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VILLAGES OF
PUEBLO NUEVO AND BUENOS AIRES
Province of Veraguas, Panama

- I. SOCIAL, ECONOMIC AND ANTHROPO-
LOGICAL CHARACTERISTICS
- II. RECOMMENDATIONS AND POTENTIAL
HYDROELECTRIC ENERGY USES

FINAL REPORT

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RURAL DEVELOPMENT SYSTEMS,
a division of
INTERNATIONAL ECONOMICS GROUP, INC.
1616 T Street, N.W.
Washington, D.C. 20009

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INTRODUCTION

Throughout the second half of August, 1981, personnel from Rural Development Systems (RES) division of International Economics Group, Inc. (IEG) visited and studied two isolated villages (Pueblo Nuevo and Buenos Aires) of the Veraguas Province, Republic of Panama.

The studies conducted had the twofold objective of (1) establishing an information baseline to determine the level of development of both places and (2) determining potential uses of newly introduced hydroelectric energy whose impact on presently existing conditions would be evaluated by future studies.

In order to accomplish these objectives, the following tasks were performed:

1. Survey of social, economic and anthropological characteristics of these areas by interviewing villages' inhabitants.
2. Interviews of high level and field personnel of government and other agencies actively working in or connected with support tasks in either or both villages.
3. Extensive review of pertinent literature.

Results of findings and recommendations for possible future action are submitted in this report, as follows: Part I (Pueblo Nuevo); Part II (Buenos Aires). Each village study is divided into Section A (Baseline Information) and Section B (Recommendations and Potential Hydroelectric Energy^{1/} uses).

^{1/}Hydroelectric energy plants are being installed in both villages.

SECTION I

VILLAGE OF PUEBLO NUEVO

A. DESCRIPTION AND DATA

1. General Characteristics and Location

Pueblo Nuevo is a remote Panamanian village located at Long. W. 80° and Lat. N. 8°32' in the mountain range of the Corregimiento Chitra, District of Calobre, Province of Veraguas. Its average elevation is between 800 and 850 meters above sea level. The climate is tropical and consequently hot and humid, although somewhat tempered by cooling breezes common at high altitudes. Over the last twenty years, annual rainfall has averaged (arithmetic mean) 3,927.9 mm, with one year at 1,679 mm and other years over 5,000 mm.^{1/}

Pueblo Nuevo's location in the traditionally forgotten mountain range has kept it in isolation from the outside world. Recent efforts to better integrate this area as well as others into the main stream of national life have included a good deal of attention to the development of infrastructure. Essential tasks to accomplish this process of integration and development have resulted in the promotion of the following projects:

^{1/} See IRHE's tabulations for rainfall data registered at Loma Llana from 1960 to 1975. IRHE, Proyecto Micro-hidroelectrico for Pueblo Nuevo.

MAPA (MAP) I-A
 COMUNIDAD DE PIEDRAS GORDAS* Y PUEBLO NUEVO**
 CORREGIMIENTO DE CHITRA

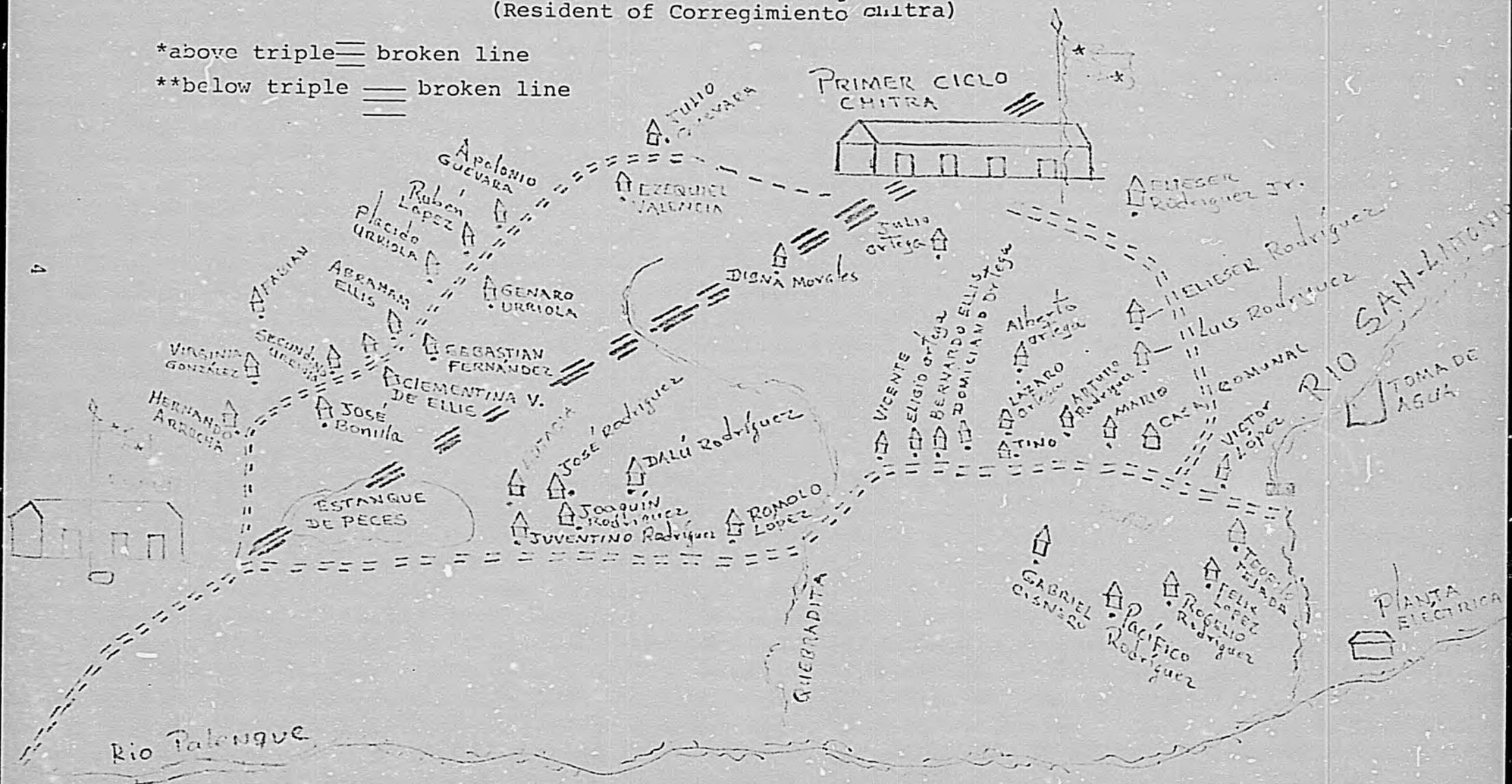
Preparado para IEG, Inc.

por

Tereso Urriola Rodriguez
 (Resident of Corregimiento Chitra)

*above triple  broken line

**below triple  broken line



- o Ciclo Basico (School, Grades 1-9)
- o Hydroelectric Plant, 80 KW
- o Plans to improve an existing and dangerous dirt road
- o Health Center
- o Reforestation Program
- o Initial work to create a production cooperative to improve marketing conditions for coffee, the only significant cash crop in this area.
- o Fish Pond

Each of these projects will be discussed at length later in this section. What is meaningful at this point is to consider the integrated planning and development of such a community through the synchronage operation of infrastructural components.

Clearly, at this stage, there are important ingredients for the development of this area. The above-listed projects and programs are geared to generate forward linkages. However, major emphasis on intangible inputs as part of the development scheme should also be considered. At that point, it will be possible to attract higher levels of attention and create incentives for local residents to move towards autonomy and use initiative to attain better levels of economic activity. Suggestions for this possibility are submitted in Section I-B.

Origin of the Settlement. The community of Pueblo Nuevo has existed for at least 80 years, according to Placido Urriola,

one of its oldest inhabitants. Sr. Urriola's grandfather, a Spanish immigrant, was one of the pioneer settlers of this area in the 1880's. Before that time, the land was part of the Guaymi Reserva Indigena. "Bajo La Palma Coco," an area today known as "Abajo" (below) or "de Abajo" (from below) was the first area settled. Pueblo Nuevo and Piedras Gordas, just above and somewhat higher on the mountain slope, followed in the settlement process early in this century.

Today, the three areas are communally called "Pueblo Nuevo," yet within the community the three areas, or neighborhoods, are differentiated by their respective names, i.e., Pueblo Nuevo, Piedras Gordas, and "Abajo." This report includes information on Piedras Gordas and Pueblo Nuevo since these are the areas which have consolidated into one single physical village and are the recipients of electricity generated by the AID/IHRE small hydroelectric project. Piedras Gordas encompasses 14 families; Pueblo Nuevo 26; and "Abajo" 10.

The 1880's was the decade of original settlement for the village. Along with Silvestre Rodriguez, the families of Rafael Saturno, Jose de los Santos Rodriguez, Federico de la Cruz and Enrique de Arcia moved into the area. Descendants of these families along with newer arrivals constitute the growing population, that despite its conditions of poverty, has retained a good number of inhabitants. Comparisons of census data from

1970 and the present show an increase of over 30 percent in the number of dwelling units. The 1970 National Census shows 19 houses and 71 inhabitants for Pueblo Nuevo section of the area, while today there are 26 dwelling units and a significant increase of inhabitants in the same area.

Observations and a survey of the area revealed a socio-economic level of development that can be classified as somewhat above minimum subsistence, i.e., the population produces enough to feed itself and also has monetary revenues resulting from the sale of coffee.

Coffee production as well as the cultivation of other agricultural products and cattle raising constitute the simple economy of the area. Land tenure, real estate, and factors of production administration occur under "private property" concepts. This is different from what occurs with the inhabitants of the other area under study, i.e., the Village of Buenos Aires, where much of the production and land tenure occurs under traditional Indian systems of communal ownership.

2. Socio-Economic Characteristics

a. Population and Population Concentration

The 50 dwelling units that make up the community of Pueblo Nuevo are spread over an irregular, elongated area of approximately .20 square kilometers or 200,000 square meters. Map I-A delineates the distribution of buildings (houses, school, etc.) in that area.

Most of the village dwellers have small parcels of land attached to their houses. In addition, most inhabitants defacto own and cultivate other parcels of land removed from the immediate proximity of the village, often as far away as two to three hours by foot. There is almost complete lack of transportation facilities in terms of both vehicles and roads. The only motor vehicle transportation in the area is the unscheduled trips of Government and donor agencies, such as AID, on official business, that travel the distance from Pueblo Nuevo to the Inter-American Highway and often to Santiago and the City of Panama. Otherwise, very few motor vehicles, if not more than one (owned by a village resident), cover that distance.

Despite its still humble condition of development, Pueblo Nuevo has the potential for becoming an important center of interaction for inhabitants of adjacent areas.

This is due to the fact that considerable infrastructural elements such as the Ciclo Basico (attended by children from areas as distant as three hours away by foot), the medical unit, electricity, and the road that will probably be improved in the relatively near future, are planned or already exist. Pueblo Nuevo is an old settlement and has resident stability that will be reinforced by better infrastructure.

The question that remains is how to accelerate the creation of employment sources, increase productivity, and promote production to make this community more affluent as expeditiously as possible.

3. Evaluation of Municipal Institutions

a. Public Services.

Water, sewage, electricity are non-existent in an organized and infrastructural way. However, the hydroelectric system will provide electricity for houses, street lamps, and other needs in the school, infirmary, and other central facilities (see hydroelectric plant).

b. Health.

The Ciclo Basico includes an infirmary which is already established. It is operated by a paramedic trained at a higher education institution. The role of this individual is to provide first aid and medical advice to students from the Ciclo Basico and the population-at-large. Medical services on a fully professional basis do not exist in the area. Availability of electric power (from the hydroelectric plant) will help this service maintain medical supplies at cooler temperatures.

Besides this paramedical facility, the village population often resorts to "curanderos" for health problems. The "curanderos," in a way typical of rural areas, practice medicine with the combined use of traditional herbal preparations, drugstore medicine, and psychological influence (for more detailed interpretation of rural medicine, see Health under Buenos Aires section).

c. Education.

A first to ninth grade "Ciclo Basico" to serve Pueblo Nuevo and adjacent communities operates in this village. Students come to this educational facility from several miles away. Children whose homes are two and even three hours away from Pueblo Nuevo must cover that distance on foot. Long distances between residences and the school have determined the need for a program that provides room and board. Those children whose homes are too distant from the school stay at the dormitory throughout the week and go home on Friday afternoon in order to spend weekends with their families.

The school instructs students in a traditional curriculum. However, at higher levels it emphasizes some practical subjects that can later be used to secure employment and help the individual and the community.

This educational center should also help the community in areas connected with adult education where subjects such as agricultural technologies, management, marketing and other related activities could be taught.

d. Credit.

Pueblo Nuevo is too weak an economic environment in terms of population number and disposable revenue to have a credit institution operating on a continuous basis.

However, agricultural extension programs through MIDA have provided access for the population to get credit for agricultural purposes, mainly for the improvement of coffee production.

These programs, extended throughout coffee producing areas of Panamanian provinces, aim at using financial and other resources to improve quality of the product through technological upgrading, i.e., there is an effort to use better coffee varieties and develop a better know-how for commercialization of coffee and/or other agricultural products.

MIDA is making efforts to replace "criollo" coffee with the "caturra" coffee variety. This variety, which originated in Brazil, should be rather easily adaptable to the Pueblo Nuevo area. However, the local population feels worried about making initial sacrifices in order to be able to finance a variety that not only requires new seed and other inputs but which requires three years of cultivation before harvesting for the first time.^{1/}

MIDA is undoubtedly carrying out a good program but this change proposed represents an economic burden and a psychological pressure that will take some time to overcome.

^{1/} Production is on a yearly basis after the first three-year growing period.

What is important along with the credit availability is the need for MIDA and other institutions to work together in assisting the population in planning production and marketing schemes that could provide additional revenue to the area. Such a project should not be very costly and could result in improvement of both revenue and levels of motivation for the population.

The Ciclo Basico, with electricity available in the evening, could be used to conduct short seminars to help adult members of the community learn better ways to use credit available to improve production and how to market their products more successfully.

e. Infrastructure.

Pueblo Nuevo is being provided with important infrastructure of which the main components are:

- (1) Road Construction: Construction of a new penetration road is presently approved. This road should be operational throughout the dry and rainy parts of the year. Its completion will have significant impact on trade between Pueblo Nuevo and market towns along the Inter-American Highway. It will also be an asset to the commercialization of coffee.

(?) Electric Energy. The advent of electricity through the installation of a 50 KW hydro-electric system should result in a number of village changes at various levels, namely:

- o Production (productive uses)
- o Educational (school and home)
- o Domestic Work (non-productive)
- o Domestic Work (productive)
- o Leisure
- o Family interaction

Energy uses, other than those originally considered by AID/IRME, are suggested in Section I-B.

4. Socio-Anthropological Characteristics

Defined from a broad perspective, institutions are significant and persistent elements, practices and relationships that focus on specific problems or needs of society. From that perspective the kind of institutions are main traditions such as marriage, land tenure system, production practices, etc. However, the term "institutions" is also used to refer to organizations such as business, government and others that tend to support the overall practices as above-defined.

From the broader perspective, the most important institutions for this study are those that relate to the possible improvement of the socio-economic needs of the village(s) population. This potential improvement is without a doubt the product of complex mix patterns; however, the main interest here is the attainment of production goals whose impact would result in the upgrading of individual and/or communal welfare. Thus, the main institutions that are considered are those of property use (mainly land) and production practices. On a second level, there is importance identified with the analysis of organizations (at times called institutions) that could effectively support development, e.g., those described under No. 3 a, b, c, d, e), Evaluation of Municipal Institutions.

a. Land Tenure System.

The area of Pueblo Nuevo was populated by poor people unable to gain access to prime land in the mainstream of agricultural and general economic production who resorted to what was left. Thus Indian land became the defacto place of settlement for poorer segments of the population who pushed the original natives into even remoter and less productive areas. The settlement of Pueblo Nuevo was a defacto one where most of the people simply took possession of the land by "squatting."

The defacto settler, conscious of his difficulties in acquiring land, became a self-centered, independent owner, incapable of being forced off his land. This is the kind of situation that prevails in the Pueblo Nuevo area. The individual producer is highly aware of his right of ownership to the land he settled or which was passed to him by an ancestor who most likely took possession of the land under the same principle. Landowners in the Veraguas mountains are well-known and their holdings respected as private property by the immediate community.

b. Socio-Political Organization.

The patterns of socio-political organization in Pueblo Nuevo follow a model typical to Panamanian communities, i.e., the population through the "junta comunal" elects representatives of the people for the local, regional and national

levels. The representative elected to the National Congress has more relevance since it is he/she who can promote activities before the central government that could result in exogenous inputs to help the local population. The role of the representative before the National Congress is therefore an important one, and the prestige of the appointment is the highest among those of elected officials.

5. Economic Characteristics

a. Overall Analysis.

Pueblo Nuevo (see street and population map, Map 6a), is a village made up of approximately 50 adobe houses with zinc roofs. The population is approximately 260 persons or an average (arithmetic mean) of 5.2 per dwelling unit.^{1/}

The population lives somewhat above subsistence level, i.e., each family feeds itself with its own agricultural production, lives in a house that is defacto its own, and clothes its members and purchases essentials with returns derived from the sale of coffee and to a much smaller degree, from the sale of other agricultural products.

The economic system is exclusively agricultural. Coffee is the only meaningful cash crop in the region. It is also the type of activity that places the community somewhat above minimum subsistence level. Nevertheless, other agricultural production has some potential for improvement and incorporation in the economic process, especially if ways to avoid spoilage are devised.^{2/}

^{1/}Data resulting from survey was matched against IRHE's data (RE: Pueblo Nuevo Hydroelectric Plant Study). Similar population results were obtained.

^{2/}One-third of the fruit and vegetable production is wasted due to lack of knowledge of food preservation techniques. See Section 5c, Food and Food Preservation, for additional analysis of this issue.

Cattle raising is another agricultural activity of importance in the area.. However, and despite claims to the contrary, it is not a highly efficient type of enterprise. Cattle raising is most often uneconomical and damaging to the physical environment. It requires the use of large parcels of land (approximately one Ha. per head) and involves the use of constantly deteriorating land that without proper use of land rotation, fertilizer, and upgrading, is quickly losing its production potential. This system is explained in the economics of the Guaymi (see section on Buenos Aires). Cattle raising is a family activity where land and labor intensive work provides the requirements for having a few head. Cattle are expensive to raise. Their chief function is "storage of value." Having cattle replaces the need to have a savings bank. Owning cattle also represents "prestige." It is both a banking system and a social status condition, but it is not a money-making proposition under existing conditions in the area.

Production occurs, as mentioned before, under strict concepts of private property whereby a producer (agriculturist) along with members of the family own the fields, plow the land, harvest and use products to feed the family, and the surplus (mainly coffee, in the Pueblo Nuevo area) is sold by means of individual transactions.

The average size production unit is somewhere between 1 and 3 Has. It often occurs that each house will have a small parcel attached and the same family will also have one or more small parcels to tend somewhat distant from the house. In some cases, those parcels are one or two hours away (by foot) from the village.

As things are, there is abundance of disposable time for a family to tend productive activities throughout times of the year when they are not busy sowing or harvesting. Labor per se is a minor consideration in their assessment of production costs. Generally, it can be said that the marginal cost of labor tends toward zero throughout a major part of the year. Individual cost of labor is substantial only at times as mentioned above and during Zafras when people sometimes go to work cutting sugar cane and receive cash wages. This, however, is a transitory income for the village since that money is used to import additional foodstuffs and manufactured goods.

b. Production.

Economic production exists only in the primary sector.^{1/} Besides coffee and food production, the only other economic activities carried out on a very small scale are two stores with scant levels of inventory. These

^{1/}See Appendix C for outline of activities in the primary, secondary, and tertiary levels of economic endeavors as defined by the Contraloria, Panama.

FLOW CHART 1
 MARKUP FOR COFFEE PRICES
 From Production to Wholesale Distribution

PRODUCER

MIDDLEMAN

Inputs for Production

Reseeding
 Fertilizer
 Labor

Tilling + Growing + Harvesting

Production Costs + Producer Profit =

Transportation

Arrangements
 Betewwn
 Producer and
 Middleman

Cash
 Transaction

Similar
 Product
 from
 many
 Coffee
 Producers

Middleman Buying Price

+ Middleman Profit

= Exporter Buying Price

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COFFEE COST (In Approximate Money Terms)				
Production Costs Per Quintal	Producer Profit			
\$10-15 per Quintal (not including labor price)	+	\$65	=	\$80 middleman buying price
			+	\$30 middleman profit
			=	\$110 Exporter Buying Price

two business enterprises, owned and operated by local people, have minimal supplies and seem normally not to have much more than a few cans of food and some drinks (sodas, beer) in the dry season. Transportation costs along with a minimum of working capital and very little demand made these enterprises barely profitable.

Coffee Production. Production takes place under strict concepts of private property where a producer owns his land and tends his fields with the help of his immediate family. He seldom hires additional assistance. He also markets his produce, usually to intermediaries, who, in turn, sell large quantities bought from many small producers to coffee exporting firms established in the capital or other market towns. Traditionally, coffee production goes through the stages indicated in Flow Chart 1 on the following page.

Coffee produced by each independent producer seldom exceeds four quintales and the average (arithmetic mean) is 2.50 quintales per producer.^{1/} Total revenue^{2/} for 2.5 quintales (250 kilos) is around \$320 per year at the producer selling level and \$440 at the middleman selling

^{1/} Information provided by personnel from the Instituto Panamino Autonomo Cooperativo.

^{2/} Total revenue resulting from production of "criollo" coffee. Other coffee varieties are being introduced for production in the area through a MIDA project. See page xx for more thorough discussion.

price. Physical inputs (seeds, fertilizer, etc. and cost of labor) are not clearly accounted for. However, the only cost accounting that makes sense is that of physical inputs. Labor costs are disregarded under the concept that marginal cost of labor under those circumstances tends towards zero.

Self-reliance is a strong trait among members of this community. However, this individualistic concept is presently carried to the extreme at which point it does not make sense in an economic way, i.e., (1) coffee produced in Pueblo Nuevo is individually transported by a producer to the market place, and sold to a middleman who, in turn, sells coffee acquired from many similar producers; (2) coffee sold this way comes in small quantities and the producer can only sell his product (coffee) without having gained "value added," from potential processing.

Thus, from the above flaws in production (including processing) and distribution (transportation and avoidance of middlemen), it is clear that there are two economic factors that must be considered: (1) transportation and (2) coffee processing. At the production and distribution sides, it would be possible to decrease costs

through economies of scale by acquiring inputs (fertilizer, seeds, etc.), processing coffee, and transporting the final product to an optimum market by means of a coffee producers association.^{1/}

Coffee is harvested in the Pueblo Nuevo area and in general in Corregimiento Chitra somewhere between late August and March. This stage of production is simply the result of the degree of coffee berry maturity.

After harvesting, coffee is taken by the individual producer to a place, normally his own home, where it is laid on the ground or over another surface to be sundried using this simple but not efficient method. After the drying stage is completed, coffee is sold by the producer to a middleman. Transportation of the produce is normally the responsibility of the producer. When it is done by the middleman, there is a price reduction for the producer (seller).

The middleman receives the produce from many small producers, processes the coffee, and, as better quality grain, sells the product to exporters in the city or a main market town.

^{1/}A coffee producers' cooperative is in the process of organization, under technical support from Instituto Panameno Autonomo Cooperativo (IPACOO) and possible financing from international sources.

The loss of revenue for the producer occurs at several stages previously identified (economies of scale at the purchase of inputs stage, loss of value added, economies of scale of transportation) and hereafter described in an expanded form.

Producers' Unfavorable Economies of Scale:

- o Community members have traditionally acquired essential inputs, e.g., seeds, fertilizer, etc. as independent entrepreneurs. There exists the possibility that a coffee producers' association or cooperative could buy those inputs wholesale and reduce individual costs of production.
- o The same condition applies to transportation systems. The producer presently deals with transportation problems individually. An association/cooperative could gain from better economies of scale.

"Value Added" Loss:

- o Processing coffee in the village through the establishment of an association/cooperative and the establishment of a processing plant should enhance characteristics of the products and "add value" that presumably could result in higher levels of total revenue and profit for participating producers. Simultaneously, it will be possible to consider and implement uses of coffee byproducts such as the following:

FROM COFFEE PULP:

Ensiling --- Coffee Pulp Silage --- Animal Feed
Drying --- Coffee Pulp Meal --- Animal Feed
Pressing --- Coffee Pulp Bagasse
 Juice --- Microbial --- Protein-Rich --- Animal
 Process Produce Feed
Extraction --- Coffee Pulp
 Caffeine
Extraction --- Coffee Pulp
 Protein
Natural Fermentation --- Organic Fertilizer + Energy (Gas)
Other Uses

FROM COFFEE HULLS:

- o Animal Feed
- o Solvent Extraction -- Residue
 Wax
- o Fuel
- o Charcoal + Acetic Acid

FROM MUCILAGE:

- o Pectic Enzymes
- o Microbial Process
- o Pectins

PROCESSING OF COFFEE SEEDS:

- o Roasting
- o Grinding
- o Packaging
- o Wholesaling

Main Stages of Coffee Berry Processing. After harvesting, coffee goes through the series of processing stages mentioned above whose objective is to separate coffee berries into its main components, i.e., coffee beans, mucilage and pulp. Each component has potential economic uses; however, it is the coffee bean portion of the total product that constitutes the main economic part of this industry. Byproducts should also be considered for economic benefits of a secondary level.

The main steps in processing coffee are:

- o Pulper
- o Drying
- o Hulling
- o Roasting/Toasting

First Byproduct (Pulp)

Separation of pulp from beans by mechanical friction. Pulp is first byproduct.

Second Byproduct (Mucilage)

Either whole or hydrolyzed is the second byproduct of coffee berries

(process described above is commonly used in coffee mills that have abundant water supplies)

After mechanical or chemical (including fermentation) removal of mucilage, coffee beans are washed before dehydration. The initial dehydration step is sun-drying. Later the berries are further

Third Byproduct (Hulls) dried in a specially designed cylinder. After drying, the seeds are removed by fractioning the hull. Hulls represent the third byproduct.

PERCENT COMPOSITION OF COFFEE BY WEIGHT
(Dry Berries)

Pulp	30%
Hulls	11
Mucilage	7
Coffee Beans	52
	<hr/>
	100%

Undoubtedly, the main economic component of coffee is the coffee bean itself. However, the use of coffee berry byproducts for other economic uses should not be disregarded.

The small quantity of energy needed to process coffee berries and later roast, grind, and package them should be derived from the small hydroelectric plant already installed in Pueblo Nuevo. However, it will be necessary for a cooperative formation project to carry out an evaluation of the equipment to be used for coffee processing.

Discussions between personnel from IPACCOOP and RDS division of IEG, Inc., revealed consensus as to the main

elements, needs, and objectives of a proposed association in the form of a producers' cooperative. The only point of disagreement was related to IPACOOOP's original idea to use diesel engines to process coffee. It is indeed clear from the above analysis that electricity needed to process coffee can be effectively supplied by the newly installed hydroelectric plant.

Economic Differences Among Some Coffee Varieties. Although the "criollo" variety of coffee has been traditionally produced in the area, other varieties are now being introduced. This is especially the case with "caturra" coffee and "geisha" coffee to a lesser extent. "Caturra," which Brazil has been extremely successful with, is also doing well in the Pueblo Nuevo area. Results of its use are as follows:

One Palo (tree) produces 1 Lata (25 lbs.) of coffee berries per year, every year. Less productive is the "criollo" variety which produces 1 Lata (25 lbs.) every two years, i.e., one year the tree produces coffee and the next one remains idle. Thus, "caturra" can be a much more convenient variety for the area. However, there will be additional expenses associated with the adaptation of this new variety to the environment, i.e., the acquisition of inputs such as seed, acquisition of technological know-how, etc., besides a waiting period of up to three years to produce the first crop.

Banco Desarrollo Agropecuario (BDA) is offering loans (see Credit Section of this report) to improve coffee production. The emphasis of this program is to change from "criollo" to "caturre" coffee which, as mentioned above, is much more productive and is adaptable to the area's climatic conditions.

Also, combined efforts of the population with exogenous institutions could result in the association of producers who could process and market their product jointly.

c. Food and Food Preservation.

The main crops in the Pueblo Nuevo area are: coffee (which is the only significant cash crop) and subsistence food crops - corn, rice, beans, yuca, name, and fruits (grapefruit, oranges, tangerines, bananas, etc.).

Except for coffee, the rest of the vegetable products are used for subsistence needs almost exclusively. However, a percentage which has been estimated through local accounts to be in the neighborhood of 30 percent is wasted due to spoilage. This is especially true in the case of fruits which are picked and used without regard for logistics control and possible use during the months of food scarcity. Other perishable vegetable production suffers the same fate, with the exception of corn and beans.

Clearly, a possible solution worth considering to improve the supply of food throughout long periods of time without suffering any deterioration would be the preservation of fruits and other agricultural products which are produced with a surplus above the consumption levels during parts of the year.

Two basic techniques that could be considered for food preservation are: (1) vacuum bottling and (2) dehydration. Vacuum bottling has the advantage of being a simple operation with need for practically nothing except the raw materials and the containers. The only drawbacks are dangers that can result in terms of toxic formations if high levels of hygiene and careful processing are not observed. The other system, dehydration of fruit and vegetable products, could be safer, conducted at a centrally located base, rather than individual households. It could have a better quality control. Its main drawback would be need for dehydration equipment which undoubtedly requires securing some kind of financing. The dehydration equipment could also use electric power from the small hydroelectric plant.

Additional advantages to using this process would be the fact that cost/benefit ratios for this kind of project would be clearly determined, and if benefits surpass

costs, there would be ample room for project replicability and benefit for this and similar target populations.

In synthesis, the main advantages of the suggested changes will result in the following:

- o Salvage of existing surplus production needed for lean months each year.
- o Training option for people in the area of food preservation.
- o Some job creation opportunity.
- o Incentive to produce fruits and vegetables which are presently disregarded due to the difficulties for preservation and yet are easily grown in that geographic area.

B. RECOMMENDATIONS AND POTENTIAL HYDROELECTRIC ENERGY USES

The main possible uses of electricity besides those identified by initial AID/IRHE projects (Ciclo Basico and street and residential lights) are:

- (1) Coffee processing
- (2) Food processing for preservation (dehydration and/or bottling)
- (3) Other potential uses

- (1) Coffee processing is the main and natural use for increasing village total revenue. Adequate planning for communal management of post-harvest handling of the coffee from a physical and managerial centrally-located facility should result in economic benefits, i.e., economies of scale advantages in transportation and production inputs acquisition, feasibility to process coffee in larger quantities (small, independent producer cannot process coffee economically), and group strength to market coffee and negotiate better prices (probably without having to use middlemen). Considering these elements and without including cost of financing processing equipment, it is possible to see that total revenue from this cash crop could improve by more than \$30 per Quintal (100 kilos) since that by itself is the middleman profit, i.e., \$30 above the price per Quintal paid to the producer, which is \$80. This means that there

is a potential for an increase in total revenue of more than 35 percent. The use of hydroelectric energy for the new plant is of utmost importance for this project. Due to the small quantities required for those needs and the fact that use can occur at non-peak hours, the process should work effectively.

Further research is immediately needed as to the costs of implementing the organization of a coffee producer/processing/marketing cooperative. Main steps in this direction have been undertaken by Instituto Panameno Autonomo Cooperativo (IPACOOOP). Similarly, personnel from IEG, Inc. are also researching this area at its own initiative and outside the scope of this report.^{1/}

- (2) The Ciclo Basico could provide training through brief seminars in areas connected with household economics and logistics. That way it would be possible for the population, especially the women who deal with household chores, to make estimates on agricultural produce (fruits and vegetables) surpluses. That surplus, rather than being wasted through neglect, could be processed in simple and useful ways. If a form of cooperative agreement is reached for this purpose, probably the same central facility used for coffee processing could respond to these needs.

^{1/}Specifications on these findings will be provided to AID as they become available.

(3) Little if any other possible uses are identified with present production in the area. Other considerations are based on the possibility of introducing production systems for simple manufacture of goods whose main markets would not be the immediate area but rather larger towns along the Inter-American Highway. The introduction of exogenous industry is a more difficult task, although its feasibility is somewhat enhanced by the development of infrastructure in Pueblo Nuevo.

Besides physical inputs that are needed for development purposes, it is necessary to consider that populations in areas such as this are used to an independent entrepreneurial attitude. This is a quality that could be reinforced since it could be a point of departure for moving into a more dynamic state of production and distribution once infrastructure is made available. Pragmatic understanding of production techniques and marketing and management among the population should result in an expansion of the production possibility curve. That would tend to increase employment and would undoubtedly help in creating incentives for people to remain in the area, producing agricultural products which are of much importance for the region and the nation.

SECTION II

VILLAGE OF BUENOS AIRES

A. DESCRIPTION AND DATA

1. General Characteristics

a. Location and Basic Data.

Buenos Aires is a remote Guaymi village located at Long. W. 81° 27' and Lat. N. 8° 30' in the mountains of the Corregimiento El Prado, District of Las Palmas, Province of Veraguaz, Republic of Panama. Average elevation is 900 feet above sea level. The climate is tropical and humid with average temperatures above 80° F. and annual rainfall above 2,500 mm.

Access to this area is difficult and motor vehicle transportation during the rainy season is only possible with double traction jeeps or trucks during morning hours when previous evening rainstorms have subsided and the dirt road is relatively dry. Under existing road conditions, it often takes three to four hours to cover the 30 km distance by motor vehicle from the paved Inter-American Highway to the Village of Buenos Aires.

This village is made up of 30 families scattered over an area of 0.16 square kilometers or 160,000 square meters. This obvious subsistence economy area feeds itself by the cultivation of fields adjacent to the village. Production conditions are extremely harsh due to

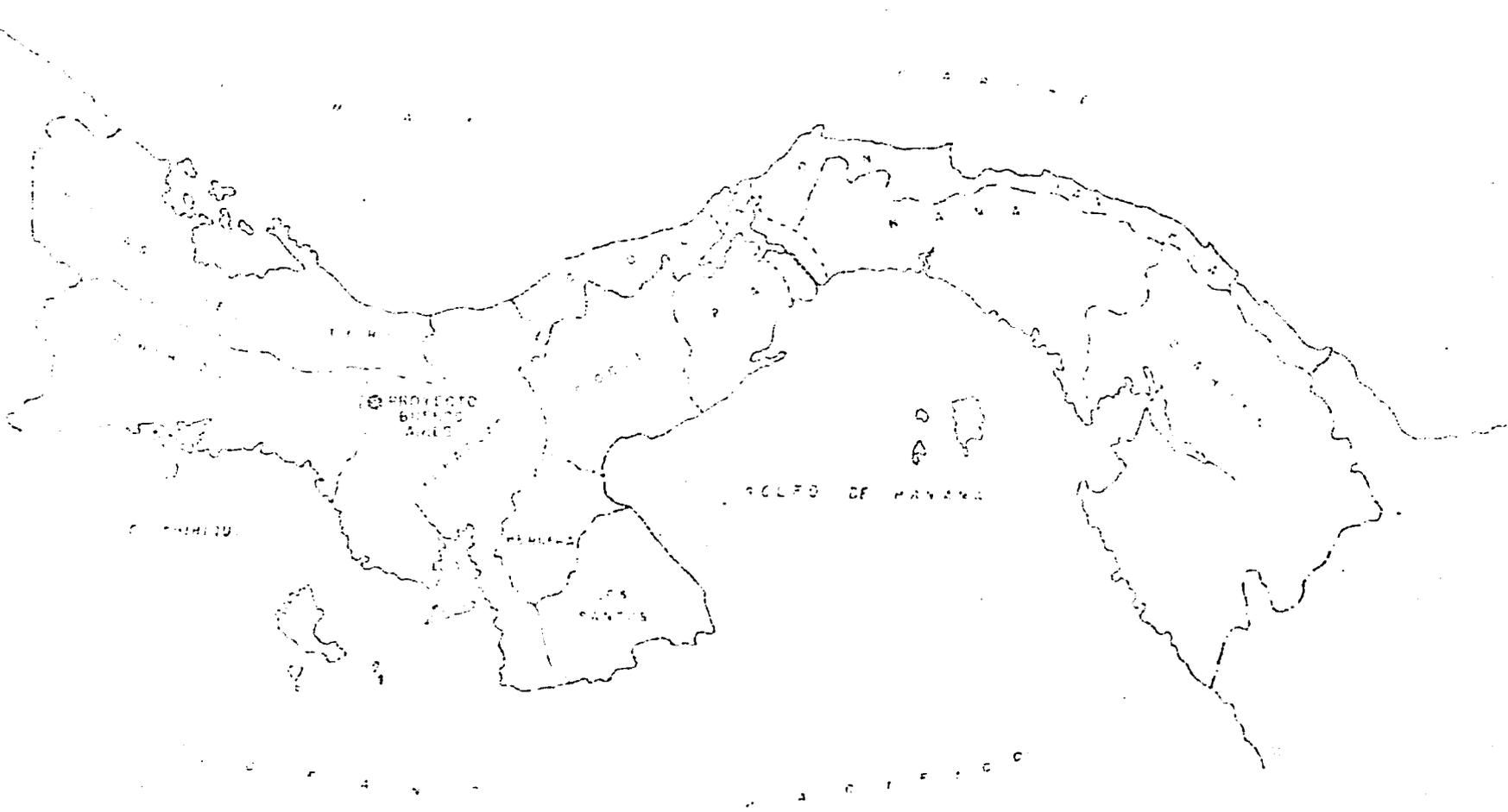
a combination of low quality lands, rugged mountainous terrain and use of traditional uneconomic practices. Isolation from support mechanisms to help induce improvement were an additional liability to the area. However, a good degree of attention is being paid to this community through various development schemes, e.g., hydroelectric plant installation, plans to improve and construct a road, Ciclo Basico completion, etc.

However, neither the availability of electric power nor the road by themselves constitute enough input to improve living conditions. It is clear that additional intangible inputs such as management and technological knowhow are required by this and similar villages in order for the population to effectively and constructively use elements of infrastructure. Possible means for improving management, marketing and technological knowhow along with recommended uses of newly introduced electricity will be discussed in Section II-B of this report.

b. Physical Description.

Map #1 provides a view of the Village of Buenos Aires' location within the Veraguas Province; Map #2 provides a view of Veraguas within the Republic of Panama.

As mentioned above, the Village of Buenos Aires is made up of 30 dwelling units. Besides these residences,

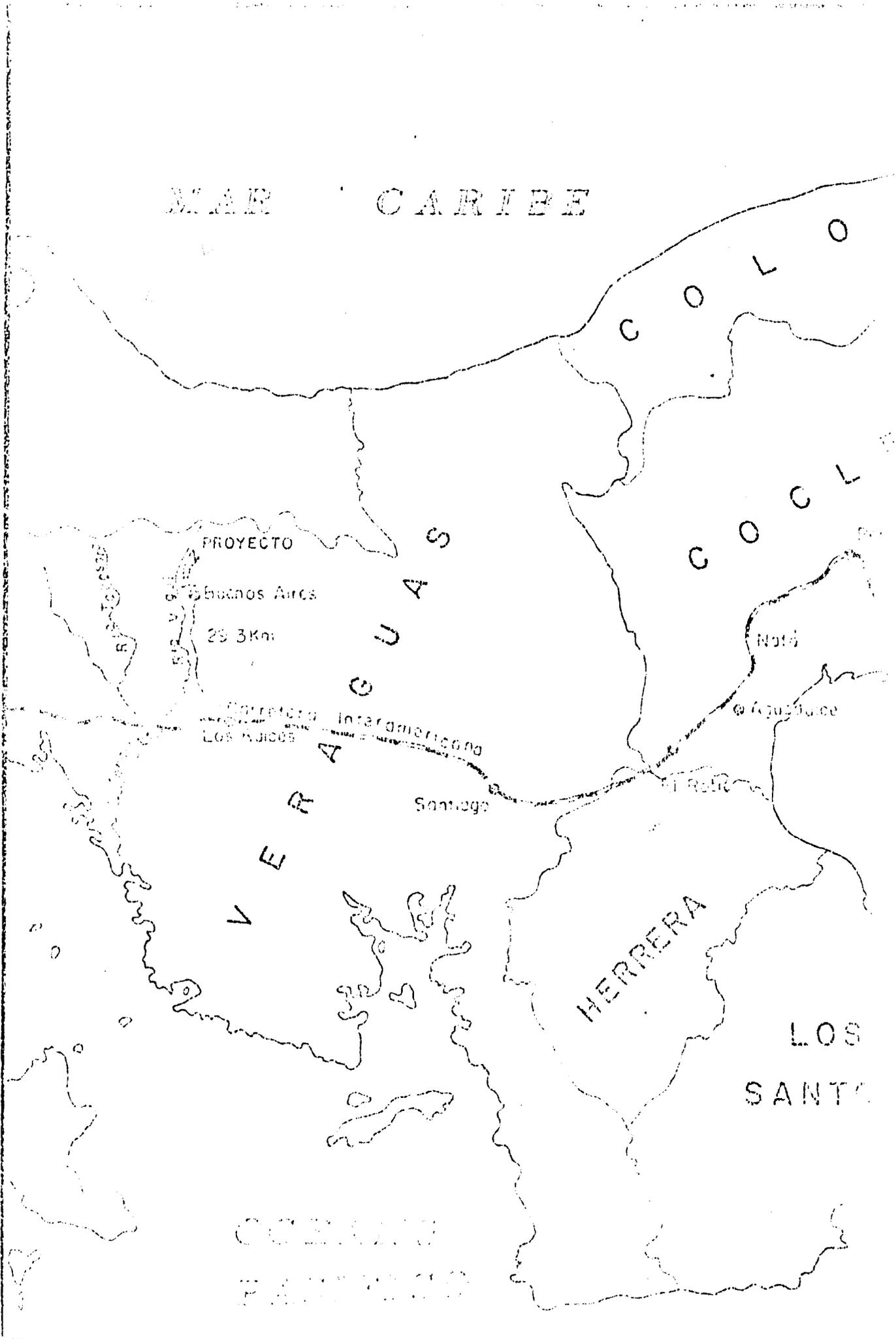


LOCALIZACION REGIONAL
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Best Available Document

SOURCE: AID/THRE MAP

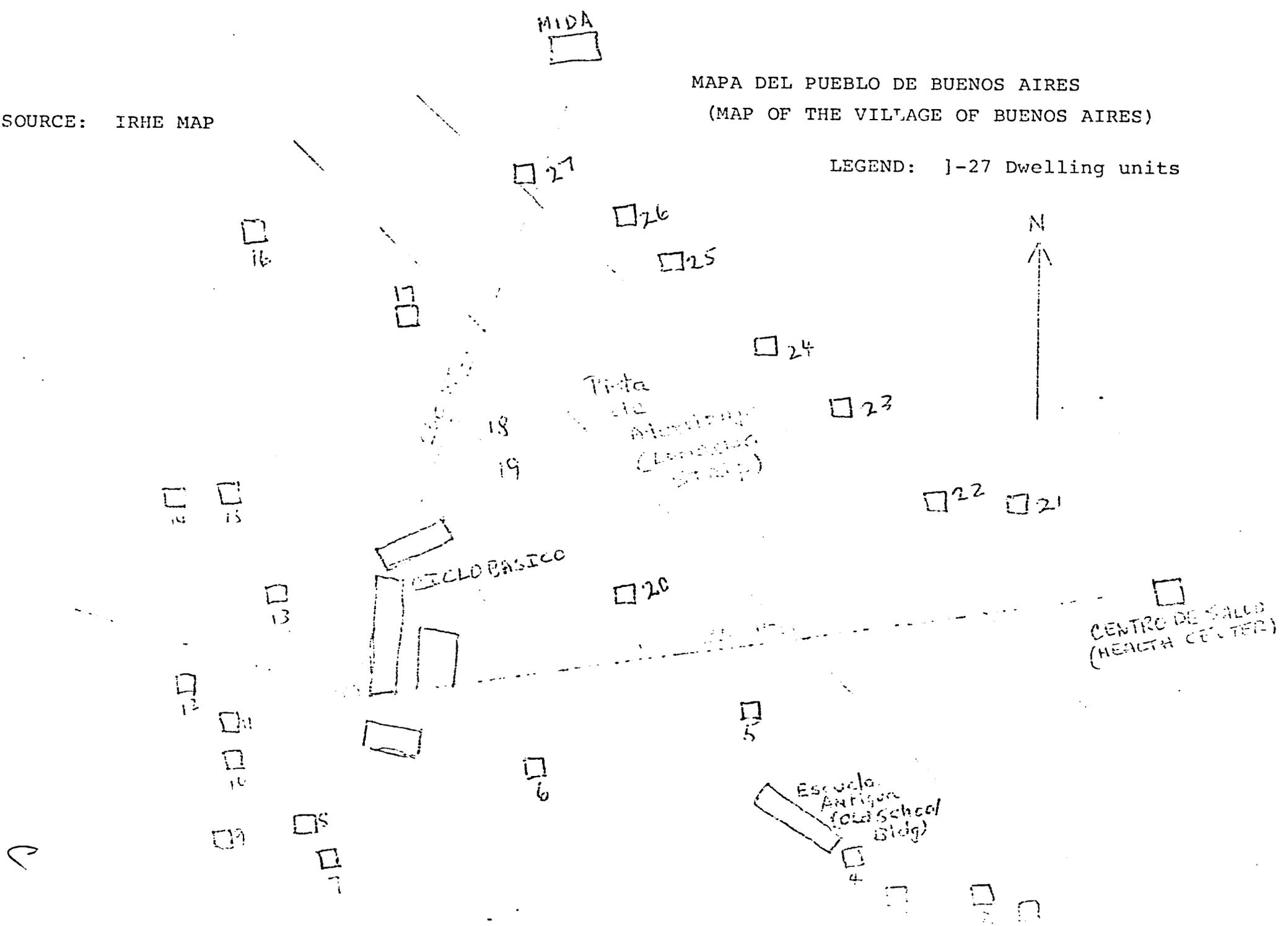
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SOURCE: IRHE MAP

MAPA DEL PUEBLO DE BUENOS AIRES
(MAP OF THE VILLAGE OF BUENOS AIRES)

LEGEND:]-27 Dwelling units



the only other buildings are for support services, namely: (1) a small medical clinic, (2) a new school building (Ciclo Basico), and (3) a combination residence-store (sparsely stocked).

In addition to those structures, and somewhat more removed from the village, although still at a short walking distance, is a RENARE building which houses permanent staff members from that institution and stores supplies for the reforestation project (see description of the reforestation project under support institutions). There is also a separate, smaller building, used as a storage facility for foodstuffs used to pay local residents for work contributions toward the same project. Buenos Aires also has a fresh water fish (telapia) pond administered by DINAAC (Direccion Nacional de Acuicultura), a division of the Ministerio Nacional de Desarrollo Agropecuario (MIDA).

Other government agencies, as well as AID, which has been responsible conjunctly with IRHE for the development of the hydroelectric plant, have been carrying out work to support the betterment of this area. Specific information on these activities will be described under Evaluation of Municipal Institutions.

c. Guaymi Socio-Economic Background

The Guaymi population is found almost exclusively in the western provinces of Panama (Chiriqui, Bocas and Toro, and Veraguas). The 1930 National Census showed a total Guaymi population of 16,161 in the Republic of Panama with major concentration in Chiriqui (63%) and the balance distributed between the Bocas and Toro and Veraguas provinces. Recent decades have witnessed much Guaymi intra-provincial migration due to their need to find both land for cultivation and settlement guarantees against potential expulsion from lands often unrightfully claimed by other groups.

Recent population assessments (2) put the number of Guaymi located in the Veraguas Province at approximately 5,000; the figure for total Guaymi population in the three provinces is 56,000 people, or over a threefold increase in 50 years.

Conversely, while the Guaymi population has steadily increased in the past half-century, their territorial tenancy has drastically decreased. This is especially true, but not exclusive, of the province of Chiriqui, where cattlemen from the lowlands have pushed the Guaymi higher into the Cordillera (mountain range), thus defacto expropriating Indian lands for use as cattle pasture.

The inverse correlation between Guaymi population increase and decrease in the quantity and quality of available land for this Indian population has generated much strain on the earning capacity of Guaymi land settlements.

Of all Guaymi groups, those of Veraguas are generally recognized as the most acculturated and economically impoverished ones. Representative of this condition is the Village of Buenos Aires and adjacent areas where the population lives with a subsistence economic system based primarily on shifting agricultural practices, i.e., swidden or slash-and-burn agriculture.

Swidden agriculture is seen as an ecological adaptation having evolved over centuries of use as the most efficient method of exploiting the land given the resources to work with, i.e., without access to better agricultural technology and/or technological knowhow. Traditional swidden practices allow for a fallow period whereby the land is allowed to naturally regenerate its vitality. In the Guaymi territory, this fallow period requires somewhere between 12 to 20 years of non-use depending on the level of deterioration of the soil. Due to low crop yields in conjunction with population increases and competition for land, this fallow time has been decreased and a resulting overuse of land has followed. Overuse of land

among Guaymi farmers was evident as early as 1930 and it has been a continuous process ever since. The effect has been a relentless increase of poorer soil and a corresponding deterioration of crop yields.

A most marked effect of the land's low productivity occurs during the so-called "Julitos," the months of June, July, and August. During these months, the soil provides no yields and community stocks of agricultural or other foodstuffs is so depleted that little if any food is available. Food scarcity thus markedly increases mortality levels, especially among the newly-born and infant population.

The production from the two corn harvest months (September and January) and the one rice month (September) barely lasts through the end of May, whereupon the local population must resort to eating whatever is at hand, mainly bananas, yuca, name, and otoe.

The need to supplement subsistence resources has resulted in a Guaymi attempt to turn at least partially to a cash economy. Efforts to earn money can be seen through the Guaymi search for and participation in work at Government-operated sugar mills (ingenios) in the vicinity of Santiago (the capital of Veraguas) and other places, especially during harvest time (Zafra).

The Guaymi will do work rejected by many other Panamanians. Sugar cane cutting, an especially burdensome task that pays only \$3 per day and does not include meals, is work often available to this Indian group. Resulting cash, after sustenance expenses, is not enough to properly feed the village population throughout the "Julitos."

Another and more traditional Guaymi method to acquire cash has been cattle raising. However, obsolete production systems and little if any technical innovation has often made this process less than successful. The settlement (asentamiento) of Buenos Aires has a cattle project with the support of MIDA and financing of BDA. This project, according to some accounting indicators, has been going ahead with some success. Details on this project are provided in the section on credit and cattle raising.

2. Socio-Political Characteristics

The Village of Buenos Aires was founded early in the 1970's as a partial solution to the need for displaced Guaymi Indians from the Veraguas area to have a settlement option. In order to better understand the Guaymi condition of rejection by other groups, it is necessary to make reference to the socio-economic history of this ethnic group.

a. Population and Population Concentration.

The Village of Buenos Aires, without the inclusion of any adjacent areas, is made up of 30 dwelling units.^{1/} These units are concentrated over a rectangular surface approximately 400 mts. per side. Each unit (one family per unit) includes a small adobe hut and a vegetable garden. Each unit is managed and operated independently by a family, although there is support for the community, e.g. houses are built by community groups rather than by individuals. Again, land tenure (outside the immediate household area) is communal property. Thus, cattle raising, the fish pond,^{2/} and other potential production activities are operated under traditional Guaymi concepts of communality (see Sub-section 4a and 5a, b, and c).

^{1/}This figure shows considerable increase over the six dwelling units and a population of 29 persons in the same area in 1970 (data from 1970 National Census for Panama).

^{2/}The fish pond is the result of DINAAC/AID projects to spread cultivation of fresh water fish in rural areas of Panama and increase protein intake of poorer segments of the population.

Greater Buenos Aires encompasses several adjacent areas included in the reforestation project (Sub-proyecto Agroforestal de Buenos Aires). This larger area has a total of 118 family units. However, the scope of this study is limited to the Village of Buenos Aires alone, since this village's inhabitants are the main beneficiaries of electricity generated by the aforementioned 10 KW hydroelectric plant. Still, it must be mentioned that school children from areas neighboring the Village of Buenos Aires will be included in the benefits of electrification since this school is the only one in the area and is attended by children of these communities, who often must travel long distances to the Ciclo Basico (Grades 1-9) in Buenos Aires.

The Buenos Aires' population has also begun receiving support through various exogenous mechanisms which include the Ciclo Basico, electricity, etc. (see list of support projects affecting Buenos Aires, Appendix A.)

b. Social Composition.

The Village of Buenos Aires is made up of Guaymi Indians. The members of this community identified themselves as such to visiting IEC personnel. Buenos Aires was created by Guaymi leaders and the support of the Panamanian Government and other institutions. The village

operates as a magnet, attracting dispersed Guaymi from the mountain areas. The general idea, as expressed by Cacique Miguel Mendez, is to bring groups of Guaymi previously weak and scattered throughout the mountains closer together, in order to form a stronger unit capable of requesting and obtaining adequate support from the central government.

Although the Guaymi population does not remain as racially homogeneous as other Indian groups in Panama, the Buenos Aires population is Guaymi Indian for all practical purposes, both in theory and in practice, e.g., (1) communal attitude permeates work practices, land tenure, and ways of life, resulting in cohesion among neighbors and agreed-upon respect for the authority of their elected leaders; and (2) unlike the internal village relationship, there is mistrust and little communication with non-Guaymi groups (see details under 1d., Local Institutions).

c. Local Institutions.

Three main systems of institutional functions must be differentiated in the Guaymi village of Buenos Aires. The first is economic and mainly consists of the relationship of population to land. This relationship has traditionally been a clear one. Land belongs to the community-

at-large and both cattle raising and agricultural production are the responsibility and assets of recognized members of the community. Kin groups control access to participation in community land rights. Residence is a prime requisite for participation. Residence is determined by the rule of virilocality. Active use of the land is another factor influencing one's access, which often supercedes the other conditions, despite the indicated theoretical heirarchy.

The second structure of institutions belongs to the political realm. Here, as in the economic case (where control of land was the issue), it is also kin group control that establishes the primary source of political power. For the Guaymi population, it is kin group (not outside structures or organizations) that make decisions and exert influence on individual members.

It is the combination of the two above structures, political and economic, that carry out a process whose objective is production and distribution of subsistence items. Kinsman helps kinsman. They work side-by-side and mutual support increases in times of need.

The third factor to consider is the institution or practice of interrelationship between the village and

outside groups. Not surprisingly, due to pressures brought about against Guaymi groups, a good deal of distrust of exogenous influences occur; yet, despite that condition, the Guaymi are also aware of the need to gain support, cooperation, and guarantees from institutions at the national decision-making level.

With regard to this last point, it must be mentioned that some people interviewed referred to promises made them regarding the exchange of labor to construct the hydroelectric plant for access to the electric network for public use in the school, streets, and in the case of village dwellers, grid extension for household use of electricity. A high level of expectation prevails among those whom the "labor/home-electricity exchange" offer has affected. Any failure to very explicitly agree, whether in writing or verbally, and to live up to the commitment, will result in much distrust of outside institutions. Thus, it is essential that careful evaluation of what can be delivered be made before negotiating any form of agreements with the Guaymi.

3. Evaluation of Municipal Institutions

Despite aforementioned conditions of extreme poverty that prevail in the Village of Buenos Aires, it is clear that exogenous agencies (government and donors) have started development of support structures that will have significant impact on the improvement of conditions among the Guaymi in this area.

Most significant structural inputs have been:

- o Ciclo Basico (Basic Education Program)
- o Health Center
- o Fish Pond
- o Hydroelectric Plant
- o Road from the village to the Inter-American Highway (in process of improvement approval)
- o Landing Strip for Small Aircraft

The listing of infrastructural services does not follow any order of importance format and each item will be discussed below.

a. Public Services: Water, Sewer Systems, Electricity.

Except for electricity, which is the subject of Section II-B of this report and which is in the process of being installed, neither of the other services exist in the Village of Buenos Aires. Drinking and cooking water is obtained from two wells built within the village or from rainfall. Bathing takes place in the river. Prevailing economic conditions will not allow for any improvements in water and sewer infrastructure building.

Electricity, however, should be a meaningful input. It is not expected that electricity will have a beneficial economic impact in a direct way, i.e., the small quantity of electricity reaching the village and the levels of industrial capacity presently existing in the village do not lend themselves to any form of productive uses (Ceteris Paribus).

Newly-installed electricity seems to be appropriate for home use, and, more importantly, for school training of village population. Training should occur on two levels, i.e., the traditional Ciclo Basico for children and adult education in practical skills to be used for productive uses. The main area of potential activity identified is training of the adult population in lumber-related work. This is further expanded in Section II-B.

b. Health.

Many illnesses affect the population of this Guaymi area. Several stories of diseases such as diarrhea, contracted by drinking river water, that caused death within a few hours, were heard. The chief of the asentamiento's older brother had died that way. Local medicines could not save him, and attempts to get him out to Santiago were not timely enough to prevent his death.

A system of informary care and first aid to provide services for the students and the rest of the area population exists within the Ciclo Basico. The person in charge is a paramedic with two years of higher education training. This individual is a Government of Panama employee hired to fulfill the need for paramedical services in rural areas. This health center will undoubtedly benefit from the availability of hydroelectricity in the area since this will be a means to refrigerate medicine.

In addition to the public health facility in Buenos Aires, community members seek the services of several "curanderos" located in surrounding areas, e.g., Serafina Santos from Jacinto (neighboring area) and Ursula Basque from El Tigre (neighboring area). These curanderos are not the same as the traditional Guaymi Shaman but have adopted more the style of the Latino curer who uses herbs and store-bought remedies. Sra. Marcelina del Rosario is a frequently called-upon midwife.

Common diseases afflicting the Guaymi community are tuberculosis, influenza, diarrhea, gastroenteritis, and other intestinal ailments. Measles and whooping cough have been major killers of infants (combined with malnutrition).

c. Education.

The level of education in the traditional western world sense is undoubtedly very low among Guaymi Indians. Their knowledge of the Panamanian language, Spanish, is often non-existent. This is especially true among the women. In most family situations, the use of the Guaymi Nobe o Movere (also known as the true Guaymi) or the other Guaymi language, the Sabanero,^{1/} is preferred to Spanish.

Members of the younger generation were found to understand Spanish in all cases. This is easily explained in terms of their access to formal education, a condition that is expected to further improve with the establishment of the new Ciclo Basico.

The Ciclo Basico responds to educational needs of a population whose composition by age (compiled from 269 children sampled in Buenos Aires and adjacent communities, 1979 data)^{2/} is as follows:

<u>Age</u>	<u>Number</u>	<u>Percent</u>
Less than 1 Year	45	16.72%
1 to 6 Years	75	27.88
6 to 12 Years	91	33.82
13 to 18 Years	58	21.56
TOTAL	269	100.00%

^{1/} See: Herrera, Francisco, "La Zona Indigena de Distrito de las Palmas, Veraguas y el Proceso de Politizacion."

^{2/} Information provided by Lic. Sarix Diaz, RENARE Forestal Project.

The above statistics reveal a general increase in the population. The age bracket below 13 years increases considerably, except for the 1 to 6 year range where the increase is not as significant as in the previous and following group, groups 1 and 3. That discontinuity in the rate of growth of the population (that varies inversely proportional to the younger age bracket) was not explainable by preliminary observations; nevertheless, that stark change does not seem to reflect significant changes in the general trend toward population increase.

The role of education should be most significant in delineating possible areas of activity for the future of the Guaymi community. However, education will have to include not only traditional education for children, but should also consist of a pragmatic program geared toward improving the population's ability to use technology, especially in areas related to agricultural and agro-industrial technology that could make the individual employable or self-productive in activities within his/her community and immediate surroundings. Otherwise, a growing population, under the economic pressures of the feeble system that prevails, will resort, as it often happens under those circumstances, to migrate to other national areas and eventually to the city, where search for betterment is often sought but not frequently found.

Central to the development of energy sources and other infrastructure is the activation and promotion of productive uses of technology that should help develop employment sources and establish, as a consequence, schedules of incentives to retain the population and make them productive.

Ciclo Basico Facilities. Presently, three structures are the main physical components of the Ciclo Basico (Basic Education) Institution in Buenos Aires. This institution, whose buildings were constructed as an AID/Government of Panama (Ministry of Education) project, respond to educational needs from the first to ninth grades for the population of Buenos Aires and adjacent areas.

The three buildings already constructed have the following functions:

- Building 1:
- A. Dormitory for intern students who must sleep in the school since their homes are hours away from Buenos Aires.
 - B. Machinery Workshop.
 - C. Work Equipment and Machinery Storage. This building is used for all above purposes without much physical separation for the above-mentioned functions. The only real separation is an independent wing that has the exclusive function of housing female students and female teachers. Teachers are not members of the permanent local population. They are normally people hired by the central government to serve anywhere in the country. Those living in Buenos Aires, if not married, often reside at the school's lodging facilities.

- Building 2: A. Kitchen and Dining Room
B. A section of the same structure separated by walls for classroom.
- Building 3: A. Infirmary
B. Classroom

The function of the Ciclo Basico is to provide formal education for children of families from several towns in Buenos Aires and adjacent communities. However, there is potential, as mentioned above, that this role could be expanded to practical training in areas related to production and improvement of village conditions.

d. Credit Institutions.

There are no permanently established credit institutions in the Village of Buenos Aires. The only banking service available to this community comes from an agricultural loan program administered by the Banco de Desarrollo Agropecuario (BDA), a funding branch of MIDA, through a representative who visits Buenos Aires and other localities according to need.

Through this credit program, Buenos Aires, as a community made up of 25 associated members (socios), secured a \$27,110 loan. The loan consisted of credit to purchase Cebu cattle. The project now has 135 head of these cattle (see Inventory Chart on the following page).

The present balance of the loan, after three years of existence, is \$19,000.^{1/} According to the same source, 25 to 30 one-year-old cows are sold at \$190 each. From that level of sales, total revenue is somewhere between \$4,750 and \$5,700 yearly, which would be confirmed by the reduction of the loan by approximately \$8,000 in three years. However, this year's payment seems to be having difficulties, resulting from the inability to sell the number of cows needed to accumulate the amount due.

An inventory of project assets shows the following numbers:^{2/}

INVENTORY CHART

<u>No. of Cows</u>	<u>Classification</u>	<u>Price Per Unit</u>	<u>Total</u>
51	Grown Cow	\$250	\$12,750
29	Heifers	275	7,975
10	Heifers	180	1,800
18	Calves (female)	100	1,800
15	Calves (male)	100	1,500
7	Young Bulls	170	1,190
5	Bulls	600	3,000
		TOTAL	\$30,015

^{1/} Information provided by Heriberto Zambrano Rodriguez (the Cacique's nephew and head of the cattle project).

^{2/} Inventory done by Mr. Sandalic Arias Monrroy (BDA Representative) and provided by BDA personnel/Panama City.

Despite difficulties resulting from lack of technical knowledge, low-grade land, and lack of adequate fertilizer, etc., the project seems to be going ahead.

However, there is the idea that additional credit should be used to develop a poultry^{1/} and swine project communally managed in Buenos Aires. Despite some problems with the present BDA project, such as a delay in this year's payment due to marketing difficulties, it should be pointed out that the following monetary results show rather satisfactory loan repayment and capital formation based on cattle raising and selling.

<u>Project Year</u>	<u>Calendar Year</u>	<u>(In U.S.\$) Loan Balance</u>	<u>(In U.S.\$) Capital Formation</u>
0	1979	\$27,011	0
2	1981	19,000	11,000
3	1982	?	?

Although not enough information has been made available to calculate internal rates of return on this project, it is still possible to see that \$8,000 paid in principal and a net capital formation of \$11,000 for the community express success in the enterprise.

^{1/} Availability of electric energy would be useful for that purpose. However, it would be necessary to consider the economics of extremely small production systems for a population of only 30 families and little product marketability potential.

e. Other Infrastructure.^{1/}

Essential infrastructural components to support development already exist in Buenos Aires. Nevertheless, these components require improvement, better interpretation, and careful planning in order to achieve clearly-stated objectives.

Hydroelectric Plant. Construction of a 10 KW hydroelectric plant is already completed. The uses of electricity will be mainly for the Ciclo Basico, street lamps, and residential lighting. Specific uses of electricity at non-peak hours is recommended in Section II-B.

Landing Strip. A 900-meter unpaved landing strip diagonally crosses the central area of Buenos Aires. The village houses are spread outside the large rectangle whose surface is bisected from NW to SE by a strip of land adequate for small aircraft. Although very seldom used, this facility has had uses in the past to carry food and equipment and may again have practical meaning in the future.

Road. Plans to improve/construct a road from the Inter-American Highway to Buenos Aires are under study by AID/Government of Panama.^{2/}

^{1/}The underlying foundation or basic framework (as of a system or organization), permanent installation.

^{2/}See Appendix E.

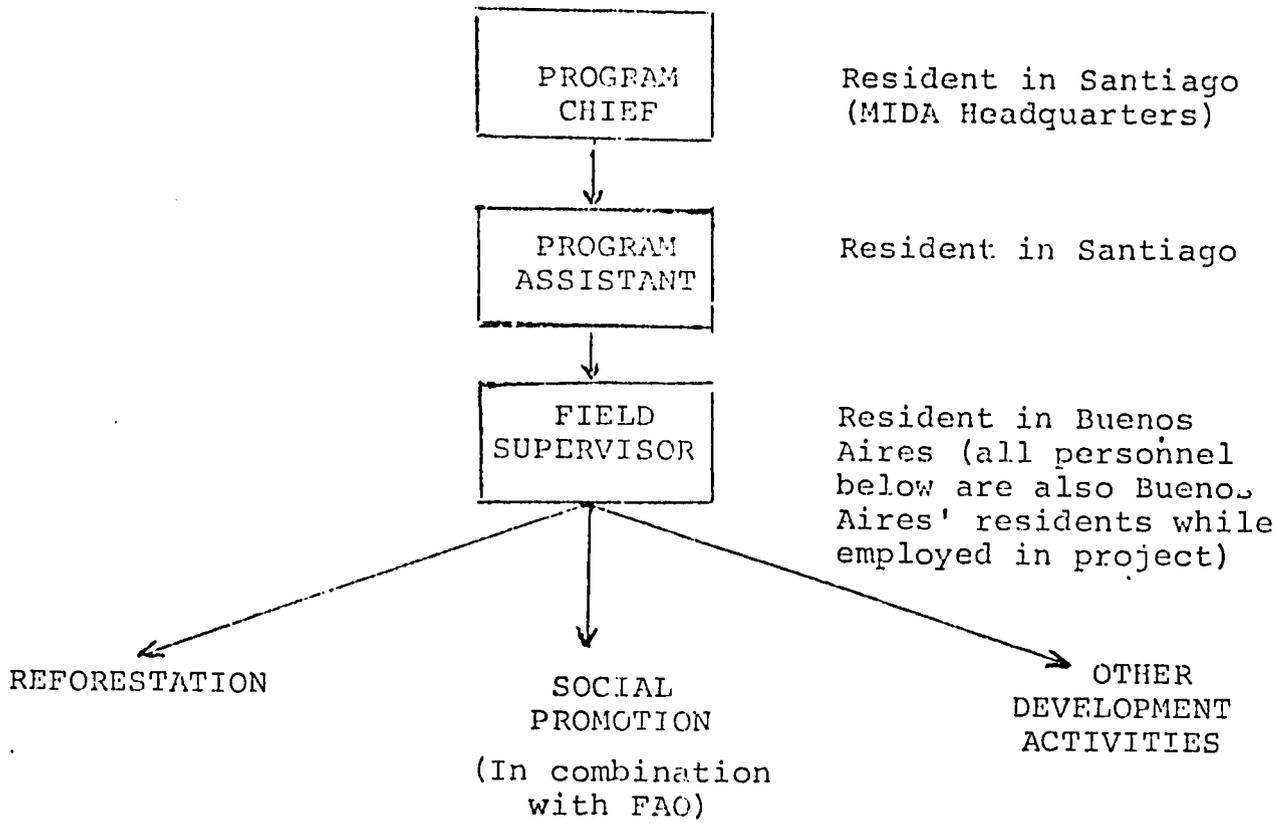
Reforestation. From a requested \$750,000, the actual RENARE budget was approved at \$250,000 for 1981 programs in the Province of Veraguas. This budget is to support five reforestation projects which are:

- o San Roquito
- o Valles Canaza
- o Buenos Aires
- o Alto Huarumo
- o Santa Fe

The Buenos Aires project has the following objectives:

- o Carry out reforestation work.
- o Make people aware of the importance of reforestation and wood conservation.
- o Assistance to the community in areas connected with handicraft (weaving, dressmaking, etc.) development.
- o Education (food preparation, vegetable garden cultivation, teaching basic writing and reading whenever appropriate).

The RENARE project is managed as shown on the following page.



<u>COMMUNITIES</u>	<u>NO. OF FAMILIES</u>	<u>7 PERSONS PER FAMILY</u>
Buenos Aires	25-30	175-210
Chumico	15-20	105-140
Piro #2	10-15	70-105
Jacinto	12-17	84-119
El Tigre	13-16	91-112
Caruya	8-12	56- 84
Tierra Blanca	8-12	56- 84
El Naranto	10-13	70- 91

What becomes a question is the economic future of the area once the reforestation objectives are attained. Most significant for the area would be planning the derivation of industry from existing wood and consecutive and constant reforestation schedules. However, the establishment of industry will require a combination of exogenous and indigenous resources. It is at this point important to consider that planning of wood-related industry should include the following components:

- o Definition of industry
- o Consideration of main factors of production
 - land
 - labor
 - capital
 - energy
 - management

Each factor of production should be considered in detail. However, two elements that require special attention are enterprise funding and enterprise rights of control or ownership. It is suggested that this condition be further analyzed and that co-ownership of enterprise be considered where the Guaymi population becomes a partner along with an exogenous agency or entrepreneur for the development of an economic (business) project. Under a scheme of this type, the Guaymi population could be trained at the Ciclo Basico in the use of tools, electric and others, that would enhance the development of lumber business enterprises.

4. Socio-Anthropological Characteristics

a. Land Tenure and Land Use.

Traditionally, land is not individually owned but rather collectively owned by kin groups who control access. Individual usufruct rights depend primarily upon one's residence and kinship descent. Residence is determined by the rule of virilocality. Active use of the land is another factor influencing one's access. Theoretically, someone else may be more entitled to a piece of land (by residence and descent) but active use supercedes. The control exerted by the kin group is extremely important to understand as it is the basis for one's existence in the subsistence economy. This kin group control also is the primary source for political power in Guaymi society. It is primarily within the kin group (not outside structures or organizations) that decisions are made and influence exerted on individual members.

The traditional Guaymi economic system is geared principally to the distribution of subsistence items. One is expected to help a kinsman in time of need. This is done to insure that aid will be returned when needed. This incorporates the concept of labor exchange as well.

This is still to be witnessed by the construction procedures of houses in Buenos Aires. In an otherwise harsh and uncertain environment, security is obtained through the vehicle of kinship. A general rule is that the more a subsistence-based economy moves towards a cash economy the greater the occurrence of abuse of the traditional system of reciprocity. This will certainly be the case of Buenos Aires as the community moves closer to a cash economy.

b. Socio-Political Organization.

As mentioned before, traditional political power among the Guaymi is centered within the kinship group. This has proven to be an adaptive mechanism for the survival of isolated small groups dispersed over wide areas of land. The overall political organization as such is neither centralized nor hierarchical. Political structures outside the kin group have had little effect upon the society as economic production is geared to the kin group level and is not dependent upon a higher level of organization.

Since the 1960's, there has been a political struggle among certain Guaymi seeking power outside the context of the kin group. The three Caciques of the provinces

of Chiriqui, Bocas del Toro, and Veraguas have been recognized by the Government of Panama. There are elected representatives (Guaymi) as well who are by law officials of the Panamanian Government, but the Government to date has chosen to deal with the Caciques and basically ignore the elected representatives. The Cacique of Chiriqui has appointed a "cacique suplente" (assistant) but the others have not. They instead have representatives in the capital city. In addition, the provincial Caciques have "jefes inmediatos" who are supposed to act as local community chiefs. This group is not legally recognized by the Panamanian Government. A great deal of political in-fighting has resulted from "jefes inmediatos" jockeying for position and power, especially those with long-term association with individual Caciques. Evidently the means to power through the vehicle of the cult of Mama Chi has diminished even though General Torrijos formally recognized the Mama Chi leader. Other leaders in the Mama Chi hierarchy have returned to the traditional ways of Guaymi shamanism and represent probably the most conservative elements of Guaymi society - advocating a withdrawal from "ladino" society and a complete return to traditional ways.

Given all this, the kin group is still the most important source of political power. It has been estimated that no more than a third of the Guaymi people follow the direction of the Caciques at any one time.

5. Economic Characteristics

a. Overall Analysis.

The analysis of economic characteristics was conducted on three different levels. The first was a general observation tour of the village and brief visits with village leaders. Living conditions (house construction), hygiene levels, scarcity of household objects, and general environmental appearance clearly revealed a society existing in a weak, subsistence economic system.

The second cycle of information gathering consisted of acquiring data by interviewing village leaders available for discussion and by interviewing as many families as possible to establish a primary data base that showed the following results:

<u>Dwelling Units:</u>	29 (30 including house/store*)
Other Buildings:	
School	1
Infirmary	1
MIDA	2
Store*	1

Total inhabitants of the village were estimated at 169 persons. Inhabitants of Buenos Aires and surrounding

areas (including the communities of El Chumico, El Piro #2, Tierra Blanca, El Tigre, El Nararijo) were estimated at 118 family units, with a total population of 642 people.^{1/}

The only two communities out of the above-mentioned ones with homogenous, i.e., Guaymi population, are Buenos Aires and Chumico. The rest are ethnically mixed (Indian/Black/Spanish).

Interviews with Buenos Aires residents showed the following economic characteristics.

b. Economic Production.

The population of Buenos Aires is involved in the following economic production activities.

- (1) Subsistence Gardening - Using small plots, normally attached to their small houses.
- (2) Zafra - Male members of the family would work a few months of the year in sugar cane cutting.
- (3) Communal Cattle Raising - Most families co-participated in communal ownership of cattle raising on village land.
- (4) RENARE Hiring of village personnel in reforestation program.

Revenues derived from these activities are summarized on the following page.

^{1/}Diaz, Sarix, "Situacion Socio-Economicade los Beneficiarios del Programa Numdial de Allmentos, Sub-Proyecto Agroforestal de Buenos Aires. RENARE. Dic. 1979.

ECONOMIC PRODUCTION

	<u>Product</u>	<u>% Consumed</u>	<u>% Sold or Traded</u>
<p>(1) Subsistence Gardening per family (normal production unit = 1 Ha.; those that have 2 Ha. are considered to be well-off in terms of food availability (except for Julitos).</p>	Maiz	} 70-80%	20-30%
	Rice		
	Yuca		
	Bananas	} 100%	0%
	Otoe		
	Beans		
			Provides income estimated at \$100-150 per year per family.
<p>(2) Income from sugar cane cutting (Zafra) per individual Taking 6-day week; per. of 2 wks. every 3 mos. at \$3/week-day.</p>			
		\$144 per year minus (-) food expenses.	
<p>(3) Dividends per family from the following communal work:</p>			
Cattle Raising	Cattle raising dividends in 1981 were \$10 to \$20. ^{1/}		
Telapia Production	Good potential to improve protein intake of population. Requires more systematic method of restocking of telapia (hybrid species used).		
<p>(4) RENARE's Reforestation Project</p>			
		Employ members of the local population and pay \$3 per day plus a bag of food (consisting of milk, oil and sardines), and, most hiring is by the day according to need.	

^{1/}Data provided by Heriberto Zambrano Rodriguez (Jefe del la Asentamiento/Cattle Raising Project) and confirmed by other people from the community.

SUMMARY OF ESTIMATED INCOME:

Estimated subsistence production barely meets minimum food needs.

Basic food production for one-fourth year (Julitos) requires exogenous products and consequent use of whatever cash is available.

Estimated cash income per family varies from \$100 to \$300 per year. 1/

There is an obvious absence of cash crops in the area. Neither coffee nor fruits (except for bananas) are produced and commercialized to derive cash revenues, as happens in other mountain communities. Yet, only 15 kms. from Buenos Aires, at El Jagua, Las Arenas, Cerro Tolica, Tierra Blanca, Guayarito, etc., there is coffee production (a cash crop) due to the existence of better lands and more agricultural knowledge.

c. Women's Roles in the Economic Process.

Not unlike the men, women participate in the cultivation of their land. However, unlike the men, they do not participate in the Zafra or activities that take them far away from the household. However, women are often found working the fields along with their husbands on both the flatlands around their houses or on the more distant and steep mountain slopes characteristic of the area.

1/ Income per capita for Panama is U.S. \$1,260 (Source: 1980 World Bank Atlas, Washington, D.C.).

Other activities women labor in are household management and clothes, amacas, chacara (bags), and hat making. Besides those activities, the women are, in general, housewives responsible for various household chores. Guaymi dressmaking for industrial and commercial purposes is an area of activity not only contemplated by development schemes but also actually implemented at present under sponsorship of a U.N. project. This project has affected communities other than Buenos Aires more extensively and continues in a process of expansion throughout the area. However, discussion with experienced personnel from various organizations dealing with marketing support for Panamanian handicrafts indicated that the demand for dresses fluctuates too much in both the domestic and international markets. Therefore, there is not a firm market on which the Guaymi population should rely.

A better understanding of the Guaymi dressmaking market was acquired in the neighboring area of Alto de Jesus (on route from Buenos Aires to the Inter-American Highway). Buenos Aires inhabitants had not been involved in the dressmaking project with the U.N., and, thus, it was necessary to observe the other area where the U.N. project was known to be in the process of implementation.

The U.N. program teaches Guaymi women in Veraguas to use hand sewing machines to make dresses. Of course, traditionally, dresses were handsewn only. The new system clearly reveals technification and loss of valuable "handmade" traits so much appreciated in original handicrafts. Still, good design and attractive colors make these dresses interesting items for the markets of Panama City and foreign countries.

Costs involved in making a dress are as follows: \$10-15 for fabrics and other materials, one to two days of work. Selling price is \$20, which results in profit (or wages) of \$5 to 10.

The U.N. project, as well as other development schemes, including RENARE's, are establishing a marketing process that will allow products to go directly from the producer to the city outlet or exporter rather than using middlemen. This will increase the profitability of the operation. Still, the problem connected with potential decreases in demand requires consideration before further investment is made in this line of activity.

B. RECOMMENDATIONS AND POTENTIAL HYDROELECTRIC ENERGY USES

Besides the uses of hydroelectricity determined by AID/IRHE for the Village of Buenos Aires (Ciclo Basico, street and household illumination, and refrigeration of essential supplies such as medication), the following productive possibilities have been identified:

- (1) Use of electricity for processing foodstuffs for preservation throughout long periods of time. This task would consist of either vacuum preservation or dehydration of various products that are produced with some surplus, which is wasted, and could well be used during the Julitos (months of food scarcity - June, July, and August). This is a productive use of energy that can be adopted in Buenos Aires and Pueblo Nuevo.
- (2) Uses of hydroelectric energy for training of local population in activities connected with lumber industry needs. This could only be possible provided that a macro-plan combining reforestation work, future investment in industry, and sharing of production ownership and rights between local and exogenous groups is established. Planning an agreement for this kind of complex project requires further study of legal and economic questions.

APPENDICES

APPENDIX A

LIST OF DEVELOPMENT PROJECTS
FOR PUEBLO NUEVO AND BUENOS AIRES

Pueblo Nuevo

- o Road Improvement/Construction
- o Hydroelectric Power
- o Reforestation
- o Fish Pond
- o Credit (Coffee Production and Distribution)
- o Cooperative Organization for Coffee Production and Distribution
- o Ciclo Basico
- o Infirmary

Buenos Aires

- o Road Improvement/Construction (see Appendix E)
- o Hydroelectric Power
- o Reforestation (see Appendix D)
- o Fish Pond
- o Credit (Cattle Raising)
- o F.A.O. Food Production
- o U.N.D.P. Handicrafts (Dressmaking)
- o Ciclo Basico
- o Infirmary

APPENDIX B

(1) LIST OF VILLAGES' RESIDENTS INTERVIEWED:

PUEBLO NUEVO

(Family Heads)

Piedras Gordas Side

1. Julio Guevara
2. Ezequiel Valencia
3. Apolonio Guevara
4. Ruben Lopez
5. Placido Urriola
6. Agenaro Urriola
7. Abraham Ellis
8. Sebastian Fernandez
9. _____ Fabian
10. Clementina V. de Ellis
11. Secundino Urriola
12. Jose Bonilla
13. Virginia Gonzales
14. Hernando Arrocha

Pueblo Nuevo Side .

15. Elieser Rodriguez (Jr.)
16. Julio Ortega
17. Elieser Rodriguez
18. Luis Rodriguez
19. Alberto Ortega
20. Victor Lopez
Casa (Edif Comunal)
21. Mario _____
22. Arturo Rodriguez
23. Tino _____
24. Lazaro Ortega
25. Alberto Ortega
26. Domiciano Ortega
27. Bernardo Ellis
28. Eligio Ortega
29. Vicente
30. Romolo Lopez
31. Jurentino Rodriguez
32. Joaquin Rodriguez
33. Dalu Rodriguez
34. Jose Rodriguez
35. Eutacia
36. Teofilo Tejada
37. Felix Lopez
38. Rogelio Rodriguez
39. Pacifico Rodriguez
40. Gabriel Cisneros

*Plus 10 houses in the "abajo" area.

MAIN SOURCES OF INFORMATION (INDIVIDUALS)
FROM BUENOS AIRES

Cacique Miguel Mendez
Heriberto Zambrano Rodriguez
Jefe Asentamiento
Sra. Alejandra
Agapito Cortez
Celestino Mendez
Cubertino Martinez
J.L. Carpintero
Magdaleno Martinez

(2) LIST OF GOVERNMENT OF PANAMA AND DEVELOPMENT ORGANIZATIONS'
PERSONNEL INTERVIEWED:

Ing. Gomez (Jefe Reforestation Program), MIDA
Sr. Eugenio Navarro, Region #2, MIDA
Ing. Luis Humberto Pilly-Programa Reforestation, MIDA
Sr. Cesar Almanza, Programa Alimentos (MIDA/FAO)
Srta. Sarix Diaz
Sr. Francisco Herrera (antropologia)
Sr. Gabriel de Saint Malo (BDA)
Sr. Sandalio Arcio Monroy (BDA)
Sr. Climaco Perez (contraloria, Panama)
Ing. Josefa Arroyo (Vivienda)
Sr. Pedro Martinez (Nutricion)
Sr. Cirilo Diaz (MIDA)

AID PERSONNEL INTERVIEWED:

Ing. Julio Villafane
Ing. Lynn Sheldon
Mr. Stan Nevin
Ing. Guillermo Riley
Ing. Jose Sandez
Ing. Jesus Saiz

APPENDIX C

COMPOSICION DE LOS SECTORES PRIMARIO, SECUNDARIO
Y TERCARIO, POR RAMA DE ACTIVIDAD ECONOMICA
(GRANDES SECTORES ECONOMICOS) 1/

Sector primario:

Agricultura, caza, silvicultura y pesca.

Sector secundario:

Explotacion de minas y canteras
Industrias manufactureras
Electricidad, gas y agua
Construccion

Sector terciario:

Comercio al por mayor, al por menor, restaurantes
y hoteles
Transporte, almacenamiento y comunicaciones
Establecimientos financieros, seguros, bienes
inmuebles y servicios prestados a las empresas
Servicios comunales, sociales y personales

Zona del Canal de Panama

Actividades no bien especificadas

1/ Contraloria General de la Republica. Direccion de
Estadistica y Censo. Censos Nacionales de 1970.
Vol. III, Compendio General de Poblacion. Pag. 176.

APPENDIX D

REFORESTATION PROJECT PERSONNEL

Management and Administration

3 Professionals
7 Technicians
3 Administrative Personnel
3 Secretaries
6 Mechanics and Heavy Equipment Operators

Subproject La Yeguada

8 Technicians (1 Professional)
2 Home Improvement Specialist
1 Driver
26 Laborers (Local)

Subproject Also Guarumo

2 Technicians
1 Secretary
1 Home Improvement Specialist
1 Driver
10 Laborers (Local)

Subproject Los Valles

3 Technicians
1 Home Improvement
1 Driver
15 Laborers (Local)

Subproject Buenos Aires

1 Technician
1 Home Improvement Specialist
14 Laborers (Local)

Subproject de Ola

4 Technicians
1 Administration
2 Home Improvement Specialist
11 Laborers (Local)

Other Personnel (Adm.) Paid by Project - 14

Summary

4	Professionals
4	Administrative Personnel
25	Technicians
4	Secretaries
7	Home Improvement Specialists
3	Drivers
6	Mechanics and Heavy Equipment Operators
82	Laborers
14	Other
<hr/>	
149	TOTAL

APPENDIX E
PLAN DE CAMINOS PARA AREA INDIGENA DE
VERAGUAS.

CAMINO NO. 1

Los Ruices-El Prado-Alto de Jesús-La Cucurucha-Viguf-Barrigón
Chumico-Buenos Aires.

Distancia: 30 Kilómetros.

Este camino fué iniciado en 1972 bajo la responsabilidad del Ministerio de Desarrollo Agropecuario, con el fin de promover algunos Proyectos Agropecuarios.

En 1974 el primer corte del camino llegó a Buenos Aires, con el fin principal de implementar la Reforma Educativa a través de un Centro de Educación Básica General. El Ministerio de Salud construyó un Subcentro de Salud y el Ministerio de Desarrollo Agropecuario, inició los proyectos de Porcinocultura, combinados con el Proyecto de Piscicultura. Además, inició programas de Reforestación.

Todos estos Proyectos han sido mantenidos a un alto costo en consumo de combustible y mantenimiento de vehículos y con una asistencia Técnica mediaticada, por las dificultades que presenta el camino, especialmente en la época lluviosa.

Estimamos que los sobrecostos para dar seguimiento a estos Proyectos a consecuencia del camino, se aproximan a los B/20,000. anuales.

El Gobierno ha invertido en este camino a través del MIDA y a través de los fondos de los Representantes de Corregimientos, aproximadamente B/ 100.000. (cien mil balboas); sin embargo, es necesario que este camino tenga las características que permitan el tránsito normal todo el año, para vehículos de trabajo, de tal manera que las Instituciones del Estado que realizan proyectos en esta área, puedan dar una asistencia efectiva y económica a dichos Proyectos.