scope, serving communities of less than 500 population. The Ministry has prepared a list of 148 communities, see Annex VI, which it considers of the highest priority, at this time, for inclusion and participation in the domestic water supply program. The remaining 52 participating communities will be selected on the basis of a continuing evaluation of planning to fulfill program priorities. It is projected that the 200 proposed domestic systems, to serve communities generally of 300 to 500 population, will benefit 80,000 people, and will be completed over a three-year period. This is within the history of the Ministry accomplishment. In 1971, 82 systems were completed and for 1972, 34 are programmed for completion.

During this same period, 19200 hand-pumped wells will also be developed to serve 600 to 800 of the smaller, rural population centers benefiting a total of 40,000 to 60,000 inhabitants.

The Ministry of Health is responsible for the planning and development of domestic water supply systems for rural communities of less than 500 population. The criteria for establishing priorities in community selection for participation in this program are based on social and health needs and benefits, rather than monetary considerations for capital investment recoveries.

In implementing this type of program, the Ministry has established a procedure for organizing and involving the communities. Basically, this is as follows and will be continued under this program:

- (a) Upon receiving a request from a community for guidance in planning and implementing health and related civic improvements, the Ministry will encourage and assist the community to organize and form a community health committee (CHC) to coordinate activities for such health and civic improvements.
- (b) An orientation of the population will be initiated to establish a community relationship and procedure for accomplishment, in accordance with its predetermined priorities, of projects of a community interest, such as that of a water supply system.
- (c) When the priority for a water supply system is established, the community, through its CHC, will communicate its interest to the Ministry which will refer the request to its appropriate department, in this case, the Department of Sanitary Engineering.
- (d) This department then undertakes and provides all engineering assistance, at no cost to the community, to include the investigation of the source of supply, planning and design, cost estimate and list of materials, supervision of construction, and operation training.

- (e) In addition, through the CHC and under the guidance of the Department of Sanitary Engineering, a local committee will be organized to administer and operate the water supply system.
- (f) The community, through this administrative committee, will:
  - (1) Pay no less than 20 per cent of the cost of construction, to include the cost of unskilled construction labor, local construction materials, and the storage tank.
  - (2) Provide and/or procure all needed right-of-way and/or easements.
  - (3) Provide on-site warehouse facilities for construction materials and equipment to assure its safe-keeping and security.
  - (4) Provide food and lodging, at reasonable cost, for non-community personnel assigned by the Ministry to work on the project. For the well driller and helper, food and lodging will be provided gratuitously by the community.
  - (5) A schedule of water use and connection charges will be established by the administrative committee to generate sufficient income to operate and maintain the system and provide a small capital fund for future improvements and expansions.
- (g) The Department of Sanitary Engineering will furnish all construction materials and equipment needed to accomplish the project, and costs will be proportioned as stated heretofore.
- (h) An agreement will be prepared and signed by all parties, after planning, design and cost estimates have been completed and prior to initiating construction. This agreement will delineate and clarify the responsibilities, as noted above, of all signatory parties. These agreements with construction plans, listing of materials and cost estimates pertaining thereto, will be submitted to USAID with proposed reporting described below.

Prior to commencing the program, the Ministry will prepare and submit to USAID, for its review and approval, a project plan for the fulfillment of the three-year planning and construction program. This plan will include, in sufficient detail, proposed project scheduling, together with a listing and quantities of projected allocations by Regional offices, for all material and equipment, delineated by source and means for financing of all new procurement. This material and equipment listing will be integrated with that now assigned or to be assigned to this program.

Thereafter, a quarterly summary report will be prepared and submitted to USAID, for its review and approval, to include community project agreements, construction plans, listing of materials, and cost estimates together with appropriate bar progress charts and sufficient narrative, to delineate accomplishment during the reporting period and projected accomplishment for the coming quarterly period. This report will show end-use for all materials and will schedule the use of materials and equipment, together with projections for accomplishment during the next reporting period.

A final report following program completion will be prepared by the Ministry for USAID review and approval. This report will summarize the program accomplishment, the end-use of all materials, and will present a projected plan for the continuation of the program showing the proposed future use of all equipment procured hereunder.

### 3. Maintenance

The responsibility for maintaining and operating the community water supply systems will be assumed by each local water supply administrative committee. Training and guidance, together with any needed technical and engineering assistance, will be provided by the Sanitary Engineering Department of the Ministry of Health. This operational practice, based on the experience-record under its existing domestic water supply program, has proven sufficiently effective to warrant its continuation.

Vehicle and equipment maintenance will be the responsibility of the Ministry, and this will be performed within its present maintenance program and practices. The Ministry now has vehicle

and equipment maintenance shops in Panama City, Aguadulce and David each under the supervision of a qualified master mechanic and helpers and which have been effective in keeping its pieces operable, well past usual life expectancies. For example, well drilling rigs and many vehicles, now in use, are those secured from excess property sources, as much as ten and twelve years ago.

#### 4. Cost Estimate

The Ministry will procure and furnish all materials, including that portion to be financed from loan funding, needed to construct the water supply systems. In addition, the vehicles and equipment for performing the construction work will be provided from a central equipment pool for which the Ministry will procure additional pieces with the loan financing.

For domestic water supplies the following Table E-1 summarizes materials and construction costs for 200 systems. Costs are further proportioned between the Ministry and the community to identify each party's participation. These data are based upon cost analysis and reviews, prepared by the Ministry Sanitary Engineering Department, of its existing program, and all systems are projected to utilize a ground-water source. However, this will not preclude the development of surface sources, should the planning analysis show these to be more feasible.

Annex VI presents sketches of a typical installation for a domestic ground water system.

Similarly, Table E-2 summarizes the materials and construction costs for 9000 hand-pump ground water supplies for the smaller population concentrations. Annex VI presents a sketch of a typical installation. This group also is responsible for maintaining and repairing existing wells.

TABLE E-1

Estimated Material and Construction Cost  
Two Hundred Domestic Ground Water Supply Systems

	<u>MINISTRY PARTICIPATION</u>		<u>COMMUNITY PARTICIPATION</u>	
	<u>Materials</u>	<u>Construction</u>	<u>Materials</u>	<u>Construction</u>
Wells- (Development, casing, screen) 20,000 lin.ft. steel well casing, 6" and 8", 30 bronze or stainless steel well screens, 15ft. in 5 ft. sections each.	130,000	160,000		
Pump Houses - (structure, pumps and motors) 200 pumps and motors-30 gpm. piston- type, 7½ HP diesel drive, complete with discharge pipe for 100 ft. well instal- lation.	290,000		30,000	20,000
Storage Tanks - (tower and tank) 4,000 gal. prefabricated steel tanks on welded steel pipe or reinforced- concrete towers	100,000	20,000	200,000	
Pipe - (supply-street mains, house con- nections) 1,200,000 lin.ft. PVC pipe, ½" to 4" supply-street mains; 40,000 lin.ft. galvanized steel pipe, 2" to 4", sup- ply-street mains; 1,300,000 lin. ft. PVC pipe, ½" to 1" house connections.	1,330,000	30,000		550,000

TABLE E-1 (cont'd)

	<u>MINISTRY PARTICIPATION</u>		<u>COMMUNITY PARTICIPATION</u>	
	<u>Materials</u>	<u>Construction</u>	<u>Materials</u>	<u>Construction</u>
Misc. - (shovels, picks, wheelbarrows) 2,500 units of shovel and pick each and 100 wheelbarrows)	16,500			
Skilled Labor - (plumbers, masons, carpenters)		368,000		100,000
Transportation		35,000		
Right-of-Way				80,000
Planning		155,000		
Sub-Total	1,866,500	768,000	230,000	750,000
		2,634,500		980,000
Total				3,614,500
Cost Per System				18,070

TABLE E-2

Estimated Material and Construction Cost  
Twelve Hundred Domestic Hand-Pump Water Supplies  
 (Unit - U. S. Dollars)

	<u>Ministry Participation</u>		<u>Community Participation</u>	
	<u>Materials</u>	<u>Construction</u>	<u>Materials</u>	<u>Construction</u>
Wells - (Development, casing) 96,000 lin. ft. 4" steel well casing	240,000	648,000		
Hand Pumps - (pump, pedestal, piston, connection rods)	102,000			
Pipe - (Pump discharge pipe) 84,000 lin. ft. 1½ galvanized steel pipe	60,000			24,000
Pump Base - (concrete pad for mounting pump)	14,000		11,000	24,000
Transportation		60,000		
Right-of-Way				120,000
Sub-Total	416,000	708,000	11,000	168,000
		1,124,000		179,000
Total				1,303,000
Cost per well				1,090

The listing of the basic vehicle and equipment needs to accomplish the planning and construction phase of the water supply program is summarized in the following Table E-3. This will be operated, maintained, and administered by the sanitary engineering division of the Ministry. The tabulation shows the numbers and types of each piece and its proposed assignment according to project. In making these assignments, it has been projected that the construction of 20 community water supplies would be proceeding simultaneously, together with the continuous operation of 16 well drilling rigs, within the three dispersed Ministry regional subdivisions of the country.

The sanitary engineering division of the Ministry has the following listing of the vehicles and equipment, see Table E-4, now available for accomplishing its existing program. Certain pieces are in good operating condition, and other pieces, principally because of age and outlived usefulness need replacement, and its condition is noted in the following inventory.

To accomplish this program at the expanded scope and magnitude proposed, certain additional items of vehicles and equipment will be procured. This will provide a minimum listing of equipment to achieve program goals, and will provide a base for future continuation to fulfill country needs. The cost and listing of this procurement is listed below in Table E-6.

The aforementioned new vehicles and equipment will be assigned to the three division areas with interchanges between existing and new pieces, as appropriate, to reflect the requirements as listed in Table E-5. The six new well drilling rigs will be assigned to the community water supply program, and 10 of the 12 older rigs will work in the hand-pump water well program. The remaining 2 oldest rigs will continue, initially, to be used in this latter program, but in time, will be retired to serve as a source for spare parts for the remaining older rigs, as the need arises, since due to age, badly needed spare parts for these outdated rigs are virtually nonexistent.

Project costs are summarized as follows, in Table E-2A, proportioned according to proposed financing, whether from loan funds or from within country (Ministry and/or Community) contributions to the program.

TABLE E-2A

Summary of Proposed Water Supply Program  
Budget (Unit - U.S. Dollars)

<u>ITEM</u>	<u>Source of Financing</u>	
	<u>Loan*</u>	<u>Ministry**</u>
Planning		\$ 155,000
Materials	1,278,500	1,245,000
Vehicles and Equipment	445,000	
Construction		2,239,000
	<hr/>	<hr/>
	1,723,500	3,639,000

\* Includes \$1,333,500 for off-shore procurement of vehicles and equipment, well casing and screens, steel pipe, pumps and motors, hand-pumps; \$390,000 for in-country procurement of PVC pipe for individual house connections.

\*\* Includes community self-help participation and \$1,245,000 for in-country procurement of PVC pipe for supply and street mains, steel tanks, cement, reinforcing steel, sand, gravel, and other local and some off-shelf materials.

In procuring materials, vehicles and equipment involving the use of AID loan funds, AID procurement procedures will be followed. All vehicles and equipment will be procured at program initiation, whereas material procurement will be proportioned to meet project needs for the first half of the three-year construction program. Then remaining material procurement, to be accomplished later, can be adjusted to better fit project fulfillment needs on the basis of actual project accomplishment and its continuing review to achieve the program goals.

#### 5. Technical Feasibility

The engineering phases of the project, involving the planning and development of community water supplies, are based on standards and procedures developed and currently practiced by the Ministry through its Sanitary Engineering Department. In the implementation of these types of projects, the engineering staff has performed and furnished assistance and guidance in planning, design, construction, and operation and maintenance.

Based on this experience, the Ministry has developed the preliminary planning and cost data for the proposed construction to be partially financed with this new loan. The water-supply system construction will be implemented in accordance with these established and accepted standards and practices. Cost data, prepared by the Ministry, are based on this previous experience and include a nominal 5% allowance for estimated escalation which could influence material and equipment procurement, more than the actual construction which will be performed on a force-account and community self-help basis. The water supply systems are expected to fall within the \$20,000 range per unit of construction.

It is considered that the technical and engineering requirements of FAA 611 have been met.

#### 6. Development of Equipment Requirements

The equipment list for the two water supply programs was based on the following assessments and calculations.

- (a) An estimate was made of program requirements taking into account the number of wells to be drilled and water systems

constructed over the project period and the geographic dispersal of the work in the three health regions. This produced Table E-3.

- (b) An inventory was made of existing equipment owned by the Ministry and an assessment made as to which equipment had to be replaced, which should remain serviceable over the life of the project, and reasonably beyond, and which might be cannibalized. A judgment was made as to how the existing equipment might best be distributed between the two parts of the project. This produced Table E-4.
- (c) The deficiency list produced by comparing the requirements for the program with the useful equipment on hand determined the list of equipment to be financed with AID funds. In general, an austere approach was followed, enough equipment was included to see that each region would be able to do its job but within limits of the manpower available to operate and maintain equipment and the limits imposed by the schedule of use of the well digging rigs. The list has built into it a fairly high rate of use for most equipment, especially vehicles. Except for the water tank hauling and erecting equipment, the lowboy and the crane, most equipment will be used on a daily basis. The MOH will have to be careful in scheduling around maintenance and repair downtime but they have already shown that capability.

TABLE E-3

Listing of Vehicles and Equipment for Accomplishing Water Supply Programs

<u>Community Water Supply Program</u>	<u>Purpose</u>
6 Truck-mounted well drilling rigs, percussive-type, capable of developing 6" and 8" wells to depths of 250 ft.	Drilling and developing wells to be assigned between Regions *-Eastern, Central, Western- to meet program progress requirements.
6 Dump trucks	Two assigned to each Region for use in construction.
3 Flat-bed trucks	One assigned to each Region for use in transporting materials from Region warehouse to community job site and also in construction.
1 Truck-mounted crane	One for program to be used in erection of steel elevated tanks.
1 Low-boy trailer with tractor	One for program for transporting bulk items, such as prefabricated steel tanks, to job sites.
3 Trailers and turbine test pumps and motors.	One for each Region for pump testing and development of wells.
3 Trailer-mounted, self-contained compressors and motors	One for each Region for developing and improving well production.
1 Truck 10 wheel	One for program for transporting materials and supplies to Region warehouses.
6 Pick-up trucks	Two for each Region for supervisory personnel for project planning, supervision, construction and equipment maintenance.

Listing of Vehicles and Equipment for Accomplishing  
Water Supply Programs (cont'd)

4 Station Wagons

For headquarters office for project planning, survey crews, and general program supervision.

4 Pick-up trucks

For Regional use in promoting and organizing communities for water supply development.

Hand-Pump Water Supply Program

Purpose

10 Trailer-mounted well drilling rigs, percussion-type, capable of developing 4" wells to depths of 100 ft.

Drilling and developing wells, to be assigned among Regions\* - Eastern, Central, Western - to meet program progress requirements.

3 Dump trucks

One assigned to each Region for use in construction.

3 Flat-bed trucks

One assigned to each Region for use in transporting materials from Region warehouse to community job site and also in construction.

6 Pick-up trucks

Two assigned to each Region for supervisory personnel for job planning, supervision, and construction, and transporting trailer-mounted well drilling rigs.

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\* The geographical areas of the Ministry Regions are generally as follows:  
Eastern - Panama City, Colon, and Darien areas  
Central - Central provinces and Azuero peninsula areas  
Western - David and Bocas del Toro areas.

TABLE E-4  
Inventory and Condition of Existing Vehicles and Equipment

Community Water Supply Program

4 Trailer-mounted percussion-type well drilling rigs capable of developing 4" and 6" wells to depths of 100 to 150 ft.

2 Dump trucks

2 Flat-bed trucks

1 Low-boy trailer and tractor

6 Pick-up trucks

2 Station wagons

Condition

Excess property procurement, discontinued Models over 15 years old, spare parts not readily obtainable, difficult to maintain.

Good operating condition, 1969 models.

Good operating condition, both are 1972 models.

Good operating condition, 1967 model.

Good operating condition, 2-1971, 2-1970, 1-1965, and 1-1963 models, replace 1965 and 1963 models.

1962 and 1963 models, heavy mileage, difficult to maintain, replace.

Hand-Bump Water Supply Program

8 Trailer-mounted, percussion-type, well drilling rigs capable of developing 4" wells to depths of 100 ft.

1 Dump truck

3 Flat-bed trucks

4 Commander-type military trucks

6 Pick-up trucks

Condition

Excess property procurement, discontinued models over 15 years old, spare parts not readily obtainable, difficult to maintain.

Operating 1962 model, difficult to maintain, replace.

Over 10 years old, one is a military type obtained from excess property sources, spare parts not readily obtainable, difficult to maintain, replace.

Excess property procurement, over ten years old, spare parts not readily obtainable, difficult to maintain, replace.

One 1971 and one 1969 model in good operating condition, remaining four over 10 years old and difficult to maintain, replace older models.

TABLE E-5

Listing and Proposed Assignment of New Vehicles and Equipment to be  
Procured for Program

Community Water Supply Program

- 6 Truck-mounted well drilling rigs
- 6 Pick-up trucks
- 4 Dump trucks
- 1 Flat-bed truck
- 4 Station Wagons
- 1 Truck 10-wheel
- 3 Trailers and turbine test pumps and motors
- 3 Trailer-mounted self-contained compressors and motors
- 1 Truck-mounted crane

Hand-Pump Water Supply Program

- 3 Dump trucks
- 3 Flat-bed trucks
- 4 Pick-up trucks

Listing and Assignment of New Vehicles and Equipment  
to be Procured for Program

<u>Summary</u>	<u>Value (U.S. Dollars)</u>
6 Truck-mounted well drilling rigs percussion type, each capable of developing 6" and 8" wells to depths of 250 ft.	\$ 180,000
7 Dump trucks, 5 cu. yds. capacity each	56,000
4 Flat-bed trucks, 22 ft. platform each	30,000
10 Pick-up trucks, 3/4 ton capacity each, 5 with four-wheel drive	45,000
4 Station Wagons, Bronco type each with four-wheel drive	18,000
1 Cargo truck, Tamden-type, 10-wheel, 22 ft. platform	12,000
1 Truck crane, 5-ton capacity, 40 ft. boom	30,000
3 Turbine deep-well, test pumps, engine-driven with right angle drive variable capacity to 150 gpm complete with pipe and accessories for installation to depths of 250 ft. with trailer and dead-man for transport and installation	12,000

3 Trailer-mounted, each engine-driven compressors with pipe and accessories for 250 ft. deep well development, 80 cfm at 100 psi	12,000
1 Lot, spare parts and maintenance shop equipment	50,000
	<hr/>
T O T A L	<u>\$ 445,000</u>

**F. Financial Analysis**

**1. Funding Requirements**

The total cost of the project by offshore and local costs is presented in the following table:

<u>PROGRAM</u>	<u>C</u>	<u>O</u>	<u>S</u>	<u>T</u>
	<u>Offshore</u>	<u>Local</u>		<u>Total</u>
<u>Community Org. &amp; Health Educ.</u>				
Salaries & Related Costs		1,426,000		1,426,000
Commodities		1,212,000		1,212,000
Training		101,000		101,000
		113,000		113,000
<u>Maternal-Child Care &amp; Adult</u>				
<u>Medicine</u>				
Salaries & Related Costs		824,000		824,000
Commodities		545,000		545,000
		279,000		279,000
<u>Environmental Sanitation</u>				
Salaries & Related Costs	1,382,000	3,176,000		4,558,000
Commodities	1,382,000	1,318,000		2,700,000
		1,858,000		1,858,000
<u>Nutrition</u>				
Salaries & Related Costs	2,199,000	573,000		2,772,000
Commodities	2,019,000	294,000		2,313,000
Training	100,000	279,000		379,000
Technical Assistance	80,000			80,000
<b>Total</b>	<b>\$ 3,541,000</b>	<b>5,999,000</b>		<b>9,540,000</b>
<b>Percentage</b>	<b>37%</b>	<b>63%</b>		<b>100%</b>

Contingencies amount to \$340,000 or 3% of the project cost, and are included as part of the total amount of each program.

All funds are expected to be committed by January 1, 1976.

2. Sources of Financing

The following three tables show, respectively, the proposed sources of financing, timing of projected funds disbursements and costs of individual programs by sources of funding.

<u>Source</u>	C O S T			%
	Offshore	Local	Total	
GOP		5,347,000	5,347,000	56%
AID	3,141,000	652,000	3,793,000	39%
UNICEF	400,000		400,000	5%
<b>Total</b>	<b>3,541,000</b>	<b>5,999,000</b>	<b>9,540,000</b>	<b>100%</b>

<u>Source</u>	C O S T			Total
	1973	1974	1975	
GOP	1,629,000	1,783,000	1,935,000	5,347,000
AID	2,450,000	672,000	671,000	3,793,000
UNICEF	134,000	133,000	133,000	400,000
<b>Total</b>	<b>4,213,000</b>	<b>2,588,000</b>	<b>2,739,000</b>	<b>9,540,000</b>

<u>PROGRAM</u>	C O S T			Total
	GOP	AID	UNICEF	
<u>Community Org. &amp; Health Educ.</u>	1,426,000			1,426,000
Salaries & Related Costs	1,212,000			1,212,000
Commodities	101,000			101,000
Training	113,000			113,000
<u>Maternal-Child Care &amp; Adult</u>				
<u>Medicine</u>	824,000			824,000
Salaries & Related Costs	545,000			545,000
Commodities	279,000			279,000
<u>Environmental Sanitation</u>	2,785,000	1,733,000		4,518,000
Salaries & Related Costs	1,318,000			1,318,000
Commodities	1,467,000	1,733,000		3,200,000
<u>Nutrition</u>	312,000	2,060,000	400,000	2,772,000
Salaries & Related Costs	294,000			294,000
Commodities	18,000	1,200,000	400,000	2,298,000
Training		100,000		100,000
Technical Assistance		80,000		80,000
<b>Total</b>	<b>5,347,000</b>	<b>3,793,000</b>	<b>400,000</b>	<b>9,540,000</b>
Percentage	56%	39%	5%	100%

A cash flow projection detailing funds disbursements by year is presented in Annex V.

The total cost of the project is estimated at \$9,550,000. A.I.D. will fund not to exceed \$3,800,000 through the subject loan and the balance of \$5,747,000 will be financed by the Government of Panama, \$5,347,000, 56% of total project cost and UNICEF, \$400,000, 5% of total cost.

A.I.D. will participate primarily in the financing of the Environmental Sanitation and Nutrition Programs. However, all four programs are packaged to bring integrated health services to the rural communities participating in the project. (See project description, Section I.A for budget of A.I.D. financed goods and services).

The UNICEF contribution of \$400,000 is for the purchase of 400 diesel cultivators and other inputs for the Nutrition Program.

The GOP contribution consists of two parts: \$5,106,000 - GOP/MOH financing and \$241,000 - local community funds for the purchase of water storage tanks and miscellaneous construction materials. The amount of GOP/MOH counterpart funds expected to be disbursed by year is as follows: 1973 - \$1,548,000; 1974 - \$1,703,000 and 1975 - \$1,855,000.

The Government Planning Office, in its letter of application for the loan, has given assurances that the annual budget for the MOH will provide sufficient resources to cover the MOH responsibility for financing personnel and operating and material costs associated with the Community Health Program.

The 1973 project costs are expected to be accommodated within an overall MOH budget no greater than the 1972 MOH budget of \$25,134,000. The 1973 project costs represent 6% of the 1972 MOH budget. Principal sources of 1973 funds will be transfers of budget amounts covering vacant positions in 1972 from other programs to the Community Health Program. Administrative savings are also expected in various programs particularly SNEM. Finally, although budgetary levels will remain the same in 1972 and 1973, actual expenditures are expected to run higher in 1973.

Additional budgetary support over the 1972-1973 level for the entire MOH program is expected to be provided by the GOP in 1974 and 1975 including funding to cover annual increases in the Community Health Program of \$155,000 and \$152,000 in each respective year.

Contributions of land and unskilled labor have been excluded from the project due to the very low opportunity costs associated with rural land and labor.

The various cost components of the project are shown in the following table:

<u>Components</u>	<u>GOP</u>	<u>A.I.D.</u>	<u>UNICEF</u>	<u>Total</u>
<u>Salaries &amp; Related Costs</u>	<u>3,369,000</u>			<u>3,369,000</u>
Salaries	2,536,000			2,536,000
Honoraria & Fees	108,000			108,000
Per Diem	725,000			725,000
<u>Commodities</u>	<u>1,865,000</u>	<u>3,600,000</u>	<u>400,000</u>	<u>5,865,000</u>
Equipment	61,000	897,000	400,000	1,358,000
Vehicles		211,000		211,000
Construction Materials	1,244,000	1,279,000		2,523,000
Agricultural Supplies		3,526,000		3,526,000
Medicine and Vaccine	210,000			210,000
Mtce. & Oper. Supplies	302,000			302,000
Publications	48,000			48,000
<u>Training</u>	<u>113,000</u>	<u>100,000</u>		<u>213,000</u>
<u>Technical Assistance</u>		<u>80,000</u>		<u>80,000</u>
<u>Total</u>	<u>\$ 5,347,000</u>	<u>4,780,000</u>	<u>400,000</u>	<u>10,527,000</u>

### 3. Alternative Sources of Financing

The conclusions of the Country Team is that suitable financing from other lending agencies, other than the \$400,000 from UNICEF, is not available for this project.

### 4. Prospects of Loan Repayment

The debt service charges entailed by the health and nutrition loan are insignificant when these charges are assessed in relation

to either total foreign exchange earnings or to the total debt service charges currently being paid by the national government. This will be made clear by the following calculation.

The average annual debt service charges (interest plus amortization) on a B/3.8 million loan to be repaid over 30 years (after expiration of the 10 year grace period) at 3.0% interest is B/293,865<sup>1/</sup>. The value of the country's total exports of goods and services in 1971 amounted to B/417,300,000<sup>2/</sup>. On the assumption that these exports will grow at an average annual compound rate of 8%<sup>3/</sup> the value of total exports would reach B/900.9 million in 10 years (the time amortization payments start). The annual debt service charges of B/293,865 constitute only .0214% of such foreign exchange earnings.

The national government's debt service charges on its total external debt is estimated by CIAP at B/43.1 million in 1972 and is projected to reach B/45.6 million in 1974<sup>2/</sup>. The average annual debt service charge entailed by the health and nutrition loans constitutes only .59% of this B/45.6 million figure.

While the annual debt service charges of the national government increased rapidly in recent years, this rise is not attributable to any significant degree to long-term loans financed on concessionary terms by A.I.D. and the international agencies. It is related mainly to the increase in short-term commercial bank borrowing undertaken after 1968 by the Central Government. The GOP has indicated its intention to scale down such short-term borrowing in 1973 and 1974, and to eliminate it altogether thereafter.

- 1/ This approximates the average annual service charge over the period. Actually AID loans involve varying annual payments because interest payments are scheduled to decline as the principal diminishes, while the principal sum is repaid in equal annual installments.
- 2/ A conservative assumption. The average annual compound growth rate over 1960-1970 was 11.6%.
- 3/ There are no projections beyond that date.

The rapid increase in current government revenues experienced in recent years is indicative of the Government's intent to put its fiscal house in order. Total current revenues increased at an average annual rate of 12.5% between 1967 and 1971, thus outstripping substantially the increase in the Gross Domestic Product. The GOP enjoys a good credit rating as reflected by the ease with which it can obtain the credit accommodation it requires in the international market.

Panama has the capacity to repay this loan at the interest rate contemplated and there are reasonable prospects of repayment.

## 5. Allocation of Public Resources

Table A shows the distribution of operating expenditures of the central government among the various Ministries from 1967 through 1972. The expansion in expenditures, actually and in percentages, of the human resources Ministries, Education and Health, are particularly noteworthy. The marked increase in the Health Ministry budget for 1972 directly reflects the planned increased activity of the Ministry in community health and nutrition. Other interesting allocations of current resources include the Ministry of the Presidency, which houses the planning function of the GOP, and the steady increase in resources allotted to Agriculture and Education. The ups and downs of the Public Works Ministry seem to be characteristic of that Ministry and usually reflect the ups and downs of the road construction program of the GOP, especially its international financing. In general, the budget allocation seems to represent an appropriate distribution of resources, and support of the development agencies commensurate with total availabilities.

The distribution of investment allocations by sectors shown in Table B gives an indication of overall investment and resource priorities in Panama, although it is not exactly comparable with the current expenditures of the government Ministries. First, investment allocations include funds available to autonomous agencies but not included in the national budget, and second, a sector may, or may not, include the same area of responsibility as the Ministry working within that sector. For example, the health sector includes the investment of the Social Security Agency in hospital facilities. These are not national budget funds and are generally unrelated to the allocation of Ministry of Health current operating expenditures. Nevertheless, the correlation between current expenditures and investment allocations is clearly high.

The conclusion for both current and investment resource allocation is that the GOP has a set of development priorities which are receiving appropriate resource support.

Table A

BREAKDOWN OF CURRENT OPERATING EXPENDITURES(Administrative Allocations)<sup>1/</sup>, 1967-72

(In Millions of Balboas)

	1967	Actual		1970	Budgeted		Percent Increase 1971-72 %	Average Annual Rate of Increase 1967-71 %
		1968	1969		1971	1972		
Presidency	1.6	1.8	2.1	3.1	3.6	4.2	16.7	22.
Contraloria General	2.1	2.4	2.9	3.3	3.3	3.3	0	12.0
Government and Justice	13.9	15.6	21.0	25.3	23.8	26.3	10.5	14.4
Foreign Relations	2.6	2.6	2.7	3.4	3.7	3.9	5.4	9.2
Education	27.7	30.5	33.2	37.4	42.2	47.6	12.8	11.1
Public Works	10.5	11.1	9.2	14.7	10.4	13.4	28.8	0.2
Ministry of Finance	3.3	3.6	4.1	4.7	5.0	5.2	4.0	10.9
Agriculture, Commerce & Industry <sup>2/</sup>	4.8	5.2	-	-	-	-	-	16.4 <sup>4/</sup>
Agriculture and Livestock	-	-	5.7	6.0	6.5	7.3	12.3	-
Commerce and Industry	-	-	0.5	2.3	2.3	2.4	4.3	-
Labor, Welfare and Health <sup>3/</sup>	17.7	18.3	-	-	-	-	-	7.2 <sup>4/</sup>
Health	-	-	17.6	19.5	21.5	25.1	16.7	-

	Actual				Budgeted		Percent Increase 1971-72	Average Annual Rate of Increase 1967-71
	1967	1968	1969	1970	1971	1972		
Labor & Welfare	-	-	1.6	1.8	1.9	2.1	10.5	-
Judicial Branch	2.1	2.3	2.8	3.0	3.4	3.3	-2.9	12.8
Electoral Tribunal	0.9	1.6	0.8	0.8	1.0	1.5	50.0	2.7
Other	2.7	2.4	0.4	0.4	.5	.8	60.0	-34.0
Total Current Operating Expenditures <sup>1/</sup>	89.9	97.3	104.4	125.6	129.3	146.4	13.2	9.5

- <sup>1/</sup> Excludes debt servicing and current transfers. Figures do not add perfectly owing to rounding.
- <sup>2/</sup> This Ministry was separated in 1968 into the Ministries of Agriculture & Livestock and Commerce & Industry.
- <sup>3/</sup> This Ministry was separated in 1968 into two Health and Labor & Welfare.
- <sup>4/</sup> To calculate average annual percent increase over 1967-71, the allocation to both ministries had to be combined.

Table 8

DISTRIBUTION OF INVESTMENT ALLOCATIONS

BY SECTORS, 1970-1972

(In Millions of Balboas)

	Actual 1970		Revised Budget 1971		Original Budget 1972	
	<u>Amount</u>	<u>%</u>	<u>Amount</u>	<u>%</u>	<u>Amount</u>	<u>%</u>
<u>Total</u>	<u>82.2</u>	<u>100.0</u>	<u>107.7</u>	<u>100.0</u>	<u>175.6</u>	<u>100.0</u>
Agriculture & Livestock	11.3	13.7	11.5	10.7	18.6	10.6
Commerce and Industry	0.8	1.0	5.2	4.8	22.6	12.9
Education	5.2	6.3	6.3	5.9	15.9	9.0
Electrification	6.5	7.9	10.1	9.4	18.5	10.5
Public Buildings	3.0	3.6	0.4	0.4	0.2	0.1
Health	8.8	10.7	19.6	18.2	27.5	15.7
Transportation	19.5	23.7	18.9	17.5	30.9	17.6
Tourism	2.1	2.5	0.7	0.6	0.8	0.5
Housing	24.8	30.2	33.1	30.7	38.6	22.0
Multisector	0.3	0.4	1.9	1.8	2.0	1.1

Source: Planning Office

### G. Role of Other International Agencies

International assistance to Panama in the field of health has come from both United Nations and Voluntary Agencies. The United Nations Children Fund (UNICEF) is of particular interest in view of its collaborative role in certain aspects of this project. The Panamerican Health Organization (PAHO) has been the major multilateral contributor in health activities. CARE and Catholic Relief Services have participated in maternal/child nutrition and feeding programs. Two additional agencies, the United Nations Fund for Population Activities and International Planned Parenthood Federation, have been engaged in assistance to Panama for various family planning projects.

The Panamerican Health Organization (PAHO), Regional body of the World Health Organization (WHO) for the Western Hemisphere, provides considerable technical assistance to the MOH and IDAAN in many areas of public health. A permanent representative is maintained in the MOH and additional full time advisors are located variously in malaria, sanitation, veterinary medicine, nursing education and maternal/child nursing. Short term technical consultants collaborate in many additional areas of in-service training and program planning. Limited commodity assistance, mainly malaria supplies, have also been donated.

Both the Catholic Relief Services and CARE participate in the PL 480 "Food for Peace" program. In connection with these activities CRS employs a full-time child feeding specialist who develops and advises participants in their neighborhood maternal/child feeding centers. Limited financial assistance has also been forthcoming for the centers. CARE, in addition to the primary school feeding program described elsewhere, has contributed basic agricultural tools and chemicals as well as seeds to the MOH nutrition project. Again, limited funds have been available to support donation of certain commodities to community groups on an ad hoc basis.

International Planned Parenthood Federation (IPPF) contributions have been channeled to Panama's family planning voluntary agency, APLAFA. Assistance has been both financial and in the form of equipment and contraceptive supplies.

The United Nations Fund for Population Activities (UNFPA) initiated a three year demography/statistical information project within the MOH in CY 1971. Data gathering is to be evaluated and improved in terms of reporting requirements and analytic activities. Financial assistance is to be provided over the period 1971-2-3.

Although the United Nations' Children Fund (UNICEF) has, through 1971, generally limited its activity in Panama to providing contributions to a malaria eradication program, it is now expected to play a major role in contributing resources to the program supported by this loan. Beginning in CY-72 an area development project combining the efforts of UNICEF with the Ministries of Health, Agriculture and Education and with the Director of Community Development has been launched in the central provinces. Commodity assistance under this program has been planned to include agriculture, health and school items. The following describes how the loan project and the UNICEF activity is expected to be coordinated.

UNICEF on the basis of discussions initiated with the Ministry of Health early in 1971, is providing Kubota diesel cultivators (tractors) through its basic health services assistance to the Rural Community Health Program of the MOH. Delivery of 40 diesel cultivators has already been made to support the pilot program. These cultivators will be provided to selected communities on the same basis as those which the MOH, using private financing, was able to provide earlier and accelerate the implementation of the pilot program. The other inputs necessary for development of nutrition and production of food, such as seed, fertilizer, etc., have been provided by the communities themselves, CARE or charitable donations from business and industry. This combination of scrounging and improvisation was probably fully justified by the experimental and innovative nature of the pilot program. Considering the initial success of the pilot program and MOH expectations of increased inputs in seeds and fertilizer, UNICEF is negotiating the provision of a further 100 cultivators for the Rural Community Health Program.

However, now that the process seems to be proving out, UNICEF wishes to undertake a coordinated project that would ensure the delivery of the various resources to the areas of project implementation and wishes to be sure that all inputs necessary to maximize the health results would be available. Discussions with the Plan-

ning Office (DGPA) culminated in the approval by the Executive Board of UNICEF, at its 1972 session (24 April/May, 1972), of the project proposed for Panama in Document E/ICEF/P/L 1512 dated 24 February, 1972. This project, through the combined efforts of state services and the active participation of the communities concerned, is to improve the living conditions of families in the rural areas of the District of Tole, Cañazas and Las Palmas in the Province of Chiriquí and Veraguas. The development efforts will be concentrated on: community garden plots, educational programs in incomplete primary schools, nutritional education, strengthening of health services with emphasis in maternal and child care, improvement of environmental health conditions including latrines, and water supply. In the first year of this three year project, cultivators would be provided to 16 communities and to approximately the same number in subsequent years. This would be in addition to the 40 already provided and the 100 under negotiation. The UNICEF project is, of course, a parallel in miniature of the larger program proposed for support by this loan and it arises out of an identical perception of the health needs for rural communities on the part of AID, UNICEF, MOH and the Planning Office. An essential element of the comunal garden element of the UNICEF program is the provision to the community of the multipurpose Kubota tractor. In contrast to the pilot program, however, UNICEF wishes in this program to assure the provision to the community groups of those additional inputs necessary for the effective use of the machine. In contrast, the proposed loan is expected to provide inputs other than the comunal garden tractor. The Mission has been advised by the Regional UNICEF representative that if the provision of these other inputs is assured to UNICEF by the Planning Office as being available and to be made available through AID Loan financing, they would be prepared through an agreement with the Planning Office and MOH, to adjust the UNICEF program budget so that funds released by the provision of other inputs to the project area of Chiriquí and Veraguas would be available to provide comunal tractors to several communities in other areas of rural Panama selected by the Planning Office and the MOH for the same kind of development program.

Table ( A ) summarizes assistance in 1971 from other agencies. With the exception of UNICEF this is the expected pattern for the near future.

TABLE A  
EXTERNAL HEALTH ASSISTANCE: CY 1971

<u>Agency</u>	<u>Area of Assistance</u>	<u>Type of Assistance*</u>					
		1	2	3	4	5	6
1. Panamerican Health Organization (PAHO)  Additional PAHO technical assistance has been provided by members of Zone and Regional staffs. Short and long term training has also been offered in several health fields.	Malaria Eradication	x	x	x	x		
	Sanitary Engineering	x		x	x		
	Potable Water	x		x	x		
	A. aegypti Erad.	x		x	x		
	Health Services	x		x	x		G
	Laboratory Services	x		x	x		
	Food/Drug Control	x		x	x		
	Medical Care	x					
	Medical Education	x					
	Nursing Education	x		x	x		G
Sanit. Eng. Education	x					G	
Dentistry Education	x		x				
2. Other United Nations Agencies:							
UNICEF (Childrens Fund)							
UNFPA (Fund for Population Activities)	Malaria Eradication			x	x		
	Demography/Statistics						G
3. Voluntary Agencies:							
International Planned Parenthood Foundation	Family Planning						
CARE	Nutrition	x		x	x		G
Catholic Relief Services (CRS)	Nutrition	x		x	x		G

\*KEY 1 = Specific consultant services  
 2 = Administrative specialist under supervision of local agency  
 3 = Equipment, including vehicles  
 4 = Supplies  
 5 = Construction  
 6 = Financial assistance; G = Grant

## H. Project Issues

At the presentation of the Intensive Review Request to the CAEC almost no issues were raised regarding the medical care or potable water components of the project. The cable reporting to the Mission, Annex 8, concentrated exclusively on the garden plots. The following is intended to answer any questions regarding this aspect of the project not covered elsewhere in this paper.

### 1. ADVANTAGES OF COMMUNITY FARMER PLOT OVER ALTERNATIVE OF ASSISTING INDIVIDUAL PRODUCTION HIGH NUTRITION CROPS.

The main purpose of this loan is to improve the health of the individual villagers through a self-help effort of community organization that will enable the health services offered by the MOH to be better utilized.

Considering that the objective of the community garden is not only to produce vegetables but to serve as a catalyst in organizing the community to work together and demonstrate modern agricultural techniques, assisting individual farmers is not a real alternative.

Even with the nutrition program itself, vegetable production is only one part. Its main emphasis is nutritional education - what the body needs to stay healthy and how to acquire it. The demonstration affect of the garden is equal in importance to the value of its production. If, after four years, a group of villagers should decide that they would rather grow vegetables on their own plots once they have learned how to use the new seeds and fertilizer, the project would still be considered a success even if the community garden were to be abandoned. MOH technicians will still be calling on the community on a regular basis and working with the CHC. The CHC might be engaged in constructing a water tower, or building a health sub-center, but they will be engaged and participating in the health program of the MOH.

However, the community garden has several advantages over programs aimed at the small subsistence farmer on an individual basis. With a communal plot the first advantage is accessibility both for the agronomist and for the other members of the community interested in learning the results of modern technology. It would be physically

Impossible for the agronomist to visit on a weekly basis all farms in a community to supply advice. With the community garden located in a central, accessible area the agronomist is able to provide advice easily and the results of modern agricultural methods are visible and can be further disseminated throughout the community. It would be more expensive to provide agricultural supplies and equipment to individual farmers than to a group. The small, diesel cultivators donated by UNICEF have proven appropriate size units for the local gardens and are affecting a greater number of people than if distributed to individual farmers. To obtain crops during the dry season many of the gardens will be irrigated via the inexpensive pumps provided with the tractors. This will also have a demonstration effect on the farmer with his own small plot. Farming on the somewhat larger community basis may also attract advice and technical assistance from distributors of farm supplies and equipment. Small subsistence farmers usually do not rate such attention, but CHC's will continue becoming recognized legal entities which will give them access to credit. They will be in a much better position to borrow (and repay) on behalf of their community than small independent farmers. Over 380 of the total of over 700 CHC's have already achieved corporate status and can borrow funds.

2. RESULTS ONGOING DETAILED EVALUATION THIRTY PILOT COMMUNITY HEALTH COMMITTEE GARDENS, INCLUDING:

- A. PROCESS FOR DECIDING WHAT CROPS ARE GROWN
- B. BASIS UPON WHICH FOOD DISTRIBUTED (NEED, WORK)

The pilot projects have been surveyed on an informal basis by members of the MOH and USAID. As yet, there has been no exact means of measuring production; the crops have been harvested in small units as they became ripe, nor have exact records been made of inputs. Our production estimates are based on reports of the number of sacks of beans picked, or baskets of tomatoes harvested. Inputs have been estimated by the MOH chief agronomist. Small scales might be included among the items to be financed by the loan so that more exact production figures can be gathered, both for evaluating project results and, chiefly, for assessing variety trials. They would also be useful in dividing the crop among the CHC and the workers.

A semi-annual project evaluation is part of the administration of the loan. It is a pre-condition to additional disbursements for agricultural supplies beyond basic equipment and will require records to be kept of inputs and production.

Selection and distribution of the food grown in the community gardens will be left to the individual community health committee in consultation with MOH field workers. The CHC chose to create a community garden after a village seminar in which they recognized that one of their problems was poor nutrition. The garden is only a part of the MOH nutrition program. Nutrition education remains a key element. The CHC learns what its nutritional deficiencies are, and which vegetables contain the ingredients lacking in their diets. After these lessons it is the responsibility of the individual CHC to choose the vegetables they wish to grow. Distribution of the food they grow is also the responsibility of the CHC. So far, it has been done in a variety of ways, by dividing it among the workers on the basis of hours worked, by taking a share of the crop for the health needs of the community's sick, by selling a share to the nearest health center, with the proceeds going to the garden workers and the CHC, or by selling within the village. Each CHC will be left to work out its own solution to this problem just as each CHC decided what to grow in the first place.

C. ACTUAL USE OF FOOD PRODUCED AND NUTRITIVE EFFECTS IF AVAILABLE

The food produced in the community gardens has been consumed by the participants, some of it has been sold to the nearest hospital or health center, and some of it has been sold within the villages. It is too soon to report the nutritive effects of the vegetables produced except in Aligandi, a Cuna Indian community, where a significant portion of the vegetables produced is consumed by the hospital and a pre-school feeding program. The vegetables are being used to supplement previously unbalanced diets. In some cases the change has been dramatic, particularly when the child was suffering from kwashiorkor or a vitamin deficiency. But the change can not be attributed purely to the garden vegetables as additional high protein food from other sources was also added. Poultry raising is an important add-on that has been enthusiastically supported by this community. The nutritive

effects of the program, are, and will continue to be, difficult to measure. What we will be looking for is a general improvement in the health of community after the combined program of health services, nutrition and improved sanitation has been in operation for several years. In terms of immediate results, the restoration of hospitalized, malnourished infants has of course been dramatic.

D. ARE TECHNIQUES INITIALLY APPLIED TO COMMUNITY PLOTS LATER APPLIED TO FARMERS' PRIVATE PLOTS?

Again, the gardens have been in operation too short a time to evaluate the demonstration effect of the gardens except informally. There are many examples of villagers beginning small vegetable gardens around their houses after observing the community gardens. Among the Cuna Indians at Aligandi, tomatoes plants are being sold to inhabitants outside the garden who are establishing individual plots after learning about tomatoes from the community garden. In Los Rios, land donated for a community garden by one of the participants has been reclaimed. After learning the process, this participant bought his own agricultural inputs and is using his land to grow vegetables commercially. The Los Rios CHC has now obtained two more plots of land, but this time, a lesson learned, they have a long term leases. In Cerro Cama plowed furrows are appearing in private corn fields. More examples of direct commercial applications of lessons learned from the community gardens are beginning to be manifest. One of the changes we are expecting, and which will be evaluated in semi-annual project reports is the number of farmers in the villages with community gardens who are using fertilizer for the first time on their own plots.

E. DEGREE COMMUNITY DEVELOPMENT STIMULATED BY NUTRITION PROGRAM

The community garden as shown by the existing gardens is an effective tool in; a) inducing the communities to organize in the first place, and b) creating a spirit of community self-confidence and participation as the garden begins to produce. In many of the villages prior to the introduction of the gardens no formal village organization existed. In order to obtain a tractor and create a garden one of the pre-requisites is a functioning CHC. The formation of the CHC represents a large, positive step forward in the community development process. Creation of this organization stimulates com-

munity development to a large degree. Another positive stimulant to development is the difficult to record, but none the less real, change in the positive spirit of the communities after the CHC and the gardens are functioning. Following the growth of the process in a single village is perhaps the best way to describe it. Annex IV Ex.1 traces the experience of Cerro Cama.

**3-A. PRESENT AVAILABILITY AND COST OF CROPS PROPOSED PROGRAM WILL PRODUCE**

The attached list contains vegetables that are presently being produced in the existing gardens and their average retail price. The majority of these vegetables, if not produced in the community gardens, are unavailable to most rural inhabitants either for: a) reasons of high cost (they can not afford them) or, b) they are simply not for sale at any price in their immediate area. (They could only be purchased at a larger town, say 10 miles away).

As the project develops new varieties of vegetables will also be produced.

	<u>Consumer Price</u> <u>Per Lb.</u>
Corn	10 ¢
Rice	12
Beans	14
String Beans	15
Tomatoes	30
Cabbage	15
Squash	15
Egg Plant	20
Sweet Potatoes	10
Platanos	5
Lettuce	20
Carrots	20
Turnips	15
Guandu	50
Yuca	5

3-B. RELATIONSHIP THIS PROGRAM TO L-034, PROPOSED SMALL FARMER IMPROVEMENT PHASE II LOAN AND PLANNED AGRICULTURE SECTOR LOAN

The ongoing and planned agricultural development loan projects in Panama are essentially directed at increasing global production to satisfy the rapidly growing national food, feed and fiber requirements, which in turn, are becoming increasingly concentrated in the urban areas. The MOH activity on the other hand is designed to raise the nutritional level of a significant number of rural communities by increasing the variety and improving the efficiency of food production destined for home and local consumption.

The two approaches are complementary and will permit the GDP to address its total food and nutritional needs on a broader scale than it has been able to do previously.

At the present time there are two principal A.I.D. rural development programs in Panama: (1) the 034 Small Farmers Improvement Loan in the amount of \$3.5 million and (2) the OLO Agriculture Development Grant Project in the amount of \$297,000 FY-71.

034 Small Farmer Development Loan Program

This project will involve approximately 7,500 participant farm families at the end of its three year disbursement period, which ends in May 1973. The Project will, however, continue as an on-going program because of the roll-over effect of the loan programs. It is expected that a total of 12,500 participant families will be involved by June of 1974.

The focal group for current agricultural loans and projects has been and probably will continue in the short run to be that segment of the agricultural population, approximately 25% of the total, representing family farm units with off-farm sales of \$200 to \$1,000 annually. The focal group of the MOH activity is for the most part that segment of the rural population, approximately 70%, consisting of subsistence farmers and other rural dwellers with agricultural commodity sales of less than \$200 annually.

The components of this project treat those factors identified in the agricultural system as related to the target group and the selected commodities. Technological development support, technical

evaluation, marketing improvement, production credit, and program and policy development are the components of this loan project. Special emphasis has been given to supplying farmer credit for basic crops of rice, corn and beans.

#### Proposed Agriculture Development Loans

An intensive review request has been made for a proposed loan entitled Small Farmer Improvement (Phase II) in the amount of \$7.7 million.

The purpose of the loan is to assist the Government of Panama through the support of a coordinated multi-agency program, which will be the second phase of the previously discussed assistance to small farmers. It will expand production for off-farm sales of the basic crops of rice, corn and beans by providing the needed resources of production and improve the utilization of the small and medium farmers land and labor resources and by providing improved technology, credit, and an improved marketing system.

In addition the loan will support the agricultural research efforts of the GOP with particular reference to the efforts of the Faculty of Agronomy, University of Panama. The University is currently involved in a small research program associated with the community garden program and it is expected to expand this program. Students and faculty of the agriculture school will be provided opportunities to conduct applied research utilizing community land and labor. The lessons learned from these trials will be applied in introducing improved varieties and techniques of growing vegetables to the Community Garden Program. The Ministry of Agriculture is also conducting a research program whose results will be transferred to the community gardens. This research is of great importance as present knowledge of vegetable cultivation in the low-lands is limited. Important benefits can be expected with the introduction of new disease-resistant varieties. The geographic variation among the garden projects provides an extremely advantageous, controlled base for such trials.

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- 90a)

The above description of the Agricultural Ministry's program would seem to indicate a relatively narrow area of potential collaboration between the Ministries of Health and Agriculture. While this is true as far as long-range goals of the two Ministries are concerned, it is not entirely true with regard to day-to-day cooperation or collaboration.

The Ministry of Agriculture has very limited resources for working with community subsistence farmer groups making almost no contribution to the total supply of commercial agricultural output.

On the other hand, the MAG has donated over 7,000 grafted fruit trees to community health units for planting in small villages and it has provided instruction in the care of these trees. This activity is totally divorced from the commercial production of fruits; rather it is intended to support the MOH concept of local production for local nutritional needs.

The MAG is, of course, aware of the fact that agricultural facilities of the MOH may ultimately produce clients for MAG programs.

In the meantime, however, the area of collaboration between the MOH and the MAG will remain narrowly limited, since they have quite different goals, purposes and programs. But the two Ministries are aware of each other's preoccupation and the MAG is offering help when it can.

4. ANALYSIS OF PROJECT REQUIREMENTS FOR, AND AVAILABILITIES OF, MOH AND MAG TECHNICIANS

The MOH has requested 20 additional agricultural technicians, 20 nutritionists and extra support personnel to assist the expanded program over the three year project period.

With a ratio of 20 gardens per agricultural technician, the MOH is planning to establish 40 gardens each six months, and hiring the technicians accordingly. In addition to the visits of the personnel directly responsible for the community gardens, other Ministry personnel will be used to deliver agricultural material, report on conditions in the garden, and maintain constant communication between the work commission running the garden and the agricultural technician. If any emergency arises, wilt, insect damage, etc., the agricultural technician will be informed and can be there the next day.

The MOH is offering a decent salary for agricultural technicians and has experienced no difficulty in obtaining qualified candidates. MAG already has sufficient technicians to supply the support required, mainly soils analysis.

5. EXAMINATION OF CAPABILITY MOH TO IMPLEMENT THIS EXPANDED PROGRAM WITHOUT ADVERSELY AFFECTING IMPLEMENTATION ONGOING PROGRAMS IN OTHER AREAS. INCLUDE ANALYSIS MOH UTILIZATION AND MAINTENANCE CAPITAL EQUIPMENT AND SUPERVISORY CAPACITY TO COORDINATE DIVERSE PROJECT INPUTS

The MOH is hiring additional personnel and receiving extra funds above their usual budget to support the project. We believe that with the additional personnel the MOH will be able to conduct their entire operation with no loss of efficiency in their ongoing program.

All the agricultural equipment to be purchased with loan funds will be under the control of the MOH, the MOH technicians or the CHC. Except for the irrigation equipment during the rainy season, all equipment will be utilized on a 12 month, full time basis. For a more detailed description of equipment use and maintenance see the Engineering Section of the Paper.

#### I. ECOLOGICAL IMPACT OF THE PROGRAM

The major concern of this project is how the health of the individual can be improved through improving the environment. The Ministry of Health has adopted the position, strongly supported by USAID/Panama, that the causes of illness lie in the environment and that the most efficient use of health resources is to improve the environment of the individual. Teaching the community how to improve housing, waste disposal, garbage collection, clean water, and improved farming methods, which include erosion prevention and the proper use of farm chemicals, including pesticides, are included in the program and contribute to improving the relationship between the individual and his surroundings. Consequently, the ecological impact of this program is extremely positive.

## Section 2 - Sector Analysis

### A. Background

#### 1. The General Health Problem

The health problems of Panama, as in all of Central America center around the imbalance between the totality of poor health and the capacity to provide social and medical services to combat it. Uncontrolled population growth, lack of environmental hygiene, malnutrition, the diseases of poverty and high infant mortality account for the majority of premature deaths and the tide of ill health that is the heritage of the rural population. The communication barrier ascribable to culture, class or language compound the problem.

The urban population, particularly in Panama City and Colon, enjoys a relatively good standard of living. Health services are adequate and free to those who cannot afford to pay. Deaths from those diseases which can be prevented, such as tetanus, typhoid, etc., are few. Infant mortality is relatively low. The average age at death is 68 years. In general the urban health profile is good even among the poor.

In contrast, the rural area reveals a different picture. Although it possesses 52% of the population, it produces and consumes only 20% of Panama's resources. The death rate for infants under one year is over 47 per 1,000 live births compared to 30 per 1,000 in Panama City. The maternal death rate is more than double in rural areas that for Panama City.<sup>1/</sup> The average age at death is 59. The following tables, A and B, illustrate the sharp contrast between the two areas. Although Panama's health services are free and theoretically available to all her citizens, a number of factors restrict their availability, including geographic e.g. transport, cultural and economic. The rural areas are not receiving the health services they require. The major causes of this have been: a shortage of available resources; the concentration of these resources in the urban areas where more people can be easily reached

<sup>1/</sup> Panama en Cifras, 1969

TABLE A - HEALTH

PANAMA: NATALITY, MORTALITY AND POPULATION GROWTH OF THE RURAL AREAS: 1964-1968

RESIDENCY and Year	LIVE BIRTHS		D E A T H S					NATURAL INCREASE		
	Total	Rate 1000 Pop.	All Causes		Under 1 Year		Maternal		Total	Rate 100 Pop.
Total			Rate 1000 Pop.	Total	Rate 1000 Live Births	Total	Rate 1000 Live Births			
RURAL										
1968 (prov)	31,862	43.3	6,106	8.3	1,502	47.1	54	1.7	25,756	35.0
1967	29,599	41.1	5,641	7.8	1,470	49.7	66	2.2	25,958	33.3
1966	29,573	41.9	5,825	8.2	1,509	51.0	62	2.1	23,748	33.7
1965	27,841	43.0	5,403	8.4	1,408	50.6	61	2.2	22,438	34.6
1964	27,591	42.6	5,420	8.4	1,306	47.3	58	2.1	22,171	34.2

SOURCE: Panama en Cifras, 1969

TABLE B - HEALTH

PANAMA: NATALITY, MORTALITY AND POPULATION GROWTH OF PANAMA CITY: 1964-1968

RESIDENCY and Year	LIVE BIRTHS		D E A T H S					NATURAL INCREASE		
	Total	Rate 1000 Pop.	All Causes		Under 1 Year		Maternal		Total	Rate 1000 Pop.
			Total	Rate 1000 Pop.	Total	Rate 1000 Live Births	Total	Rate 1000 Live Births		
PANAMA CITY										
1968 (prov)	12,679	34.0	2,232	6.0	386	30.4	8	0.6	10,447	28.0
1967	13,004	36.3	1,994	5.6	417	32.1	5	0.4	11,010	30.7
1966	11,983	34.9	2,019	5.9	416	34.7	4	0.3	9,964	29.0
1965	11,754	35.6	2,024	6.1	425	36.2	7	0.6	9,730	29.5
1964	11,224	35.2	1,716	5.4	333	29.7	9	0.8	9,508	29.8

SOURCE: Panama en Cifras, 1969

and the inaccessibility of the majority of the rural population. Because of few roads and a rail service limited to the Canal Zone, the banana plantations of Bocas del Toro and, a few kilometers in Chiriqui, large segments of the population do not have access to the cities where the medical facilities have been located. The same conditions create problems in bringing health services to the rural population. The current AID Rural Mobile Health Program (PUMAR) is attempting to alleviate this problem by transporting health personnel, supplies, and equipment from the cities and towns into the isolated rural areas to treat the rural population.

Because of a number of factors, all of which are interrelated, the rural areas suffer many more health problems than the urban. Grouped together, all these factors can be termed a cycle of poverty, or an unhealthy environment. Poor accessibility, lack of education, low incomes, poor productivity, malnutrition, bad food habits, poor sanitation, etc., are all related to a low standard of health which in turn causes low productivity and a limited self-help capability<sup>1/</sup>.

To improve the health situation in Panama the environmental factors related to health must also be improved.

As an example of this inter-relationship, the disease load for a large percentage of the population, those in the rural areas, is much higher than it need be. Deaths and illnesses from communicable diseases indicate that severe problems exist with housing, environmental sanitation and the levels of nutrition.

The low level of health education of the population significantly increases the burden upon the health care system. Even rudimentary knowledge of the causes of disease, of the importance of personal and environmental hygiene and of basic nutritional needs for health is generally lacking.

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<sup>1/</sup> See Annex VIII PAHO Chart of Factors Determining the Health Level and Structure in Undeveloped Countries.

This lack of education is particularly evident in the disease problems of children; an extremely high incidence and prevalence of enteritis and protein-calorie malnutrition and its effect on retardation of growth in the under five population is of particular concern.<sup>1/</sup>

If health education were improved and immunization programs increased, a substantial number and portion of deaths could be prevented. This is particularly important considering the exceedingly high infant and childhood death rates, along with high birth rates, with the result that the society spends a major investment in time, care and money in the production and partial raising of children who die before they become economically productive. Children are particularly susceptible to the communicable diseases. The complications of malnutrition increase the severity of the disease for the child often leading to death or permanent disability. The hours spent dealing with diseases which could have been prevented places an unnecessary burden upon an already overloaded health system. The time of the average government health doctor could be used more effectively if basic preventive measures were the central core of services about which diagnostic and curative services were built. The diseases which occupy the large portion of doctor-patient consultations are preventable and could be altered through emphasis on good nutrition, hygiene and accident prevention. At the same time the rural population could be made more receptive to rational family planning. Both factors would make for more time devoted to achieving higher living standards.

The Ministry of Health understands this problem and has given full support to the environmental approach to better health, and is in the process of shifting the largest part of its resources into a preventive health program in the rural areas, with the object of improving health through improving and modernizing rural life.

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<sup>1/</sup> These problems are discussed in *Syncretism: The Dynamics of Health*, Panama p. 35-40.

## 2. Specific Health Problems

The limited health resources available are still not being utilized with full effectiveness. The three major problems which have the greatest negative effect upon the health of the rural Panamanian population are: (1) The maldistribution and inefficient utilization of basic health services; (2) The problems of food use and consumption; (3) The lack of basic environmental sanitation.

### A. Maldistribution of Services

Due to the method of distribution of basic health services in Panama, the urban population has been receiving the majority of the services available. That the service available to the rural population is insufficient is evidenced by: (a) the large number of deaths, (b) the high death rate caused by preventable diseases, (c) the inadequate coverage of the population by immunizations, (d) the absence of professional attendance at times of delivery and (e) the high infant mortality.

### B. Dysnutrition

The existing health problems in Panama are aggravated by the low nutritional level of the population which impedes the growth of a large portion of the children and significantly alters the productivity of the work force. Roughly 18% of the population is undernourished: 60% of the children under age five show protein-calorie malnutrition. Growth retardation is of one to two years for the average Panamanian child for both height and weight. The level of nutrition augments the severity of the prevalent problems of childhood diseases, enteric afflictions, and the complications of pregnancy<sup>1/</sup>.

The causative factors in dysnutrition are a food supply inadequate to meet the needs of the body, resulting in primary malnutrition and disease which increases metabolic requirements, resulting in secondary malnutrition. The latter is best corrected

1/ Synclisis p.23

by prevention and treatment of the underlying disease process, e.g. installing a potable water system while simultaneously correcting the dietary deficiency. The former, primary malnutrition, occurs partly because total availability of nutritionally required foods is insufficient in Panama. However, this malnutrition is also due to a number of contributing socio-economic factors which hinder adequate distribution and consumption of food.

Although agricultural production has increased in recent years, it has not done so on a per capita basis. Those increases which have occurred have been in the export area and have not contributed to improve nutrition. Food imports have risen, but such imports rarely reach the rural areas or the lower income levels of the population. Panama suffers not only from shortages in total agricultural production but from the under-production of human foods with the highest nutritional values as well as of feed grains needed to increase the production of animal protein. These problems are increasing by lack of purchasing power, poor transportation, and the lack of knowledge of proper nutrition.

In addition, the relationship of malnutrition to enteric infections is a vicious cycle. The enteric afflictions themselves cause and intensify the malnourished state by means of malabsorption, altered food consumption, fluid losses and increased metabolism. It has also been demonstrated that in malnourished populations, children especially suffer a far higher incidence of enteric disorders presumably because of lowered resistance. Improving nutrition should be connected with improved sanitation to eliminate the secondary malnutrition caused by disease.

This assessment of the nutrition problem in Panama is supported further by the study performed in 1969 by the Institute of Nutrition of Central America and Panama (INCAP) entitled Nutritional Evaluation of the Central American and Panamanian Population. Its conclusions are contained in Annex IV-3.

### C. Lack of Sanitation

The rural areas suffer severely from lack of proper sanitary facilities, particularly water and waste disposal facilities. While 100% of the urban population have some access to a potable water

supply, with 84% of these having home connections, only one-third of the rural population have any access to a potable water supply system. The result of such poor sanitary facilities are enteric infections carried by contaminated water and food and intestinal parasitism. As noted above, enteric infections further complicate the marginal nutritional status of many in the population, by causing secondary malnutrition. Due to successive infections throughout a lifetime the population may never realize its full potential. The prevalence of the diseases relates directly to the sanitary status of the environment. Prevalence of parasitic infections further burdens the already debilitated state of the population. The end result of this is manifested in excessive childhood disease and death, poor growth and development and ultimately decreased intellectual and physical capacity of the population.

### 3. Evaluation of Prior Assistance

External assistance to Panama in the field of Health and Population has been received from AID, IDB, UNICEF, PAHO and WHO. Assistance has been in the form of loans, grants or technical assistance for rural mobile health clinics, rural water systems, malaria eradication and family planning programs throughout the Republic.

Specifically, the assistance from A.I.D. has been as follows:

#### 1. Loan-Rural Mobile Health Program (PUMAR)

The Rural Mobile Health Program (PUMAR) is an integral part of the Rural Health Service Plan adopted by the Government of Panama. Its objective is to provide, through equipping staffed mobile dispensary units, medical attention as well as certain sanitary and social services to scattered small communities in accordance with a regularly scheduled itinerary. The PUMAR loan and specific GOP contributions are programmed over a three-year period, as shown in the following budget:

	<u>CY 1970</u>	<u>CY 1971</u>	<u>CY 1972</u>	<u>TOTAL</u>
A.I.D.	\$ 250,000	\$ 150,000	\$ 100,000	\$ 500,000
BORROWER	350,000	350,000	300,000	1,000,000

In addition to the above, rural communities have contributed the equivalent of \$120,000 over the loan period to date. A.I.D. funds are being used to finance commodities such as land vehicles, boats, spare parts, and medical equipment and supplies. The loan provides for the rehabilitation of two excess property sea-going vessels to provide health services to coastal and river villages inaccessible by road. In addition to its promised contribution, a 33' excess property launch has been repaired by the Ministry and is serving sea-coast villages near Panama City. All land vehicles have arrived and are now assigned to their rural operating areas.

All terms of the Loan Agreement are being followed and the project is proceeding on schedule. It is estimated that about 300,000 people are being reached by this program.

Project implementation is termed "horizontal" by the MOH indicating complete decentralized administration of its activities. Vehicles are assigned directly to local health districts for the purpose of extending the reach of existing health workers so that all possible communities may be included in MOH programs. To date, about 20 additional vehicles have been purchased by Community Health Committees from Panamanian funds to augment project activities beyond the original goals established under the loan agreement.

It may be said that the PUMAR loan has facilitated initiation of much of the community-MOH collaboration that is now so evident in rural Panama.

2. Grant No. 525-15-580-142 - Health & Population

The ultimate objective of this project is to assist Panama in achieving a population growth rate that is consistent with the country's potential for development of its resources. Panama's current population is estimated at 1.4 million, with a natural growth rate of approximately 3.3% annually. The MOH plans to provide family planning services to 15% of the country's fertile females by the end of CY 1975 .

AID's assistance for family planning activities has been in effect since 1968. During 1968 and 1969 approximately \$350,000 was given by AID to a voluntary family planning association in Panama (APLAFA). Commencing in 1970, the MOH assumed full responsibility for the promotion and provision of family planning services within the Republic. AID's contributions in FY's 1970, 1971 and 1972 have been \$275,000, \$670,000 and \$615,000, respectively. An incremental approach is being used in AID's support to the MOH, permitting more flexible use of their own budget. Thus, AID is also assisting in augmenting production of health educators, auxiliary nurses, and nurses required for program expansion. Production of the latter two categories of workers will soon be tripled as a result of AID/MOH program collaboration.

At this time, the MOH is offering family planning services at 48 of its 64 health centers. Popular response has been quite favorable.

Mass-media promotion of family planning has been undertaken since 1971. Radio, TV and press have been extensively employed. A survey of commercial contraceptive sales in Panama disclosed considerable carry-over of MOH promotional efforts into the private sector. It was estimated that about 300,000 cycles of anovulatory pills are sold annually with this market expanding about 10% to 20% each year. To date, no significant opposition to Family Planning has developed on either religious or political grounds.

It is worth noting that the MOH emphasis on improving the quality of human life has borne benefits relating strongly to population matters. The demand for family planning services has followed closely the awakening of public consciousness to nutrition, food production, and environmental considerations presently engendered by MOH community education activities.

3. Loan No. 525-L-023 - Malaria Eradication

The purpose of this loan was to assist the GOP to conduct a three year intensified malaria eradication program consisting of house spraying and mass medication. A total of \$1,440,000 in USAID loan funds was involved. Implementation was in coordination with a regional Central America malaria program. UNICEF and PAHO were co-contributors to this project. AID support of the GOP Servicio Nacional de Erradicación de la Malaria (SNEM) terminated on December 31, 1971, and disbursements were completed by February 1972.

Progress was made in confining malaria to six limited areas of persistent transmission at the close of the three year period 1969-71. Initially, malaria had reached a prevalence of 6,000 cases in 1969. During 1971 only 1000 cases were detected. At present, malaria control efforts continue with GOP CY-72 allotments now increased by \$500,000 annually to replace equivalent USAID loan inputs now phase out.

Budgeting was as follows: (1000 dollars)

	<u>CY-69</u>	<u>CY-70</u>	<u>CY-71</u>	<u>TOTAL</u>
GOP	677	738	738	2,153
AID-Loan	222	527	691	1,440
UNICEF	153	154		307
PAHO	105	98	92	295
TOTAL	<u>1,157</u>	<u>1,517</u>	<u>1,521</u>	<u>4,195</u>

## **B. Sector Institutions**

### **1. Executing Agency**

The Ministry of Health (MOH) is the organization which has developed and will administer this project. At the present time, the GOP is investing 17% of its budget for ordinary government expenditures in the MOH, an annual expenditure exceeding \$25,000,000. The MOH employs 6,047 personnel consisting of approximately 500 doctors, 500 nurses, 60 dentists, 12 sanitary engineers, 25 nutritionists, 1000 auxiliary nurses, 28 health educators and other support personnel. These personnel are well trained, enthusiastic and well led. The Minister of Health, Dr. José Renán Esquivel, is dynamic, imaginative and hard-working.

Under his leadership the MOH is carrying out an innovative approach to public health which involves far-reaching changes in the Ministry's policies, functions and structure.

The approach deemphasizes curative medicine at the hospital level and emphasizes preventive medicine at the community level. To carry out this new approach the MOH has decentralized its health services; transferred personnel and resources from headquarters in Panama City to small health centers scattered throughout the country in both rural and urban areas, and has transferred administrative responsibility for these efforts to 3 regional centers which in turn administer a total of 18 districts. Each region has a decentralized health administration headed by a regional health committee. The Director is responsible for all activities and programs within his region and operates under direct authority of the Directorate General of Health. Decentralization of health services has been further developed through creation of 71 Community health centers, which are providing a full range of public health care, and 140 sub-centers with more limited facilities.

The new organizational profile of the MOH has been developed utilizing the CHC as a basic, but unpaid element of the MOH Health Program. Much of the fiscal and operational administration of all Health Centers is entrusted to the Community Health Committees. District and Regional Federations of Health Committees parallel and collaborate with MOH bureaus of these levels. Additional

information concerning the key role of the CHC may be found in the project description.

With the expansion in the coverage of health services the shortage of personnel has become more serious, particularly in the rural areas. Resources to hire additional personnel have been requested from the Planning Office of the GOP in addition to upgrading personnel on board. The MOH has placed particular emphasis upon increasing their training programs at all levels in order to prepare the human resources required, in quantity and quality, for the development of the health program. 35 courses of training have been developed including training for nurses aides, laboratory technicians, health inspectors, mid-wives and others totaling 1,385 persons.

The shortage of nurses has been of particular concern to the MOH and to alleviate the problem a second nursing school has been developed at the intermediate level which will graduate 100 nurses annually beginning in 1974.

A group of 20 new Health Education Auxiliaries are now completing their 6 month training course. Heavy emphasis has been placed on organizational skills and applied nutrition including basic instruction in agriculture. The production of nursing auxiliaries has been increased with USAID assistance to about 180 annually from a low of 50 graduate in 1969. In their training, emphasis has been re-directed from hospital care of the sick to community medicine in the field. All these workers are destined for regional and local assignments. In addition, new legal and administrative methods have been instituted to obtain better use of the resources available.

It is our judgement that the Borrower, with the addition of the extra personnel and resources requested, possesses the physical and human resources necessary to carry out this project successfully.

## 2. Institutional Coordination

The concept of Community Medicine adopted by the Ministry of Health, has presented opportunities for significant cooperative activities with other public and private, national and international agencies which those agencies have seized upon.

For example, UNICEF is presently involved in both a regional development plan for three areas of the Central Provinces, and the provision of a number of small diesel cultivators to the MOH for several nutrition projects. These inputs are described at length elsewhere in this paper.

Both the Panamerican Health Organization and the Instituto de Nutrición de Centro América y Panamá (INCAP) have participated in MOH planning and programming with technical advice and participant training. Nutrition advisors from both sources visit Panama periodically.

The Ministry of Education has worked cooperatively with the MOH in the school feeding program which employs PL 480 commodities to serve milk and other foods to about 225,000 primary school children annually. The Health & Hygiene Section of the MOE has been working with the Nutrition Section of the MOH to arrange for inclusion of pre-schoolers in this program. The MOH teachers are also being trained to teach hygiene subjects by the MOH.

During 1971, over 1,200 teachers attended seminars presented jointly by MOE and MOH on the subjects of school health, nutrition, sex education, and environmental sanitation. Individual school teachers of localities where health committees have been formed, are participating actively as citizens and community leaders in all aspects of the Community Medicine Program. School buildings are almost invariably used as public meeting halls for these efforts.

Environmental sanitation, and especially potable water supply, has been of cooperative interest to several GOP agencies. The Instituto Nacional de Acueductos y Alcantarillados (IDAAN) and the MOH have divided their labors in accord with population data. Towns

with under 500 inhabitants are the responsibility of the MOH with the remainder depending upon IDAAN. IDAAN is responsible, operationally, for control of water quality and the regulation of waste disposal while MOH jurisdiction extends to the inspection and control functions. Urban sanitary inspectors of the MOH work with IDAAN on garbage disposal, plumbing inspection, and other sanitary problems.

A written agreement now exists between the University of Panama and the MOH covering the training of medical students in "all aspects of community health". In addition to clinical practice experience, this activity involves participation of students in local health seminars, neighborhood medical care programs, environmental sanitation, and nutrition projects. The MOH/U of Panama agreement is being extended at this time to include significant collaboration in the preparation of graduate nurses for community medical practice.

Discussions are continuing between the Rector of the University and the Minister of Health, to define other areas of mutual concern where collaboration would be of benefit. Specifically, the opportunity for social science students to participate in community health projects is being analyzed.

Agreement has been reached with the Vice-Dean of Agronomy of the University of Panama, that senior agricultural students may spend a period of three or four months with a community nutrition/garden project in lieu of writing a thesis. This experience would be supervised by the University, in collaboration with the MOH, and would have as its objective the investigation and perfection of crops and techniques suitable for various zones of rural Panama. This would link the research efforts of the University scientists with the practical necessities of rural life.

The Faculty of Agronomy is also cooperating in MOH nutrition activities through the School of Home Economics. Food preparation sessions have been held by faculty and students for the education of village women where community garden plots have been or might be instituted. In addition, family planning training has been

Included into the Home Economics curriculum, which will result in expanded promotional efforts in rural areas upon graduation of the students as extension agents.

The Divisa Agricultural Institute is already offering community-level training to Health Committee members in various one week courses that include rabbit raising, bee keeping, and poultry.

Relations between the Ministries of Health and Agriculture have been supportive. To date, over 7,000 grafted fruit trees have been supplied by the MAG for planting by Community Health Committees. As always, the purpose of this donation was not commercial production of fruit, but rather, the stimulation of interest in having adequate food supplies of good quality at hand in rural areas. Most villages surveyed by MOH teams have only poor quality trees grown from seeds acquired casually. Agricultural Extension activities have now been directed principally toward "Asentamiento" projects. As a result, workers are not available from the MAG for meaningful collaboration with community garden efforts.

In view of Mission small farmer improvement activities, a desirable effect of this Health/Nutrition project would be the initial stimulation and instruction of marginal farmers to adopt modern agricultural methods and provide practice in their use as a necessary preliminary step in advancing to the level where a farm improvement loan might be of use. The soils laboratory of the MAG has been used continuously since initiating of the community garden project in the routine processing of soil samples from community plots.

The commercial sector has shown some interest in this project as evidenced in the donation of small diesel tractors by local businessmen and the awakening interest of agricultural equipment dealers in fertilizer chemical and seed demands being generated by public education in their use. Several thousand day old chicks have now been donated to health committees by one supplier as a test project.

### SECTION 3 - SECTOR STRATEGY

#### A. Sector Goals

##### 1. Policy Goals

The broad policy goal of the Health Sector is to provide complete health care to the largest possible portion of the population in order to avoid preventable deaths and illnesses, and thus allow for the full development of the individual. The supporting sub-goals which the MOH has developed are: (1) implementation of a policy of decentralization of health services to bring more service to more people; (2) a more efficient use of available health resources, primarily through greater mobility of medical and para-medical personnel; and (3) the development of a comprehensive rural health program that concentrates on improving the environment as a fundamental pre-condition to improving health.

These goals all involve a deemphasis of curative medicine and emphasize teaching the population ways to improve their environment to avoid sickness, and to find local solutions to the problems associated with maternal and child health, family planning, water supply and sewerage, malnutrition, and malaria eradication. This loan is designed to provide the GOP with additional financial and technical resources required to proceed with their ongoing program of decentralizing health services through the further development of a regional framework of Community Health Committees. Other specific sector objectives and necessary actions for their achievement are listed below.

##### 2. Priority Objectives

The priority objectives for the sector as formulated in the National Health Plan of 1962-1970 and re-affirmed in the Four Year Program 1971-1974 are as follows:

- a. Administrative and technical reform as well as improved health planning procedures should be affected, and the GOP should broaden and strengthen health services for both the urban and rural population by improving efficiency and emphasizing prevention of disease.

- b. Community Health Centers should be developed as primary sources of care, with emphasis on preventive services and family planning services, and should be integrated into a national program of decentralized health care.
- c. Community Health Committees should be organized in the rural communities to examine local health and nutrition problems, and to stimulate, organize, and direct community action programs to improve the quality of rural life.
- d. Health care should be expanded through a Rural Mobile Community Medicine program (PUMAR) which will include (1) maternal and child health care, (2) immunization and malaria control, (3) sanitary education, (4) nutrition education and (5) family planning services, on a regular basis to isolated rural communities.
- e. A five-year malaria eradication program should be implemented.
- f. Low cost housing construction and slum clearance should be undertaken, especially in Panama City.
- g. Sanitation services (water and waste disposal) should be improved, and planning for future growth should be initiated.

## B. Actions to Achieve Objectives

### 1. Actions Taken and Proposed

- a. In January 1969, the Ministry of Labor, Social Welfare and Public Health was divided into a Ministry of Health and a Ministry of Labor and Social Welfare. The MOH is now responsible for the promotion and protection of the country's health through the formulation of health plans, the implementation of health programs, and for coordinating their activities with those of other

agencies involved in health related activities such as the Social Security Agency, (CSS), the National Water and Sewerage Authority, (IDAAN), and private autonomous agencies. The MOH has been able to successfully organize health planning activities which support and supplement CSS and IDAAN programs.

- b. The country has been divided into three "sanitary regions", each of which is composed of several health areas. Each region has a decentralized health administration headed by a regional director advised by a regional health committee. The Director is responsible for all activities and programs within his region and operates under direct authority of the Directorate General of Health.
- c. Decentralization of health services has been further developed through the creation of 45 community health centers which are providing a full range of public health care. Additional health centers are being constructed/renovated at a rate of 15 per year with AID grant assistance.
- d. On December 29, 1970, Cabinet Decree No. 401 approved the legal structure for a National System of Community Health Centers, which formalized the practice of community participation in rural health programs. There are presently ~~700~~ organized Health Committees of which ~~360~~ have obtained Personerfa Juridica which, in effect, gives them corporate status with all the rights and obligations of a corporation. These committees have been organized to examine the health and nutrition needs of the community, to motivate the people to improve their environment and thus prevent disease, and to direct community participation in current and proposed MOH rural health programs. A major purpose of the proposed Health and Nutrition loan will be to further strengthen the organizational framework of the

Community Health Committees, and to make them more responsive to the needs of the rural population.

- e. A rural mobile community medicine program, (PUMAR) assisted by an \$500,000 AID loan, is currently underway. The program has been expanded over original plan and provided additional GOP resources. It is bringing health services to isolated areas which have heretofore been denied even minimal health care.
- f. An expanded malaria eradication program was undertaken in 1968 with AID assistance, and is continuing with apparent success. During the three years that this program has been in effect, incidence of malaria has been reduced from 6,000 to 1,000 cases per year. This program is now being continued with GOP funding.
- g. An AID low cost housing loan has been recently authorized which will assist the GOP to meet the requirements of population growth through low cost urban and rural housing construction, and thereby alleviate urban slum conditions.
- h. In 1967 the Ministry of Health cooperated with the Institute of Nutrition of Central America and Panama (INCAP) and the U.S. National Institute of Health in conducting a national nutrition survey. This survey subsequently identified protein-calorie malnutrition in the population under 5 years as a significant problem. There was also a high prevalence of endemic goiter and vitamin A deficiency. The present applied nutrition program covers approximately 120 rural communities, and coordinates the nutrition related activities of the Ministry of Health with the Ministries of Agriculture and Education. It also distributes food supplies through the Care and Catholic Relief Services programs. The proposed loan is designed to develop a nutrition-oriented manpower force

among the rural population through health and nutrition education and the organization of community gardens, to promote coordination and cooperation among the various agencies involved in this sector, and to improve the efficiency of supplying health services. In addition, MOH will assist communities with under 500 inhabitants to secure a potable water supply. Approval of this loan will enable the Ministry of Health to develop further, their programs of decentralization of health services, and to provide more comprehensive health programs which will be responsive to the needs of the rural areas.

### C. Sector Relationships

#### 1. The Role of Various Agencies Involved in the Sector in Achieving Sector Objectives

The impact of health on all sectors of the Panamanian economy is the major factor in determining economic growth and realizing the human potential of the population. Programs directly affecting the health sector emphasize problems of population, malnutrition, rural health services, organization of health services, water supply and sewerage, health planning, and tuberculosis and malaria control. However, successful implementation of these programs necessitates coordination with other sector agencies because programs in those sectors (i.e. agriculture, education, etc.) also relate to the eventual level of health and the quality of life in Panama.

- a. Direct support for the health sector comes from the Social Security Agency (CSS) which provides a significant amount of curative health care. This agency operates autonomously under the Ministry of Labor and Social Welfare. The Social Security Agency operates General Hospitals in Panama City, Puerto Armuelles and Almirante and several polyclinics in the Republic. It also provides financial benefits for old age, invalidity, death, sickness, maternity and work injuries. On July 1, 1970, coverage was extended to all the districts to include approximately 60% of the working force population.

- b. The National Water and Sewerage Authority is another health related autonomous agency. All funds of IDAAN are listed as health sector expenditures in the National Budget because 50% of the water supply and 80% of sewerage expenditures are directly linked to the health status of the population. The Minister of Health is President of Board of Directors of IDAAN. IDAAN efforts to provide potable water are limited to the urban sectors and to rural localities of more than 500 people. The proposed loan will provide funds to MOH to provide potable water services to populations under 500 and thus augment the IDAAN program.
- c. The Malaria Eradication Program, operated by SNEH, started its first DDT spraying cycle in 1969 with assistance from AID. In addition, intensive screening and mass chemotherapy activities have been extended into the provinces and it is now apparent that the malaria control program has achieved positive results.
- d. Additional funds for health care are provided from the communities. Law now requires that 5% of Municipal budgets be spent for health care. Other sources of assistance include funds generated by local Health Committees, voluntary help contributed by citizens in their communities, and external financial and technical assistance provided by international organizations (A.I.D., UNICEF, PAHO, IDB, CARE, CRS). These programs are summarized in Table A on Page 85.

## SECTION 4 - LOAN ADMINISTRATION

### A. General Guidelines

Under the new decentralized system the MOH has been organized into a central headquarters with staff functions and a local executive level with operational responsibility. The local executive level is composed of the east, central and west regions, and the metropolitan area. Each of these four units is a separate entity administered by a supervisor answering to the Director General of Health, and ultimately, the Minister. The MOH has transferred personnel and resources from Panama City headquarters to the field and transferred responsibility for their utilization to regional supervisors. The Community Health Program is administered mainly by the three regions. Additional personnel are assigned at staff level for backstopping, but the majority of community contacts are made by personnel assigned to the regions.

At the Community level all portions of the program will be coordinated with the CHC. Health Services, Community Gardens and Water Supply all require the active participation of the community in order to carry out the program. Securing this participation is the responsibility of the CHC.

Procurement of the equipment, vehicles and supplies required for project support will be carried out by the Procurement Division at MOH headquarters in conjunction with the administrative office of the section responsible for utilization of the item ordered. Basic equipment for the water supply project and vehicles to be used in all phases of the project will be ordered at the outset, as will a portion of the agricultural supplies. The remaining supplies and equipment will be procured as the project develops based upon semi-annual project evaluations.

### B. Administrative Provisions and Responsibilities

1. Project Management will be carried out by personnel from the MOH working at the community and district level and assisted by the CHC's. The MOH provided adequate support for the AID financed PUMAR program and

The successful ongoing operation of its community garden and water supply program are strong indicators that they are capable of providing equally good management for this extension of their program.

2. Technical Assistance will be provided through contractual arrangements with private firms, universities or individuals. It is intended to contract three to six man years of technical assistance in tropical horticulture, and shorter temporary assignments in other agricultural fields and environmental health. The monitoring of the implementation of recommendations will be the responsibility of the MOH.
3. Loan Disbursements will be made through letters of credit, direct disbursement to the MOH or establishment of a revolving fund. It is estimated that the loan will be fully disbursed by December 31, 1975.
4. Procurement of the equipment, vehicles and supplies required for project support will be carried out by the Procurement Division at MOH headquarters in conjunction with the Administrative Office of the section responsible for utilization of the item ordered.

Immediately upon issuance of the first Letter of Implementation, the procurement manual orders, M.O.'s 1442.1, 2 and 3 will be discussed in detail with the MOH procurement and administrative staffs and our requirements explained and incorporated into their procedures.

5. Fiscal Control of loan funds will be the responsibility of the MOH and audit and review of activities will be carried out by the USAID Controller, the GOP Controller General and ultimately audited by AID's Regional Audit staff.

6. Construction of the Water Supply portion of the project will be undertaken by the MOH. It shall submit to AID for approval its proposed program and the general designs prior to construction of the 200 rural aqueducts. AID shall also review on a semi-annual basis the completed projects. No construction is contemplated under the Health Services portion of the project.
7. Maintenance and Operation of the vehicles and equipment will be the responsibility of the MOH. Maintenance and Operation of the water supply systems after construction will be the responsibility of the CHCs. The MOH has an efficient vehicle and equipment maintenance program in operation.
8. USAID Monitoring Responsibilities - The Chairman of the USAID Project Committee, who is the Chief of the Health and Population Division, will have primary monitoring responsibility. This responsibility will entail the receipt and initiation of all correspondence with the Borrower on matters of execution, compliance with the Loan Agreement, issuance of Letters of Implementation, and approval of progress reports. The USAID Engineering Division, and the USAID Capital Development Division will assist in monitoring activities appropriate to their fields of competence and responsibility.
9. Programming, Evaluation, Implementation and Research
  - A. Programming

During the final quarter of CY 72, to coincide with preparation of the GOP CY 73 budget, a meeting will be held between representatives of USAID/P, the Director General of Planning, MOH, and other concerned Ministries and Agencies to establish the Community Health and Nutrition Program for 1973. The number of garden plots to be established, personnel to be hired, scheduling of visits, and timing of inputs will be determined to the mutual agreement of all parties participating.

It is understood that the CY 73 program will consist of: {A} the 70-75 communities already organized but that have not received controlled agricultural inputs to date, and {b} up to 100 additional communities that will be organized for inclusion in the program during the course of the year.

During this programming process there will be established input and output goals that will be reviewed at semi-annual implementation review discussions. This meeting will also provide an opportunity for identifying and arranging areas of inter-agency cooperation within program activities.

Another such meeting will be held in the fourth quarter of 1973, keyed to the preparation of the GOP CY 1974 budget year to program and plan the project and to evaluate the proceeding year's effects including success and failure in achieving input and output. The same process is again repeated toward the end of 1974 for the 1975 program and a final evaluation session will be provided for in the implementation evaluation plan called for in the Loan Agreement.

#### B. Evaluation

At the first Program and Evaluation Meeting, an analysis will be conducted of the initial 73 nutrition programs that have been established to date. These 73 activities have been conducted on minimal inputs with irregular programming. Necessary scheduling of regular visits and commodity support will be established. Twelve months later all projects will be evaluated examining the results of goals determined during the feasibility meeting.

#### C. Implementation

Between annual Program and Evaluation meetings there will be semi-annual implementation meetings limited to USAID and the MOH. These are designed to review procurement and distribution of commodities and personnel required for proper administration of the program. A review of engineering designs, maintenance, warehousing and delivery, scheduling of activities, and compliance with terms of the loan agreement will also be carried out at these meetings.

D. Applied Research

The annual Program and Evaluation Meeting will provide an opportunity for the Ministry of Agriculture and the Faculty of Agronomy of the University to plan and follow-up research programs developed among the field activities of this loan for the training of students and varietal crop trials.

10. Targets

A. During the initial Program and Evaluation meeting, project sites will be established and targets defined to gauge project progress. Illustratively, such targets would be based on but not be limited to the following considerations relating to inputs and outputs:

1. Inputs

- a. Number of new Nutrition projects to be established, their location, size, organizational status, and scheduling of inaugurations during the coming 12 months.
- b. Number of families and people participating per plot or project.
- c. Commodity input types and quantity for each project including both expendable and non-expendable items and equipment.
- d. Schedule of visits by all categories of MOH and other personnel.
- e. Man hours of work and nature of work and monetary contributions by each community collaborating in rural aqueduct program.

2. Outputs

- a. Record of visits and activities performed.
  - {1} Medical consultations
  - {2} Seminars, conferences, and courses conducted in community.
  - {3} Vaccinations
  - {4} Nutrition support including agronomy and education {nutritionists, home economists}.

b. Types of vegetables or animals raised; quantity produced per crop and year by site. Basis of distribution or produce.

c. Establishment of 200 rural aqueducts.

d. Establishment of not less than 900 hand pump wells.

e. Self-sufficiency - All established nutrition projects will be reviewed both annually and semi-annually for determination of progress toward self-sufficiency. Sources of private and public loan financing as well as income from cash sales of produce will receive particular attention.

B. A baseline community health survey will be conducted in each site selected for participation in the Nutrition Project. Data concerning health and nutritional status, demography, social factors, and environmental sanitation will be collected and compared with similar data obtained three years after establishment of each project. Significant changes in these areas will be noted and correlated where appropriate with project inputs. The community as a whole will be surveyed with particular attention given to families cooperating in garden projects.

C. Conditions and Covenants

In addition to the standard conditions and covenants the following will be included in the Loan Agreement:

1. As a Condition Precedent to Initial Disbursement:

"The Borrower will submit, in form and substance satisfactory to A.I.D., an implementation and evaluation plan which will include but not be limited to:

{a} Provision for joint USAID-MOH semi annual reviews of the project covering targets, progress against targets, budgetary requirements and provisions, procurement activity and coordination with and support from other GOP, private or international agencies.

{b} Plans for coordinating the activity of other GOP agencies related to the program."

The other agencies referred to in the condition would include among GOP agencies IDAAN, Ministry of Public Works, the University, the Social Security Administration, and the Ministry of Agriculture. Private agencies would include CARE, CARITAS, the Deveaux Foundation or similar local or international groups. The international agencies would include UNICEF and PAHO.

2. The Government of Panama will be required to agree in the Loan Agreement to a covenant reading approximately as follows:

"The Borrower agrees to consult with A.I.D. at least semi-annually on the execution of the implementation and evaluation plan submitted as a condition precedent to first disbursement under this Loan with particular regard to the planning, programming, personnel, and budget support for execution and evaluation of the individual nutritional and environmental sub-projects financed under the loan."

D. Loan Implementation Schedule

On the assumption that the loan will be authorized in October 1972, the following implementation schedule is proposed:

1. Loan agreement negotiated and signed - November 1972
2. Evaluation planning meeting - November 1972
3. Seventy-three existing nutrition projects reviewed  
Implementation plan approved.
4. Conditions precedent fulfilled - early December 1972
5. Initial disbursement -- early January 1973
6. Semi-annual implementation review meeting - June 26, 1972
7. Programming and evaluation review meeting - November 1973
9. Semi-annual implementation review meeting June 1974.
9. Programming and evaluation review meeting - November 1974
10. Semi-annual implementation review meeting - June 1975
11. Programming and Evaluation Review Meeting - November 1975
12. Terminal commitment date - January 1, 1976.
13. Terminal disbursement - June 30, 1976
14. Final programming and evaluation review meeting - June 30, 1976

### Survey of 21 Community Garden Projects

The Ministry of Health program to assist local community health committees develop as strong, viable institutions, capable of representing the needs, desires, and organized health efforts of rural communities is part of a national policy to decentralize health care with the emphasis on preventive medicine.

As part of this program, 21 communities are already taking part in a pilot community garden program designed to resolve nutritional deficiencies which have been determined by a national nutritional survey and additional surveys of each community. The participating communities have been provided with a diesel cultivator, seeds, fertilizers, and insecticides; they have also received agricultural technical assistance to effectively produce nutritional foods.

The evaluation of these 21 pilot projects will focus on the rationale for the program, its present organizational structure, project administration, the receptivity of the people, the impact of project on the communities, the reasons for individual community successes or failures, and the capability of the Ministry to administer an expanded program of this nature.

#### Rationale

The rationale for this program can be viewed from both a health and sociological standpoint.

Seventy per cent of the rural population in Panama consist of subsistence farmers who are still using traditional, primitive agricultural techniques. Most of these farmers use a slash and burn method of agriculture, and plant by making small holes in the soil

with a sharp stick and then placing seeds into them. This method of farming is obviously inefficient, and produces an average annual yield of only 500-700 lbs of corn or beans per hectare, compared to 3500 lbs that is being produced using improved methods. Because proper fertilizer and soil management methods are not used, nutrients in the soil are quickly dissipated. The subsistence farmer is thus able to produce an ever diminishing quantity of staple crops during a 3 year cycle before the land becomes barren. He then relocates and begins another cycle. This method of farming is becoming more difficult to maintain due to the burgeoning population growth and the increasing scarcity of virgin farming areas. It also destroys the ecological balance and after years of this type of farming whole areas become infertile, as has the Azuero Peninsula. Thus, some campesinos have been forced to migrate into the Darien and other isolated areas in search of available public land. Other campesinos have migrated to the cities, possessing relatively few employable skills, and have become part of the high urban unemployed population.

Because of the traditional isolation of the campesino caused by poor means of communications it has been difficult to provide him with adequate health care, and most of the people suffer in varying degrees, from malnutrition and other debilitating diseases. In the past, whatever medical treatment had been given to these communities was provided on a one shot basis with little or no follow up care. There were practically no effective programs in community health education and thus, people remained ignorant of disease prevention concepts.

Ministry of Agriculture programs deal primarily with the commercial cultivator, and until recently rarely reach the level of the strictly subsistence farmer. In fact, MAG's few agriculture ex-

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tension agents are working only with the Asentamientos. As a result, the subsistence farmer has not been exposed to modern farming techniques, nor is he accustomed to the idea of farming one piece of land on a permanent basis. The campesinos are also understandably skeptical when told that yields for corn can be 3,500 lbs. per hectare compared to their current yields of 500 lbs. They are unwilling to try new methods on their own plots because they are at least assured a subsistence level of production with their old method, whereas the new methods for them are still unproven and may produce nothing. However, they have been receptive, in the 21 communities studied, to utilizing new techniques in a community garden. Their interests in the gardens are three-fold:

- 1) To produce more nutritious foods (i.e., vegetables) in order that deficiencies determined by the nutrition analysis made for that community can be overcome.
- 2) To utilize the garden as a model. If the garden produces higher yields at a cost less than the current market prices for these commodities using the modern techniques suggested by the MOH agronomist, then the individual farmer will be able to transfer the first hand knowledge he has gained to his own plot.
- 3) To obtain additional income from the sale of crops grown in the garden in order to supplement production from individual plots. Proceeds from the sale of agricultural commodities that are excess to the community's needs can also be retained by the Health Committee to be used later in community development projects such as fish ponds, rural roads and bridges.

#### Organization of Program

The community garden element of the rural health and nutrition program is still in its initial stage of development and at present has no specific MOH funds allotted to it. Pilot communities have

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EXHIBIT 1  
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been receiving technical assistance from the MOH through an increasingly developed framework of four agronomists, 20 health education aides, and 11 nutritionists. Of all tractors supplied to date, 32 have been provided by a private Panamanian philanthropy, the Deveaux Foundation, and by individual private citizens and institutions. The seeds, fertilizers, and insecticides, have been provided by CARE and from the Deveaux Foundation.

However, from the Minister on down, the MOH realizes that the community gardens are an integral part of a community health program which demands the coordinated action of the various departments within the MOH. Therefore, planning, supervision and implementation activities related to this project are not the exclusive responsibility of the Department of Nutrition. In reality, such functions are coordinated and shared with the Departments of Community Medicine, Maternal and Child Care, Adult Health, and Environmental Sanitation. Operationally, the specialists (i.e., agronomists, nutritionists, and Health educators) that are directly related to this project are organized under the Directorate for Special Technical Services, a dependence of the Director General of Health. Thus, at the working level, the following professionals are associated with the pilot community nutrition projects:

- 1) Chief of Nutrition Department - is responsible for overall policy guidance and administration.
- 2) Assistant Chief of Nutrition Department - a nutritionist, she serves as a supervisor and advisor on the nutrition elements of the project.
  - a) Metropolitan Nutritionist (1) - Works mainly on executive and administrative matters in the Metropolitan Region.
  - b) Regional Nutritionists (3) - Work in the three health regions, organizing and directing nutritional diagnostic activities in the communities within their areas of responsibility.

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- c) District Nutritionists (7) - Work in the following health districts: Colon, La Chorrera, Panama, Los Santos, Santiago, David, Darien.

Note: The three health regions are subdivided into 18 health districts which are further divided into sectors, each of which has a community health center. The district nutritionist, who is located in one of the major health centers of that area, is responsible for working with both the individual sector health centers as well as determining nutritional requirements in the rural areas. She also conducts seminars, presenting to the local communities their nutritional profile, advising them of deficiencies and subsequently, suggesting the type of crops that should be grown to satisfy nutritional requirements.

- d) Internal Nutritionists (2) - To operate in the various health areas in order to assist ongoing nutrition activities on a temporary basis.

- 3) Coordinator of Agricultural Projects - An agronomist, supervises and coordinates agricultural analyses of community land, administers soil testing activities, directs technical assistance activities and is responsible for the distribution of equipment and materials to the local communities.

- a) Agronomists (3) - Work directly with the 21 pilot community gardens, take soil samples which are then analyzed by the soils laboratory of MAG and explain agriculture techniques to the community such as the use and maintenance of the tractor. They also educate the community in the use of seeds, fertilizers and insecticides, determine what crops can be planted in the area, and perform general agricultural technical assistance duties on a regular basis.

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In order to study the administrative aspects of this program more thoroughly, as well as to obtain a general overview of attitudes and the impact of the program on the communities involved, a detailed analysis of a typical community can be made. This analysis of the community of Cerro Cama will involve a description of the town's history including events leading up to the initiation of the project, and will involve an examination of nutritional problems, and what was done to alleviate them.

This section will also explore attitude changes as a result of the community garden experience, and investigate the economic justification for the project.

It must be noted that the community garden in Cerro Cama, which was the first of 21 communities to participate in the pilot program is only 10 months old. In fact, 10 communities have received tractors less than 6 months ago. Therefore, a detailed analysis of many of these communities is impossible simply because there is little to evaluate in terms of concrete results. Cerro Cama, has the distinction of completing one full planting season, and has started a second. For this reason primarily, it has been chosen for close scrutiny.

Cerro Cama<sup>2/</sup>

In May, 1972, doctors of the Tuberculosis Hospital in La Chorrera district noticed that a disproportionate number of patients were from the community of Cerro Cama. It was further observed that many patients from this community were suffering from major nutritional deficiencies.

A visit by a Rural Mobile Health team was subsequently made to Cerro Cama and a nutritional analysis was made of the entire community of 470 people.

<sup>2/</sup> See Annex IV Exh. 2 for general background information on Cerro Cama.

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ANNEX III

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JURIDICAL STATUS OF HEALTH COMMITTEES

CABINET DECREE No. 401  
(Of November 29, 1970)

By which the Health Committees are constituted within the communities, their objectives are defined and their functions are coordinated and integrated into the Ministry of Health.

THE PROVISIONAL GOVERNMENT JUNTA

CONSIDERING

That the communities in answering their need for promoting, protecting, recuperating and rehabilitating the health of their members must have an instrument of popular organization with the ability to identify their needs and participate in the planning and implementation of the Programs of the Ministry of Health; and

That it is necessary for the Health Committees in the Communities to be organized at levels of public interest in order to become an effective means of defending their rights to sound health.

HEREBY DECREES

ARTICLE 1 It is declared that the legal constitution of the Community Health Committee to be of public interest for promoting the orientation, planning and implementation of the Programs of the MOH.

ARTICLE 2 Health Committees will be formed in all the communities in the National Territory.

ARTICLE 3 The Health Committees will be made up of a General Assembly of all the members in a community, which will be formed in accordance to the objectives established in the Cabinet Decree hereof, and ruled by the requisites established therein.

The Health Authority will promote the formation of these organizations.

**ARTICLE 4** The Health Committees established will be formed by persons legally able to enforce laws and honor obligations. The Health Committees and its equipment will be exempt from taxes, contributions, encumbrances or deeds of any type or denomination.

**ARTICLE 5** The recording of the Health Committee in the files of the MOH will determine the legal inscription of same.

**ARTICLE 6** The following are the objectives of the Health Committee:

- a) Participate in all the activities related to health programs.
- b) Ascertain that all the members of the community enforce their privileges to sound health.
- c) Enforce the programs oriented towards obtaining the best health conditions in all the communities.

**ARTICLE 7** A ruling will determine the activities of the Health Committee, how the organization will function, and their obligations towards the communities and the Ministry of Health.

**ARTICLE 8** The Health Committee is made up of the following organisms:

- a) The General Assembly
- b) The Board of Directors
- c) The Work Committees

**ARTICLE 9** The bylaws of the Health Committee will include:

- a) Denomination of the Committee, including the name of the Municipality, District and Province involved, which will serve to identify it.

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- b) Location
- c) Obligations and responsibilities of the members.
- d) That the General Assembly will meet at least every six months. The HC may hold a valid meeting whenever there is a quorum, i.e., half of all the members, plus one. The members may at no time be permitted to represent another. Nevertheless, should there be no quorum, the members present may call another meeting at any time.
- e) The system of managing the funds.
- f) The date on which the reports on the work carried out by the Teams should be presented; as well as the date when the detailed bills regarding incoming funds should be presented by the Treasurer.
- g) The number of members that will form the Board of Directors.
- h) The number of Working Committees that the General Assembly should select and which will include a member of the Board of Directors as well as their obligations.
- i) The Members of the Voluntary Termination Committee.
- j) Completion of all the necessary legal requirements.
- k) It is understood that all the requirements stipulated in the Present Cabinet Decree will form the bylaws of the Health Committees, as well as other requirements approved by same.

- ARTICLE 10**      The responsibilities of the General Assembly will be;
- a) To select the members that will form the Board of Directors, who may be re-elected for two periods and are able to be responsible both civilly and penally for mismanagement of funds. Should this happen to any of the members of the Board of Directors they will automatically be removed from their position.
  - b) Approve and amend the bylaws.
  - c) Familiarize, study and/or approve or disapprove the periodic reports presented by the Working Committees to the Board of Directors, publish these reports annually, and prepare the necessary publicity.
  - d) Approve or disapprove the project plan and the budget elaborated by the Board of Directors, under the supervision of the local Ministry of Health authority.
  - e) Hold extraordinary meetings to appoint the persons that will substitute the officers resigning their positions on the Board of Directors.
  - f) Hold extraordinary meetings to promote the election of a new Board of Directors in the case of the collective resignations of the members and submit for discussion the work plan, including an evaluation of same.

**ARTICLE 11**      The Health Authority and the professional team will constitute the Technical Committee for presenting to the Health Committees functional and technical advice.

**ARTICLE 12**      The funds of the Health Committees must be deposited in the Banco Nacional in Panama or a nearby branch. The President, its legal representative, together with the Treasurer will be permitted to draw jointly against this account.

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ARTICLE 13 The funds obtained from contributions and voluntary quotas by the members attending the Health Center will constitute the property endowed to the Health Committee. This includes moneys received from fund raising activities.

ARTICLE 14 The Health Committees have the responsibility of maintaining accounting records, according to the rules and regulations established by the Controller General of the Republic. These records will be subject to periodic audits by the MOH. Also, a record of the minutes of each meeting held must be kept.

ARTICLE 15 The donations made by contributors in favour of the Health Committee are deductible from income tax.

ARTICLE 16 The Health Committee in an area may organize into a federation without losing their autonomy.

ARTICLE 17 The Presidents of the different Health Committees will be constituted into a the Federation, organized under the rules and regulations of the Constitution of the Board of Directors of each Health Committee.

ARTICLE 18 The Health Committee Federations of each area may constitute a confederation.

ARTICLE 19 The Federation and Confederation of Health Committees will comply with the dispositions of this Cabinet Decree, where applicable, and otherwise as determined by their bylaws.

ARTICLE 20 The present Cabine Decree will become effective as soon as it has been published.

Signed in the City of Panama on the 29th day of the month of December, 1970.

Signed: Demetrio B. Lakas, President

Signed: Arturo Sucre, Member of the Junta

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AID 1240-2 (4-7 )

CHECKLIST OF STATUTORY CRITERIA

(Alliance for Progress)

In the right-hand margin, for each item, write answer or, as appropriate, a summary of required discussion. As necessary, reference the section(s) of the Capital Assistance Paper, or other clearly identified and available document, in which the matter is further discussed. This form may be made a part of the Capital Assistance Paper.

The following abbreviations are used:

FAA - Foreign Assistance Act of 1961, as amended.

App. - Foreign Assistance and Related Agencies Appropriations Act, 1972.

MMA - Merchant Marine Act of 1936, as amended.

COUNTRY PERFORMANCE

Progress Towards Country Goals

1. FAA § 208; §.251(b).

A. Describe extent to which country is:

(1) Making appropriate efforts to increase food production and improve means for food storage and distribution.

While the gross figure for growth of Panama's agricultural production (1960-71) is 5.2%, this includes bananas which are exported. Much needs to be done to improve production and distribution.

(2) Creating a favorable climate for foreign and domestic private enterprise and investment.

The climate for foreign and domestic private enterprise and investment is favorable.

AID 1240-2 (4-7.2)

(3) *Increasing the public's role in the developmental process.*

This project is in direct support of a GOP effort through its Ministry of Health to involve the rural population in the planning and carrying out of health and nutrition programs which directly affect them. The use of the community health committee as the main administrative unit directly increases the public's role in the health development process.

(4) (a) *Allocating available budgetary resources to development.*

During the 1960-70 period, public sector real investment amounted to about \$293.5 million or 27.4% of estimated total public expenditures (\$1,070.5 million).

(b) *Diverting such resources for unnecessary military expenditure (See also Item No. 16 and intervention in affairs of other free and independent nations.) (See also Item No. 14.)*

Panama's expenditures for military purposes have been a small percentage of total government expenditures and Panama has not intervened in the affairs of other free and independent nations.

(5) *Willing to contribute funds to the project or program.*

The Borrower's contribution to this project is substantial, being approximately two thirds of total estimated project costs.

(6) *Making economic, social, and political reforms such as tax collection improvements and changes in land tenure arrangements, and making progress toward respect for the rule of law, freedom of expression and of the press, and recognizing the importance of individual freedom, initiative, and private enterprise.*

Panama has made substantial progress in social, economic and political reforms. It has reformed the tax laws and improved tax administration substantially. As a result, 1971 tax income receipts totaled \$60 million, nearly four times the 1963 total of \$15.5 million. Although there is press censorship under the provisional government, it is moving in the direction of restoring constitutional rights and free elections have been held in at least one municipality in 1970. The provisional government has emphasized the concepts of self-help and individual initiative in its civic action programs and has given support to private enterprise.

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(7) *Adhering to the principles of the Act of Bogota and Charter of Punta del Este.*

Panama is adhering to the principles of the Act of Bogota and is working to achieve the objectives of the Charter of Punta del Este. In practically every category Panama is ahead of the targets set by the Charter or approaching them.

(8) *Attempting to repatriate capital invested in other countries by its own citizens.*

Capital repatriation is not a problem in Panama at the present time. Capital flows are not restricted.

(9) *Otherwise responding to the vital economic, political, and social concerns of its people, and demonstrating a clear determination to take effective self-help measures.*

See answer to (6) above. This loan should be of assistance in this regard.

B. *Are above factors taken into account in the furnishing of the subject assistance?*

Yes.

Treatment of U.S. Citizens

2. *FAA § 620(c). If assistance is to government, is the government liable as debtor or unconditional guarantor on any debt to a U.S. citizen for goods or services furnished or ordered where (a) such citizen has exhausted available legal remedies and (b) debt is not denied or contested by such government?*

No such case is known.

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3. FAA § 620(e)(1). *If assistance is to a government, has it (including government agencies or subdivisions) taken any action which has the effect of nationalizing, expropriating, or otherwise seizing ownership or control of property of U.S. citizens or entities beneficially owned by them without taking steps to discharge its obligations toward such citizens or entities?*

The Government of Panama has purchased for cash the previously U.S.-owned Panama Light and Power Company. On the basis of signed agreements dated September 7, 1972 with the U.S. owners on the purchase price, the Government of Panama has thus discharged the obligations toward the U.S. citizen owners.

4. FAA § 620(o); Fishermen's Protective Act. § 5. *If country has seized, or imposed any penalty or sanction against, any U.S. fishing vessel on account of its fishing activities in international waters,*

No such seizures or sanctions are known.

a. *has any deduction required by Fishermen's Protective Act been made?*

b. *has complete denial of assistance been considered by A.I.D. Administrator?*

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Relations with U.S. Government and  
Other Nations

5. FAA § 620(i). If assistance is for any productive enterprise which will compete in the United States with United States enterprise, is there an agreement by the recipient country to prevent export to the United States of more than 20% of the enterprise's annual production during the life of the loan? Not applicable.
6. FAA § 620(j). Has the country permitted, or failed to take adequate measures to prevent, the damage or destruction, by mob action, of U.S. property? No.
7. FAA § 620(l). If the country has failed to institute the investment guaranty program for the specific risks of expropriation, in convertibility or confiscation, has the A.I.D. administration within the past year considered denying assistance to such government for this reason? On January 23, 1961 Panama agreed to institute the investment guaranty program for the specific risks of inconvertibility, expropriation and confiscation.
8. FAA § 620(q). Is the government of the recipient country in default on interest or principal of any A.I.D. loan to the country? No.

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9. FAA § 620(t). Has the country severed diplomatic relations with the United States? If so, have they been resumed and have new bilateral assistance agreements been negotiated and entered into since such resumption? No
10. FAA § 620(u). What is the payment status of the country's U.N. obligations? If the country is in arrears, were such arrearages taken into account by the A.I.D. Administrator in determining the current A.I.D. Operational Year Budget? Panama is not delinquent with respect to dues, assessments or other obligations to the U.N. for the purposes of Article XIX of the Charter.
11. FAA § 620(a). Does recipient country furnish assistance to Cuba or fail to take appropriate steps to prevent ships or aircraft under its flag from carrying cargoes to or from Cuba? No.
12. FAA § 620(b). If assistance is to a government, has the Secretary of State determined that it is not controlled by the international Communist movement? Yes.

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13. FAA § 620(f). Is recipient country a Communist country? No.
14. FAA § 620(i). Is recipient country in any way involved in (a) subversion of, or military aggression against, the United States or any country receiving U.S. assistance, or (b) the planning of such subversion or aggression? No.
15. FAA § 620(n). Does recipient country furnish goods to North Viet-Nam or permit ships or aircraft under its flag to carry cargoes to or from North Viet-Nam? No.
16. FAA § 481. Has the government of recipient country failed to take adequate steps to prevent narcotic drugs and other controlled substances (as defined by the Comprehensive Drug Abuse Prevention and Control Act of 1970) produced or processed, in whole or in part, in such country, or transported through such country, from being sold illegally within the jurisdiction of such country to U.S. Government personnel or their dependents, or from entering the U.S. unlawfully? The Government of Panama has taken steps to cooperate in the prevention of narcotics and other controlled substances being produced or processed in or transported through Panama, or sold illegally there, or entering the United States. These steps are not now regarded as inadequate.

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Military Expenditures

17. FAA § 620(a). What percentage of country budget is for military expenditures? How much of foreign exchange resources spent on military equipment? How much spent for the purchase of sophisticated weapons systems? (Consideration of these points is to be coordinated with the Bureau for Program and Policy Coordination; Regional Coordinators and Military Assistance Staff (PPC/RC).)
- (a) Less than 1% of 1971 budget
  - (b) Less than 1% of foreign exchange resources
  - (c) No purchase of sophisticated weapons systems has been made.

CONDITIONS OF THE LOAN

General Soundness

18. FAA § 201(d). Information and conclusion on reasonableness and legality (under laws of country and the United States) of lending and relending terms of the loan.
- The terms are both legal and reasonable under the applicable U.S. and Panamanian standards.
19. FAA § 251(b)(2); § 251(a). Information and conclusion on activity's economic and technical soundness. If loan is not made pursuant to a multilateral plan, and the amount of the loan exceeds \$100,000, has country submitted to A.I.D. an application for such funds together with assurances to indicate that funds will be used in an economically and technically sound manner?
- The economic and technical soundness of the project is discussed in Section I of Part II.

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- 21. FAA § 611(a)(1). Prior to signing of loan will there be (a) engineering, financial, and other plans necessary to carry out the assistance and (b) a reasonably firm estimate of the cost to the United States of the assistance? Yes.
  
- 22. FAA § 611(a)(3). If further legislative action is required within recipient country, what is basis for reasonable expectation that such action will be completed in time to permit orderly accomplishment of purposes of loan? None required.
  
- 23. FAA § 611(a). If loan is for Capital Assistance, and all U.S. assistance to project now exceeds \$1 million, has Mission Director certified the country's capability effectively to maintain and utilize the project? Yes, see annex.
  
- 24. FAA § 351(b). Information and conclusion on availability of financing from other free-world sources, including private sources within the United States. The project is receiving \$400,000 worth of equipment from UNICEF and Panamanian private citizens have made small contributions.

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Loan's Relationship to Achievement  
of Country and Regional Goals

25. FAA § 207; § 251(a). Extent to which assistance reflects appropriate emphasis on: (a) encouraging development of democratic, economic, political, and social institutions; (b) self-help in meeting the country's food needs; (c) improving availability of trained manpower in the country; (d) programs designed to meet the country's health needs, or (e) other important areas of economic, political, and social development, including industry; free labor unions, cooperatives, and Voluntray Agencies; transportation and communication; planning and public administration; urban development, and modernization of existing laws.

This project is aimed directly at:

- (a) Developing a democratic institution, the Community Health Committee, at the grass-roots level.
- (b) Increasing the country's ability to feed itself.
- (c) Increasing trained farmers at the small farmer level.
- (d) Answering health needs through improving nutrition and providing potable water.

26. FAA § 209. Is project susceptible of execution as part of regional project? If so why is project not so executed? No.

27. FAA § 251(b)(3). Information and conclusion on activity's relationship to, and consistency with, other development activities, and its contribution to realizable long-range objectives.

The project is consistent with other development activities and contributes to long-range objectives. Improving health through teaching people how to improve their environment and feed themselves is a sizeable contribution to our overall objective of self-sustaining growth.

28. FAA § 251(b)(7). Information and conclusion on whether or not the activity to be financed will contribute to the achievement of self-sustaining growth.

As the basic project emphasis will be on training and the development of a local institution, the local community health committee, growth will continue after AID funds have been expended.

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29. FAA § 281(a). Describe extent to which the loan will contribute to the objective of assuring maximum participation in the task of economic development on the part of the people of the country, through the encouragement of democratic, private, and local governmental institutions.
- This project is designed to provide over 140,000 people with the opportunity to improve their health and living standards. It will do it through encouraging the maximum participation of the communities themselves. The main administrative unit of the project will be the community Health Committee, formed of democratically elected volunteers from within each community.
30. FAA § 281(b). Describe extent to which program recognizes the particular needs, desires, and capacities of the people of the country; utilizes the country's intellectual resources to encourage institutional development; and supports civic education and training in skills required for effective participation in governmental and political processes essential to self-government.
- The project is a direct answer to the particular needs, desires and capacities of the people of the country in that the first step in project implementation is an identification of the needs of the community by the Community Health Committee composed of members of the community. Answering these needs is a process of combining the physical resources of the Ministry of Health and the labor of the community in a self-help effort. This process of community action is the best type of civic education and training in self-government.
31. FAA § 601(a). Information and conclusions whether loan will encourage efforts of the country to: (a) increase the flow of international trade; (b) foster private initiative and competition; (c) encourage development and use of cooperatives, credit unions, and savings and loan associations; (d) discourage monopolistic practices; (e) improve technical efficiency of industry, agriculture, and commerce; and (f) strengthen free labor unions.
- Through training the small rural agricultural worker in improved agricultural techniques this process will encourage private initiative in that the persons trained become self-sufficient and better able to earn a living through farming their own land. This training will improve the technical efficiency of agriculture.

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32. FAA § 618. If assistance is for newly independent country; is it furnished through multilateral organizations or plans to the maximum extent appropriate?

Panama is not newly independent.

33. FAA § 251(h). Information and conclusion on whether the activity is consistent with the findings and recommendations of the Inter-American Committee for the Alliance for Progress in its annual review of national development activities.

This activity is consistent with the findings and recommendations of the 1972 CIAP review.

34. FAA § 251(g). Information and conclusion on use of loan to assist in promoting the cooperative movement in Latin America.

Although this project is not designed to promote cooperatives, the skills learned in operating and developing a Community Health Committee are the same as those needed for establishing a cooperative. Therefore, this project can be viewed as laying a foundation for future cooperatives if the community should so decide.

35. FAA § 209; § 251(b)(8). Information and conclusion whether assistance will encourage regional development programs, and contribute to the economic and political integration of Latin America.

If this project is as successful as early indications have led us to believe, we are expecting to use it as an example for similar health programs in other less developed countries. UNICEF and PAHO have already expressed an interest in attempting to utilize the project concept in other countries.

Loan's Effect on U.S. and A.I.D. Program

36. FAA § 251(b)(4); § 102. Information and conclusion on possible effects of loan on U.S. economy, with special reference to areas of substantial labor surplus, and extent to which U.S. commodities and assistance are furnished in a manner consistent with improving the U.S. balance of payments position.

Loan is not detrimental to the U.S. economy. Loan funds in part will be used to procure materials, equipment and services from the U.S.

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37. FAA § 601(b). Information and conclusion on how the loan will encourage U.S. private trade and investment abroad and how it will encourage private U.S. participation in foreign assistance programs (including use of private trade channels and the services of U.S. private enterprise).
- The loan will be used to finance the cost of U.S. equipment and materials. Training farmers in modern agricultural techniques encourages the continued use of agricultural material and equipment in the future thus creating an additional market for U.S. suppliers.
38. FAA § 601(d). If a capital project, are engineering and professional services of U.S. firms and their affiliates used to the maximum extent consistent with the national interest?
- N.A.
39. FAA § 602. Information and conclusion whether U.S. small business will participate equitably in the furnishing of goods and services financed by the loan.
- Usual procedures for facilitating U.S. small business participation in AID-financing procurement will be followed.
40. FAA § 602(h). Will the loan promote or assist the foreign aid projects or activities of the Communist-Bloc countries?
- No.

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41. FAA § 621. If Technical Assistance is financed by the loan, information and conclusion whether such assistance will be furnished to the fullest extent practicable as goods and professional and other services from private enterprise on a contract basis. If the facilities of other Federal agencies will be utilized, information and conclusion on whether they are particularly suitable, are not competitive with private enterprise, and can be made available without undue interference with domestic programs.

Technical assistance will be provided primarily by private sources.

42. FAA § 252(a). Total amount of money under loan which is going directly to private enterprise, is going to intermediate credit institutions or other borrowers for use by private enterprise, is being used to finance imports from private sources, or is otherwise being used to finance procurements from private sources.

Loan funds will be used exclusively to finance imports from private sources or goods procured from private sources in country.

Loan's Compliance with Specific Requirements

43. FAA § 201(d). Is interest rate of loan at least 2% per annum during grace period and at least 3% per annum thereafter?

Yes.

44. FAA § 608(a). Information on measures to be taken to utilize U.S. Government excess personal property in lieu of the procurement of new items.

The loan agreement will include the standard provision so requiring.

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45. FAA § 804(a). Will all commodity procurement financed under the loan be from the United States except as otherwise determined by the President?
- From the U.S., Panama, or other free countries included in AID Geographic Code 941.
46. FAA § 804(b). What provision is made to prevent financing commodity procurement in bulk at prices higher than adjusted U.S. market price?
- No such procurement is contemplated.
47. FAA § 804(d). If the cooperating country discriminates against U.S. marine insurance companies, will loan agreement require that marine insurance be placed in the United States on commodities financed by the loan?
- Yes.
48. FAA § 804(e). If offshore procurement of agricultural commodity or product is to be financed, is there provision against such procurement when the domestic price of such commodity is less than parity?
- No such procurement is to be financed by the loan.
49. FAA § 611(b); App. § 101. If loan finances water or water-related land resource construction project or program, is there a benefit-cost computation made, insofar as practicable, in accordance with the procedures set forth in the Memorandum of the President dated May 15, 1962?
- Although part of the loan does finance small water systems, social and health needs and benefits, rather than monetary considerations have been used to justify the cost of installing potable water. Therefore a benefit-cost ratio is not practicable. It is considered that the technical and engineering requirements of 611 have been met.

50. FAA § 611(o). If contracts for construction are to be financed, what provision will be made that they be let on a competitive basis to maximum extent practicable?

No construction contracts are to be financed with loan funds.

51. FAA § 620(g). What provision is there against use of subject assistance to compensate owners for expropriated or nationalized property?

No loan funds will be used for acquiring land. Land for the community gardens will be contributed by the community.

52. FAA § 612(b); § 636(h). Describe steps taken to assure that, to the maximum extent possible, the country is contributing local currencies to meet the cost of contractual and other services, and foreign currencies owned by the United States are utilized to meet the cost of contractual and other services.

The Borrower will contribute the majority of the local costs of the project. There are no U.S. owned local currencies in Panama as the economy is based on the dollar.

53. App. § 104. Will any loan funds be used to pay pensions, etc., for military personnel?

No.

54. App. § 106. If loan is for capital project, is there provision for A.I.D. approval of all contractors and contract terms?

The loan agreement will so require.

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56. App. § 709. Compliance with regulations on employment of U.S. and local personnel for funds obligated after April 30, 1964 (A.I.D. Regulation 7). Capital Assistance Guidelines under Implementation Letters will so provide.
57. FAA § 636(i). Will any loan funds be used to finance purchase, long-term lease, or exchange of motor vehicle manufactured outside the United States, or any guaranty of such a transaction? No.
58. App. § 501. Will any loan funds be used for publicity or propaganda purposes within the United States not authorized by the Congress? No.
59. FAA § 620(k). If construction of productive enterprise, will aggregate value of assistance to be furnished by the United States exceed \$100 million? No.
60. FAA § 612(d). Does the United States own excess foreign currency and, if so, what arrangements have been made for its release? No.

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61. MMA § 901.b. Compliance with requirement that at least 50 per centum of the gross tonnage of commodities (computed separately for dry bulk carriers, dry cargo liners, and tankers) financed with funds made available under this loan shall be transported on privately owned U.S.-flag commercial vessels to the extent that such vessels are available at fair and reasonable rates.

Requirement will be complied with.

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

I, Alexander Firfer the principal officer of the Agency for International Development in Panama, having taken into account among other things, the maintenance and utilization of projects in Panama previously financed or assisted by the United States, do hereby certify that in my judgment Panama has both the financial capacity and the human resources capability to effectively maintain and utilize the capital assistance project for assisting in the provision of improved health and nutrition services to the rural areas of Panama.

This judgment is based on the Mission's previous experience with the Ministry of Health of Panama including loans for malaria eradication and mobile rural health units as well as experience with loans to other autonomous and semi-autonomous agencies of the Government of Panama.

The Capital Assistance Paper certifies that the statutory criteria as applied to Panama have been met. Discussion in the capital assistance paper has clearly demonstrated the capability of Panama and the Borrower to effectively maintain and utilize the project.

  
ALEXANDER FIRFER

  
DATE

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It was determined by the analysis that there was a general caloric deficiency and a lack of Vitamin A in the community's diet. There was also prevalence of weight/age deficiencies caused by insufficient food intake. Tests showed a low hemoglobin count indicating anemia in a number of adults and children. This was caused by poor water and the high incidence of parasitic infestation. This problem can be suppressed through a high iron diet or through the use of pills, but obtaining a potable water supply will eliminate the parasites which cause anemia.

The results of this analysis were presented to the community at an open seminar on July 3, 1971.<sup>3/</sup> In the discussions that followed the nutritionist on the MOH team explained to the people that the Vitamin A deficiency was caused by the lack of green and yellow vegetables in their normal diets. They noted that to overcome their weight/age deficiencies, the people must simply grow more food. The increased food intake would also provide the calories that the people lacked. Based on information and advice given by the MOH team, the people made several general recommendations.<sup>4/</sup>

- 1) To improve the organization of the community in order to develop a comprehensive program to meet health and nutrition needs.
- 2) To form groups and organize a community garden to produce nutritious foods in order to overcome the deficiencies revealed in the nutrition analysis.
- 3) To request agricultural technical assistance to determine what crops could be produced and what was the most efficient method of producing them. They also resolved to request the services of Nutritionist and/or Home Economist to teach them how to

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<sup>3/</sup> See Annex IV Exhibit 3, for detailed report on seminar and findings on nutritional survey.

<sup>4/</sup> See Annex IV Exhibit 3, for detailed examination of recommendations.

prepare vegetables, and how to plan a balanced diet.

The impetus to initiate action came with procurement of two hectares of land from a private citizen to be used as a community garden. Upon receipt of this land, the community health committee forwarded a request to the MOH for assistance to start a community garden. It was determined by the Ministry that Cerro Cama had indeed satisfied the requirements to take part in the pilot project. There was a paved market road constructed by the GOP in 1969 which provided access to the cities of La Chorrera and Panama. There was an adequate water supply for irrigation, and sufficient land for cultivation. Because Cerro Cama satisfied the basic requirements to take part in this program, and because the Nutrition Survey exposed definite nutritional deficiencies, the MOH approved the Cerro Cama project for assistance. The MOH provided a Kubota cultivator which had been donated by Vicente Pascual, a local cookie magnate. A MOH agronomist visited the community and took a soil sample from which a soil analysis was made. Based on the results of the soil analysis, and considering the basic nutritional deficiencies of the people, it was determined that the following crops could and should be produced:

Crops Suitable for Production

Nutritional Deficiency

- 1) Corn, rice
- 2) Beans
- 3) Carrots, beets, lettuce, squash, cucumbers, cabbage, radish, tomatoes and egg-plant.

Calories  
Proteins, Calories

Vitamin A, Iron

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Increased amount of all these crops would also help alleviate weight/age deficiencies.

The agronomist also explained the use of fertilizer, seeds, and insecticides to the group organizing the garden. Because the people were all farmers, five four-hour sessions, plus written material left with the community were sufficient for the group to commence planting. It must be noted that initially, only 11 families took part in the community garden. Other families were more skeptical and adopted a wait and see attitude. There seemed to be no problem in teaching the use of the Kubota cultivator, as the people readily grasped its operation. A number of people in the community presently have the capability to operate the cultivator. The MOH subsequently sent a mechanic from their maintenance division to teach the community the basics of maintenance and repair of the cultivator. There was a large turnout for his one week class, both from the participating group and from other interested community members.

The community was then provided with seeds donated by CARE. However, the seeds were a year old and produced somewhat less than desired results. Based on the soil survey, it was determined that the soil lacked nitrogen, potassium and phosphorous which were provided as were the necessary insecticides and fungicides.

With these inputs, the community garden group planted corn, sorghum, beets, carrots, lettuce, squash, cucumbers, beans, peppers, cabbage, radishes, tomatoes, and eggplant, using the amounts of fertilizer, insecticides and fungicides prescribed by the agronomist. During the growing season, the agronomist visited the community once every week for the first 3 months. His visits were reduced to twice monthly during the succeeding 3 months and once monthly after 6 months. Periodic visits were made by the area nutritionist who timed her visits with those of the Rural Mobile Health Team. How-

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ever, although she did make the people aware of their needs for a balanced diet, she did not have sufficient time or knowledge to instruct the women of the village in preparing the vegetables they were growing in the garden.

The people liked the beans, corn, peppers, tomatoes and carrots because they were familiar with the taste of these vegetables. However, the remaining vegetables, excluding sorghum which was fed to the chickens, were not prepared in an appetizing manner, and were not liked. These vegetables, totalling about 50% of the initial crop, were subsequently either discarded or sold outside the community because the people did not know how to prepare them. Ultimately, interest was stimulated in why "outsiders" were purchasing these foods.

Only 25% of the garden crop, distributed on a work performed basis, was actually consumed by the group. The remaining 25% was sold to others in the community, and proceeds were divided equally among the 11 families that participated in the project.

Not all the seeds planted were successfully harvested. Because the seeds donated by CARE were a North American variety and not suitable for tropical cultivation, some of the vegetables harvested are somewhat small in size. The carrots, for instance, grew, but not as large as they grow in colder climates. In addition, the beet seeds never germinated. It is not known whether this was because of the old seed donated by CARE, or because the variety of seed used was not suitable for tropical use. Thus, there is a demonstrated need for variety trials to determine what type of seeds are most suitable for Cerro Cama. Different varieties of seed are now being tested to determine the ones most satisfactory for the soil and climate conditions.

It was readily apparent in Cerro Cama that, with the proper use of fertilizer, insecticides and fungicide, and with the convenience and efficiency of a diesel cultivator, the community could

substantially increase their yields. It has been estimated that production of beans rose from 500 lbs per hectare to 3,500 lbs and corn from 500 lbs to 4,600. These yields are below U.S. averages, but for Cerro Cama, the results have been impressive. Because of low labor costs, lack of transportation expenses, the efficiency of the Kubota cultivator, and the lack of middle-man handling expenses, Cerro Cama can produce their own vegetables much more economically than by purchasing them from other markets. In fact, the cost of production in Cerro Cama is sufficiently low to permit profitable sale of excess commodities in the markets of Chorrera and Panama City.

During the first growing season some mistakes were made, but the people of Cerro Cama seem to have profited from them, and are enthusiastic about future prospects of the garden. The health committee has acquired an additional 3 hectares of land to be used for the community garden and 22 families are now participating in the project. These families represent about 25% of the community's population, and are a 100% increase from the initial group membership. The group has decided to plant the same crops as were planted during the first season but will also experiment with different varieties. They are now aware of the demand for garden vegetables both in Chorrera and Panama, and have made arrangements with the Hospital in Chorrera to supply vegetables which are in excess of community requirements. Cerro Cama has also requested the services of a home economist to instruct women to prepare the vegetables.

There is other evidence of acceptance of modern agricultural techniques within the community. A number of women have started kitchen gardens using the knowledge they have gained from observing agricultural techniques used in the community garden. There has also been a marked improvement in the Health Committee, which in addition to its efforts to promote the Community Garden, has recently collaborated with the people in the construction of a town water supply. Presently, over half of the dwellings have inside water taps. It therefore appears that the citizens of Cerro Cama have achieved a significant measure of success in their recent self-help efforts to improve their rural life.

CHUPA

The community garden project in Chupa is being mentioned in this evaluation primarily because of its relationship with the Cerro Cama project. Chupa is located in Macaracas District, about 200 kims. north of Cerro Cama.

A relative of one of Cerro Cama's inhabitants lived in Chupa, and during a visit to Cerro Cama, he was shown the community garden. Duly impressed, he reported his experience to the Chupa Health Committee which sent a delegation to Cerro Cama to further investigate the project. The delegation then visited the Regional Health Center in Los Santos and requested that a nutritional survey of their community be taken and that they also be permitted to take part in the MOH pilot program.

Based on their nutritional profile and because the community had satisfied MOH requirements, their inclusion into the program was approved. They subsequently received a cultivator donated by the Deveaux Foundation and received other inputs similar to those provided to Cerro Cama.

Because the garden was started in September, 1971, after the prime growing season for vegetables, the community produced only melons, canteloupes, cucumber, squash, and onions, all which achieved satisfactory results. The community has now started their second planting season, and will be growing a product mix similar to that in Cerro Cama. What is noteworthy in this community was the self-initiative taken by the people to solve problems within their own community.

In addition to the specific comments already made on the Cerro Cama and Chupa projects, some general observations can be made about 8 other community gardens that were visited at length by members of the Mission staff.

These gardens were located in El Zahino, Portobelillo, Potuga, San Juan, Lidice, Las Margaritas, Los Mortales, and La Honda de San Juan.<sup>1/</sup> It should be noted that the last 5 community gardens have

1/ See Annex IV Ex I for basic data on these Communities

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only recently started and as such, have yet to harvest a crop. The gardens in Cerro Cama and in Chupa successfully produced a variety of crops during the past season, as was mentioned earlier in this paper. The two gardens at Potuga and El Zahino presently have sizable plantings near maturity and a crop of peppers has been recently harvested at Portobelillo. Nearly all the participants are local subsistence farmers who also operate their own farms. In addition, the wives of local farmers are working on the community garden in Potuga, and in Cerro Cama, a new garden has recently been started by a group of women from the town who, after seeing the positive results from the first garden operated by the men, decided to organize a smaller one of their own.

In Cerro Cama, Potuga and El Zahino, the people expressed, in addition to the stated desire to receive the nutritional benefits derived from eating vegetables, a strong interest to market their production. This was most strongly noted in Cerro Cama, where part of the first season's crop was discarded because the people did not realize the marketability of green and yellow vegetables in La Chorrera and in Panama City.

All the communities studied had land. However, not all the communities have made contractual arrangements with the owner and similar problems, such as the one in Gualaca, could occur.

Generally speaking, the soil and sites chosen for the community gardens varied from good to excellent in their production potential of vegetable crops, and seven of the 10 communities studied in depth had irrigation facilities in place. San Juan and Los Mortales, however, were not easily accessible by four-wheel vehicles, which would make supplying fertilizer to the garden, as well as marketing their produce, somewhat difficult.

Earlier in this evaluation, there was a quantitative description of the MOH personnel related to this project. Qualitatively, the area agronomists working with the community gardens are Divisa graduates, well trained, highly motivated, and dedicated employees of the MOH. Both indicated that their major problems were (1) lack

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of timely availability of production inputs (i.e. seeds fertilizers, insecticides, etc.) and (b) inadequate transportation to the project areas. This is understandable because the pilot project is in its infant stages, still unfunded, and all the inputs are donated by other agencies on an availability basis. With proper organization and funding for this program, these two problems should be eliminated.

The members of the health committees showed a willingness to follow recommendations of the technicians, but at times were bewildered by some of the concepts concerning the use of the more technical inputs into the gardens, such as the use of herbicides, insecticides and fertilizers. There were a number of cases (San Juan, El Zahino, and Cerro Cama) where pesticides were misused, which could present an additional health hazard. Proper follow up technical assistance is necessary to educate the people in the proper use of chemicals and thereby to prevent serious accidents.

The Kubota tractor seems to have had strong catalytic influence on the operators as well as on the health committees. The Kubota appeared to be well utilized in Cerro Cama and in el Zahino, where the gardens are in full operation and there is a light sandy soil. In 4 locations, large 4 wheel tractors were rented by the health committees to do the initial land preparation, and the cultivation and seeding functions were subsequently done by hand. In some communities the tractors were underutilized due to the lack of an adequate assortment of implements for the various cultivating, fertilizing, planting, spraying and harvesting operations.

In some communities, the Kubota tractors were used primarily to run the irrigation pumps. Although the communities are enthusiastic about the tractors, additional needed accessories must be acquired and their utilization must be better planned and organized in order for the communities to achieve the maximum benefits from their presence.

All the gardens, which have harvested crops, have produced vegetables. Tomatoes seem to be the most popular vegetable, with green peppers, cucumbers, and string beans following in that order. The tomatoes and pepper varieties used are susceptible to bacterial wilt, and there have been some losses. Disease-resistant varieties need to be introduced and additional instruction is needed in the proper use of insecticides and fungicides in order to combat these problems.

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Other communities besides Cerro Cama produced crops which nobody liked, and as a result some vegetables were thrown away. This again points out the need for a nutritionist and home economist to teach the communities how to prepare these vegetables.

#### SUMMARY AND CONCLUSIONS

It appears, that in all the communities studied during the course of the evaluation, the people were receptive to the overall MOH program to improve health services in the rural areas. In many of the communities, this has been the first time that any ministry has taken an active interest in the welfare of the campesino. The results of all the nutrition seminars indicated a willingness by the communities to do something about their nutritional problems. The major ingredients inhibiting community action in the past were the lack of direction and organization. The MOH has provided the direction and the Health Committees, with assistance from the MOH technicians, have been able to improve their organizational and administrative capacities. A myriad of problems continue to exist which can ultimately effect the success or failure of the community gardens. These problems are technical in nature and range from improper use of pesticides, fertilizers, and insecticides, to faulty seed use, underutilization of the Kubota tractors and the lack of knowledge of vegetable preparation. However, all these problems, although valid, must be examined in perspective.

The pilot program is currently less than a year old, and consequently, is still ironing out many of the bugs that make it less than completely efficient. In addition, the entire program is currently unfunded and thus, there are shortages of transportation and personnel, as well as shortages and irregular supplies of seeds, fertilizers, insecticides and fungicides which are now being donated by international voluntary agencies.

There is also, only a loose organizational framework in the Ministry of Health which is supervising the 21 pilot communities. Thus, it is our opinion, that, given the resources available to the MOH for this program, the pilot communities have achieved a significant measure of success. With additional A.I.D. loan resources, which will fund commodities, training and technical assistance, the MOH should be able to take positive action to resolve these problems.

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Even with the mistakes made, the communities continue to be enthusiastic about the gardens. Membership after the first successful harvest in Cerro Cama increased by 100%, and the people have requested services of MOH personnel to assist them to correct errors made during the first planting season. As the people acquire more knowledge of modern agriculture techniques, the productivity of the gardens will improve. This may induce the campesino to transfer the knowledge and experience gained from the community garden to his own plot, and thus improve agricultural productivity in the community. (relative to what it was before, using primitive agriculture techniques).

Other community gardens have served, in some cases, as catalysts for other community development projects such as the construction of fish ponds, chicken and rabbit raising projects and community reforestation projects. As community action becomes more cohesive, this type of activity can be expected to increase.

It must be stressed that the community gardens are simply one element in the overall MOH policy to assist local community health committees develop as strong, viable institutions, capable of representing the needs, desires, and organized health efforts of the rural communities. A major goal of the community gardens is an educational one; that is to make the people aware of the need for nutritious food and a balanced diet, which can strengthen their resistance to disease; and to show them that a community garden can satisfy that need in a productive manner.

These are realistic goals, definitely achievable and take precedence over any other positive benefits that may be derived from the community garden projects.

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### CERRO CAMA

Based on a nutritional survey of the health needs of Cerro Cama, a Seminar was organized by the community and was attended by officials of the Ministry of Health.

During the seminar, the MOH officials presented the community with a nutritional diagnosis based on an analysis the community's dietary and child feeding habits, types of agriculture products grown, and average monthly income of the people which limits their expenditures for food.

The people subsequently broke into groups, discussed the information and problems presented to them, and made recommendations. The Nutrition Seminar in Cerro Cama can be used as an example of the seminars in the other 21 pilot projects as similar topics were discussed and similar recommendations were made during those meetings.

#### Preliminary Results of Nutritional Study of Population of Cerro Cama Presented to Community by Survey Team.

##### 1. Research on Eating Habits of Families

Of a total of 50 families included in the sampling, only the data collected from 45 families (90%) was considered acceptable for processing. One family out of 19 in the Cerro Cama sample had to be eliminated.

##### A. Results from Information Gathered on Dietary Habits.

The pattern of daily dietary habits of this population was rapidly determined by selecting the dishes mentioned for each meal.

Following is a summary of these dishes and the percentage of families consuming them. In addition, we are listing the hour stated as the usual time at which the meals were eaten.

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Breakfast - 7:00 a.m. (Range: from 5 to 8 a.m.)

	No. of Families <u>Eating Meal</u>	%
Coffee with sugar	34	75.6
Rice	13	28.9
Slices of green plantain	12	26.7
Bread	11	24.4
Fried eggs	10	22.2
	<u>Between Meals</u>	
Fruits	13	28.9

Lunch - 12 Noon (Range: from 11 a.m. to 1:30 p.m.)

	No. of Families <u>Eating Meal</u>	%
Soup	28 (of these, only 13 had any meat added)	62.2
Rice	16	35.6
	<u>Between Meals</u>	
Fruits	7	15.6

Dinner - 5:00 p.m. (Range: from 4 to 7 p.m.)

	No. of Families <u>Eating Meal</u>	%
Rice	35	77.8
Beans	12	26.7
Meat	12	26.7
(beef - 7 families)		
(fish - 4 families)		
(sardines - 1 family)		

Between Meals

No significant consumption

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**B. History on Dietetics**

With the purpose of knowing the eating habits of the population under study, investigations were carried out on the frequency of the consumption of foods. From a list of 23 different foods known in the Panamanian diet, the following notes were made:

<u>Food</u>	Frequency of Consumption (No. of Families that Consume listed items)	
	<u>Daily</u>	<u>Weekly</u>
Rice	39 (86.7%)	
Potatoe type vegetable	37 (82.22%)	7 (from 1 to 3 times) 16%
Fruits	33 (73.3%)	
Plantains	32 (71.1%)	6 13.3%
Eggs	23 (51.1%)	
Fresh Milk	14 (31.1%)	17 38%
Beans	12 (26.7%)	16 36%
Bread	10 (22.2%)	18 40%
Meat		27 60%
Corn (tortilla, drink)		21 47%

**Seasonings**

Oil	45 (100%)
Sugar	33 ( 73%)
Brown Sugar	12 ( 27%)
Margarine or Butter	12 ( 27%)

**Preliminary Conclusions**

Because the survey was not based on quantity, it is very difficult to make an exact analysis of the appropriate diet for the population.

The above data on "frequency of consumption of foods" as well as the data obtained on "daily dietary habits of the community" suggests the following:

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- 1) A deficiency of high quality protein exists in approximately 50% of the population.
- 2) There are iron deficiencies in approximately 50% of the population.
- 3) There is a low ingestion of calcium riboflavin in more than 60% of the population.
- 4) Due to the large quantities of fruits available at this time of year, and because of the adequate consumption of them by the community, (especially mangoes) there is no deficiency of Vitamins A or C in adults or students. There could, however, be deficiencies in the pre-school age group because of their restrictive diets. Garden-produced vegetables, rich in Vitamin A, are not consumed, with exception of green peppers which are used for seasoning.

It is difficult to estimate the consumption of calories because the amounts of substances with high nutritive value which are consumed are unknown. Weight is the only indicator available for evaluating calorie ingestion. This suggests that 40% of the population suffer calorie deficiencies to some degree.

#### Eating Habits of the Breast-Fed Child

43 of the 44 mothers claimed to have breast-fed their babies. However, the length of this feeding was not investigated. The only mother who did not breast-feed her child gave work as her reason for not doing it. Several types of milk have been used to substitute for breast-feeding; Kilm, fresh milk and Lactogeno are the most popular.

The last question asked about the eating habits of the child referred to the age at which other food was introduced as a supplement to breast-feeding.

The earliest age mentioned was 6 months, stated by 9 mothers out of 44 interviewed. The food provided varied from eggs, (1 mother) to rice, soup, fruit, juices, and potatoes type vegetables. Eggs were only not mentioned once until after the first year, when a higher percentage of the mothers begin feeding their babies solid food.

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Meat is introduced for the first time after the child is 1 year old. Before the first year, during the period between 6 and 12 months, complementary foods most frequently used, in the order they were used are the following:

Soups	13 children
Cereals	12
Rice	6
Verduras	4
Fruit Juices	3
Eggs	1

This late addition of fruits to the diet as a source of Vitamin C, and eggs and meat, as iron sources, suggest an iron deficiency, especially in the breast-fed child. The hemoglobine values will help clarify this situation.

2. Other Pertinent (Related) Information

A. Most Cultivated Products

Rice	37 families
Corn	33
Verduras (potatoe like substances)	26
Beans (all types)	15
Plantains	15

From the information gathered, it seems that only a small percentage of the families sell their products. However, this is not valid information, because part of the harvest has to be sold in order to obtain cash to satisfy other needs. This creates an additional problem because the total agriculture yield in Cerro Cama, if nothing is sold, is still insufficient to meet the community's needs.

Of the few families which admitted selling part of their crop, a high percentage indicated that they sold from 50 to 75% of their harvests. We recommend that this information be further confirmed with the members of the community or the Health Center.

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B. Products most Frequently Purchased for Consumption by the Family

The following items are purchased in their order of importance:

1. Salad or cooking oil
2. Sugar
3. Meat
4. Coffee
5. Salt
6. Onions
7. Lentils

A total of 45 products were mentioned; the ones not appearing on the above list were mentioned by less than 10 families.

C. Daily Expense for Feeding the Family

Although this information might be misconstrued, it is interesting to note that only 40 out of the 45 families interviewed, with a total of 244 members, volunteered information.

The amounts spent varied from B/0.30 per family, per day, to B/3.00 per family per day.

D. Approximate Monthly Income Per Family

This information was also difficult to obtain, and only 32 families answered. The average monthly income for these families was B/25.00. Income levels varied from B/4.10 monthly per family, up to B/350.00 monthly per family. Comparing this information to the above data regarding the average daily expense per member, it can be clearly seen that there are some inconsistencies in the figures. However the figures do point out the critical situation faced by a high percentage of the families in this area regarding the possibility of satisfying their basic nutritive needs.

Thus, we see, that from a total of 32 families providing information about their monthly income, 75% do not even have the minimum amount required to satisfy their nutritional needs in the terms of a recommended diet pattern or based on biological demands and eating habits of the population.

The pilot projects have been further supported by the active participation of the local communities through their Health Committees, which constitute the basic element in the implementation process.

Maintenance and repair of the diesel cultivator is also of major importance in a community project of this type. The Kubota diesel tractor has an excellent reputation in Asia for durability, dependable service, ease of operation, and minimum maintenance. It has been a relatively simple matter to train the community to operate the Kubota cultivator, and after a short period of instruction, the people have also been able to provide preventive maintenance and minor repair services. The Department of Environmental Sanitation now has teams in seven areas of the country who are trained in well digging and sanitation techniques. They also have been trained in the repair of the Kubota cultivator, and have been available to communities for major repair problems. However, since the Kubota cultivator was provided to Cerro Cama 10 months ago, none of the cultivators have had repair problems necessitating outside assistance.

#### Administration of Project

The MOH has instructed that communities satisfy 6 specific requirements to be eligible for participation in this program.

- 1) The community must have a freely elected functioning health committee.
- 2) The participating group members must be farmers.
- 3) There must be sufficient land for a community garden, and the land must be controlled by the Health Committee through either a lease arrangement or by purchase.

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- 4) The community must be accessible.
- 5) There must be a readily available water supply for irrigation purposes.
- 6) The communities must have identified nutritional problems.

The foregoing requirements were not all formulated simultaneously but developed as a result of specific problems arising from the operation of the 21 pilot projects. For example, an unforeseen problem related to the land issue has jeopardized the success of one community garden in Gualaca. This community had expressed a desire to participate in the program and received a cultivator. However, the Health Committee was not able to procure land and as a result, the tractor has sat idle since February 1972. As a result of this experience MOH amended its policy to include the land requirement as a condition precedent to participation in this program.

The following charts list the present communities with community gardens, the number of hectares under cultivation, and crops planted. Chart II gives sociological characteristics of the communities such as population, unemployed, age groups and literacy.

REPUBLICA DE PANAMA  
 Ministerio de Salud  
 Programa de Organización y Educación a la Comunidad

Cuadro Nº 1

COMUNIDADES TRABAJANDO CON LOS PROGRAMAS DE PRODUCCION DE ALIMENTOS Y SUS CARACTERISTICAS

COMUNIDAD (1)	Distrito (2)	Inicio del Programa (3)	Tamaño del Terreno (4)	Distancia del centro poblado (5)	Productos cultivando (6)
ASIENTOS DE PEDASI	Pedasí	abril - 1972	1.5 has.	-	hortalizas
LA HONDA	Santiago	abril - 1972	4	-	hortalizas
PCTUGA	Parita	oct. - 1971	3.5	700 mts.	hortalizas
CHUPA	Macaracas	Sept. - 1971	2	5 kms.	hortalizas
DCS RIOS	Dolega	Oct. - 1971	2	1 km.	hortalizas
LIDICE	Capira	Enero - 1972	2	1 km.	hortalizas
EL ZANINO	Chorrera	Sept. - 1971	2	300 mts.	hortalizas
CERRO CAKA	Chorrera	Julio - 1971	2	2 kms.	hortalizas
AJLIGANDI	Com. de San Blas	Sept. - 1971	23	15 kms.	hortalizas
SAN JUAN	Santa Fé	Dic. - 1971	2	1 km.	hortalizas
RIGCON DE STA. MARIA	Santa María	Oct. - 1971	2	8 kms.	maíz
PORTOBELILLO	Parita	Sept. - 1971	2.5	1 km.	hortalizas
LAS MARGARITAS	Chepo	Feb. - 1972	2	1 km.	Por iniciarse
LOS ECRTALES	Chorrera	Marzo - 1972	3	1 km.	Recién iniciado
YAVIZA	Darién	Oct. - 1971	2	800 mts.	Por iniciarse
VILLA GRECIA	Panamá	Abril - 1972	1.5	5 kms.	Recién iniciado
LA LAGUNA	San Carlos	Abril - 1972	500 mts.	100 mts.	Recién iniciado
GUALACA	Gualaca	Feb. - 1972	no hay	-	-
SAN FELIX	San Félix	Nov. - 1971	2	100 mts.	-
SAN CARLITOS	David		no hay	-	-
BCRO	La Mesa	Dic. - 1971	2	300 mts.	-

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CERTAIN CHARACTERISTICS OF COMMUNITIES  
INVOLVED IN COMMUNITY HEALTH AND  
NUTRITION PROGRAM  
1971-1972

COMMUNITY	Los Asientos de Pedasi	La Honda (Ponugal)	Potuga	Chupá	Dos Ríos	Lídice	El Zahino	Cerro Cama	Ailigandí	San Juan	Rincón de Santa Inés	Portobelillo	Las Margaritas	Los Mortales	Yaviza	Villa Grecia	La Laguna	Gualaca	San Félix	San Carlitos	Roró	Mendoza	Cafaveral
Total residences occupied	136	22	145	58	201	261	38	99	178	25	14	112	240	493	312	106	292	283	116	82	59	52	100
Without running water	28	22	0	24	195	49	37	71	171	4	6	6	36	400	06	99	291	82	6	54	41	33	46
Without latrines	15	22	21	18	35	19	11	30	171	6	6	21	76	27	90	81	10	10	2	7	32	19	7
Dirt floors (unpaved)	77	22	70	34	108	114	38	92	167	20	7	69	143	41	19	84	24	160	37	57	47	47	57
Without electricity	132	22	95	57	147	168	38	99	159	25	13	76	237	492	45	100	291	171	64	58	59	52	100
Without radios	60	13	44	16	87	81	17	46	94	9	5	38	87	260	50	27	6	87	34	25	26	16	46
POPULATION																							
Total Number	660	100	616	271	923	1450	187	470	1705	143	54	634	1250	2111	1051	522	1711	1530	617	402	259	298	556
No. of Men	282	60	324	133	482	734	102	260	785	73	35	325	689	1098	57	273	977	67	300	213	134	164	314
No. of Women	278	46	292	138	441	716	85	210	920	70	19	309	561	1027	94	249	734	43	309	189	125	134	242
21 Years and over	242	43	304	113	418	550	70	202	751	55	27	265	499	96	42	212	575	57	260	166	118	117	208
10 years and over	170	63	451	182	632	937	103	305	1153	93	43	229	814	144	1018	340	109	174	430	260	125	195	338
Illiterate	98	38	86	30	120	125	27	59	548	19	11	72	217	232	67	81	102	36	94	60	50	16	34
Engaged in Agricultural Activities	120	26	130	62	186	163	40	114	283	23	15	23	263	54	204	61	43	53	55	65	74	58	112
Unemployed	3	0	15	3	35	55	1	10	25	0	2	11	48	2	12	27	4	54	36	3	0	18	25
Financially inactive Between 7-15 years of age Attending Primary School	76	17	259	01	324	529	54	142	787	40	21	251	416	715	93	175	465	46	274	130	54	96	122
Not attending Primary School	141	28	123	57	174	309	41	88	302	30	12	123	267	393	92	100	473	314	148	58	54	62	106
	5	2	8	4	24	47	1	14	89	2	2	13	51	4	53	20	1	25	19	42	0	4	5

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Ministerio de Salud  
Programa de Organización y Educación a la Comunidad

Cuadro Nº 2

COMUNIDADES TRABAJANDO CON LOS PROGRAMAS DE PRODUCCION DE ALIMENTOS Y SUS CARACTERISTICAS

COMUNIDAD (1)	Distrito (2)	Personas Trabajando (7)	Status de la tierra (8)	Población de la Comunidad (9)	Comité de Salud (10)
ASIENTOS DE PEDASI	Pedasí	-	-		si
LA HONDA	Santiago	-	-	106	si
POTUGA	Parita	20	Prestada	616	si
CHUPA	Macaracas	12	Prestada	271	si
DOS RIOS	Dolega	11	Prestada	556	si
LIDICE	Capira	12	Prestada	1,450	si
EL ZAHINO	Chorrera	7	Prestada	187	si
CERRO CANA	Chorrera	11	Prestada	470	si
AILIGANDI	Com. de San Blas	30	Estatal	1,705	si
SAN JUAN	Santa Fé	15	Prestada	143	si
RINCON DE SANTA M <sup>a</sup>	Santa María	4	Prestada	190	si
PORTOBELILLO	Parita	11	Prestada	634	si
LAS MARGARITAS	CHEPO		Prestada	1,250	si
LOS MORTALES	Chorrera	10	Prestada	225	si
YAVIZA	Darión		Estatal	1,651	si
VILLA GRECIA	Panamá		Prestada	522	si
LA LAGUNA	San Carlos		Prestada	171	si
GUALACA	Gualaca	-		1,510	si
SAN FELIX	San Félix		Comprada	617	si
SAN CARLITOS	David			402	si
BORO	La Mesa	4	Prestada	259	si

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GENERAL BACKGROUND INFORMATION ON CERRO CAMA

The District of La Chorrera covers a relatively heterogenous area. The urban center of the District has historically served as a filter for agricultural products being sent to the Capital City. Since the construction of the national highway, the City of La Chorrera has become a commercial center and the mandatory crossroads between the interior and the metropolitan areas. However, as communication and transportation facilities improved, products from the interior could be shipped directly into Panama City, and as a result, Chorrera farmers lost some of their leadership over the consumers in the Capital City.

The haciendas in the La Chorrera plains also subsequently became less productive, and the land was invaded by squatters. The people from Chorrera thus began to migrate to the urban centers of the District or directly to Panama City. The new highway permitted agricultural producers in Coclé to compete favourably in the principal markets of Panama City. This benefitted investment in that area, but forced Coclé's less productive farmers to migrate to other areas. The campesino from Coclé (Penonomé, Antón, etc.) had problems in obtaining new land because the fertile land, with good roads, had already been taken by previous immigrants or by expanding commercial agricultural institutions. A few campesinos were able to enter areas close to the highway in La Chorrera, but the great majority had to fight their way into the unexplored jungles and forests to obtain land. The immigrants from Colcá colonized small municipalities between the Pan American Highway and the Gatun Lake. They continued to use old traditional unproductive methods of slash and burn agriculture, which permitted them only a subsistence level of existence.

Different migratory factors have influenced the type of land ownership that presently exists, and there is a significant disparity of land assets within Cerro Cama. The inability of the campesinos to increase or consolidate their holdings for the purpose of intensifying their agriculture operations, limits them to a subsistence level of production. 56% of land owners have less than 15 hectares under cultivation, which totals only 18.7% of all the available land. In the entire community of Cerro Cama there are only 14 landowners with more

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than 50 hectares. Of these, 3 (1.3%) have more than 100 hectares, or 9.3% of all the land. 72% of the land is in the hands of farmers with ownership varying between 15 and 100 hectares. Thus this majority of the campesinos (56%) are currently eking out an existence on small, unproductive plots of land. This situation becomes more serious when we consider two factors: (1) If there is no significant change in land ownership or productivity, migration by the small campesino will increase; (2) The quality of the land is poor (type V, VI and VII), and there is no legal ownership of the land, which limits the farmer from obtaining financial resources in the form of credit.

SEMINAR ON NUTRITIONCERRO CAMAResolutions of the Work TeamsGROUP 1Problems Discussed

- 1) Before age one, according to the nutritional survey, children experience few nutrition problems. However, with the cessation of breast feeding, the incidence of malnutrition increases.
- 2) Because the farmers work in the fields, they are undernourished and underweight; the women usually eat better because they stay at home.
- 3) There is a high incidence of parasitic infestation.
- 4) The people lacked sufficient money with which to buy nutritious foods and fresh milk.
- 5) A community garden could provide nutritious foods to supplement individual production.

Recommendations

- 1) A community garden to grow nutrition foods should be established with work performed on a cooperative basis.
- 2) Instruction in handicrafts should be given to the housewives, who could then supplement family income during their spare time.

GROUP 2Problems Discussed

- 1) Low agricultural productivity was due to lack of organization in the community, the absence of technical knowledge, and lack of sufficient resources to develop an agricultural base.

Recommendations

- 1) In order to improve agricultural productivity, which in turn will alleviate much of the nutritional problems in Cerro Cama, the Community Health Committee must be strengthened and it must take positive action to meet the needs of the Community.
- 2) The Community should request technical advice of a Nutritionist or Home Economist to help the housewives learn how to prepare a balanced diet, and how to prepare vegetables in a tasty manner.

GROUPS 3 AND 4Problems Discussed

- 1) The Community was ignorant of food preparation techniques, and did not know how to prepare a balanced meal. As such the people were experiencing nutritional deficiencies.
- 2) The Community was not producing nutritious foods, only beans, corn and rice.

Recommendations

- 1) It is necessary to form groups and begin an agricultural cooperative to produce nutritious foods (i.e. vegetables) which are not presently available in Cerro Cama.
- 2) An agronomist from MOH should assist the Community learn modern agricultural techniques necessary to organize and operate a community garden.
- 3) Services of a nutritionist should be requested to teach the community how to prepare foods grown in the community garden.

## The Nutrition Problem in Panama<sup>1/</sup>

The unsatisfactory nutritional conditions of the Panamanian population are the result of a great variety of factors, the majority of which are closely interrelated. Generally, these factors may be classified as follows: (1) those related to the availability of food at a national level; (2) those which affect distribution and consumption of food; and (3) those which affect utilization of food consumed by the population.

### 1. Availability of food at a national level

The total amount of food available for human consumption is not enough to satisfy the population's minimum requirements. From a purely nutritional point of view, the total figure for available protein is misleading. In reality, the distribution of the different kinds of proteins among the population is so uneven that large sectors almost exclusively consume proteins of very poor quality, which are not properly utilized by the system.

A qualitative analysis of data on the availability of food, showed that the deficit is greater in the more nutritious foods, such as animal products and beans, both of which are great sources of proteins. The only apparent surplus was found in corn and rice. These surpluses are only apparent because these products are consumed in greater quantities than that recommended to be nutritionally satisfactory to cover the deficit in other foods; or they are used for other nutritional purposes, such as corn for feeding animals. Although there are problems of distribution and exploitation of usable land, food production could be greatly increased by means of more efficient agricultural methods. For example, it was found that there is hardly any use made of modern agricultural methods, such as fertilizers, insecticides, herbicides or selection of seeds.

Information was obtained regarding great losses of agricultural products prior to harvesting because of insect plagues and natural phenomena, and after harvesting because of improper storage, distribution and marketing methods.

Social, economic and educational limitations are factors which contribute to the problem of insufficient and inefficient agricultural production. Socio-economic studies have shown that the majority of

<sup>1/</sup> Nutritional evaluation of the population of Central America and Panama - INCAP 1969 p. 119-120

families are isolated and there are too few social or economic organizations that may contribute towards a solution of the problem. The low educational level is aggravated even further by this isolation, since family contacts with communication media are very restricted.

The very low economic level of the great majority of the population, results in a very reduced capability to purchase food, especially the more expensive and nutritionally valuable food. This fact at the same time limits an increased production and channels some products into foreign markets where there is greater demand.

Rapid population growth contributes towards making availability of food scarcer each time. Predictions for the near future clearly indicate an urgency for measures which will not only prevent a worsening of the situation, but will also correct the present situation.

## 2. Distribution and Consumption of Food

The insufficient and inadequate availability of food to satisfy the nutritional needs of the population of Panama, is aggravated even further by the factors which affect the distribution of food between the different groups. Dietetic studies clearly show that the more nutritious foods, which are also the most lacking and also the most expensive, are consumed almost exclusively by the relatively small well-to-do sector of the population. This is basically an economic phenomenon, although there are also some socio-cultural factors. The result of this problem is that large sectors of the population live on diets that are even poorer than that indicated in data on availability of food at a national level.

On top of all this, and especially among the more needy groups, the distribution of food within the family circle is inadequate. For example, previous studies made by INCAP indicate that babies during the weaning period receive a smaller proportion of meat and beans than the rest of the family in relation to their basic needs. Lack of knowledge on nutrition by the people is the chief cause of this situation, and this is confirmed by the results obtained regarding beliefs about nutritional illnesses: the majority of the population does not know the origin of the multiple deficiency syndrome and of marasmus.

Although in this investigation there was no data obtained on the consumption of food by individual members of a family, other studies, especially biochemical ones, confirm this inadequate distribution of food among the family which has previously been emphasized by INCAP.

3. Environmental factors which interfere with the utilization of food.

The nutritional condition of population groups is not only the result of what they eat, but also the manner in which nourishments are taken. It is well known that infections affect the nourished condition, especially when ingestion of food is in itself deficient. The high prevalence of intestinal parasites shown in this study reflects the great amount of contagious elements to which the population is exposed. This prevalence was already found in very young ages both in the "rural" as well as in the "urban" areas, though with greater intensity in the former. One may suppose that this high prevalence of parasites is also accompanied by a greater frequency of other intestinal disease agents as bacteria and viruses.

The effect of intestinal worms on the nutritional condition becomes even more important if one considers the frequency with which multiple infections occur and also the great number of severe and moderate infections. In this manner, hookworm disease acquires a special importance as a concurrent with nutritional anemia, especially considering that almost one fourth of the population has an iron deficiency in their food intake.

**RURAL COMMUNITY HEALTH AND NUTRITION  
FUNDS DISBURSEMENTS BY YEAR**

(\$000's Omitted)

	1973			1974				1975				TOTAL				
	GOP	AID	UNICEF	Total	GOP	AID	UNICEF	Total	GOP	AID	UNICEF	Total	GOP	AID	UNICEF	Total
<b>Community Organization and Health Education</b>																
Salaries and Related Costs	432			432	485			485	509			509	1426			1426
Commodities	349			349	420			420	443			443	1212			1212
Training	42			42	29			29	30			30	101			101
Maternal-Child Care and Adult Medicine	41			41	36			36	36			36	113			113
Salaries and Related Costs	177			177	275			275	372			372	824			824
Commodities	99			99	182			182	264			264	545			545
Environmental Sanitation	78			78	93			93	108			108	279			279
Salaries and Related Costs	247	653		1600	919	553		1472	919	527		1446	2785	1733		4518
Commodities	439			439	439			439	440			440	1318			1318
Nutrition	508	653		1161	480	553		1033	479	527		1006	1467	1733		3200
Salaries and Related Costs	73	1797	134	2004	104	119	133	356	135	144	133	412	312	2060	400	2772
Commodities	69			69	98			98	127			127	294			294
Training	4	1737	134	1875	6	59	133	198	8	34	133	225	18	1880	400	2298
Technical Assistance		33		33		33		33		34		34		100		100
		27		27		27		27		26		26		80		80
<b>TOTAL</b>	<b>1629</b>	<b>2450</b>	<b>134</b>	<b>4213</b>	<b>1783</b>	<b>672</b>	<b>133</b>	<b>2588</b>	<b>1935</b>	<b>671</b>	<b>133</b>	<b>2739</b>	<b>5347</b>	<b>3793</b>	<b>400</b>	<b>9540</b>

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Listing of 148 Communities for Construction of Rural Water Supply Systems

EASTERN REGION

PROVINCE OF PANAMA

Communities

- |                    |                         |
|--------------------|-------------------------|
| 1. El Llano        | 16. Hullo               |
| 2. Espavé (Chepo)  | 17. Santa Clara         |
| 3. Carriazo        | 18. Represa             |
| 4. Juan Gil        | 19. Santa Rita          |
| 5. Chepillo        | 20. Villa Carmen        |
| 6. San Diego       | 21. Ollas Arriba        |
| 7. Sonsonate       | 22. La Sardina          |
| 8. Gonzalo Vásquez | 23. El Espino           |
| 9. Unión Tableña   | 24. Piedras Gordas      |
| 10. Pedro González | 25. Los Carritos        |
| 11. Casaya         | 26. San José-San Carlos |
| 12. Saboga         | 27. El Nance-San Carlos |
| 13. Sardinas       | 28. Otoque Occidente    |
| 14. Polvareda      | 29. Cañita              |
| 15. Chapala        |                         |

PROVINCE OF DARIEN

- |               |                 |
|---------------|-----------------|
| 1. Setengantí | 4. Boca de Cupe |
| 2. Garchiné   | 5. Yucutí       |
| 3. Chepigana  | 6. Río Congo    |

PROVINCE OF COLON

- |                |              |
|----------------|--------------|
| 1. Sardinillas | 6. Río Indio |
| 2. Viento Frío | 7. Achiote   |
| 3. Garrote     | 8. Cuango    |
| 4. La Guira    | 9. Govea     |
| 5. Isla Grande |              |

SAN BLAS

1. Ustupo
2. Ticantiquí
3. Mulatupo-Sasardí

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CENTRAL REGION

PROVINCE OF COCLÉ

- |                   |                       |
|-------------------|-----------------------|
| 1. La Hincada     | 10. Pajonal Abajo     |
| 2. Santa Rita     | 11. Toze              |
| 3. Buen Retiro    | 12. El Mato           |
| 4. Churubé Abajo  | 13. Los Volcanes      |
| 5. Churubé Arriba | 14. Los Rincones      |
| 6. El Retiro      | 15. La Loma del Roble |
| 7. Marica         | 16. El Sánchez        |
| 8. Piedras Gordas | 17. El Espavé         |
| 9. La Candelaria  | 18. Loma de González  |

PROVINCE OF HERRERA

- |                   |                         |
|-------------------|-------------------------|
| 1. San José (Oco) | 6. Sabanagrande de Pesé |
| 2. El Pájaro      | 7. Los Cerritos         |
| 3. El Ciruelo     | 8. El Olivo             |
| 4. Pedregoso      |                         |
| 5. Rincón Hondo   |                         |

PROVINCE OF LOS SANTOS

- |                      |                    |
|----------------------|--------------------|
| 1. Corozal           | 11. El Bebedero    |
| 2. El Jobo           | 12. Bajo Corral    |
| 3. Guararé Arriba    | 13. Jobo Dulce     |
| 4. Las Trancas       | 14. Llano Largo    |
| 5. Chupá             | 15. La Colorada    |
| 6. La Masa           | 16. Los Guabos     |
| 7. Mariabé           | 17. Valle Rico     |
| 8. San Agustín       | 18. El Cañafistulo |
| 9. La Candelaria     | 19. Las Plamitas   |
| 10. Santa Ana Arriba | 20. Agua Buena     |

PROVINCE OF VERAGUAS

- |                  |                          |
|------------------|--------------------------|
| 1. Nuestro Amo   | 11. San José             |
| 2. Arenas        | 12. San Antonio          |
| 3. La Mata       | 13. San Juan             |
| 4. La Montañuela | 14. El Embalsadero       |
| 5. Zapotillo     | 15. Cañazas de Divisa    |
| 6. Los Dfaz      | 16. Guarumalito          |
| 7. Los Montes    | 17. Ciruelos             |
| 8. La Peana      | 18. San José de Santa Fé |
| 9. Gufas Abajo   | 19. Rincón de Las Palmas |
| 10. El Bongo     | 20. La Valdez            |

WESTERN REGIONPROVINCE OF CHIRIQUI

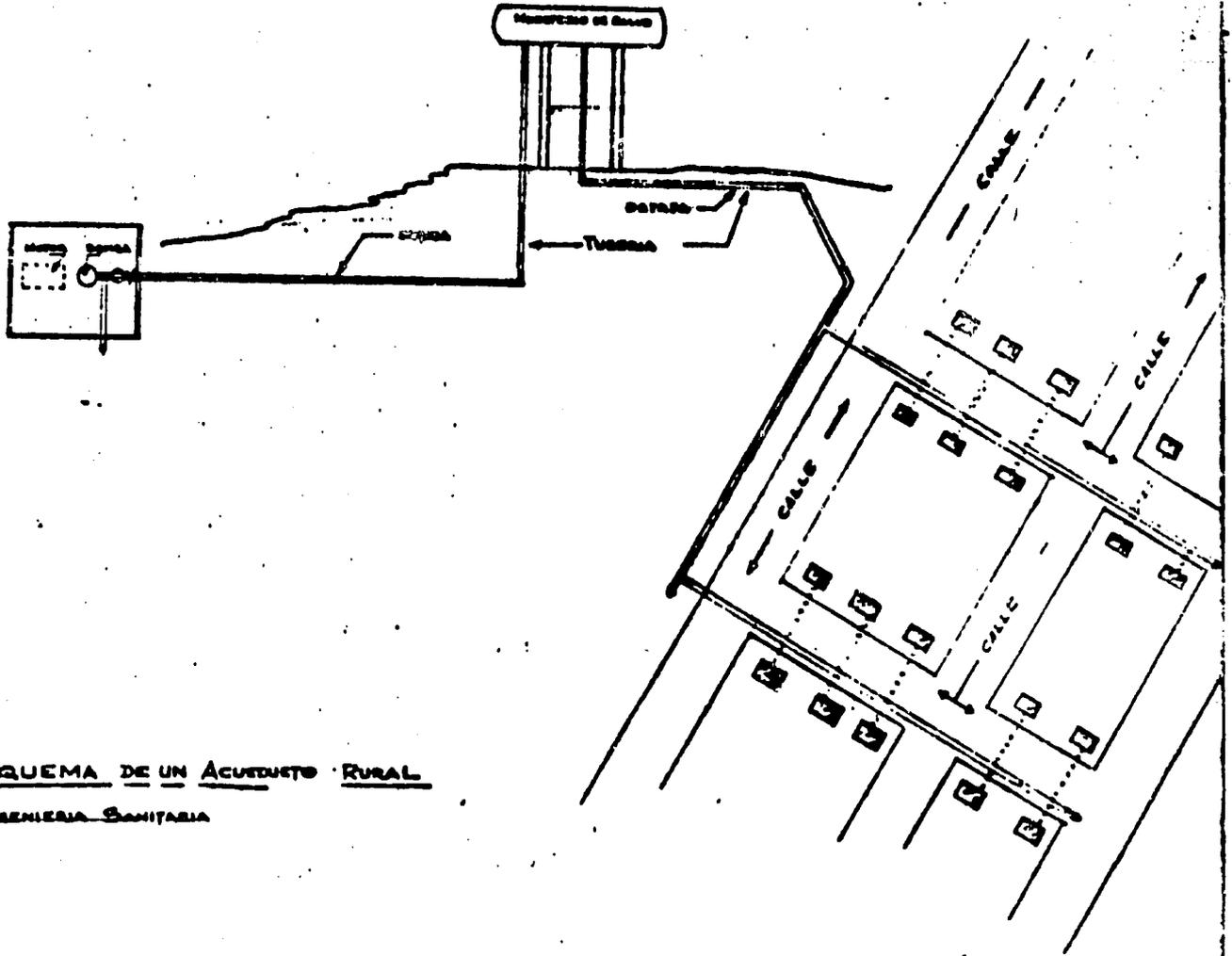
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|----------------------------|---------------------|
| 1. El Veladero             | 17. Calzán          |
| 2. El Comón                | 18. Paso Ancho      |
| 3. Cerro Iglesias          | 19. El Quiteño      |
| 4. San Juan                | 20. Quebrada Piedra |
| 5. Cerrillos               | 21. Jaramillo Abajo |
| 6. Montilla                | 22. Volcancito      |
| 7. Cañasstulo              | 23. Exquisito       |
| 8. Hato Viejo              | 24. Corotó Civil    |
| 9. Guarumal                | 25. San Bartolo     |
| 10. Querévalos             | 26. San Carlos      |
| 11. Caimito                | 27. Berbá           |
| 12. Los Algarrobos         | 28. Orillas del Río |
| 13. Rincón Largo de Dolega | 29. La Pita         |
| 14. El Bongo               | 30. El Calvario     |
| 15. Rabo de Gallo          | 31. Macano          |
| 16. Tinajas                |                     |

PROVINCE OF BOCAS DEL TORO

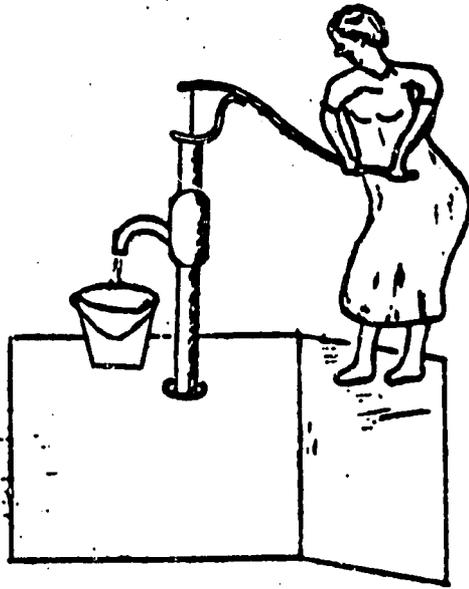
1. Zegla
2. Chiriquí Grande
3. Miramar

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ANNEX VI  
EXHIBIT 2  
Page 1 of 1



ESQUEMA DE UN ACUEDUCTO RURAL  
INGENIERIA SANITARIA



SISTEMA DE BOMBEAR A MÃO

INGENHEIRA GARCIA  
MINISTÉRIO DE SAÚDE



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Department of State

STATE 76448

AAU-PLC/P-1040  
ANNEX VII  
Page 1 of 1

TELEGRAM

ACTION: USAID  
INFO  
AMB DCM ECON CHRON  
R 022352Z MAY 72  
FM SECSTATE WASHDC  
TO AMEMBASSY PANAMA 9370  
BT  
UNCLAS STATE 076448

UNCLASSIFIED  
Classification

03 MAY 72

AIDAC

SUBJECT: IRR-HEALTH NUTRITION LOAN

CAEC APPROVED SUBJECT IRR 4/25/72 AND RECOMMENDS LOAN PAPER INCLUDE IN DEPTH DISCUSSION FOLLOWING ISSUES.

1. ADVANTAGES OF COMMUNITY FARMED PLOT OVER ALTERNATIVE OF ASSISTING INDIVIDUAL PRODUCTION HIGH NUTRITION CORPS.
2. RESULTS ONGOING DETAILED EVALUATION THIRTY PILOT COMMUNITY HEALTH COMMITTEE GARDENS, INCLUDING:
  - A. PROCESS FOR DECIDING WHAT CROPS ARE GROWN,
  - B. BASIS UPON WHICH FOOD DISTRIBUTED (NEED, WORK),
  - C. ACTUAL USE OF FOOD PRODUCED AND NUTRITIVE EFFECTS IF AVAILABLE,
  - D. ARE TECHNIQUES INITIALLY APPLIED TO COMMUNITY PLOTS LATER APPLIED TO FARMERS PRIVATE PLOTS;
  - E. DEGREE COMMUNITY DEVELOPMENT STIMULATED BY NUTRITION PROGRAM.
3. EXAMINATION REQUIRED OF RELATIONSHIP PROPOSED PROGRAM TO ONGOING AND FUTURE AGRICULTURAL ACTIVITIES IN PANAMA INCLUDING:
  - A. PRESENT AVAILABILITY AND COST OF CROPS PROPOSED PROGRAM WILL PRODUCE;
  - B. PRESENT PJG ACTIVITIES STIMULATE THESE CROPS;
  - C. RELATIONSHIP THIS PROGRAM TO L-34, PROPOSED SMALL FARMER IMPROVEMENT (PHASE II) LOAN AND PLANNED AGRICULTURE SECTOR LOAN.
4. ANALYSIS OF PROJECT REQUIREMENTS FOR, AND AVAILABILITIES OF, MOH AND MAG TECHNICIANS.
5. EXAMINATION OF CAPABILITY MOH TO IMPLEMENT THIS EXPANDED PROGRAM WITHOUT ADVERSELY AFFECTING IMPLEMENTATION ONGOING PROGRAMS IN OTHER AREAS. INCLUDE ANALYSIS MOH UTILIZATION AND MAINTENANCE CAPITAL EQUIPMENT AND SUPERVISORY CAPACITY TO COORDINATE DIVERSE PROJECT INPUTS. IRWIN

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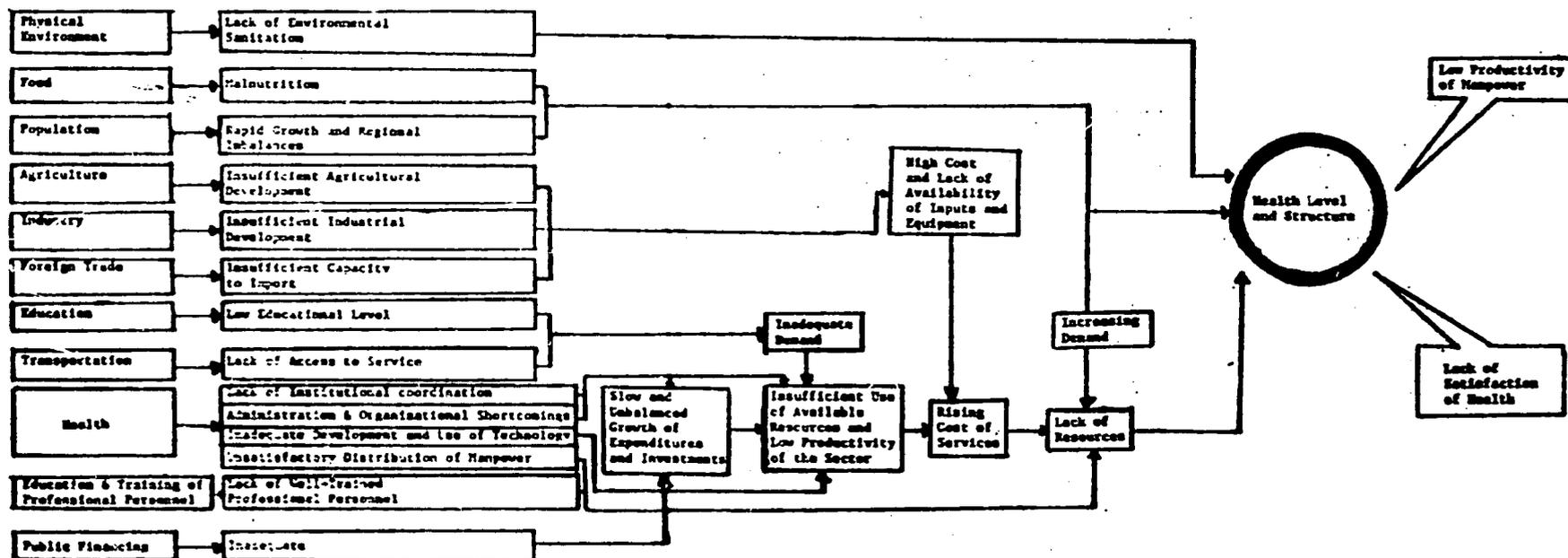
RECEIVED  
MAY 3 1972  
PANAMA

GSY

UNCLASSIFIED  
Classification

FACTORS DETERMINING THE HEALTH LEVEL AND STRUCTURE IN UNDERDEVELOPED COUNTRIES

Illustration 1



Source: FAO Center for Health Planning

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ANNEX IX  
Page 1 of 2

TRANSLATION

REPUBLICA DE PANAMA

PRESIDENCIA

DIRECCION GENERAL DE PLANIFICACION Y ADMINISTRACION  
Gobierno Revolucionario

Panama, August 10, 1972  
No. 400 D.P.I.

Mr. Alexander Firfer  
Director  
Agency for International  
Development  
Panama, R. P.

Dear Director Firfer:

The Directorate General of Planning and Administration of the Presidency, that I have the honour to direct, formally requests a loan from the Agency for International Development to provide necessary financing for carrying out the "Integrated Health Program for Rural Communities" to be carried out in a period of three years beginning in 1973.

The requested loan is designed to carry out the program explained in the document prepared by the Ministry of Health previously submitted to your office and discussed by the managers of the project together with members of A.I.D.

The amount of the loan should be 4.8 million in accord with the previously discussed financial details of the project and should receive the normal terms used by the Agency for International Development in granting loans of this type. This request is presented with the understanding that the Central Government is committing itself to supply the counterpart funds required

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ANNEX IX  
Page 2 of 2

- 2 -

for this loan and guaranteeing to include the necessary amounts  
in the annual operational budgets of the Ministry of Health.

Sincerely,

Rigoberto Paredes  
Director General

cc: Dr. José Renán Esquivel  
Minister of Health

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**DRAFT**  
**LOAN AUTHORIZATION**

Provided from: Alliance for Progress  
PANAMA: Rural Community Health and Nutrition

Pursuant to the authority vested in the Deputy U.S. Coordinator, Alliance for Progress by the Foreign Assistance Act of 1961, as amended, and the delegations of authority issued thereunder, I hereby authorize the establishment of a loan pursuant to Part I, Chapter 2, Title VI, Alliance for Progress, of said Act to the Government of Panama ("Borrower") of not to exceed three million eight hundred thousand dollars (\$3,800,000) for the United States dollar and local costs of goods and services, including eighty thousand dollars (\$80,000) to be used only for technical assistance, to assist the Borrower in improving the provision of health services, potable water and nutrition to small rural communities. This loan is to be subject to the following terms and conditions.

1. Interest and Terms of Repayment

Borrower shall repay the loan to the Agency for International Development ("A.I.D.") in United States Dollars within forty (40) years from the 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 disbursed balance of the loan interest of two percent (2%) per annum during the grace period and three percent (3%) per annum thereafter.

2. Source and Origin

All goods and services financed under the loan shall have their source and origin in A.I.D. Geographic Code 941 countries or the country of the Borrower.

**3. Local Currency**

United States dollars utilized under the loan to finance local currency costs shall be made available pursuant to procedures satisfactory to A.I.D.

**4. Other Terms and Conditions**

a. As conditions precedent to the first disbursement of the loan, the Borrower shall:

1. Have the Ministry of Health employ ten agricultural technicians to work exclusively with the community health program.
2. Submit, in form and substance satisfactory to A.I.D., an implementation and evaluation plan which will include but not be limited to:
  - a) Plans for coordinating the activity of other GOP agencies related to the program.
  - b) Provision for joint USAID-MOH semi-annual reviews of the project covering progress, budgetary requirements and provisions, procurement activity and coordination with and support from other GOP, private or International agencies.

b. Borrower shall covenant in the loan agreement as follows:

To make timely and adequate provision of funds in conformance with the financial plan contained in the Loan Agreement.

To consult with AID at least semi-annually on the execution of the implementation and evaluation plan submitted as a condition precedent to the first disbursement of the loan.

c. The loan shall be subject to such other terms and conditions as AID may deem advisable.