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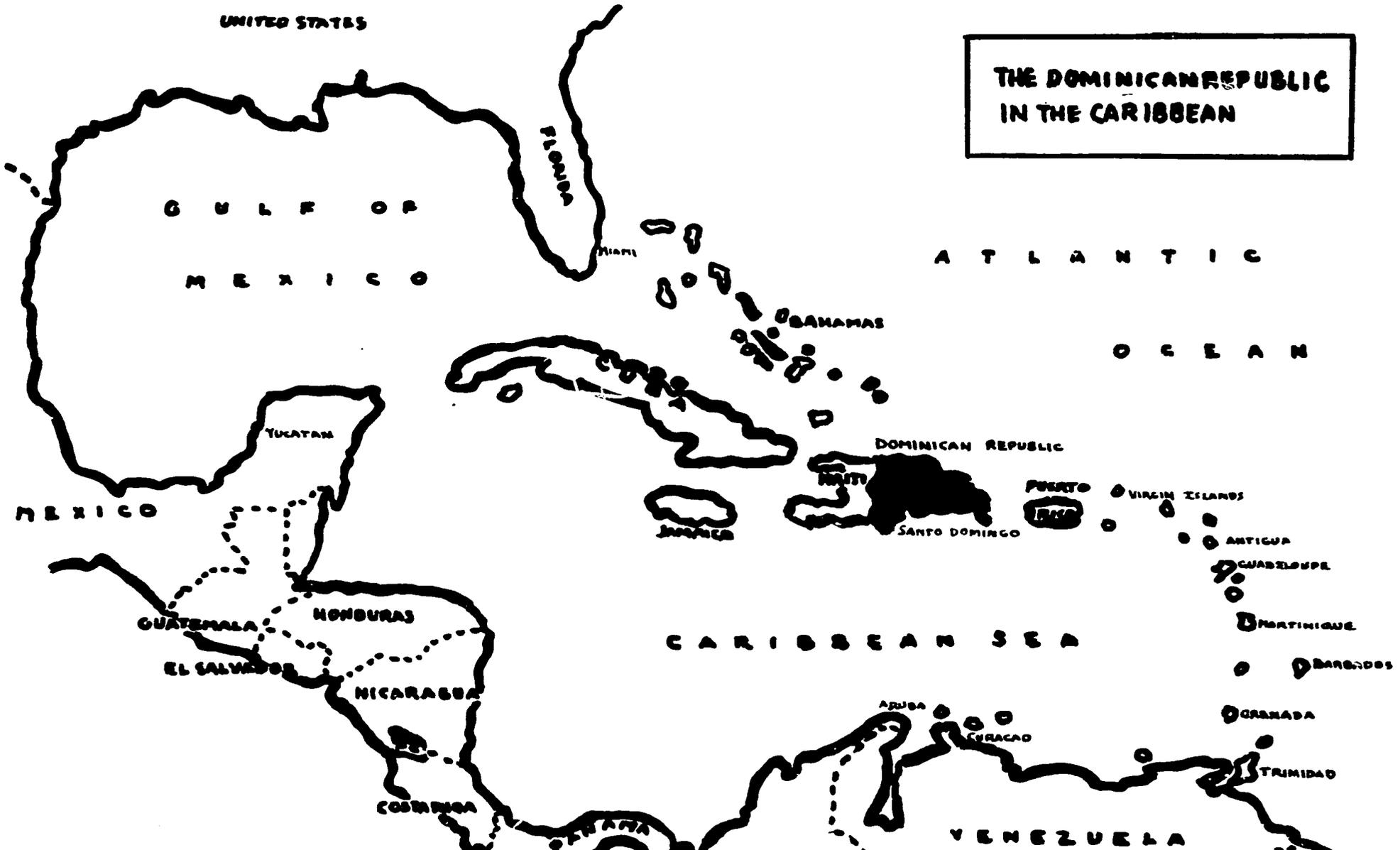
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E S T A B L I S H M E N T O F A H I G H P R O T E I N
F O O D P L A N T I N T H E D O M I N I C A N R E P U B L I C

PREPARED BY:

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OCTOBER 15, 1969



**THE DOMINICAN REPUBLIC
IN THE CARIBBEAN**

UNITED STATES

GULF OF
MEXICO

ATLANTIC
OCEAN

MEXICO

YUCATAN

FLORIDA
MIAMI
BAHAMAS

DOMINICAN REPUBLIC

PUERTO RICO
SANTO DOMINGO

VIRGIN ISLANDS

ANTIGUA

GUADELOUPE

MARTINIQUE

BARBADOS

GRANADA

TRINIDAD

GUATEMALA

HONDURAS

EL SALVADOR

NICARAGUA

COSTA RICA

ARUBA

CURACAO

VENEZUELA

CARIBBEAN SEA

PREFACE

This document was prepared to summarize material gathered in the Dominican Republic between August 6, and October 15, 1969, pertinent to the feasibility of establishing a plant for the manufacture, sale, and distribution of high protein foods in the Dominican Republic.

This report completes the study as outlined covering Phase I of AID Contract CAD-2230.

The information and data contained, was derived from both primary and secondary sources, and collected and prepared for this report by Lisa Lekis, Ph.D., Research Specialist. The opinions expressed are those of the writer, based upon an analysis of the findings.

Many individuals, both Dominican and American, have helped to provide material for this report. I would like to thank members of the AID Mission, the United Nations, and FAO personnel, and many patient Dominicans whose opinions and suggestions are incorporated in this study. I am particularly grateful to Mr. Burlin Hamer and his staff of the Food for Freedom Division of USAID, Dominican Republic, whose cooperation and assistance were invaluable in the production of this report.

Lisa Lekis

Santo Domingo
Dominican Republic
October 13, 1969

SUMMARY AND CONCLUSIONS

A. Summary

This study was undertaken to determine as far as possible the feasibility for establishing a plant to manufacture high protein foods in the Dominican Republic.

Although an important objective in the study was to ascertain the extent of malnutrition in the Dominican Republic, and to determine whether diet deficiency could be partially remedied by the production of a high protein food plant, it was equally necessary to evaluate the commercial potential of the project from the standpoint of private U. S. investment. The sale of 4,000,000 pounds of food at \$.39 a pound (retail) was arbitrarily set as a minimum for plant justification.

The orientation of other studies having similar objectives in other areas of the world, usually involved the determination of a market for a specific predetermined product. In this case, however, the exact composition, size, shape or texture of the food was undecided, and the research included in Phase I was focused on locating the potential market, estimating its purchasing power and determining the buying habits of potential consumers of a high protein food.

1. Diet deficiency in the Dominican Republic

From the outset, there appeared to be little doubt of the need to improve the diet of the majority of the Dominicans. Recipients of the Food for Freedom program (PL 480 donated commodities) total nearly a quarter of the entire population. It is generally agreed that the most

important element lacking in the Dominican diet is protein. Unfortunately, the animal proteins found in meat, milk, eggs and fish are among the most expensive consumer food items, and are beyond the financial resources of the population who are limited to the consumption of the cheapest carbohydrates, rice, beans, plantains, yuca, sweet potatoes and fruit in season.

The per capita availability of food in the Dominican Republic comes to about 2,000 calories daily, but probably 50% of the population actually consume closer to 1000, although the minimum calorie consumption recommended for this area is 2450 per day.

Agriculture, which produces 90% of the exports of the Dominican Republic has been static or declining since 1960, although the population has increased by a third during that time. Using an index in which an average between 1957-1959 = 100, per capita domestic food production in 1968 was equal to 66.

Some of the food deficit has been made up by an increasing number of food imports, to the extent that per capita availability of food in 1969 appears more or less the same as it did in 1959. Actually, the imported food is too costly to arrive at the poor rural sector whose food consumption progressively decreases each year.

As in other areas of the world, quantity and quality of diet in the Dominican Republic is determined by income, and the disproportionate distribution of available calories reflects an equally lopsided distribution of income, in which 10% of the people possess over 70% of the wealth and purchasing power of the country.

Although the objective of this project was stated as the production, low-cost foods, it is very doubtful that any price could be low enough for nearly three quarters of the population. Underfed, underhoused, and outside of the money economy, nearly 75% of the population does not represent any factor of commercial demand for industrial products and services.

2. The Commercial Market

Ninety six percent of the sales of all products are concentrated in seven urban centers, and sixty four percent are made in the capital city of Santo Domingo. The potential market, then, is urban, and highly concentrated in specific geographic areas having a total population of about 1,500,000 including adjacent rural or semi-rural areas.

To define the potential commercial market, the urban population was stratified to income and occupation, and the strength of the market or buying power determined by an examination of food and other items purchased in various types of retail outlets.

In the Dominican Republic, with a total population in 1969 of approximately 4,000,000 inhabitants, only about 25% can be considered as potential consumers in a commercial market for other than the most basic commodities. Although consisting of only about 350,000 members of the employed labor force and their dependents, or about 1,000,000 persons, the strength of the commercial market segment is evidenced by the growth in the number of supermarkets, their volume of sales, and their extremely high prices. Inventories in these outlets consist

of about 80% imported food items with prices from 100% to 500% above those current in the United States.

Based upon income levels, and the increasing demand for consumption of food items which would be prohibitively expensive in almost any commercial market, it seems valid to assume sufficient market elasticity to absorb the production of 4,000,000 pounds of high protein food. To capture this share of the potential high income market, however, appeal to taste is probably more important than competitive price. Supermarket consumers are currently paying much more than \$.39 a pound for comparable items that they like and want to buy. It is imperative, therefore, that a new product be based on the form and flavor of what people want and like to eat. Additional protein would not be a buying incentive for the high income market segment. An elite market demands an elite product, even though the increased cost for flavorings and texture might push the retail price above the \$.39 contemplated. Conversely, cutting or over-economizing on the quality of the product could mean no sale at all.

3. The Product and Brand

It has been suggested in other areas that marketing a "classless" food offers an advantage in appealing to potential consumers on all income levels. This is undoubtedly true in the Dominican Republic, where there is a resistance to the concept of "poor man's food."

It may prove, however, that the cost of a food product that can successfully penetrate the high income market in the Dominican Republic may prove too costly for those with more limited resources but who can

still be considered potential consumers. In order to sell 4,000,000 pounds, and because of the wide range of incomes and buying power, it might be advisable to consider as insurance, the possible advantage in producing two products at different prices. To achieve the impression of a "classless" food, advertising and promotion could be concentrated on a brand covering two or any number of products rather than on one specific food.

Selling products by "brand" is the established practice in the Dominican Republic, and would be advisable for a high protein food. This is true especially in view of the goal of diversified future production. The cost of advertising, estimated at about 200,000 dollars the first year, would then carry over to any items produced in the future.

4. Potential Domestic Production of Raw Materials

Soy beans, the principal protein ingredient projected for the high protein food is not produced in the Dominican Republic in any quantity at present, principally for lack of a market. Some soy is being contracted for the first time this year by the peanut oil factory to supplement their production of edible oil and margarine. There are apparently no soil or climatic factors limiting soy bean production, the principle barrier to production being one of price. With higher production costs and less efficiency of farming than in the United States, it is controversial whether local farmers will be interested in producing soy for the price of \$.05 per pound, or, in other words, meeting the price of soy imported from the U. S. and

landed in Santo Domingo for \$.05 a pound. The peanut oil factory plans to give technical assistance as well as credit for fertilizers, insecticides, etc. to contract farmers in an effort to raise the yield per acre, and so increase farm income from soy.

Although there is usually no surplus corn in the Dominican Republic, it is grown nearly everywhere in the country, and should be available on contract. Corn at present is generally planted as a rotation crop, with its purchase guaranteed by the government at a fixed price.

Sugar is readily available, being the principal crop of the country. Local price, however, is not based on the world market, but is derived from the artificially high price paid on the sugar quota exported to the United States.

B. Conclusions

Above and beyond the commercial sales of the products of the high protein plant, there are several interesting prospects for the future.

The preliminary results of the study of nutrition in the Dominican Republic, conducted during the summer of 1969, were widely publicized and commented upon in the daily newspapers. (See Section VI). The final report will be published about the end of the year (1969), and hopefully, will alert the government to the urgent need to remedy a critical national problem which has been neglected too long.

With a population expected to double in twenty years, the need for food, even to maintain the low level of nutrition characteristic of 80% of the population today, becomes increasingly acute. Demand can be expected to exceed even the rate of population growth as economic development raises incomes enabling people to spend more on better quality food.

Since 1962, about \$100,000,000 of food commodities from external sources have been distributed in the Dominican Republic, about \$65,000,000 being donations made through the PL 480, Title II program (Food for Freedom).

Over the years, channels of direction and collaboration among the numerous agencies and departments of the Dominican government concerned with food production and consumption have become progressively confused and complex.

International assistance agencies (AID, U. N., FAO, etc.) have been forced regularly to attempt to untangle the snarls of official

red tape typing up government operations and resulting in threats of duplicated efforts, wasted time and minimum achievement.

Evidence of official interest in the state of national malnutrition will prompt a joint recommendation from AID and the U. N. to the President for the creation of a Food Resources Commission to coordinate the present supplementary food distribution programs and those planned for the future.

If the Dominican Government becomes sufficiently impressed with the immediate need for action to remedy the critical food shortage affecting about 80% of the population, it is quite possible that a Food Resource Commission could arrange for the high protein food plant to supply a ready-to-eat food as part of a new school lunch program for 40,000 to 50,000 children in the national district not included in the present program.

It is also possible that, as the need for supplementary food increases with the population, the high protein food plant might participate in the nation wide food distribution of PL 480 commodities by providing a processed food to supplement or replace the commodities now included.

For the high protein food plant to participate in programs using PL 480, Title II commodities, the Dominican Government would be required to pay the cost of food processing. To agree to do so, top level Government officials must be aware of the need for action which, if not met, could cause serious political repercussions.

x

If the recommendation of AID and the UN is accepted, and a single agency organized to coordinate food distribution and diet improvement programs on a national basis, a proposal to enrich wheat flour by the addition of soy, processed by the high protein food plant, would be appropriate, and have a greater chance for approval than under current conditions.

Both prerequisites, awareness of the serious national diet deficiency, and concern of top level government personnel regarding possible consequences, may require some time, and at this moment, it is not possible to predict when these two potential markets for the high protein plant products will open up. The prospects that both food processing and flour fortification will ultimately be approved, however, is enhanced by the approach of the election year. The announcement of either or both projects by the present administration could hardly fail to win public approval. Conversely, the failure to recognize and take action regarding what the opposition could rightfully term a "national emergency," and one affecting the majority of the people, would be a difficult charge to answer.

As noted, supplementary sales through PL 480 food distribution or to the flour mill through the Dominican Government may take some time. Meanwhile, the plant must support itself by an annual sale of 4,000,000 pounds of high protein food.

To produce 4,000,000 pounds of food at a rate of 4,000 pounds per hour will only occupy the plant for a little over 6 months. If the same work is spread over a year, operating, administrative, and maintenance costs per pound or per hour will rise.

If we assume the accuracy of the cost of product figure of \$12¹/₂ cents per pound, a wholesale price of \$.26 and a production and sale of 4,000,000 pounds, the plant should gross about \$540,000. The following cost productions are purely tentative estimates of items which should be considered.

4,000,000 lbs. at 4,000 lbs. per hour

<u>Costs of Production</u> (7 Months)		<u>Cost of Production</u> (1 year)
<u>Ingredients</u>		
1. Soy (30% to 10% dehulling loss) 1,600,000 lbs. at 5 cents	80,000	80,000
2. Corn (50%) at 4 cents 1,600,000 pounds.	80,000	80,000
3. Sugar (10% at 7 cents	14,000	14,000
4. Other (Vitamins, etc.)	i	i
<u>Production Costs</u>		
1. Loan Repayment and Interest†	150,000	150,000
2. Operating Costs at \$64.74 per hr.†† (1000 hrs.)	64,740	134,659 (260 workdays at 8 hrs. a day)
3. Administrative, Supervisory, Sales Personnel (Estimated)	60,000	60,000
4. Advertising	200,000	200,000
5. Insurance	i	i
6. Spare Parts/Repair Maintenance	i	i
	648,740	718,659
LOSS	(108,740)	(178,659)

Notes on preceding table outlining plant costs

- + This figure is, of course, an estimate based on interest at 8% and amortization of \$100,000.
- + Based on a required 1000 hours, 125 workdays at eight hours, or 260 workdays (1 Year). Some costs might be reduced if machines are not used constantly, but labor, maintenance, etc. would continue. (Mr. Smith's figure of \$64.74 per hour)
- No time allowance has been made for breakdowns, repairs, etc.

Costs, of course, may not be this high, but the results of not operating at plant capacity should be considered. The gross of \$540,000 depends on the sale of 4,000,000 pounds, dependent upon the quality of the product and its taste appeal to the consuming public. But there is no guarantee of a sale of the quantity.

With so many "ifs" the risk is obviously high, even with the promising prospects of greater sales which, unfortunately, depend upon the always uncertain or unpredictable action of the Dominican Government.

With so much hanging on the ability of the product to successfully penetrate the potential high income market, the importance of the accuracy of sampling to be done for acceptability testing cannot be overemphasized. Acceptability tests should offer the choice of several products, possibly of various cost levels to determine not only if a product will sell, but which product is best suited to Dominican tastes and food preferences. Any product selected must have taste appeal, eye appeal, and attractive packaging. If a high protein food is to be successful in the commercial market, sales

depend upon the people with the purchasing power who will have to buy it or to provide added protein to those who most need it, the project will require subsidy.

In conclusion, it appears that the proposed high protein food plant in the Dominican Republic has many positive aspects:

1. A geographically concentrated, primarily urban market, which would minimize transportation, distribution, and advertising problems.
2. A potential market increasing in size each year, with considerable elasticity and strong purchasing power as evidenced by the constantly increasing flow of imported foods at extremely high prices.
3. The custom of buying small packages of "snack" foods.
4. A large supply of labor (25% or more of the population is unemployed.)
5. A potential supply of raw materials which could be expected to eventually supply the plant.
6. The number and variety of possible products using the same plant equipment.
7. The rising concern over malnutrition and diet deficiency which could lead to contracts with the Dominican Government to process PL 480 commodities and supply enrichment ingredients to the State-owned flour industry.
8. The advantage of a cooked ready-to-eat product over one which must add ingredients plus preparation, fuel costs, etc.

Some of the problems seem to be:

1. The price of \$.39, while competitive with imported products, is only marginally so with domestically produced items.
2. The possibility that the penetration of an elite market will require an "elite" product, costing more than \$.12¹/₂ per pound to produce.

3. The possibility that an assumed sale of 4,000,000 pounds may not support a first year operation.
4. The low productivity level of labor and the difficulty securing skilled employees.
5. The need to depend upon Dominican government action for supplementary sales.
6. The high cost of advertising, especially the first year.
7. The need to secure Dominican financial participation.

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I.

INTRODUCTION

INTRODUCTION

1. Goals and Objectives

As authorized by A. I. D., Washington, under Contract CAD 2230 in the name of R. E. L. Wilson III, the purpose of this study was to determine as far as possible the commercial feasibility for the introduction of a new type high protein, low cost food product in the Dominican Republic. Providing that the results of the investigation proved positive, it was assumed that capital would be invested by private industry to establish a plant to produce or process a food that had been tested and found acceptable to Dominican tastes and purchasing power.

The affects of widespread malnutrition in many developing nations has been recognized by the United States Government as a primary retarding factor to economic growth and development, and the planned free distribution of food through P. L. 480, "Food for Peace," as well as by other international agencies was an attempt to relieve recognized dietary deficiencies, especially among young children.

Although poor eating habits in some areas are characteristic of all levels of society, malnutrition is most highly correlated with income which determines not only the quantity of food consumer, but also its quality in terms of minimum diet requirements.

It is also recognized in the United States, however, that providing supplementary feeding to children or to needy adults can not be a long term solution to the problem of malnutrition. The funds that were made available for this and other similar studies in other areas, were aimed therefore, at determining the feasibility of selling and distributing low cost nutritious foods through normal channels of

commerce.

Dr. Martin J. Forman, Director of Nutrition and Child Feeding Service of the Office for the War on Hunger, A. I. D., stated before the Select Committee on Nutrition and Human Needs of the U. S. Senate, in July, 1969,

"Research and development of non-conventional protein sources have no meaning unless these potential sources of improved nutrition are actually reflected in products which are available to the consumer. Similarly, nutrition education of the consumer will have no impact unless he is able to find and buy the nutritious foods which he has been educated to want. The market place is the major channel through which such foods will ultimately reach the consumer, and it is private industry which has the capability to place such foods in the market place."

In recent years the policy of the United States toward nations receiving economic assistance has emphasized the need to replace outright grants with self-help opportunities and increased trade. The slogan "Aid with Trade," implied that private industry was to supply the investment necessary to develop the "trade." Few of the projects involving the collaboration of private industry with government, however, seem to get much past the "talking and planning" stage, and to date, the role of private industry in promoting economic growth and social development has been minor.

Private industry has never displayed reluctance to extend its activities into other countries in the past - provided that an opportunity for high profits existed. The development of rubber in Liberia, oil in Venezuela and Saudi Arabia, the huge industrial

plants all over the world are testimony to the willingness of private industry to take the initiative in industrial development. But capital has not been invested for philanthropic reasons, and if economic problems were alleviated and standards of living raised, these achievements were purely secondary to the primary goal of making a profit.

The economic need or the impoverished condition of the population has never been the incentive for private investment, and often the most depressed areas are the first to be rejected by investment planners because the risk is too great or the probable margin of profit too small.

Despite its willingness to cooperate with the government to achieve its official aims and policies, private enterprise cannot afford the luxury of acting as a welfare agency if it wishes to stay in business. No private company can be expected to invest its stockholders' capital without the expectation of a fair return. Neither the serious existing diet deficiencies characteristic of many developing nations nor the increasing shortages of food in areas affected by the population explosion will induce investment if there is no profit in sight. And food processing outside of the United States is a high risk business.

Although the investment guarantees offered by the Agency for International Development (A. I. D.) cover losses from expropriation, convertibility of currency, and "business risks," these are offered

more to avoid loss than to assure gain. Profit cannot be guaranteed by any form of insurance, public or private, and the decision to invest has to be based on a study of the potential market and the acceptance of a product by the consuming public.

As malnutrition is highly correlated with poverty, so is the demand for food with income. Need, no matter how great, cannot create demand from an economic point of view, unless some means is found to raise the incomes of the malnourished to a level which makes the purchase of foods on a regular basis possible. One of the most serious problems in the Dominican Republic is the disproportionate distribution of assets, including income, land and food, among families with different income levels. The poorest 25% of the population exist on a diet that is less than 75% of that of the average of the country as a whole, and far below any recognized standard of nutritional adequacy. But, although the need for food is greatest among the poorest sector of the population, there is little, if any, significant commercial demand.

Thus, although we may prove the existence of a satisfactory market potential for a high protein, low cost food in the Dominican Republic, it is doubtful that a realistic appraisal of potential consumers will include a significant proportion of those most in need of the product. Availability of nutritive foods will not correct malnutrition where there is no money to buy.

It is conceivable that the elimination of malnutrition could

be an important factor in raising income levels in the Dominican Republic, but it is not the only factor. Progress would have to be made on agrarian reform, rural and urban free education, adult vocational training, and unemployment so that national income would be more equitably distributed, before nearly three quarters of the "potential" consumers can be realistically considered on the market as purchasing consumers.

Within the limitations imposed by these economic factors, and with a commercial orientation, this study attempts to locate and identify the potential consumer of high protein, low cost foods that could be processed using actually or potentially available raw materials produced in the Dominican Republic.

Providing a new market and creating a new demand for agricultural products is, of course, one means of raising the income of the underprivileged and undernourished rural population, provided that increased net returns are not limited to the relatively few owners of large acreage. Collecting and utilizing the produce of subsistence farmers, however, might increase the cost of the finished food product beyond the point of economic feasibility. Considering the greater efficiency of operation and higher yield per acre possible on large land holdings backed with adequate financial resources, it may not be possible for the small farmer to deliver soy or corn at a price which would allow the finished food product to be "cheaper than the equivalent amount of conventional protein, and

low enough to permit the product to make a significant impact on the nutritional status of the population."¹ It is quite possible that the price of the food will be considerably cheaper than the equivalent amount of conventional protein, but it may be that any price will be too high to make a significant impact on the nutritional status of the population as a whole.

One of the principal deterrents to investment in food processing industries outside of the United States has been the lack of reliable data to determine markets and predict consumer demand. Accurate information is required to determine the potential consumers for a new food product, including data on purchasing power, income levels, sales records of similar or related products and channels of distribution. If the distribution of food is considered as a means to alleviate malnutrition, it is necessary to know how much people are getting to determine how much more they need.

Often, however, information may not be available, or existing statistics from different sources may be inconsistent or even contradictory. At times conclusions are at best, "educated guesses."

Few countries are able to provide complete information regarding food consumption, diet habits, or how people spend their food dollar.

1. Ibid.

The cost of a survey in depth to accurately determine these items often appears prohibitive,¹ although in the long run it might save both time and money as well as prevent expensive failures. Projections such as estimated sales multiply the error of an inaccurate base.

In the Dominican Republic, for example, agricultural production figures may vary due to the difficulty of estimating the amount of produce consumed by families living on subsistence farms although the amount might add significantly to "per capita availability of food." Commercial sales figures may reflect incomplete, inaccurate or even multiple records, and per capita data fails to describe accurately because of the lopsided distribution of income and purchasing power. As a result of faulty or unavailable data, many of the standard techniques used for determining market potentials in terms of probable sales are not available to this report.

2. Method

Established companies desiring to increase their share of a known market or introduce a new market product related to their present line, often base their approach on immediate goals and long range objectives which can be stated in terms of maintaining a minimum rate of return on an investment, sustaining growth rates of revenue and income, or increasing their share of the market.

1. A recent survey in the United States covering a sample of 6,000 families cost \$700,000 with the supplementary study to determine the affects of diet upon health anticipated as an additional cost.

In this case, however, the lack of a specific company or industrial history limits the reliability of future projections. We are not dealing with an extension of the activities of an established company whose share of an existing market can be determined, nor can we use accumulated experience in marketing a recognized brand as a base for launching a new product in an unknown market.

The investigation of market opportunities necessarily includes identifying customer needs and desires, determining the characteristics of potential buyers and forming tentative programs for converting potential into actual customers. These points we have tried to cover as well as governmental, technological, social and competitive influences which might affect the share of the market we hope to capture.

A customer survey approach, consisting of a sampling of all potential customers and questioning them about their present buying habits as well as their future intentions, would require more time and expense than is available for this project. It also suffers the danger of assuming that because a respondent says he will buy a product, he will actually spend the money.

As a result of the limitations mentioned, we divided the potential market of 4,000,000 Dominicans into segments based on certain known characteristics such as residence, occupations, and incomes. Certain segments of the population could then be eliminated as probable consumers with the remainder serving as the estimate of the

potential market.

An example of this type of approach of markets in the U. S. would be that of a company selling encyclopedias. The total number of households would be considered the primary market factor. Deleting illiterate or semiliterate families, families already possessing encyclopedias less than five years old, and families who have neither sufficient cash or credit, (incomes less than \$3,000), gives a more realistic measure of market potential for this specific product.

In this case, the geographic location of principal market centers and their share of total sales was first considered followed by the characteristics of rural and urban residents. Incomes was considered to be the first constraint to the market, and, based on available data, we attempted to eliminate the unemployed and those whose income level effectively removed them from the commercial market.

Although from the point of view of commercial feasibility, it seems mandatory to eliminate this segment from consideration of the true or probable market potential, it is recognized that its removal negates one of the primary motives for U. S. government support to this type of feasibility study. We felt it necessary, however, to concentrate on that portion of the market with sufficient purchasing power to buy before suggesting means to use a high protein food product to correct malnutrition in what is essentially a

"welfare" market.

A valid prediction of potential sales of a new product does not depend only upon identifying the market, but is equally, if not more, dependent upon acceptability of the product by the Dominican consumer. Phase I of this study does not include product testing for this purpose, and consequently, is limited to considering possible markets, methods of distribution, and availability of Dominican raw materials for an untested product that we think will be acceptable to the taste of the consuming public even though we cannot prove this to be the case.

Recent publicity given to studies of nutritional levels in the Dominican Republic and newspaper editorials insisting on the urgent need to correct a national diet deficiency may give impetus to the sale of the product designed to do just that, but the ultimate sale of a high protein food will probably depend on whether the consuming public likes to eat it.

There does not appear to be any particular problem with the introduction of a new food and a new brand. No food product is being sold now which is directly competitive in terms of nutrition, texture, or taste, and we would anticipate less resistance to "something new" than to a product resembling those already established in the market. An effective advertising campaign concentrated on establishing a brand name which would be used for this

and for future products, as well as the merits of the first product would, of course, be necessary, but should not prove more costly than necessary advertising for any new item.

Although total price-determining costs cannot be determined previous to locating a site for plant operations and receiving bids for construction, we have arbitrarily set a sale of 4,000,000 pounds as an annual minimum required for a successful operation.

In conclusion, then, this study seeks to determine the feasibility of achieving the following objectives:

1. Immediate short range goal:

The production and sale of 4,000,000 pounds of high protein food per year through normal retail outlets and institutional sales at an estimated cost to the consumer of \$.39 per pound.

2. Long range goals:

Provided acceptance of the product, and a sale of 4,000,000 pounds mentioned above, which is considered necessary to support initial plant operations, subsequent product diversification would include:

- a) Full fat soy flour for the fortification of wheat flour processed in the Dominican Republic. This product would be especially interesting from a commercial standpoint if fortification of all wheat flour became obligatory.

- b) The addition of new flavors and textures to the original product introduced, especially texturized soy products made with defatted soy.
- c) The development of a thick high-protein drink in accord with local tastes which could be prepared for use in canned, bottled, or powder base production.
- d) The use of 25,000,000 additional pounds of high protein food to be used as a part of the "War on Hunger." project to alleviate malnutrition among the adolescent and school population.

II.

HISTORICAL AND ECONOMIC BACKGROUND OF THE DOMINICAN REPUBLIC

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A. Historical Background

To understand the Dominican Republic today, it is necessary to look briefly into the past of the "land Columbus loved best." Many of the frustrating economic and social problems which retard national development today are rooted in customs and practices established at the time of the first settlement of the western hemisphere.

The Spaniards came to the Caribbean as conquerors rather than settlers, and depended upon slaves to earn the fortunes most hoped to carry back to Spain. The indigenous Indians of Hispaniola,¹ whose population at the time of the Conquest has been estimated as high as 3,200,000, were the first victims of the slave society, and were almost completely exterminated by the first generation of Spaniards to exploit Santo Domingo.

African slaves were imported to substitute for the rapidly dwindling Indian population, and Santo Domingo became one of the famous (or notorious) slave markets of the Caribbean.

The Spanish colonial period can be described as a series of personal struggles to enrich the colonial administrators through an unjust and wasteful exploitation of human and material resources.

1. Hispaniola was the name given by Columbus to the entire island. The Spanish colony occupying the eastern ²/₃ of Hispaniola was known as Santo Domingo. The western third was occupied by the French and named Ste. Domingue until the slaves who expelled the French renamed the area Haiti, the original name given the island by the indigenous Indians.

A small, dominant "aristocratic" society lived in luxury from profits of a sugar monoculture produced by the labor and sweat of masses of black slaves. Power, wealth, and education were monopolies of the top level minority, and a pattern was set that has persisted. Today a rigid class system dominates the social structure and threatens the economic and political development of the Dominican Republic as well as many other countries of Latin America.

By 1785, the population of Santo Domingo had grown to nearly 150,000, a third of whom were slaves. Ten years later the prosperity of the sugar monoculture was broken by the successful invasion of an ex-slave army from Haiti, followed by thirteen years of war and violence. This ended in 1808 when the country reverted to Spanish colonial status. Although slavery was abolished in Santo Domingo by the victorious blacks from the former French colony of Saint Domingue, it was quickly restored by the Spanish governors of the "second colonial period" who could not, however, so easily restore the former prosperity of their colony. Agriculture could not be revived quickly after thirteen years of neglect and destruction, and in 1821 Santo Domingo again fell to the Haitians who ruthlessly stripped the country of its assets until 1844 when Santo Domingo threw off the Haitian yoke, rejected colonial status, and declared independence from Spain. The exploitation of land and people, however, was continued by the Dominican leaders, and the country became so weakened by constant

internal power struggles that Spain once again took over the rule of her former colony. Favored by some, and bitterly opposed by others, the third period of Spanish domination from 1861 to 1865 was one of civil war during which a wave of terror completed the abandonment of the land, destruction of the cities, and the impoverishment of the people, begun by the Haitian invasion 65 years before.

The second period of Dominican independence brought no relief from political instability, economic decline and anarchy until 1912 when Santo Domingo was occupied by U. S. Marines. Although a measure of financial stability, military reform, and economic growth resulted, the occupation was regarded by Dominicans as an usurpation of sovereignty until the day it ended on July 13, 1924.

The Trujillo dictatorship lasted from 1930 to 1961, and for more than three decades Trujillo and members of his immediate family owned or controlled both the means of production and all public offices, and administered the Dominican Republic as a piece of personal property.

Trujillo's economic policy resulted in a high level of public and private investment accompanied by a surge of nationalism which produced a superficial form of economic expansion. National income rose significantly, but the benefits were limited to the Dictator, his family, and a close circle of friends. The world, however, was shown evidence of material and economic development

without precedence in the history of the country.

Trujillo had little interest in social development, however, and the social structure reverted to one reminiscent of "Paternalistic master and dependent, obedient, slave." Progress was secured at the price of freedom.

Although the political-economic system was overthrown with the assassination of Trujillo in 1961, the social pattern remained. Upward mobility in terms of education, opportunity and status or prestige is still geared to the acquisition of wealth.

The small, dominant, upper professional and intellectual class group consists of landholders of large acreages, politicians, who survived the dictatorship, many of whom cherish and struggle to maintain the standards, customs, and social classes of Spanish colonial society. This traditional group is currently being challenged in the fight for power by civil and military officials whose prominence and wealth came from their close ties to the Trujillo government, as well as by "liberals" with a Leftist political orientation.

Today the Dominican Republic has a small group considered as middle class -- teachers, small businessmen, hired farm administrators and white collar workers, but to date, this group has offered little challenge to the ruling minority above them.

Even today, about 80% of the population of the Dominican Republic occupy the bottom level of the social scale. Predominantly rural with little education or training, and living in substandard

conditions, few aspire to upward mobility. To date, there has been little opportunity for the lowest socio-economic groups to break the cycle of poverty which condemns them to perpetual misery and frustration.

B. Economic Background

Occupying the eastern two thirds of the island named Hispaniola by the Spaniards, the Dominican Republic shares a 193 mile border with Haiti, a nation never forgiven for its two invasions and occupations.

Traversed from east to west by four parallel mountain ranges, the highest peak being over 10,000, heavily forested mountain slopes are broken up by fertile valleys capable of producing abundant crops which once made Santo Domingo a "jewel in the Spanish crown." The rugged and changing terrain, however, has created serious transportation and communication problems and has effectively isolated pockets of rural population.

The fortunes of the Dominican Republic have always been based upon agriculture, and in 1969, 63% of the entire population is considered "rural." With much of the land suitable for agriculture, economic growth is historically linked to the export of agricultural products, principally sugar, cacao, and coffee, the principal components of the GNP.

From 1950-1958, the value of agricultural exports rose an average of 7% annually, a phenomenon largely attributable to favorable world prices. Quantities exported increased only 5.4%.

Agricultural export profits, backed by large reserves accumulated during the years of World War II, produced a continuing favorable balance of trade. Even today, ten years after the "prosperity of the 50's," agriculture supports over 60% of the population, accounts for 90% of Dominican exports, and 23% of the Gross Domestic Product.

Even manufacturing, although still in its infancy, has risen or fallen with agriculture. Sugar mills are the largest enterprise and provide most of the nation's industrial output.

Public investment in infrastructure made possible by agricultural exports enabled Trujillo to show roads, bridges, and public buildings as evidence of economic growth and national development. Private foreign investment was not encouraged during this period, as Trujillo's policy kept the population isolated from influences that might be disruptive to national confidence and tranquility.

Emphasis was given to the importance of substituting locally made products for consumer goods imports, and subsidized industries supplied a limited number of consumer items to a relatively small market. A concurrent policy of keeping salaries and wages at a low level, and monopoly prices, however, made exceedingly high profits possible to those in favor with Trujillo.

Despite a 7% growth of industrial manufacturing between 1950 and 1958, little effort was made to integrate production in the new industries, or to raise the living standards of the masses through opportunities for increased income. With industrial levels kept at an artificially low level, and with increasing rural unemployment and underemployment, the consumer market could not expand.

Land ownership was retained in the hands of Trujillo and his friends, and the rapidly expanding rural population could only further subdivide land holdings already too small to offer more than a marginal existence. Despite the pressure of population and an increasing need for greater food production, much land was left uncultivated and little attempt was made to increase yield per acre by modern agricultural techniques. Increasing numbers of people dependent on the minimum production of minifundia reduced per capita food consumption in the rural area below any adequate diet level.

The 1959 attempt upon the life of the President of Venezuela, attributed to Trujillo, resulted in sanctions being placed against the Dominican Republic by the Organization of American States. The affects of the resultant economic depression were magnified by doubled military expenditures and reduced public investment within the country. Faltering confidence in the regime and of the law prohibiting capital transfers, led industrialists to seek means to send capital out of the country for safekeeping in foreign banks.

International commerce, however, still appeared favorable due to a strict control of imports aided by a reassignment of a portion of the Cuban sugar quota to the Dominican Republic. In 1961, however, the OAS sanction caused the cancelling of the preferential U. S. market price for Dominican sugar. "Social tranquility" was one of the "achievements" of the dictatorship, accomplished by denying to the masses any hope of improvement. A dormant, apathetic, hopeless

population is rarely a threat to a political power structure. Only when the superficial tranquility is broken by raised hopes and unfulfilled expectations does population working actively toward improvement and a decent standard of living demand change.

The assassination of Trujillo, and the end of the dictatorship in 1961 shook the public out of its quiescent acceptance of an imposed misery, and awoke them to an awareness of the extent of their deprivation. The old government had been oriented toward outward economic stability and personal gain; the new was expected to make up for years of privilege and wealth for a few at the expense of the public. Loud demands for higher wages, better housing, and efficient and available public services in the cities were matched with rural pressures for land reform, educational opportunities, and agricultural development.

Restraints which had kept the economy on an outwardly balanced level were abandoned. The Trujillo owned agricultural and industrial property were incorporated into the public sector. Personal incomes started to rise and import controls were relaxed.

In general, employment figures rose as did incomes. Total consumption increased 12% between 1961 and 1964, although the GNP rose only about 8%. (Table 1). Increased income produced an increasing demand for products which, not being met by either industrial or agricultural production, resulted in a tremendous jump in imports. Agricultural production, especially, remained stagnant at about the same level as 1950, and the demand of a rapidly

increasing population for food was met almost entirely by tripling food imports which served the needs of the upper class but further reduced the per capita food intake of the rural and low income urban sectors. For the first time in many years, the Dominican Republic went \$125,000,000 in debt.

With import restrictions eased, local manufacturing industries, established as subsidized monopolies during the Trujillo period, could not meet the competition of foreign imports. Both inflation and the failure to curb the number of government employees working in the state owned enterprises, caused production costs to soar. The surge of public demand, however, brought many new businesses, and increased private investment 76%. Economic development could not take place rapidly enough to meet the financial requirements of an expanded educational system, better housing and public services, and the futility of providing adequate housing to a public lacking employment, or funds to construct hospitals, schools, and other buildings which could not be maintained became apparent.

The repression of public political initiative and organization during the dictatorship had left the masses with no political voice to demand satisfaction of their accumulated needs, and government organization was hasty and often haphazard. A succession of administrations from 1962-1964 realized some isolated successes in social improvement, most notable the establishment of a minimum wage and a resultant increase in industrial incomes. Achievements, however, were limited by the failure of succeeding governments to develop an economic system adequate to sustain social gains, let alone continue a process of increasing benefits.

The revolution and civil war of 1965, and the occupation of the Dominican Republic by troops of the U. S. Army adversely affected all sectors of development and put a temporary end to economic expansion. The government found itself without sufficient funds to meet even current operating expenses, and it has taken four years for the principal economic indicators to stagger back to their 1964 levels. (Table 1).

Table 1

Growth Rates of Principal Economic Indicators
Averages 1950-58, 1958-61, and 1964-66

Item	Trujillo Period		Post-T. Revolution	
	1950-58	1958-61	1961-64	1964-66
Gross National Product	7.0	-0.3	9.2	-2.5
Gross Domestic Product	6.5	0.3	8.4	-1.8
Gross Investment	12.5	-26.0	46.0	5.7
Public Investment	10.7	-18.4	5.4	15.8
Private Investment	14.0	-32.0	76.0	-12.5
Exportation	5.4	3.8	1.8	- 9.7
Importation	9.8	-15.5	35.6	- 9.4
Consumption	6.4	- 0.1	12.0	- 2.6
Private Consumption	5.9	0.2	12.6	- 3.6
Gain from International Trade (in millions of pesos)	83.3	-84.5	38.4	- 1.4

Source: Plataforma para el Desarrollo Economico y Social de la Republica Dominicana.

July, 1966 saw a return to constitutional government, headed by Dr. Joaquin Balaguer, who, in 1967, inaugurated a "Law of Austerity," in an attempt to prop up the faltering economy which still showed a deficit in balance of payments.

In 1967, GNP amounted to only \$1,026 millions of pesos, approximately the 1964 level. Per capita income suffered even a more severe setback. The following data show that in 1966 per capita income had not yet reattained the level reached in 1962:

<u>Year</u>	<u>Per Capita Income</u>
1962	\$288
1963	292
1964	299
1965	249
1966	269

The growth in personal income that characterized the years between 1961 and 1964 was halted by a general wage freeze. Fearing political repercussions, the number of government employees was not cut, but all salaries higher than \$200.00 per month were reduced. Rents, as well as some prices were put under control.

To maintain a high level of public expenditure, it was necessary to curtail imports, and in July, 1967, prohibitions or quotas were placed on a wide range of consumer goods including cosmetics, household equipment and appliances, alcoholic beverages, and automobiles costing more than \$2,000 F. O. B. The affect of the prohibitions, however, was nullified by the government policy of

allowing unrestricted importation of goods so long as privately held foreign exchange was used for their purchase. Continuing the high level of consumer imports has caused a severe pressure on the balance of payments, not helped by a high rate of unemployment and the drain of foreign currency caused by Dominican travel expenditures abroad. The impact of these problems on the economy was magnified by a severe drought in 1968, reducing the anticipated exports of agricultural products.

The value of imports since 1961 has consistently surpassed that of exports, and despite the Law of Austerity, the demand for consumer goods continues to increase. Food imports nearly doubled in the years between 1961 and 1964, and there is no indication of decreasing demand.¹

C. Investment Climate

While there has been relatively little violence in the Dominican Republic since May, 1967, terrorism and civil war are still threats that hang over the country, and may increase as the elections scheduled for June, 1970 come closer.

Despite the failure of the "illegal" chauffeurs' strike in September, 1969, need and hunger are adding to tensions which could have serious repercussions unless wage control provisions of the new Law of Austerity are liberally interpreted.

On the plus side is a rise of GNP since the disastrous days of 1965 with a 6-7% growth rate anticipated from 1969 on. Foreign loans

1. Information in this area drawn principally from Plataforma para el Desarrollo Economico y Social de la Republica Dominicana.

are no longer used for budget support, but can be applied at least in part to investments in infrastructure such as the Tavera hydroelectric project.

The balance of payments still presents serious problems, caused in part by the need to release hard currency for food imports to cover shortages caused by the drought of 1968, which also cut agricultural exports. Criticism of government policy in local newspapers has recently been focused on the established policy of encouraging the production of nationally produced "substitutes". It is commented that establishing local industries to manufacture products formerly imported accomplishes little, if the raw materials for such industries must be imported duty free as an industrial incentive. Complaints increase when the "import substitute" industries sell their finished "substitutes" for the same prices as superior articles previously imported, thus offering no advantage to the consumer and depriving the government of an important source of revenue.

A good part of optimism for the future economic development of the Dominican Republic rests on the continuance of assistance from AID which has been running at the rate of about \$35,000,000 a year, plus the Dominican Republic's share of the U. S. sugar quota, both of which are felt essential to balance of payments equilibrium.

1. Law of Austerity

The "Law of Austerity," renewed in 1967 and 1968, expired on August 31, 1969, but was recently extended another year by the Senate "to sustain equilibrium in the balance of payments." The

new law contains the following principal provisions:

1. Restricts the importation of luxury articles.
2. Impedes as far as possible the flow of capital leaving the country.
3. Prohibits the import of "luxury" automobiles.
4. Provides for limiting the import of gasoline by presidential decree.
5. Prohibits rents being raised.
6. Limits salary increases in accord with resources of industry involved.
7. Allows for wage increases by collective bargaining.

The extension of the Law of Austerity was not without its critics, prominent among them certain labor unions and syndicates who denounce the arbitrary "re-freezing" of "hunger wages" in the Dominican Republic. It is claimed that the original freeze in 1966 affected only the lowest level of wage earners, while a minority were allowed to live in luxury without participating in "austerity."¹

Unemployment of more than a third of the labor force is a pressing problem, matched only by the low level of productivity of those employed. The lack of skills on all levels is discouraging to the prospective investor who does not want to be faced with the time and expense of training a labor force for an industrial project. Insufficient, and/or irregular electric power, and the inadequacy of urban water supplies add to industrial development problems.

2. State Owned Industries

The former Trujillo owned enterprises, making up an important

1. Listin Diario, Santo Domingo, September 18, 1969.

element of the non-sugar industrial sector, are now administered by the State. Although the Government assumed control of operations in 1962, their future is still controversial, some arguing that these industries could be more efficiently administered through private enterprise, while others claim the industries to be primary instruments of economic development and, therefore, should be controlled by the State. Any kind of a possible sale (private) to private capital, particularly to that generated abroad, raises the nationalistic cry of "Sellout!"

In 1966, the Corporacion Dominicana de Empresas Estatales, (CORDE) was organized to administer 30 government-owned industries, accounting for 20% of all Dominican industry. The administration of these enterprises had previously been the responsibility of the Industrial Development Board, but between 1962 and 1964, only about 40% of capacity production was achieved. Table 2 lists the State owned and operated industries, and includes statistics of capacity used, costs of raw materials, labor, indirect expenditures, total costs and sales in 1966. More recent figures are, unfortunately, not available.

Cement, kraft paper, glass bottles, jute and paper sacks, salt and gypsum refining, and wheat milling are State monopolies. The paint industry supplies about 90% of the domestic market demand, and the tobacco concern about 60%. CIRDE also participates to some degree in the management of automobile firms, import houses, hardware stores, real estate, and insurance firms, the cotton consortium, the

Table 2

CORDE (State Owned) Manufacturing companies and Operations-1966

Company and Product	Capacity	% Capacity Utilized	Costs (thousands of Dom. \$)				Total Sale
			Raw Materials	Direct Labor	Indirect Costs	Total Cost	
Compania Anonima Tabacalera (cigarettes, cigars)	1,900 million cig. per day; 6 million cigars per day	68.0 42.0	2,738	1,780	9,172	13,690	17,498
Molinos Dominicanos (flour)	400 M. tons per day	54.0	1	1	1	1	8,704
Fab. Dom. de Cemento (cement)	960,000 bags per mth.	54.0	501	2,948	557	4,005	6,288
Ind. Nac. de Vidrio (bottles)	50 M. tons per day	60.0	1	1	1	1,428	2,661
Pinturas (paint)	4,800 gallons per day	41.0	709	50	336	1,095	2,160
Ind. Nac. de Papel (paper)	45 M. tons per day	65.0	1,111	195	751	2,057	1,990
Fab. de Sacos y Cordeleria FASACO (yute and sisal bags)	Yute-300,000 bags mth. Sisal-320 M. tons mth.	22.0 20.0	485	342	391	1,218	1,741
Sacos y Tejidos Dom. (textiles)	28,000 yds. per mth.	25.0	2,495	1,034	360	3,889	1,502
Refineria de Sal (salt)	12 M. tons per day	8.0	13	3	43	60	602
Dom. Ind. de Calzado (shoes)	1000 pairs per shift	27.0	198	110	132	440	596
Fab. de Aceites Veg. (veg. oils)	2000 M. tons per year	15.0	308	23	10	342	499
Ind. Lechera (milk)	47,000 bottles per shift	15.0	310	46	31	387	389

Page 28b
Table 2 (cont'd)

Company and Product	Capacity	% Capa- city Util- ized	Costs (thousands of Dom. \$)				
			Raw Mate- rials	Direct Labor	Indi- rect Costs	Total Cost	Total Sale
Planta de Recauchado (tire recapping)	1,000 per mth.	35.0	100	58	41	199	296
Fab. de Baterias (batteries)	2,000 per mth.	40.0	127	28	12	166	237
Minas de Sal y Yeso (Gypsum and Salt Mines)	Gypsum-3000 M. tons/yr.	30.0	1	1	1	1	168
Chocolatera Ind. (cocoa)	500 kilograms per day	1	1	1	1	1	140
Teneria FA-2 (leather)	180 hides per day	17.0	56	49	35	141	127
Ind. Licorera La Altagracia (rum and other liquors)	1	1	51	11	16	77	105
Fab. Dom. de Discos (records)	1	1	4	2	2	8	17
Ind. Dominico-Suiza (bagasse pressed board-not operating)	--	--	--	--	--	--	--

Source: Plataforma Para el Desarrollo Economico y Social de la Republica Dominicana

1 Not available

sisal project, and Dominican Airlines.

The present policy of the Dominican government is to maintain control of the CORDE manufacturing enterprises but not to undertake the management of any new industries. Locally established firms, however, are permitted to compete with State owned businesses. It is generally believed that the non-manufacturing firms will eventually be sold to private operators.¹

Official interest in securing foreign investment resulted in passing a Law of Industrial Incentive, first in 1962, and a revised version in 1968. The principal provisions and requirements of the Law are summarized here:

3. The Law of Industrial Incentive and Protection

The Law of Industrial Incentive and Protection (Law No. 299) now in force (1969), was enacted April 23, 1968, and replaced an earlier version (Law No. 4), approved October 3, 1963. The Law states as its objective "the development and encouragement of new or existing industrial concerns, national or foreign, which effectively contribute to the economic development of the country."

The provisions and benefits of the Law are limited to those industrial concerns manufacturing new products or undertaking new production by transforming raw materials, national or foreign, and are not applicable to marketing or the acquisition of agricultural

1. Basic Data on the Dominican Economy, Overseas Business Reports, U. S. Department of Commerce, OBR 68-114, December, 1968.

raw materials unless they are transformed by an industrial process. The application and administration of the law is left in the hands of the Industrial Development Directory, established as a part of the Secretariat of Industry and Commerce.

The Technical Industrial Department was simultaneously established as a dependency of the Secretariat of Industry and Commerce to fulfill the following functions:

1. To give technical assistance in the preparation of the forms required of investors.
2. To evaluate applications for industry classifications.
3. To classify new industrial activities in their corresponding categories.
4. To make written communications to applicants requesting the data required to substantiate their applications.
5. To decide on the acceptability of opposition or protests to applications.
6. To present projects for the installation of industries to the Industrial Development Directory for decisions, whether or not such applications have the prior approval of the Technical Industrial Department.
7. To prepare the agenda and summons of each meeting, and to forward same to members of the Industrial Development Directory at least three days previous to each meeting.
8. To prepare the minutes of each meeting and to inscribe same in a book of records under the custody and safe keeping of the Secretary of Industry and Commerce.
9. To supervise all projects until their normal operational stage.

Before granting any of the benefits and concessions provided by the Law, all industries must be classified in one of three categories, "A", "B", or "C".

a) Categories

Category "A"

This category includes all industrial concerns dedicated to the manufacture of products destined for export, including assembly plants.

All such industries must be established within the Free Industrial Zones operating within the country.

Category "B"

Category "B" includes all new industries considered as 1) high priority for the development of the Dominican Republic, 2) that represent savings on foreign exchange, 3) that create sources of employment, and 4) are dedicated to the manufacture of articles not being produced in the country and destined to replace imported products in order to satisfy the demands of the domestic market.

Category "C"

This category includes all new production or expansion of existing industries especially dedicated to the processing of national raw materials, or to the manufacture of products destined for domestic consumption. Category "C" also includes new industries not considered to be of high priority to the industrial development of the country, but which create employment and savings on foreign exchange, and do not duplicate articles already being produced.

The Industrial Development Directory determines in each case the period in which the established industries must satisfy the domestic demand. After that period, without having complied, the restrictions related to the installation of new industries will disappear.

To industries classified as "A" (Export), the Executive Power may authorize a percentage of the production (less than 20% of its value) to be directed to internal consumption, provided the article is not being manufactured within the country.

In classifying new industries, account will be taken of 1) the proportion of national raw materials employed, 2) the substitution for imports, 3) the intensity of the labor factor, 4) the aggregate value to the economy, and 5) the affect on the distribution of income and balance of payments.

b) Benefits

Category "A"

1) Total exoneration on all import duties and taxes on the raw materials or semi-manufactured products that may be required for the manufacturing of the product, its containers or packaging materials.

2) Total exoneration from all import duties and taxes on the machinery and equipment that are imported.

3) Total exoneration of import duties and taxes on fuels and lubricants used for the industrial process with the exception of gasoline.

4) Total exoneration of the Income Tax when the main business of the concern is established outside of the country.

5) Total exoneration on the Patent Tax, all municipal taxes, all production taxes and on exports for the first five years and 50% for the remaining period of the concession.

Category "B"

1) 95% exoneration on import duties and taxes that affect the raw materials and/or semi-manufactured products used in the manufacture of the product, containers or packaging, providing said components are not obtainable through national production.

2) 95% exoneration on import duties and taxes on fuels and lubricants used for the industrial process with the exception of gasoline.

Category "C"

1) Exoneration up to a maximum of 90% of all import duties and taxes on raw materials required for the product, containers or packaging, subject to judgment of the Industrial Development Directory.

2) 90% exoneration from import duties and taxes on fuels and lubricants used for the industrial process with the exception of gasoline.

The Industrial concerns to which this law refers will enjoy exoneration on the Income Tax (established May, 1962) on a percentage equivalent to the net profits reinvested for the development of the industry, but in no case will this exceed 50% of the income payable by said concerns.

No official or semi-official organization, municipalities, state enterprises, or any receiving economic aid from the state or participation in public funds, may import or acquire articles of foreign origin when such are being produced in the Dominican Republic in a similar quantity and quality and at a price no higher than those imported.

Persons carrying out contracts granted by the Dominican government or any of its institutions, may not enjoy exonerations on the importation of articles being manufactured in national territory.

Industrial machinery, equipment, spare parts, and accessories imported by firms classified as "B" or "C" will be subject to only a duty of 5% Ad-Valorem on their importation.

In accord with the geographical location of the industrial concerns classified as "A", "B", or "C", they will enjoy the benefits corresponding to each classification for the following periods:

- Urban and Suburban Sections of Santo Domingo . . . eight years
- Urban and Suburban Sections in Santiago ten years
- Frontier Sections twenty years
- Any other locality in the national territory . . fifteen years

When concerns classified as "B" or "C" destine a percentage of their production to export, payment of taxes will be refunded in accord with Law 180, September 7, 1967; when a concern classified as "A" destines a percentage of its production to internal consumption, it will have to pay 90% of the duties and taxes that are being imposed on the importation of the article or product manufactured.

Exonerations for industrial purposes granted previous to the enactment of this Law maintain their respective legal status.

In no case will exonerated importation of machinery, equipment, spare parts and accessories, fuels, raw materials, semi-manufactured products, containers and other components be allowed when such are being produced in the Dominican Republic in sufficient quantities and

are comparable in quality and competitive in price.

All industries classified "B" and "C" that import used machinery, equipment, etc., may enjoy the benefits of this Law provided that the aforementioned incorporate the maximum grade of technical progress.

Benefits of this Law will not be accorded the following industries:

- 1) Those requiring tax facilities not enjoyed by similar industries already installed or in the process of installation.
- 2) Those which, by requiring exoneration or subsidies, make a false presentation of a positive savings on foreign exchange.
- 3) Those that either produce or utilize goods on an inferior manufacturing level to similar existing industries.

c) Applications

All applications for classification must be presented to the Technical-Industrial Department, and must include:

Name and address, nationality of applicant or if related to an entity, the name and address, type of entity or company, date of its founding, capital subscribed and paid, names of managers and administrators, names of members of Board of Directors, plus documents concerning the moral and economic solvency of the company or information related to technical or commercial experience in the industry it proposes to install.

- 1) Amount, structure, and origin of capital, investment schedule, and maximum production capacity contemplated.
- 2) Location of the plant.
- 3) Description of the product or products proposed for manufacture.

4) Date on which it proposes to initiate and terminate the installation of the plant.

5) The raw materials, semi-manufactured products, packaging, materials, machinery and equipment that the concern proposes to import covering various levels of production.

6) The classification for which it is applying.

The application is to be accompanied by a technical study containing the following information:

1) Market conditions for the industry in question, especially with relation to production capacity installed, actual importation and the affects of the new production on the balance of payments.

2) The economic adequacy of the investment.

3) The number of national workers and national and foreign technicians required in both the initiation and full production stages.

4) The raw materials to be employed, their origin and possibility of substitution by others of national origin.

5) Aggregate value of the industrial process.

6) Value, quality, and type of installations, machinery and equipment.

7) Efficiency of the manufacturing process.

8) Uses, characteristics, costs and estimated prices of the end product.

9) Capacity of the concern to operate economically after the period for which the benefits accorded has elapsed.

10) Statistics on the production of similar industries operating in the country, or the value of imports, when it relates to products not being manufactured within the country.

Before a study of the application will be made by the Technical-Industrial Department, a description of the industry must be published to allow any protests or opposition to the new industry to be registered. Following elapse of the period allowed for protest, a study of the application will be made, and within thirty days, a report will be submitted by the Technical-Industrial Department to the Industrial Development Directory outlining:

- 1) The moral and economic solvency of the applicant.
- 2) A summary of the technical, economic and social factors which have served as a base for the recommendations outlined.
- 3) The category within which the concern should be classified, indicating any opposition by third parties.
- 4) The financial, administrative, and technical provisions which must be met by the firm applying.

Within fifteen days after receiving an application, the Industrial Development Directory will proceed to approve the classification requested, approve another category, or void the application. The resolutions dictated by the Industrial Development Directory are then submitted to the Executive Power for final consideration. If favorably voted upon, a motivated Decree will be dictated approving the Resolution which will be forwarded to the Secretariats of Finance and of Industry and Commerce.

The inspection and control of all industries enjoying benefits of the Law is the responsibility of the Secretariats of Finance and of Industry and Commerce. Infractions of the Law are punishable by prison, fine, or both.

d) Opinions of the Law

Even the new Law is controversial. Foreign investors have commented:

" . . . The word protection on the title of the law gives the game away. It is more designed to protect existing industry than to offer incentive to new investors."

" . . . The law is less attractive than the one it replaced and much poorer than Puerto Rico's."

" . . . The first draft of the law was good, but then a combination of vested local business interests, the managers of state owned enterprises and politicians emasculated it."

" . . . A committee of four government officials and three national businessmen must pass on each application for tax and tariff incentives and this means that there is no predictability."

" . . . Nothing has been approved under the law yet."

" . . . It's a useless law."¹

1. "The investment Climate in the Dominican Republic." Clareport, December, 1968.

Dominicans generally feel that the law is good, but limited by its need for clarification or interpretation of the provisions involved. Admittedly, foreign investors producing for export only are given preference, and many insist that the interests of "substitution industries" must be placed second to those of national producers. Much of the difference of opinion caused by the law, however, appears to stem from its lack of clarity causing contradictory multi-interpretations.

Nationalistic objection to privileges accorded to U. S. or other foreign investors as "industrial incentives" is far from dead. September, 1969 brought loud protest of unfair competition from four large industrial organizations to the installation of a fertilizer plant by a Venezuelan company. There is a sincere and constant fear of exploitation or economic domination by any foreign country which would make any investment without strong Dominican participation a high risk. In general, there is strong feeling that no investment should compete with Dominican private enterprise, even when demand exceeds supply.

D. Conclusion

Economic progress since the end of the Trujillo regime in the Dominican Republic has been somewhat erratic. A release from years of import restrictions and wage controls, coupled with a growing public demand for consumer goods, caused both volume and value of

imports to rise steeply during the years between 1962 and 1965. Agricultural growth, the source of 90% of Dominican exports, however, failed to match either the demand for imports or the rate of population expansion. Economic growth was sharply interrupted by the revolution and civil war in 1965, and was set back further by the serious drought of 1968.

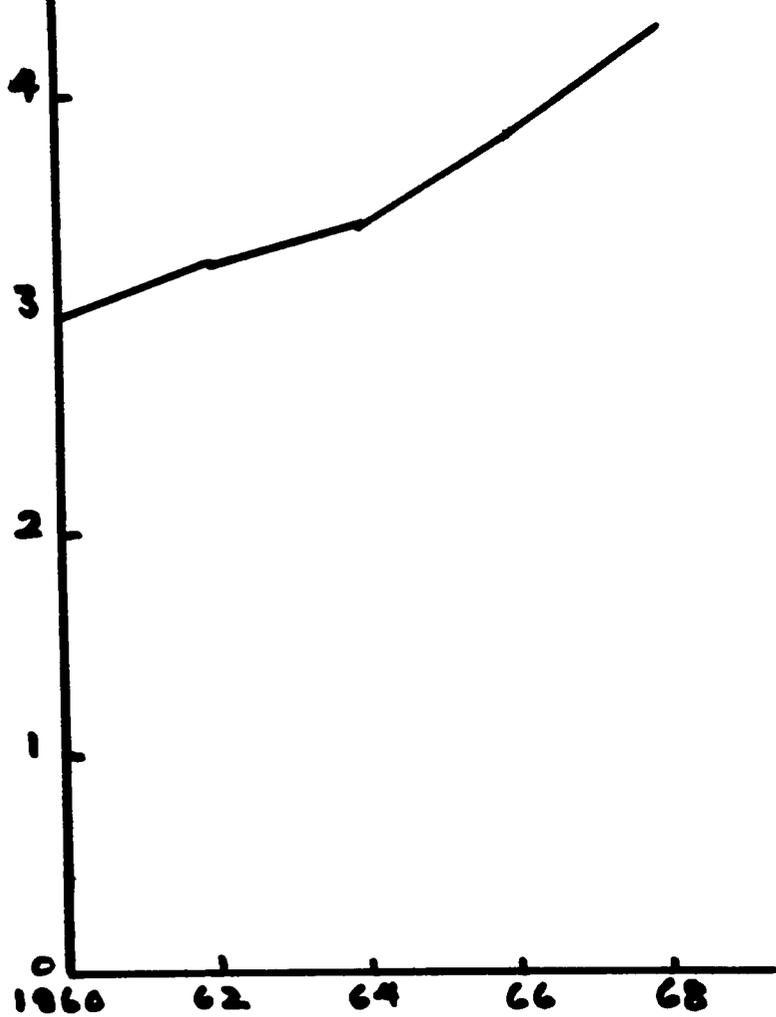
The austerity program has prevented wages from regaining the level reached in 1964. Per capita income has not increased, although GNP is up somewhat. (Graph 1). A renewal of the austerity program in September, 1969, threatens to hold back the anticipated wage increases.

Agricultural production suffered during a year and a half long drought, which ended in May, 1968, but crop prospects look excellent for 1969. The rice harvest was estimated to be 13% greater in 1969 than the previous crop, and no imports of rice are contemplated for the current year. Onions, beans, and chickens, however, have had to be imported to meet demand.

Production of the primary export crops, sugar, cacao, and tobacco is expected to rise in 1969. The agricultural upturn has been accompanied by renewed industrial and commercial activity, and it is hoped that the GNP will show a rise of about 6% by the end of 1969.

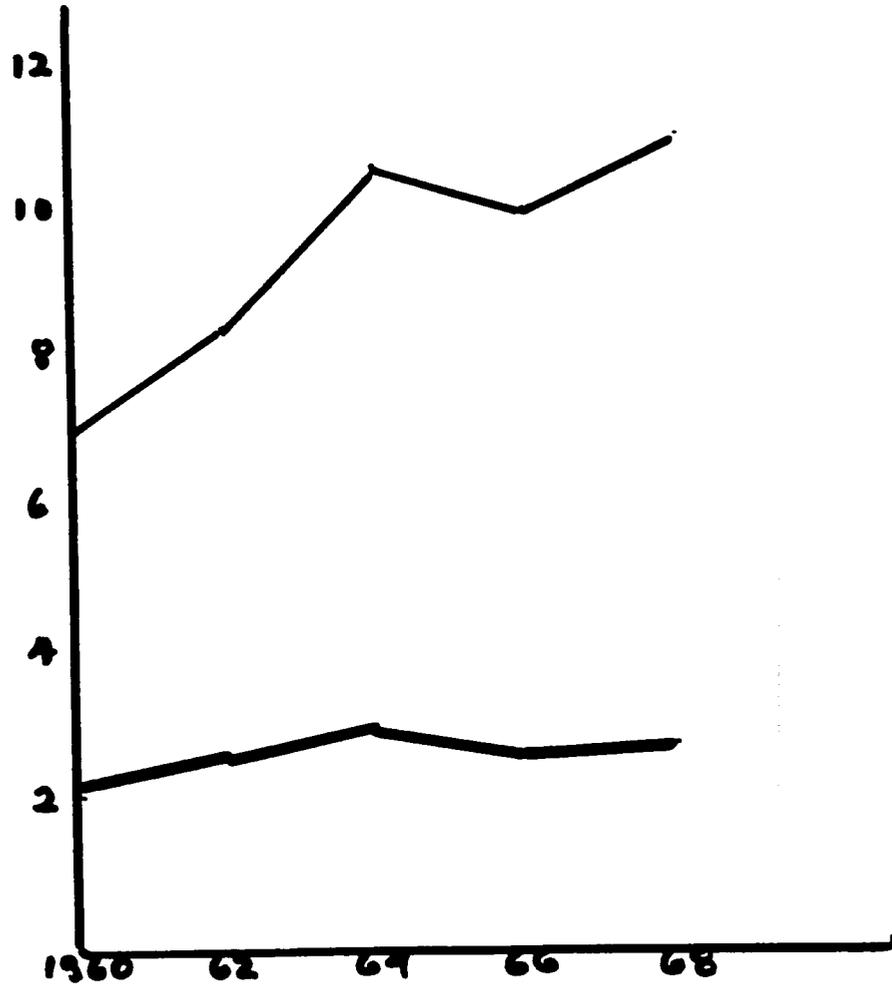
Table 3 shows the change in the key economic indicators from 1966 to 1968, and the present economic status in the Dominican Republic. It can be summarized briefly as follows:

Millions of Persons



POPULATION

GNP (current pce) - Millions \$
Per Capita Income



GNP - PER CAPITA INCOME

1960-1968

- 1) Wholesale prices increased by 6.3% between late 1967 and late 1968. (Santo Domingo Wholesale Price Index)
- 2) Food prices (85% of the above index) increased by 7.8% for the same period of time.
- 3) The official retail price and Cost of Living Indexes have shown little change.¹
- 4) Average wages and per capita incomes have not risen significantly, and the wage freeze imposed by the Law of Austerity was renewed in September, 1969.
- 5) Construction continues to grow at about 20% per year in both public and private sectors. Expenditures are expected to be at least as large or larger than those of 1968.
- 6) Investment in mining is expected to jump sharply in 1969 and for the next few years.
- 7) Total private investment is expected to be much larger in 1969 than in 1968, with government encouragement to foreign investors who obtain financing abroad, and those unlikely to compete with established operating businesses.
- 8) Commercial bank loans increased by 28.4% in 1968, most being directed toward industrial investment, while loans for commercial operations remained steady.
- 9) Credit given by the Central Bank was limited to the minimum necessary in accord with its policy of monetary restraint and this policy does not seem likely to change.
- 10) State owned industries have made efforts to improve their management as indicated by a \$9,000,000 profit shown by the state sugar industry in 1968. A recent change in management of Dominican Airlines shows promise of improvement.
11. Restraints on imports were continued through the end of 1969. Persons with their own foreign exchange, however, may import almost anything. In general, in spite of legal restraints, imports for 1969 are expected to be considerably above the \$192,000,000 imported in 1968.

1. Footnote on Table 3.

12. Pressure on international reserves is expected to continue due to high amortization payments falling due in 1969.
13. Concentrated efforts are being made to develop tourism in the Dominican Republic.
14. Delays in government transfers of currency to cover cost of imports is expected to continue, with conversion of payments held up from four to four and a half months.
15. Special interest continues to be shown by the Dominican government in developing and increasing trade with Puerto Rico.

Table 3

KEY ECONOMIC INDICATORS, DOMINICAN REPUBLIC, Feb., 1969
(In millions of US \$)

Item	1966	1967	1968	% Change
GNP at current prices	1,012	1,068	N.A.	N.A.
GNP at constant 1967 prices	1,033	1,068	N.A.	N.A.
Per capita GNP, constant 1967 pesos	275	275	N.A.	N.A.
Gross investment as % GNP (Current prices)	14.8	16.8	N.A.	N.A.
Money Supply as of 12/31/68 ¹	114.3	115.2	122.3	6.2
Interest Rate, Central Bank	4.5%	4.5%	4.5%	—
Interest rate, Commercial bank prime	7.5%	7.5%	8.9%	13.3
Interest Rate, Com. bank average	8.5%	8.5%	9.0%	5.9
Public debt outstanding				
Domestic (12/31/68)	257.8	278.2	N.A.	--
External "	161.9	184.7	207.5	12.3
External debt service ratio ²	20.9	18.4	15.7	-14.7
Gold and Foreign exch. reserves	52.2	41.2	44.9	9.0
Balance of payments defecit ³	50.5	56.8	59.8	5.3
Production of major items				
Raw sugar short tons (thous.)	740	877	765	-12.8
Coffee (metric tons) (thous.)	45	38	42	10.5
Cacao (metric tons) (thous.)	31	31	24	-22.6
Tobacco (metric tons) (thous.)	20	19	12	-36.8
Rice (metric tons) (thous.)	178	147	166	12.9
Peanuts (metric tons) (thous.)	51	45	48	6.7
Wheat flour (metric tons) (thous.)	66	82	96	17.1
Cement (metric tons) (thous.)	277	311	328	5.5
Bauxite (metric tons) (thous.)	1,007	1,253	1,207	-3.7
Electric Power (MWH)	442	488	528	8.2

Table 3 (cont'd)

<u>Item</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>% Change</u>
Housing Starts licensed (Thous. sq. meters)	354	437	469	7.3
S.D. Cost of Living Index 1941=100	270	272.8	270.2	-0.1
S.D. Wholesale Price Index 1941=100	287.4	319.4	339.6	6.3
Total Exports	138.0	156.6	162.9	4.3
Exports to the U.S.	121.4	135.9	N.A.	N.A.
Total Imports	160.8	174.7	192.0	9.9
Imports from the U.S.	78.6	96.1	N.A.	N.A.

Source: Semi-Annual Report on Dominican Republic, Feb. 1, 1969

- 1 Private sight deposits plus currency outside banks.
- 2 Ratio (expressed as a percent) of all registered public and private external debt of one year or longer to exports of goods and services.
- 3 Current account deficit.
- 4 The report notes that official Retail and Cost of Living Indexes have shown little change. However, it is added that "the validity of all indexes is questionable, principally because their composition and weighting is based on purchasing patterns of 1941 or earlier and their coverage is now deficient."

III.

THE LAND AND THE PEOPLE

III. THE LAND AND THE PEOPLE

1. Number and Distribution of the Population

In an area of rapidly expanding population (Table 4, Graph 2), the proportion of rural to urban inhabitants is decreasing as is shown on Table 5 and Graph 3. More than 60% of the population of the Dominican Republic, however, still live in the rural zones and most depend upon agriculture to live.

Table 6 indicates the populations of the provinces of the Dominican Republic and their increase in population between 1960 and 1968 (estimated). Map 2 shows the population of the provinces and locates the principal cities of the Republic.

As can be seen, the National District contains more than 19% of the total population of the country, and 13.3% live in the capital city of Santo Domingo. The only other city over 40,000 in the Dominican Republic is Santiago, which has 7.2% of the total national population. The cities of Santo Domingo and Santiago together account for more than 20% of the population of the Republic. Only 15 of the 27 provinces (including the National District) have cities of over 15,000 population.

Although the total population estimated in 1968 increased 32.2% over that of 1960, the greatest growth occurred in the cities which are now the targets for an increasing rural-urban migration.

Table 4

POPULATION AND RATE OF INCREASE, 1920-1969				
Year	Area KM2	Inhabitants	Density per KM2	Average Annual Increase (%) Pop.
1920	50,070,000	894,665	18.0	1920-35 3.4
1935	50,070,000	1,479,417	29.5	1935-50 2.4
1950	48,442,230	2,135,872	44.1	1950-60 3.6
1960	48,442,230	3,047,070	62.9	1960-69 3.6
1969 (Est.)	48,442,230	4,000,000	121.1	

Source: Plataforma Para El Desarrollo de la R. D. Oficina Nacional de Planificacion, Santo Domingo, 1968.

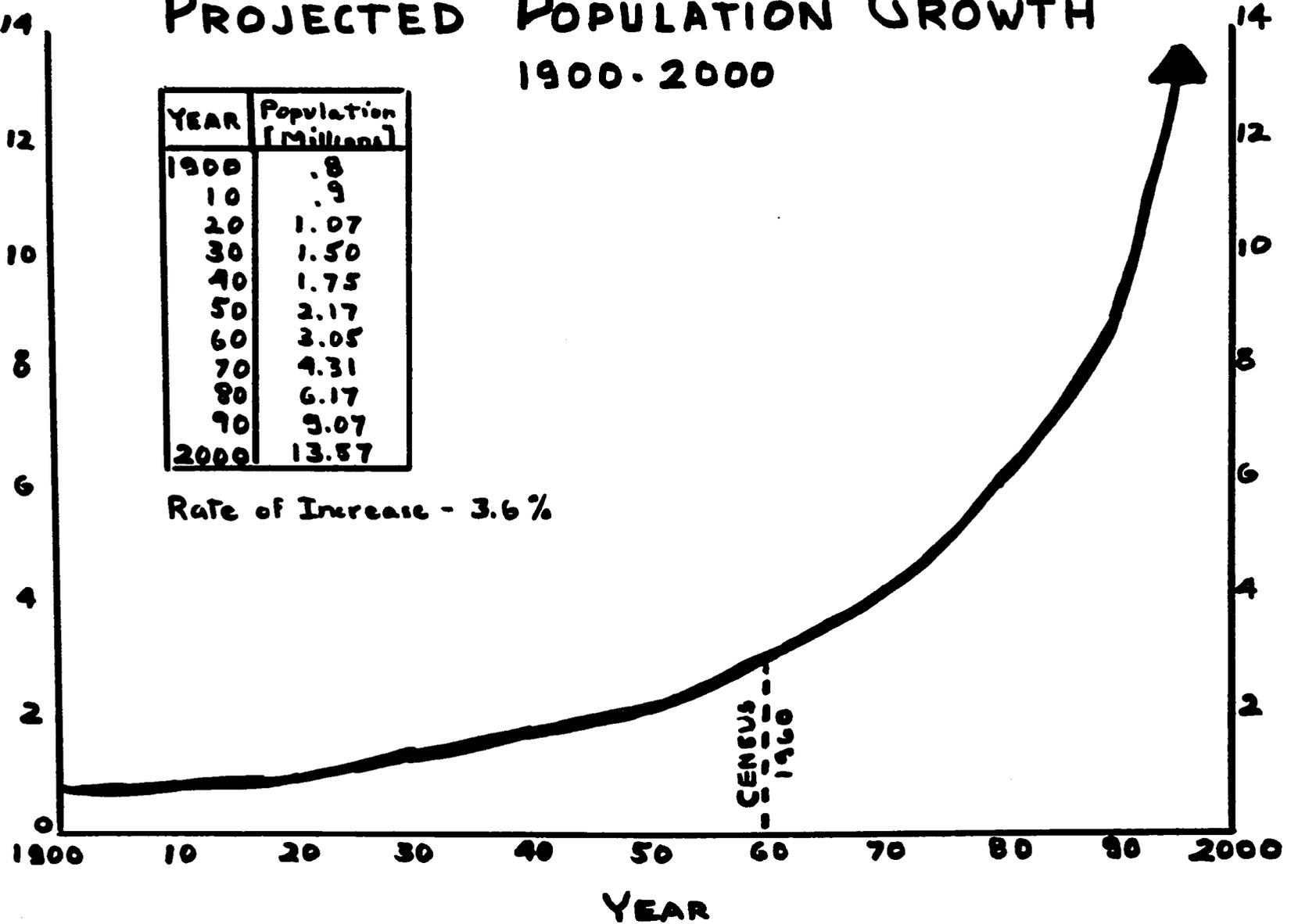
La Republica Dominicana en Cifras, Oficina Nacional de Estado, 1967.

- It is admitted that the figures given for the census taken in 1920 and 1935 are inaccurate and should probably be reduced.
- While it is possible that the rate of increase of 3.6% annually is too great, there is no doubt of the rapid increase.
- At the rate of an annual 3.6%, the population of the Dominican Republic would double in 20 years.
- A density of population of 121 inhabitants per KM2 is very high for Latin America.

In terms of their number, the rural population constitute the most important sector of the Dominican community. At the same time, the rural population is the most backward, most impoverished, and least productive in the nation.

PROJECTED POPULATION GROWTH 1900-2000

Population
in
Millions



Source: Consejo Nac. de Población.

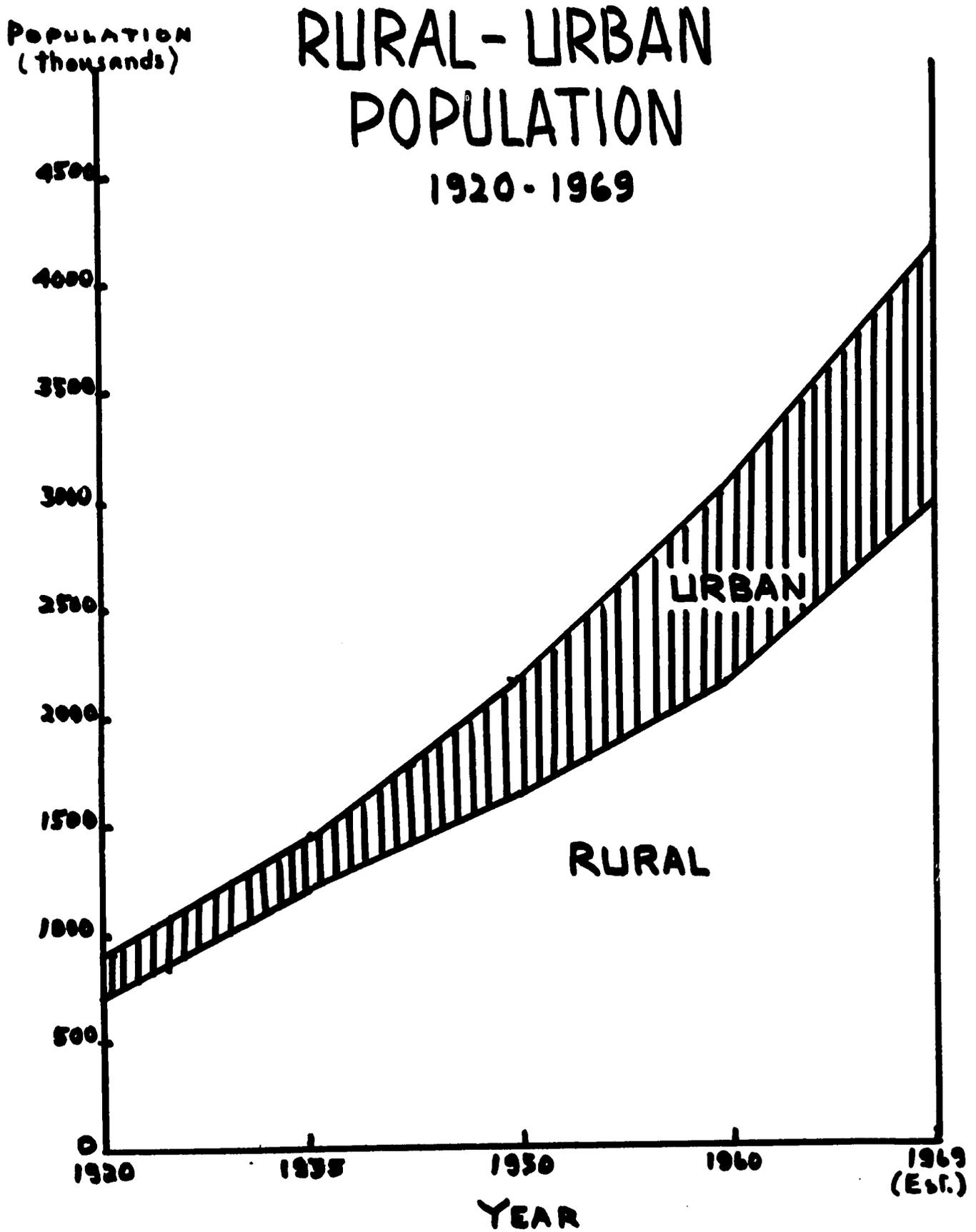


Table 5

DISTRIBUTION OF POPULATION: RURAL AND URBAN					
Year	Urban Pop. (thousands)	% of Total	Rural Pop. (thousands)	% of Total	Total Pop. (thousands)
1920	149	16.6	746	83.4	899
1935	267	18.0	1,213	82.0	1,479
1950	509	23.8	1,627	76.2	2,136
1960	922	30.3	2,125	69.7	3,047
1965	1,244	34.5	2,392	65.5	3,609
1967	1,412	36.5	2,491	63.5	3,869

ANNUAL RATES OF INCREASE

	1950-60	1960-67
URBAN	6.1%	6.2%
RURAL	2.7%	2.3%
TOTAL	3.6%	3.6%

The difference of 3.9% in the rate of rural as compared to urban increase of population poses a serious economic and social problem to the Dominican Republic. Rural-urban migration is a world wide phenomenon which, in the last fifty years, has reduced the proportion of rural population of the U. S. from over 50% to less than 10%. Leaving the farm for the city, however, can be a successful shift only if industry is sufficiently developed to absorb the formerly rural population seeking employment. And gainful employment can be found only if the rural migrants possess education or skills useful to industry. Otherwise, as in the Dominican Republic, the population of the cities must accomodate thousands of

illiterate, untrained, and impoverished families who cannot compete in the industrial employment market, but who are unwilling to return to their marginal existence on the farms. The need and demand for welfare services within the cities increases daily, straining housing, health, and school facilities to the breaking point.

Few rural inhabitants can count on regular, assured, and remunerative employment. A small number work several months of the year in the sugar industry; the remainder must depend upon subsistence agriculture, an occasional job, or enter the ranks of the "permanently unemployed."

Normally, about 40% of the rural population is of an age to be considered "economically active." In 1965, there were about a million persons in rural zones included in the labor force of the country. Opportunities for employment other than agricultural do not exist in the majority of rural areas, and the seasonal nature of agriculture in the Dominican Republic results in underemployment for most farmers. The production of sugar, by far the most important crop, is in the hands of large agricultural enterprises whose directors have made little effort to diversify their planting in order to provide employment for the entire year. Agriculture in general has not developed sufficiently to create the work needed for a rapidly expanding population. With their production limited to that possible on minifundias too small to support a family, and no outside work available, 75% of

the rural population is condemned to a perpetual marginal existence with little hope of improvement.

Exact figures of rural employment since 1960 are not available, but there seems no reason to believe that the trend indicated by the Censuses of 1950 and 1960 has changed. In 1960, the number of workers receiving salaries or wages had not increased significantly over that of 1950. On the other hand, the number of those not receiving wages of any kind - subsistence farmers - had jumped from 440,000 to 770,000, an increase of 76%. Many of those not receiving wages are classified as "unpaid family members."

In 1965, from 650,000 to 700,000 persons were "economically active working (or looking for work) in agriculture." Of these, 350,000 are estimated to be unemployed.

In summary, nearly two thirds of the population of the Dominican Republic are rural and live a marginal existence on lands too small to provide even a minimum standard of living. The symptoms of a defective system of land tenancy and lack of opportunity for the rural population can be summed up as follows:

- 1) Illiteracy and the general low level of education available.
- 2) The high percentage of unemployed.
- 3) The high proportion of sub-subsistence minifundias.
- 4) The low level of agricultural wages.
- 5) An increase in population which neither the agricultural nor the industrial sector has been able to absorb.

In a cycle difficult to break, rural unemployment or under-employment causes migration to the cities; lack of industrial

development prevents absorption of the migrants to urban areas; poverty prevents both migrants and rural workers from becoming consumers; lack of buying power restricts the development of industry and services ad infinitum.

Table 6

POPULATION OF THE PROVINCES AND PRINCIPAL CITIES
OF THE DOMINICAN REPUBLIC

PROVINCES	Est. 1968 (thousands)	% of Total	% of Increase Over 1960	CITIES	Est. 1966 (thousands)
National District	772.8	19.2	66.7	S. Domingo	560.6
Azua	98.9	2.5	32.9	Azua	17.9
Baharuco	64.6	1.6	22.3		
Baharona	99.8	2.5	19.8	Barahona	24.5
Dajahon	59.1	1.2	41.0		
Duarte	207.7	5.2	28.9	S.F. Macoris	36.7
El Seibo	141.9	3.5	16.6		
Espaillet	139.3	3.5	16.4		
Independencia	34.4	0.9	23.7		
La Altagracia	85.1	2.1	20.6		
La Estrelleta	53.3	1.3	22.2		
La Romana	49.2	1.2		La Romana	29.3
La Vega	288.1	7.1	21.6	La Vega	24.0
M.T. Sanchez	129.1	3.2	48.8		
Monte Cristi	73.2	1.8	22.0		
Pedernales	19.6	0.5	20.4		
Peravia	131.7	3.3		Bani	17.9
Puerto Plata	189.0	4.7	15.3	Puerto Plata	22.5
Salcedo	92.1	2.3	29.3		
Samana	58.7	1.5	14.0		
S. Cristobal	346.6	8.6		S. Cristobal	22.6

Table 6 (cont'd)

PROVINCES	Est. 1969 (thousands)	% of Total	% Increase Over 1960	CITIES	Est. 1966 (thousands)
Sanchez Ramirez	137.9	3.4	52.8		
S. Juan	197.9	4.9	29.8	San Juan	24.3
S.P. Macoris	72.2	1.8	6.5	S.P. Macoris	23.0
Santiago	344.9	8.6	18.2	Santiago	291.7
S. Rodriguez	47.5	1.2	14.4		
Valverde	<u>94.0</u>	<u>2.3</u>	<u>54.9</u>	Valverde	<u>31.1</u>
TOTAL	4,029,420	100.0	32.2		913,056

Source: Republica Dominicana en Cifras. Oficina Nacional de Estadísticas, 1968.

2. Age Groups

Table 7, which shows the distribution of the population by age groups, makes evident the "young" character of the population as a whole. More than half are under twenty years of age and 47.2% are less than fifteen years old. This distribution, which closely parallels that encountered in other Latin American countries, is often taken as an indication of the "strength, youth, and vitality" of the population. Actually, a distribution of this type is characteristic of all areas having high birth rates, high death rates, and a low life expectancy. It is also a distribution that places too heavy a load on the productive working population between 15 and 60. Considering the economically active group to be about 30% of the total, each employed (or looking for work) individual is thus responsible for the support and maintenance of 3.65 dependents.

DISTRIBUTION OF POPULATION - PRINCIPAL CITIES

DOMINICAN REPUBLIC, 1968

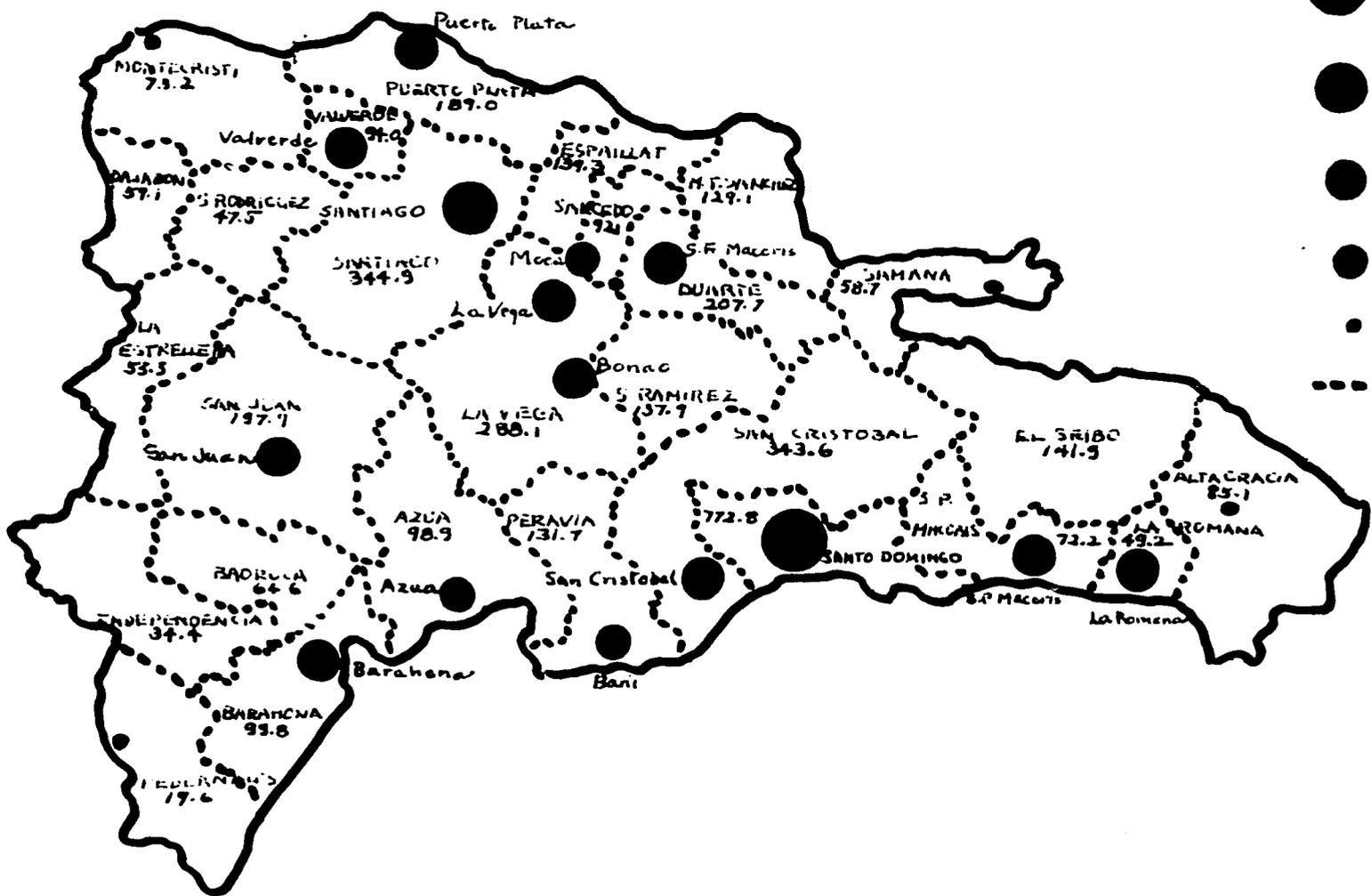
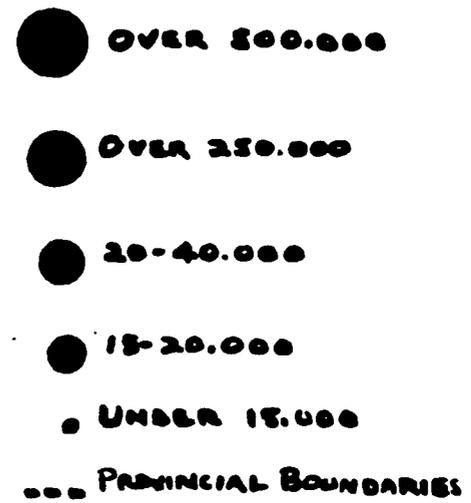


Table 7

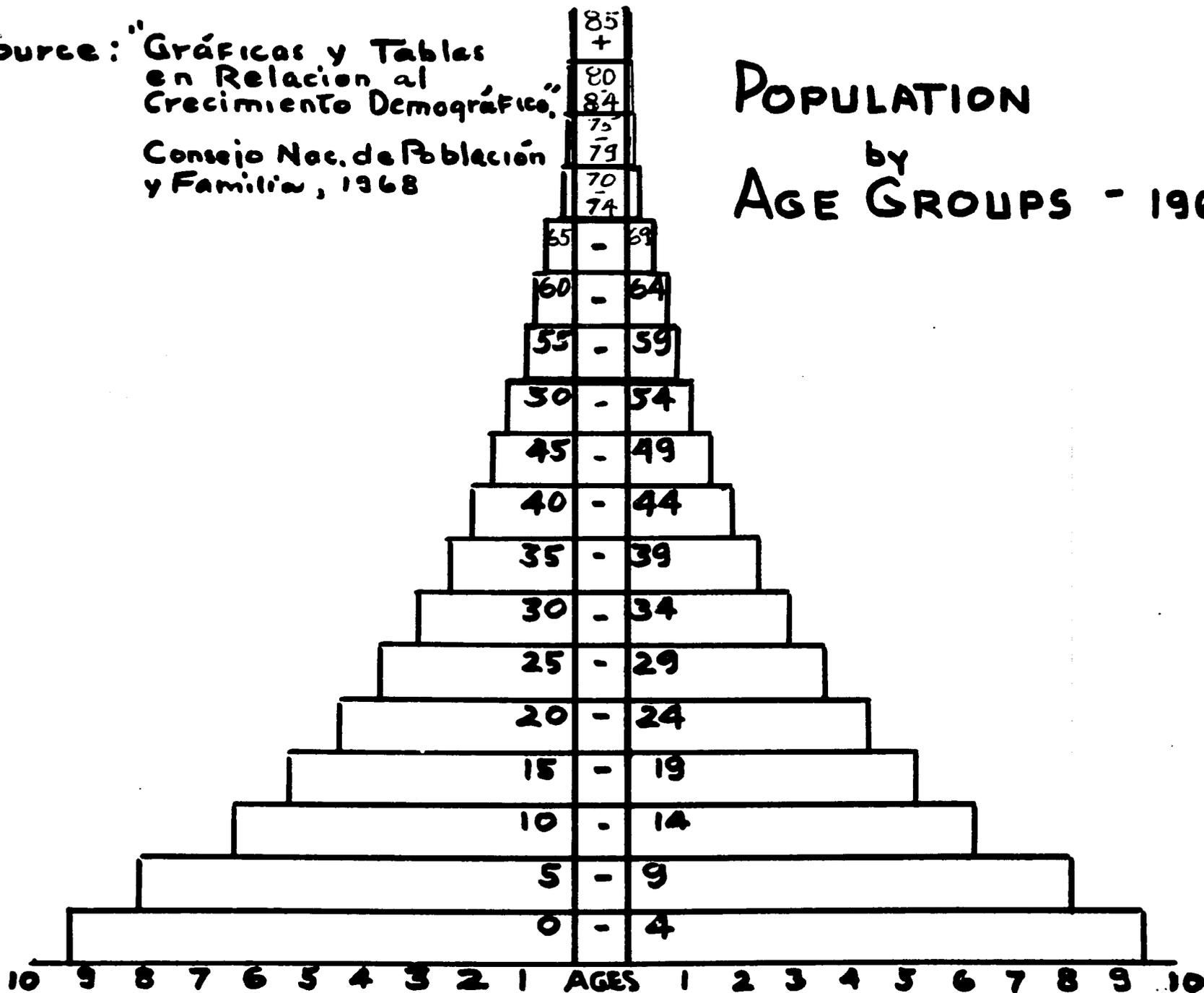
POPULATION BY AGE GROUPS, 1969 (Estimated)							
Age Groups	Males		Females		Totals		
	No.	%	No.	%	No.	%	
0-4	400.3	19.1	389.1	18.9	789.4	19.0	
5-9	318.8	15.2	311.4	15.2	630.2	15.2	
10-14	271.7	13.0	258.6	12.6	530.3	12.8	
15-19	226.2	10.8	215.7	10.5	441.9	10.6	
20-24	186.6	8.8	176.9	8.6	363.5	8.8	
25-29	153.1	7.3	145.6	7.1	298.7	7.2	
30-34	128.8	6.1	126.7	6.2	255.5	6.2	
35-39	97.6	4.7	98.0	4.8	195.6	4.7	
40-44	80.4	3.8	80.7	3.9	161.1	3.9	
45-49	67.4	3.2	70.3	3.4	137.7	3.3	
50-54	51.3	2.4	52.8	2.6	104.1	2.5	
55-59	40.4	1.9	42.1	2.0	82.5	2.0	
60-64	31.0	1.5	34.7	1.7	65.7	1.6	
65-69	20.5	1.0	23.8	0.7	44.3	1.1	
70-74	11.9	0.6	15.0	0.4	26.9	0.6	
75-79	5.6	0.3	8.4	0.1	14.0	0.3	
80-84	1.8	0.09	2.9	0.1	4.7	0.1	
85 & Over	<u>.8</u>	<u>0.04</u>	<u>1.4</u>	<u>0.06</u>	<u>2.2</u>	<u>0.05</u>	
TOTALS	2,094,840	100.0	2,054,176	100.0	4,148,300	100.0	

Source: Figures obtained by interpolation.

- 19% of the population is under five years of age.
- Only 2.2 of the population live past 65 years.
- The average age of the population is only 20 years.
- The proportion of the population under fifteen has changed very little. In 1960, 47% were under 15, in 1950, 44.5, and 1935, the proportion was 46.4%, indicating as stable fertility ratio productive of a constant rate of increase.

Source: "Gráficas y Tablas en Relación al Crecimiento Demográfico," Consejo Nac. de Población y Familia, 1968

POPULATION by AGE GROUPS - 1965



The stability of the fertility ratio¹ strongly suggests that the cause of the accelerated increase of population experienced in the Dominican Republic is due to decreased rates of death rather than any significant increase in births. Life expectancy has been calculated at 50 years for men and 53 for women. This is an average of 51.5 for the population as a whole.

3. Vital Statistics (Birth, Death, and Infant Mortality)

Birth rates and death rates, as given in various statistical tables, are confusing. Some sources apparently use only the registered births and deaths, although these are admittedly often incomplete. For example, Republica Dominicana en Cifras (Oficina Nacional de Estadistica) indicates the death rate per thousand inhabitants in 1960 to be 9.0. The Plataforma Para el Desarrollo de la Republica Dominicana, using age specific death rates in combination with a calculated life expectancy at birth for each group, and an "adjusted" total population, concludes that the death rate in 1960 was 14.3 inhabitants per 1000.

Birth and death statistics are particularly liable to error in that the official registers do not accurately reflect the total because many people, particularly in rural areas, do not register either. Local churches often have a more accurate record of births than the civil register because of the anxiety of a family to have the child baptized. The corrected statistics included in the

1 The fertility ratio is expressed as the relationship of the number of women between 15 and 45 to the number of children under five years old.

Plataforma indicate a total of 43,662 deaths in 1960 as compared to the 27,025 registered.

The birth and death rates are corrected as shown in the Plataforma, and appear to be more accurate indication of the demographic situation in the Republica Dominicana.

Table 8

BIRTH RATES, DEATH RATES AND NATURAL INCREASE OF POPULATION

Period	Rates per 1000 inhabitants			
	Average Birth Rate	Average Death Rate	Average Natural Increase	Rate of Increase
1960-65	47.28	13.53	33.75	3.37%
1965-70	46.97	12.16	34.81	3.48%
.....				
<u>Projected</u>				
1995-2000	38.92	5.82	33.10	3.31%

Source: Plataforma Para el Desarrollo en la Republica Dominicana, op. cit. (The projection assumes a constant fertility until 1970 with a gradual decrease from that year on due to the general interest in birth control and family planning. A footnote adds that the creation of administrative machinery in the Dominican Republic for effective family planning is being contemplated at the present time.

It is often claimed that the rate of infant mortality is the single factor most indicative of the state of well being and standard of living within a society. Using the adjusted figures of the Plataforma, the infant mortality ratio in 1960 for male babies came to 120.3 per thousand, and for females to 100.3. The rate per

thousand live births for both sexes came to 110.4. (Table 9)

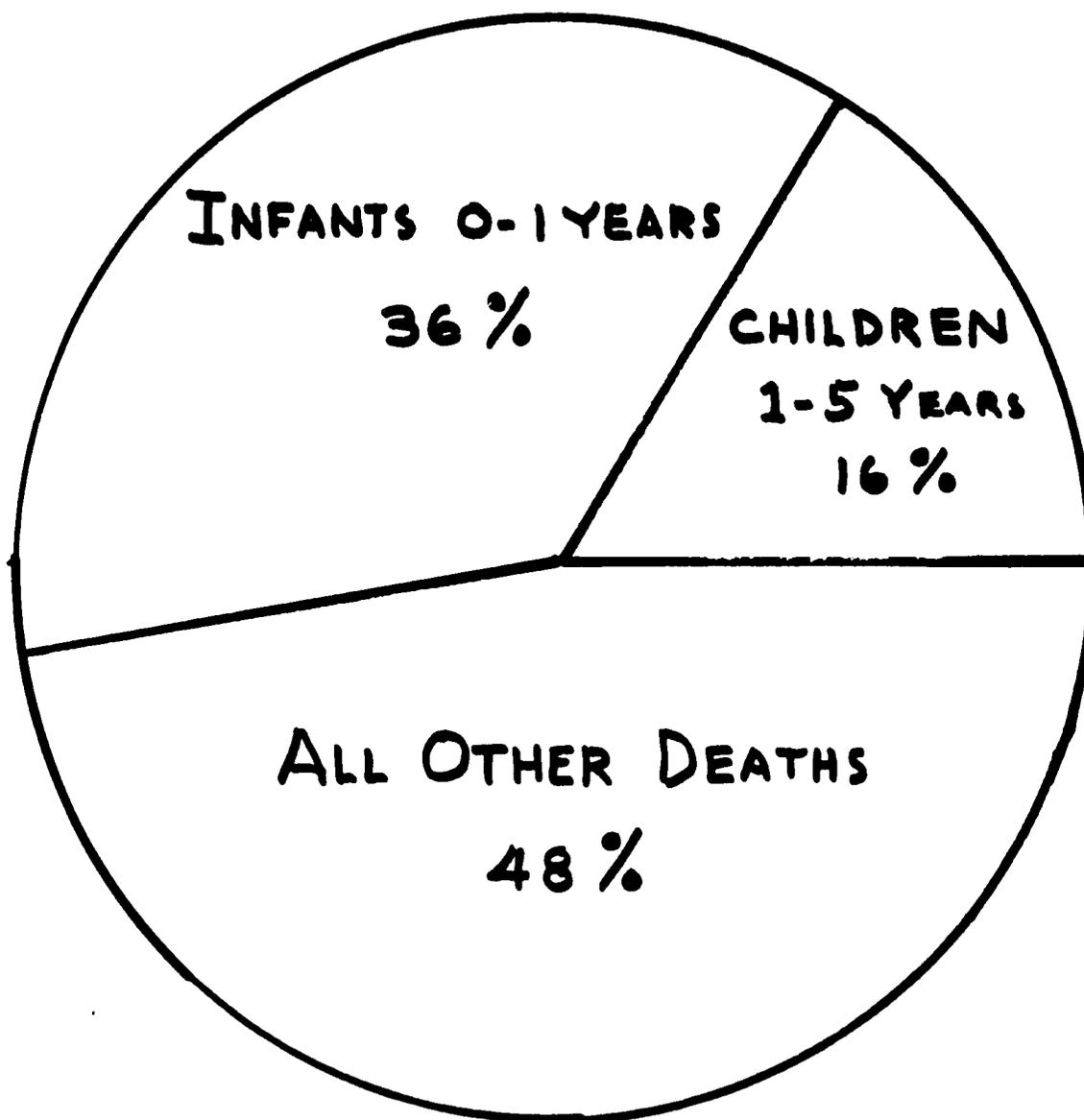
Table 9

INFANT MORTALITY IN THE DOMINICAN REPUBLIC					
1960					
Males	Live Births		Deaths 0-1 years of age		
	Female	Total	Males	Females	Total
72,913	71,727	144,643	8,776	7,195	15,971
.....					
<u>Infant Mortality</u>					
Per thousand live births			Male	120.3	
			Female	100.3	
			Total	110.4	

Using infant mortality as an index of standard of living, the Dominican level appears very low although no worse than most other Latin American countries. The rate of 110.4 deaths per 1000 live births can be compared with 25-26 in the United States and 18-19 in the Scandinavian countries. As shown in Table 8, the death rate for the total population which includes infant mortality only comes to 12.16 per thousand for the years 1965-70 (as compared to about 9 in the U. S.), making it appear almost as if only-babies died. And deaths of babies under a year old do account for over 36% of all deaths in the total population. Over 52% of the total deaths are of children under five years old. (Graph 5)

1 Table 7 uses the corrected figures to calculate infant mortality rates. Registered births in 1960 only came to 110,102, and infant deaths to about 7,000, giving an infant mortality ratio of about 70 per 1000 live births.

INFANT MORTALITY IN THE DOMINICAN REPUBLIC



1000 DEATHS

Source: Plataforma Para el Desarrollo de la Rep. Dom.

The single most important cause of death of children is gastro-enteritis or diarrhea, both ailments associated with impure water and lack of sanitation.

4. Education

At the beginning of academic year 1966-67, 657,225 students matriculated in the three levels of education, primary, secondary and university, the total number representing about 17% of the total population of the Dominican Republic. Eighty nine percent of all students were enrolled in primary schools, 9.8% in secondary, and 1.2% in universities or institutes of higher learning. 350,000 children of school age, or 34.8%, were not in school at all.

About 60% of those attending primary school were in the first or second grade, or more than half of all students were attending first or second grade. Only 4% were in the last or 6th grade, or even if all of those graduated, only 23,618 students would finish six years of education out of the 590,450 attending the primary grades.

As noted, only 1.6% of the total population was matriculated in secondary schools. Many of these will drop out before graduation. The total number of persons who have finished secondary or high school in the Dominican Republic cannot be greater than about 10%.

Schools, classrooms, students and teachers are shown on Table 10 and Graph 6.

Even though 350,000 children did not attend school in 1967, for lack of sufficient classrooms, the number who do attend and want to attend grows every year beyond the financial resources dedicated by the state to education. Table 11 is a projection of expected school enrollment through 1985 for whom schools and teachers must be provided.

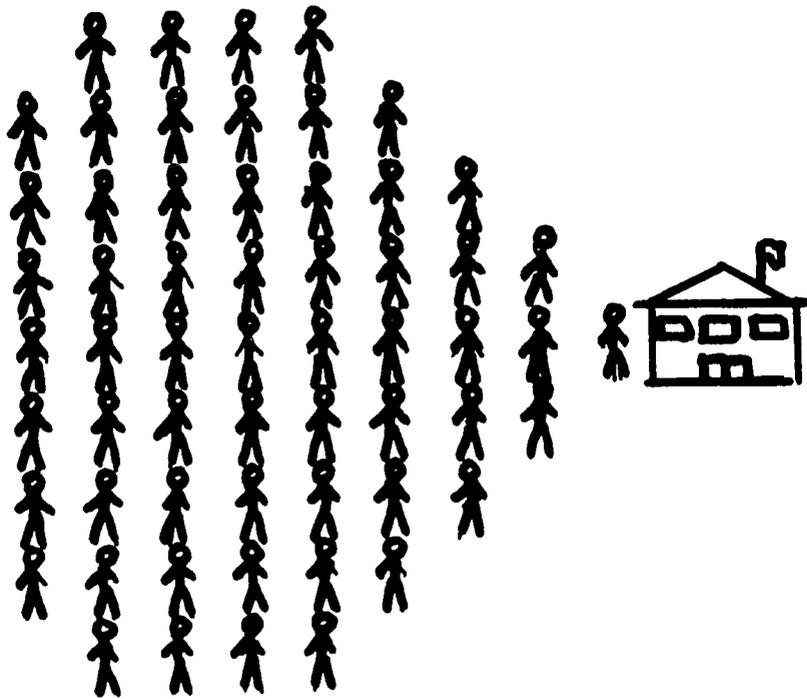
Table 10

SCHOOLS, CLASSROOMS, TEACHERS, AND STUDENTS
1966-67

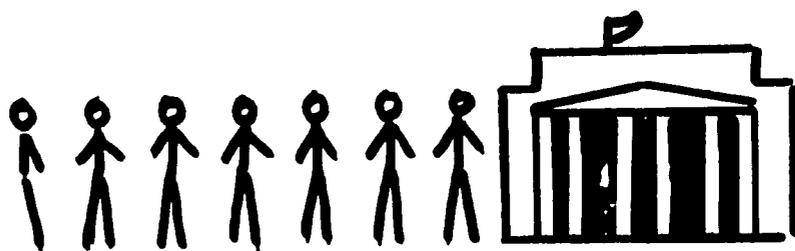
<u>Level</u>	<u>Schools</u>	<u>Classrooms</u>	<u>Teachers</u>	<u>Students</u>	<u>% of Total Population</u>
<u>PRIMARY</u>					
Urban Zone	716	3,670	4,401	208,144	
Rural Zone	<u>4,310</u>	<u>6,487</u>	<u>6,599</u>	<u>382,306</u>	
Total	5,026	10,157	11,000	590,450	
% of Total	90.5	83.5	80.6	89.0	18.4
<u>SECONDARY</u> ¹					
	521	2,005	2,656	65,990	
	9.6	16.5	19.4	9.8	1.6
.....					
<u>HIGHER EDUCATION</u>					
Universities	3			6,820	0.2
Institutes	<u>1</u>			<u>365</u>	
	4			<u>7,185</u>	
	1.0			1.2	

Source: Plataforma, op. cit.

1 Includes "intermediary" or years equivalent to 7th and 8th grades, generally included in secondary in Latin America.



PRIMARY
590,450 STUDENTS
5,026 SCHOOLS



SECONDARY
65,990 STUDENTS
521 SCHOOLS



UNIVERSITY
7,185 STUDENTS
4 SCHOOLS

STUDENTS AND SCHOOLS

1966-67

 = 10,000 STUDENTS

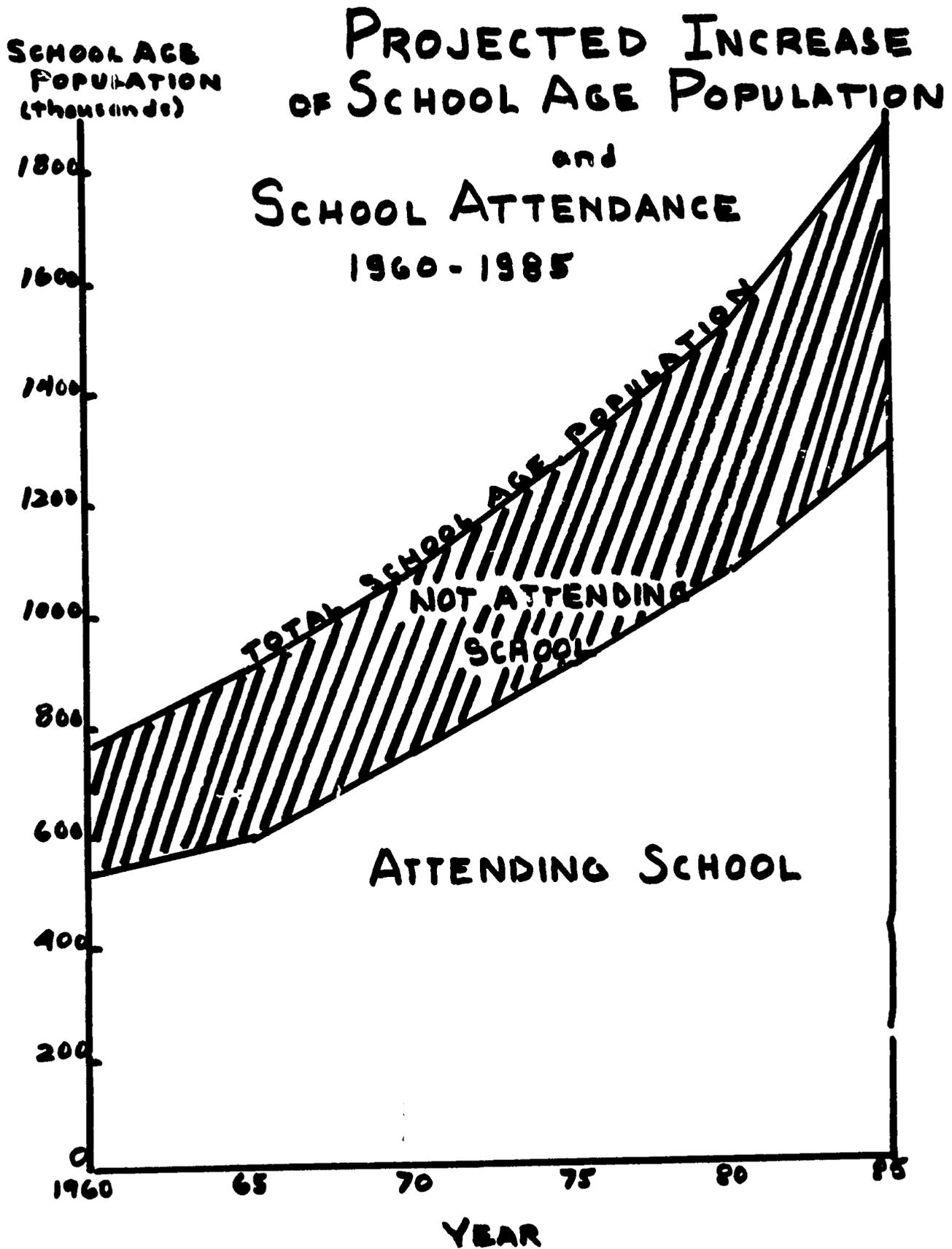


Table 11 UNIVERSITY STUDENTS AND CURRICULUM STUDIED
1966-67

Faculties & Schools	Students		Total	% of Total
	Male	Female		
University College (first two years)	1,945	844	2,789	35.9
Education and Philosophy of Education	412	703	1,115	14.3
Law and Public Admin.	724	207	931	12.0
Medicine	566	204	770	10.0
Dentistry	104	46	150	1.9
Economics	521	203	724	9.3
Engineering/Architecture	358	26	384	4.9
Electrical Engineering	27	-	27	0.3
Chemical Engineering	4	2	6	0.07
Mechanical Engineering	95	2	97	1.3
Industrial Engineering	41	2	43	0.5
Agriculture/Veterinary Med.	146	5	151	1.9
Business Administration	67	31	98	1.3
Pharmacy, Nutrition, Nursing	90	65	155	2.0
Physics and Mathematics	46	-	46	0.6
Chemistry	55	181	236	2.9
Social Work	10	28	38	0.5
Total	5,211	2,549	7,760	100.0
	67.1%	32.8%	100.0%	

Source: La Republica Dominicana en Cifras, Oficina Nac. de Estadistica,
1967.

One of the most serious defects of the school system is an unrealistic curriculum not in accord with the needs of the country. Education is still based on a traditional academic form intended to prepare students for universities, but hardly teachable by personnel without adequate preparation and hardly useful or practical for a population where only 1.2% of the population ever attend an institution of higher learning. The secondary schools produced only 1,375 technical graduates on a middle level in 20 years. Vocational education is limited to 0.1% of the total matriculation.

University curriculums for the few who reach that level are not planned to coincide with the needs of a developing economy or social progress. Of 10,000 university graduates since 1916, a quarter graduated in medicine and a quarter in law, the two fields offering the greatest prestige and status in Latin America. The remaining 50% of the graduates were divided among pharmacy, philosophy, education and dentistry with only a relatively few studying engineering, economics, or social science. There are only about 30 qualified agronomists in the country although the population of the Dominican Republic is 60% agricultural and the country depends on agriculture for 90% of its income producing exports.

Table 11 shows University matriculation by curriculum studied. Although in 1966-67 the Division of Education had the largest number of students, law and medicine still accounted for 23% of the university student body.

Only 41% of urban primary schools, and 5% of the rural, are complete or offer six years of education, the national average being 3.3 grades. An elevated drop-out rate, as well as lack of continuity, contribute to a lopsided matriculation which finds 40% of all students concentrated in the first grade of primary, and 71% in the first three grades. Of these, 40% must repeat the first grade, and on the average a student requires two years to complete each grade. The average educational level of those dropping out of school is first grade.¹

Probably the greatest barrier to the development of the rural population is lack of education. It is estimated that nearly two-thirds of the rural population are illiterate. From a practical point of view the proportion is undoubtedly higher since 99.1% of all rural inhabitants go no farther than primary school, many attending only first or second grade. Isolation and lack of contact with written media of communication further reduce the effective literacy of the adult population from disuse.

Attendance of only first or second grade can produce semi-literate at best and in many cases a little education may be more than none if aspirations are raised beyond the point of possible achievement.

¹ Seccion Tecnica de Estadisticas. Secretaria de Educacion, Bellas Artes y Cultura.

Nearly the entire cost of the school system is paid by the Dominican government, which, in 1967, allocated \$31,918,300 to the Secretaria de Educacion, or 12.4% of the national budget, a proportion which appears to be small in comparison to the need. Of the total amount, \$5,640,000, or 17.6%, went to support public and private university education, or 1.2% of the students, and \$1,624,000 to subsidize the private schools.

In 1967, matriculation in primary schools increased 5% over that of 1966, a total of 27,835 students, and 1.4% over the general population increase. Even at the high national average of 58 students per teacher, it would have required 480 new teachers to take care of the increase, without counting the need for replacements, retirements, deaths, etc.

The number of potential teachers graduated from the normal schools in 1966 was 125. There are only five normal schools¹ in the Dominican Republic, and two are private, religious organizations. The other three, operated by the State, accept new students only every three years, that is, every three years a group graduates, and only then are new students admitted.

The principal problems of education in the Dominican Republic can be summed up as follows:

1. A lack of classrooms which prevents 350,000 or 30% of children of school age from attending.

1 A normal school operates on the level of a U. S. high school.

2. A poor distribution of financial resources.
3. An inefficient organization and administration of the school system.
4. A scarcity of qualified teachers. Only 20% of all primary and 45% of all secondary teachers have graduated from institutions of higher learning or normal schools. Less than a quarter of all primary and secondary teachers have the minimum qualifications for teaching. In rural schools only 11% are qualified.
5. The high degree of illiteracy. 56% of the population are considered illiterate. Of those "literate" the average attendance in school was only 3.6 years.
6. The high rate of absenteeism and dropouts, producing a very high rate (cost) per student graduated.
7. A high number of failures, many caused by the high ratio of students to teachers (58 to 1).
8. The low number of professionals and technicians graduated from universities.
9. The failure of the secondary school system to develop a system of vocational education to provide the skilled workers needed for economic development.
10. A system of traditional values that accord prestige to only "status" professions and deprecates occupations of vocational skills -- electrician, plumber, builder, mechanic, etc. as suitable only for the "lower class."

Basically, the educational system faces a challenge difficult to meet in the face of inadequate financial material, and human resources, aggravated by the pressure of a too rapidly expanding population. Even if schools and qualified teachers could be provided today for all children of school age, these facilities would be hopelessly inadequate in ten years, and in twenty, 50% of the school age children could not attend.

TEACHERS - 1967

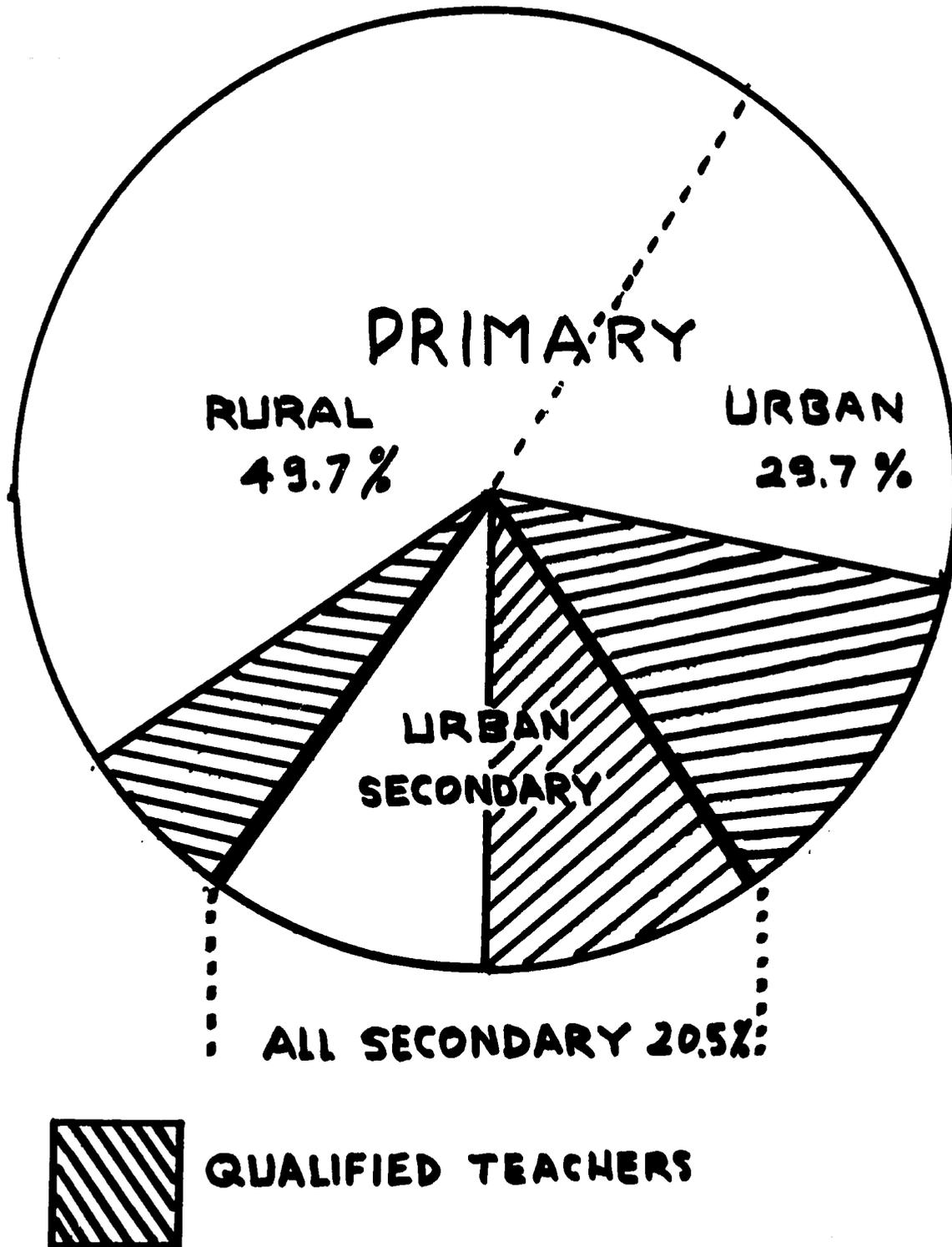


Table 12 LITERACY IN THE DOMINICAN REPUBLIC
1960

Ages	(In thousands of inhabitants)			
	Total Population	Literates ¹	Total Illiterates	% of Total
10-14	393.8	280.1	113.7	28.8
15-19	286.0	236.2	49.8	17.4
20-24	256.7	199.9	56.8	22.1
25-34	400.6	286.8	113.8	28.4
35-44	275.1	159.7	115.4	41.9
45-54	185.5	89.7	95.8	51.6
55-64	111.9	40.3	71.6	63.9
Over 65	<u>90.4</u>	<u>24.2</u>	<u>66.2</u>	<u>73.2</u>
Sub total	2,000.0	1,316.9	683.1	34.2
.....				
0-5	669.0	--	669.0	100.0
6-8 ²	<u>299.1</u>	--	<u>299.1</u>	<u>100.0</u>
Subtotal	968.1 ³	--	968.1	100.0
.....				
9 years	<u>79.0</u>	<u>36.0</u>	<u>43.0</u>	<u>54.3</u>
TOTAL	3,047.1	1,352.9	1,694.2	55.6

Source: Plataforma etc., op. cit.

1 Able to read and write

2 Potential illiterates

3 It is estimated that in accord with the first group, 10-14,
45.7% will eventually be considered literate.

5. Public Health and Sanitation

As with education, improvement in public health and sanitation has been severely limited by lack of financial resources, aggravated by a poor disposition of those available. The lack of coordination between the Secretary of Health and the Dominican Social Security Institute has prevented establishing a national policy which would eliminate duplication of services and raise the general health levels of the nation.

The high rate of infant mortality has been pointed out. More than a third of the total deaths occurring in the past twenty years are those of children under one year of age, the primary cause being lack of environmental sanitation, impure water and imperfect sewage disposal. A lack of pediatricians, and clinics or centers specializing in the care of children adds to the number of infant deaths, and limits any program of public education teaching infant care. To these causes must be added poverty, inadequate housing, and inadequate diet.

With the exception of small pox and tetanus, relatively little has been done to control infectious diseases which have shown a slow increase throughout the Dominican Republic. Poor water systems, irregular garbage collection and disposal, failure to control disease spreading insects and rodents, few public toilets and baths, unsanitary market and slaughterhouse conditions, all contribute to the serious public health problems of the D. R.

Malnutrition is undoubtedly a major health problem of the

country as a whole. Although this subject will be discussed more fully in the section on "Diet," malnutrition, the accompaniment of poverty and unemployment, undoubtedly contributes significantly to the low health standards and high infant mortality of the D. R.

Despite the concentration of university students upon the study of medicine, the Dominican Republic lacks sufficient doctors, and those that practice are poorly distributed in terms of the population. The country had 1,493 physicians in 1967, or an average of one to each 2,500 inhabitants. Most are located, however, in Santo Domingo, Santiago, San Pedro de Macoris, San Francisco de Macoris, Barahona, and San Juan, the principal urban centers. In many rural areas the proportion of doctors to population is one for every 20,000 inhabitants. 50% of all doctors are located in Santo Domingo, as are half of the physicians working with the Secretary of Health and Social Welfare (Asistencia Social). Considering available medical facilities in rural areas, it is not hard to understand why 47% of the deaths registered have "no known cause" and are not attended by physicians.

In 1967, there were only 106 graduates of Nursing School in the Dominican Republic, or one for every 35,000 inhabitants. Even adding nurses aides, practical nurses and midwives, a total of 1,382 is hardly enough to care for the needs of nearly 4,000,000 people.

HOUSING

Population pressure combined with the rural-urban migration

has made the housing shortage one of the urgent problems of the Dominican Republic. To take care of the needs of the population increase anticipated during the next twenty years would require the construction of 750,000 housing units, the same number that exists now. On a yearly basis, the requirement would be 37,500, and this does not include needed replacements for housing now occupied, but failing to meet even minimum standards of construction and facilities.

Although the need for adequate housing is probably greater in the rural than in the urban areas, the demand is primarily urban, and it is projected that 1.5 urban housing units will be required for every rural dwelling constructed.

The population of the city of Santo Domingo is expected to double every ten years, its growth rate being nearly twice that of the population as a whole. Today it is estimated that over 300,000 of Santo Domingo's 655,000 population live in housing unfit for human habitation.¹

Of housing units now occupied, around 750,000, 70% contain only one room. Basic services, such as running water, sanitary installations, kitchens, electricity, and serviceable construction materials, are available in less than a third considered suitable for habitation. Only 100,000 housing units in urban areas and 200,000 rural dwellings can be considered fit for human habitation, producing a current housing deficit of around 300,000 as shown

¹ Listin Diario, September 18, 1969.

in Table 13.

Table 13 HOUSING IN THE DOMINICAN REPUBLIC, 1967

	Urban	Rural	Total	
1. Existing Housing				
Habitable	150,000	300,000	450,000	
Uninhabitable	<u>100,000</u>	<u>200,000</u>	<u>300,000</u>	
Total	250,000	500,000	750,000 ¹	
2. Housing Needs Per Year				
For vegetative population increase	23,000	14,500	37,500	Total in 20 years <u>750,000</u>
To replace present deficit	<u>5,000</u>	<u>10,000</u>	<u>15,000</u>	<u>30,000</u>
	28,000	24,500	52,500	1,050,000

Source: Projected from a study by Luis Dorich and Carlos Acevedo made in 1960, "Informe Sobre la Situación de la Vivienda en la República Dominicana," in which the deficit was established at 297,000 units.

- 60% of the existing housing is of wood, a material which does not last in the climate of the D. R.
- 99% of all rural dwellings lack toilets.
- 75% of all housing has only one room for an average of five persons.
- 30% have running water; 6% have inside toilets.
- 50% of all housing can be considered as "bad," or "inadequate."

The problem of housing has not been ignored by the government, but the problems are staggering. Since 1965, about 6,000 units

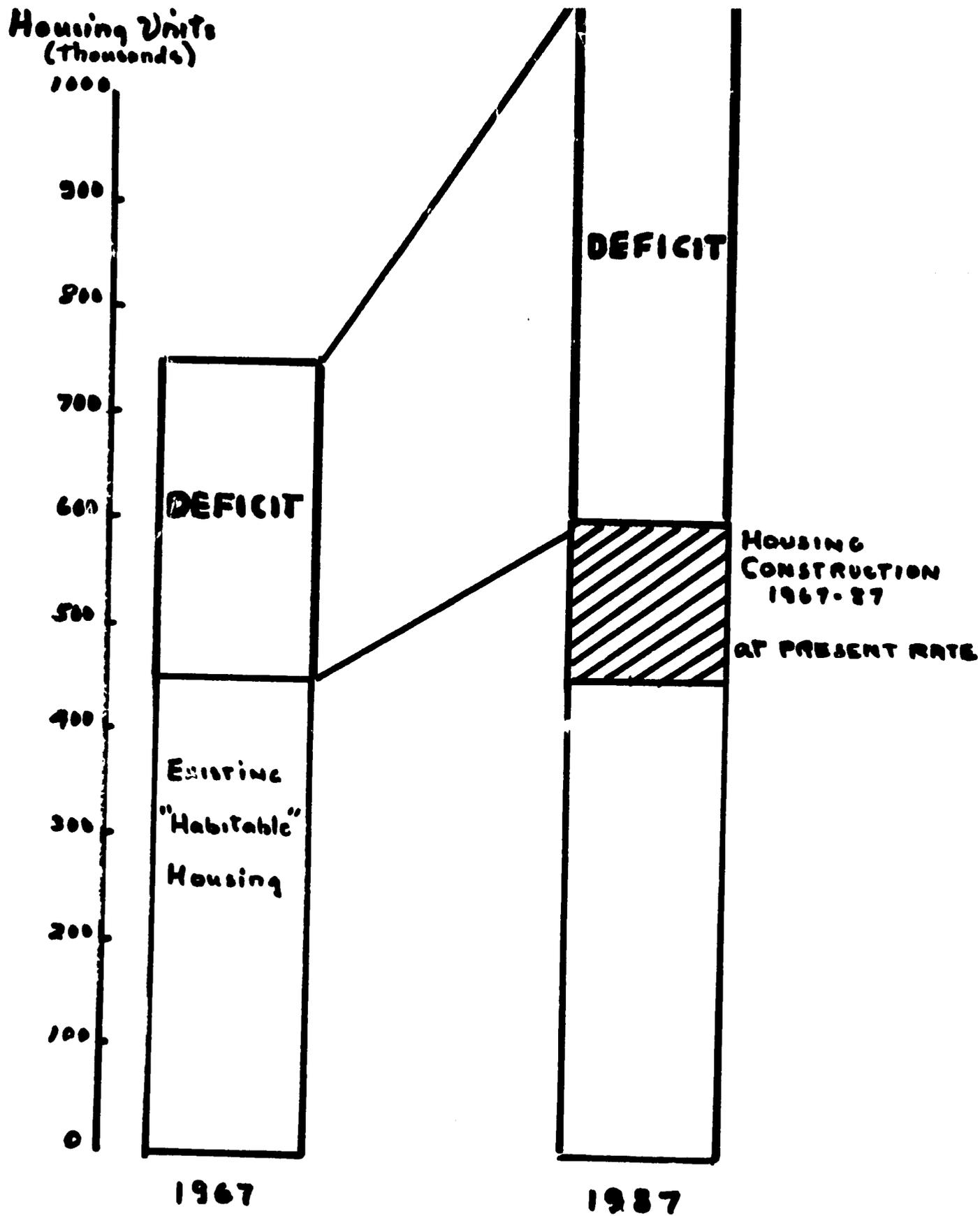
¹ It was reported in September, 1969 in both newspapers, El Caribe, and Listín, that at least 50% of the population live in "uninhabitable" housing units.

per year have been built, 11% of the number actually needed, but costing 4.4% of the national budget annually. Private construction has added 19,300 in 1967 although 17,000 of these are not registered, are considered clandestine and probably do not meet minimum requirements.

The most serious problem associated with housing and health and the general standard of living is the lack of pure water supplies in many areas. Although 40% of the urban population enjoy some form of water service, only 5% can count on an uninterrupted supply of potable water. In rural areas, pure water is non-existent.

Santo Domingo with about 600,000 inhabitants is served by an adequate aqueduct designed for 100,000. Santiago has had no amplification of the water system since 1953.

The situation with regard to sewage disposal is even worse than that of potable water. Only 14% of the urban population have piped sewage disposal and in 1967 only Santiago had a sewage treatment plant which at that time was operating at close to capacity. Today, 70% of the population of Santiago lacks any form of sewage disposal.



HOUSING DEFICIT 1967 - 1987

Table 14 CONDITIONS OF HOUSING IN THE DOMINICAN REPUBLIC, 1955

Characteristics	% of Housing		
	Urban	Rural	Total
1. <u>Water source</u>			
Running water (aqueduct)	58.9	3.1	18.2
Public tap	30.4	13.5	18.1
Well	.9	12.1	9.0
Tank	1.7	1.5	1.6
Cistern	0.2	0.8	0.6
River, creek	7.8	66.9	50.9
Spring	0.03	1.1	0.8
Other	0.06	1.1	0.8
2. <u>Sanitary Installations</u>			
With private toilet	16.5	0.6	4.9
With collective toilet	16.5	0.02	4.7
With private privy	32.2	61.2	53.3
With collective latrine	26.6	7.0	12.3
Without toilet	8.3	31.0	24.8

Source: Censo de Vivienda, 1955

. . . . No later specific figures regarding water and sanitary installations are available. Considering, however, the increase of population and the growing housing deficit, it is probable that the figures today would reflect a worse condition than those above.

POPULATION GROWTH

Although admittedly based on estimates, all sources calculate the increase of population in the Dominican Republic at a rate of between 3.4 and 3.6% per year, a growth that would double the population in twenty years.

The affects of a population expanding at a rate of growth exceeding that of either agriculture or industry have been previously suggested in discussing problems of income, education, health and housing. But unless drastic and immediate measures are taken, the end results of unrestricted growth even in twenty or thirty years are almost too devastating to contemplate.

Apparently no investigation has been made of the affect of the stand taken by the Catholic Church on birth control and family planning in the Dominican Republic, but in Latin America, it is a rare politician who is willing to risk his future by defying the official pronouncements of the Church and the Pope, no matter what his personal feelings or practices might be.

Ideally, agricultural growth and industrial development should at least match the rate of population increase. In the Dominican Republic, however, this has not happened, and food shortages, unemployment and deprivation become more serious every year. The food defecit produced by a stagnant agriculture and a too rapidly expanding population is dramatically illustrated by Graph 11.

Current conditions in the rural areas, and the absence of opportunity are pushing the rural population into cities unprepared

to receive the numbers. An effective and equitable program of agrarian reform might break the speed of the rural desertion, but so far, none has been implemented. An accelerated industrial development might provide more employment, but unless both urban and rural skills and incomes are raised, per capita consumption may decrease rather than otherwise.

Agricultural production, even with the most modern methods, mechanization, and intensive farming, is limited by the amount of cultivable land in the country. Even with rural-urban migration, the amount of farm land available per person is being constantly reduced by unrestricted population growth. The greater the degree of mechanization and farming efficiency, however, the fewer the number of human hands needed, the greater the agricultural unemployment, the more rapid the flight from farm to city, and the fewer the number able to buy the products of either intensive agriculture or accelerated industry.

Graph 10 illustrates the population pyramid as it appeared in 1960 and as projected at the same rate of annual increase to year 2000. Considering the lack of domestically grown food and almost universal malnutrition among the population of the Dominican Republic at present, it is hard to see how starvation can be avoided in the near future unless population growth can be curbed.

It has been suggested by family planning experts¹ that education to this effect be begun at the youngest age level possible,

1 El Caribe, September 25, 1969

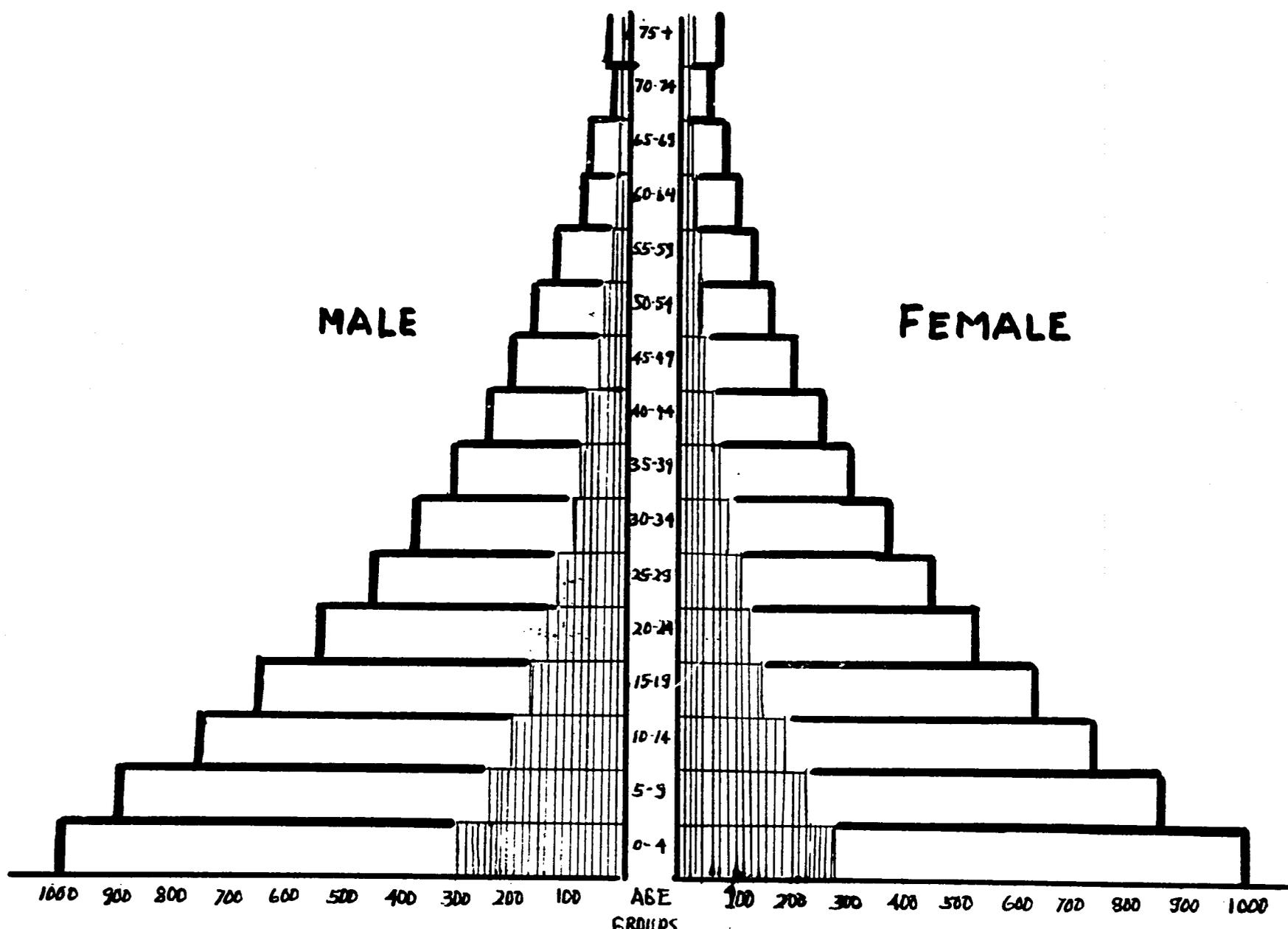


FIGURE 72.3

POPULATION 1960 POPULATION 2000

Source: Plataforma Para El Desarrollo de la Rep. Dom.

emphasizing the idea that life does not consist of solely marrying and multiplying. But it is recognized that education will not be sufficient to prevent a probable catastrophe within ten or twenty years and the starvation of from 50 to 100 million people annually.²

Eventually, the rural-urban migration may reduce somewhat the alarming rate of annual population increase in the Dominican Republic, as has been true in all industrially developed areas of the world. Children, who are economic units on a farm, become unwanted expenses in the city where food must be purchased and rent paid. But this trend cannot be depended upon to achieve the necessary reduction in time to avert tragedy.

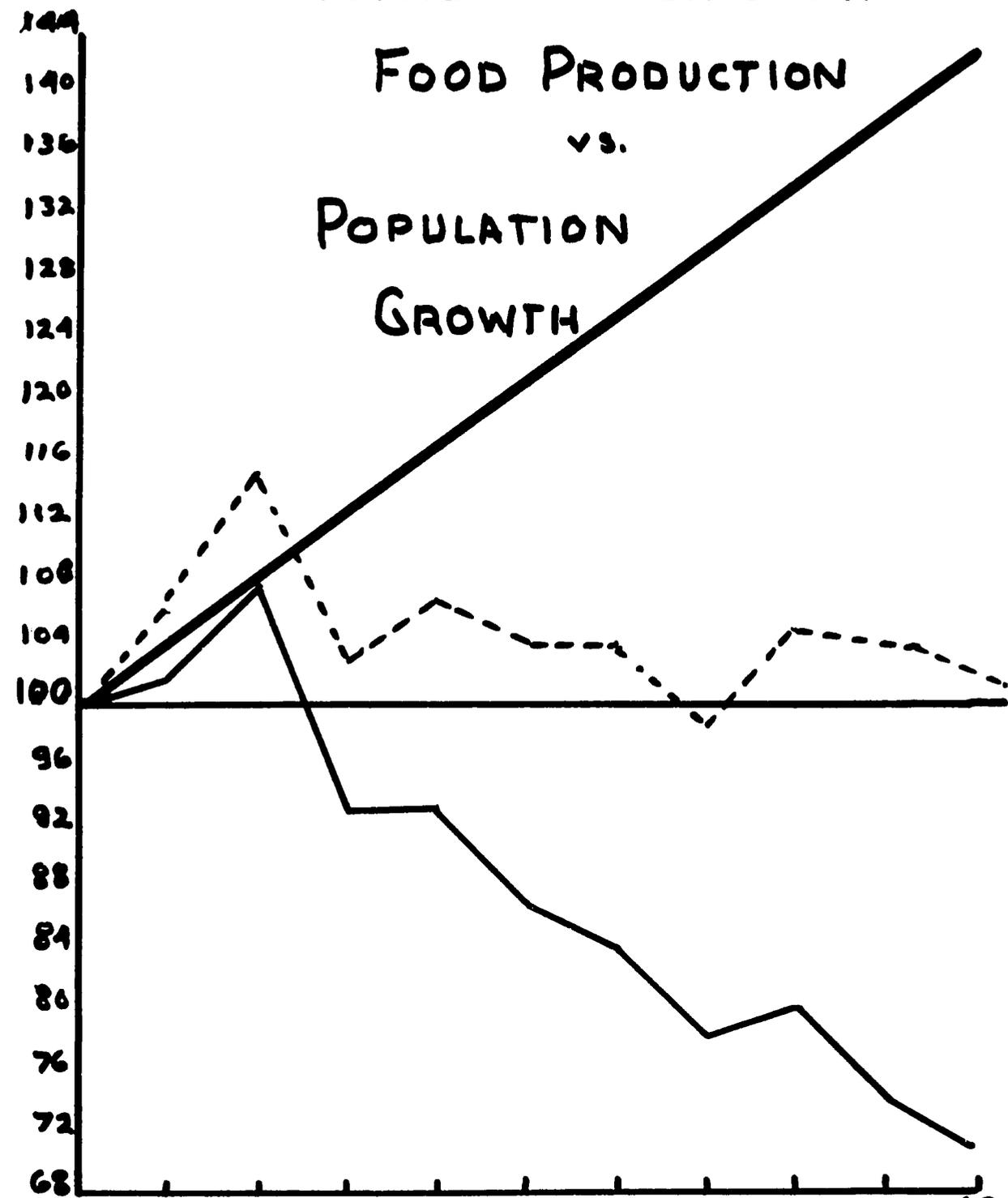
From an economic point of view, few countries could long support a 3.6 annual increase of population. The Dominican Republic, where only about 28.5% of its national income is allocated to cover education, public health sanitation, and housing combined, cannot provide the necessities for its present population. The factors producing illiteracy, disease, infant mortality, unemployment, uninhabitable housing, and intolerable living conditions can only be expected to multiply.

Unless some means is found to control population expansion, all other projects, designed hopefully to raise national production, per capita income and the standard of living may well fail, suffocated by the pressure of a population whose needs cannot be met.

2 Ibid.

INDEX

TOTAL AND PER CAPITA FOOD PRODUCTION vs. POPULATION GROWTH



Average 1959 60 61 62 63 64 65 66 67 68
1957-59

- POPULATION
- PER CAPITA FOOD PRODUCTION
- - - - TOTAL FOOD PRODUCTION

Current policy is concentrated on making economic gains in turn making possible a long range program of social reform. The magnitude of the challenge to meet even today's need cannot be exaggerated, and the vegetative increase of population increases the deficit in education, public health, and housing every year.

Considering only the requirements of the current population:

1. A large part of the increasing population of Santo Domingo live in slum areas lacking even the most elemental services.
2. No progress has been made in reducing the distressingly high rate of infant mortality caused by lack of environmental sanitation and an adequate program of preventive medicine.
3. A lack of trained teachers limits the expansion of educational programs and facilities even more than does the inadequate number of classrooms which cannot accommodate the present school age population.
4. Problems of school absenteeism, dropouts and failures further aggravate the problems caused by illiteracy and semi-literacy.
5. The lack of skilled and trained personnel, resulting in an extremely low level of productivity, limits economic development and industrial expansion.
6. Industry has not developed sufficiently fast to provide employment to a large sector of the urban population and little opportunity exists for those migrating from rural areas.

B. THE LAND1. Production

Despite the fact that by 1969 the population of the Dominican Republic had increased over its number in 1960, agricultural production during the same period remained relatively static.

About 30% of the agricultural production of the Dominican Republic consists of traditional crops grown for export, (sugar, coffee, tobacco and cacao). These have maintained a rhythm of increase somewhat superior to that of food crops which is dependent upon domestic demand associated with income or the ability to buy.

Although the population of the Dominican Republic is nearly two thirds rural and contains 58% of the economically active labor force, agriculture contributes less than one third of the gross domestic income, and the proportion appears to be declining each year. (Table 15 and Graph 12).

Table 15 THE GROSS DOMESTIC PRODUCT AND AGRICULTURAL PRODUCTION

Year	Gross Domestic Product (In millions Dom. \$, Constant prices in 1962)		% Agricultural Participation
	Total	Agriculture	
1950	462	137	29.6
1960	804	236	29.2
1961	769	217	28.2
1962	876	221	25.2
1964	978	237	24.1
1966	945	230	24.3

Source: Plataforma etc., op. cit.

Productivity, or yield per acre, of all crops, including even those grown for export, is low as compared to what might be expected given the favorable weather and soil conditions prevalent in the Dominican Republic. Since 1950, productivity has declined, especially in important food crops such as corn, peanuts, sweet potatoes, yuca, beans, and plantains, with a corresponding reduction of available food per capita. (Table 17).

The production of cattle in the Dominican Republic is almost as important as crops, cattle representing about 30% of all agricultural production, and occupying more than half of the productive lands of the country. Although total livestock production has increased slowly, the output is disappointing in view of the potential afforded by the natural advantages of the country.

The Dominican Republic lacks the large areas of unexploited and almost uninhabited land characteristic of some countries of Latin America, and future production cannot depend upon the traditional practice of increasing acreage indefinitely instead of yield per acre.

The importance of the agricultural sector to the Dominican economy can hardly be overstated, however, since 90% of the exports of the Dominican Republic are products of agriculture, with four traditional crops contributing 79.2% of all exports:

Sugar	51.5%	
Coffee	15.3%	
Cacao	7.9%	(1966 figures)
Tobacco	4.8%	

An examination of Table 16 clearly shows the failure of agriculture to match population growth. In 1968, most items were below the level of the average production recorded for 1957-59, despite an additional million people to feed. Political events have also left their mark on agricultural production as can be noted in the drops occurring in 1965-67 at the time of the revolution and civil war. Figures for the last year, 1968, also show the effects of a disastrous drought in 1967 which reduced all agricultural production, and increased food imports to record levels.

Graph 13 illustrates the stagnation of agricultural production and the resultant drop in per capita agricultural and food production. A means to reverse the trend has not proved easy to find, nor do the large sums of money poured into projects to develop agriculture in the Dominican Republic by USAID and other international agencies seem to have had much positive affect. AID agricultural technicians have projected some optimistic goals, which would require equal or greater financial support, numerous

technicians and nearly perfect weather to push the food production index up to 146 by 1973, but even this achievement would only raise per capita food production to 86..

Millions Dom. \$

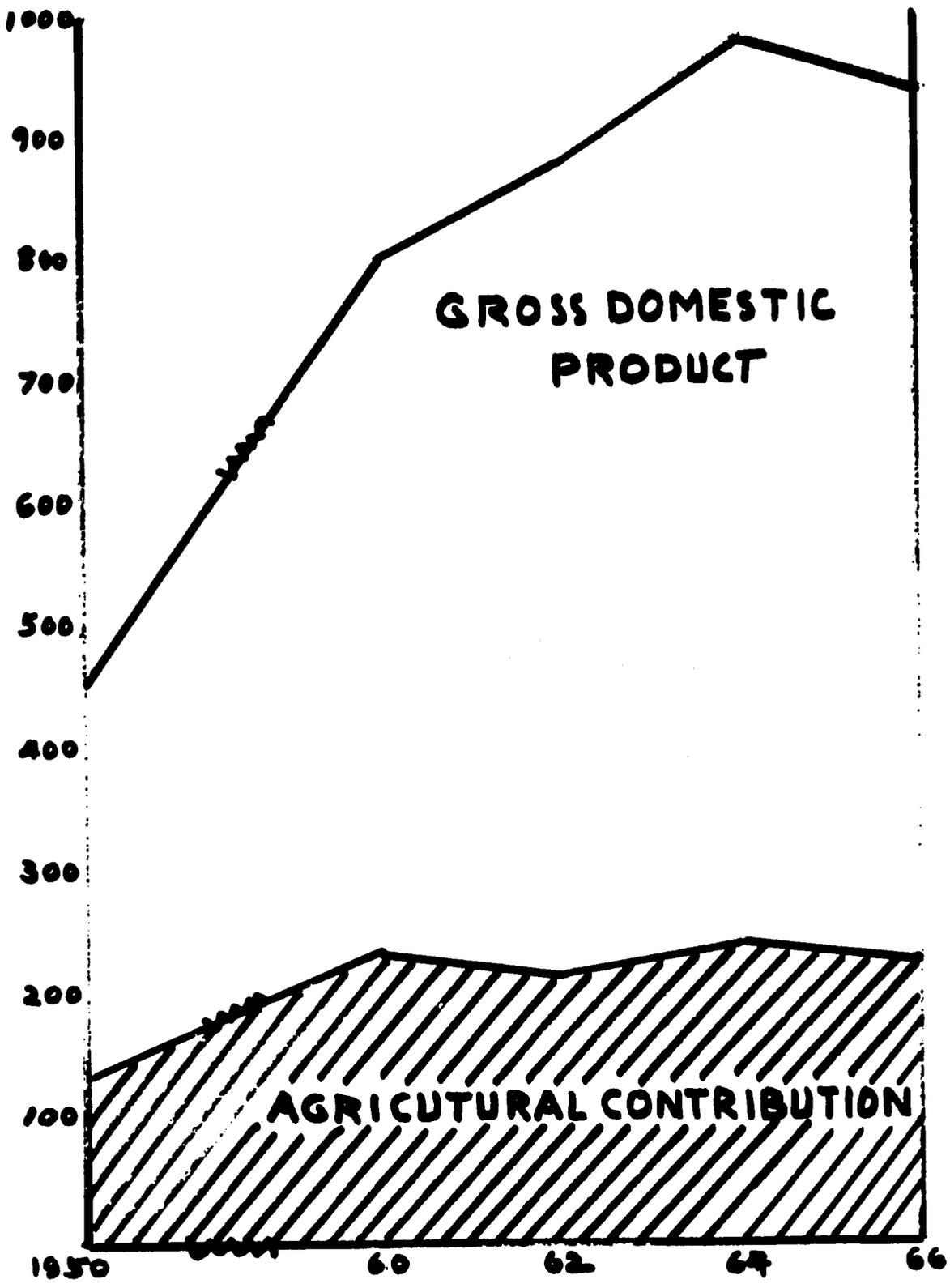


Table 16

PRODUCTION OF PRINCIPAL CROPS AND LIVESTOCK
1961-1968

Commodity	Average 1957-59	1,000 Metric Tons								1968 as % 1957-59
		1961	1962	1963	1964	1965	1966	1967	1968	
FOOD CROPS										
Rice	107	113	111	118	143	167	178	147	181	169.1
Corn (shelled)	48	50	48	46	43	38	42	39	40	83.3
Beans (Dry)	22	19	19	19	23	29	23	20	20	90.9
Potatoes	5	6	8	8	15	16	18	20	20	400.0
Yuca	150	140	148	147	153	152	153	152	155	103.3
Sweet Potatoes	81	72	76	75	77	77	77	75	78	93.9
Peanuts (in shell)	57	44	52	48	50	45	51	45	47	84.0
Bananas	257	370	360	311	250	270	240	240	250	97.2
Beef and Veal	22	25	25	25	26	30	28	29	26	118.1
Pork	7	8	8	8	8	8	9	9	10	142.0
Milk	228	250	255	255	255	250	255	231	247	108.3
EXPORT CROPS										
Sugar	7,621	7,811	8,087	7,402	7,784	5,544	6,638	7,650	5,682	74.5
Coffee	33	36	34	41	40	37	30	38	32	96.9
Cacao	35	34	40	41	26	20	28	29	26	74.2
Tobacco	22	29	25	31	28	19	20	19	16	72.7
AGGREGATES OF PRODUCTION										
<u>Millions of dollars at Constant Prices</u>										
Crops	111.2	115.0	117.2	118.4	116.2	106.5	110.3	112.2	103.5	93.0
Livestock	40.8	44.8	45.5	45.5	45.8	44.5	46.0	42.9	47.1	115.4
Total Food	130.1	134.6	139.7	135.9	135.3	128.5	136.6	132.1	131.3	100.0
Total Agriculture	152.0	159.8	162.7	163.0	162.0	151.0	156.3	155.1	150.6	99.0
Export Crops	64.5	68.5	69.5	72.2	67.0	55.4	56.2	63.9	51.3	79.4

Table 16 (cont'd)

Commodity	Average 1957-59	1,000 Metric Tons								1968 as % 1957-59
		1961	1962	1963	1964	1965	1966	1967	1968	
INDICES OF PRODUCTION 1957-59=100										
Crops	100	103	105	106	104	96	99	101	93	
Livestock	100	110	112	112	112	109	113	105	115	
Total Food	100	103	107	104	104	99	105	102	101	
Total Agriculture	100	105	107	108	107	99	103	102	101	
Export Crops	100	106	108	112	104	86	87	99	79	
Per Capita Food	100	93	93	87	84	77	79	74	71	
INDICES OF PRODUCTION PER CAPITA										
<u>1957-59=100</u>										
Total Agriculture	100	95	93	91	87	77	78	74	70	
Total Foods	100	93	93	87	84	77	79	74	71	
INDEX OF POPULATION										
1958 Population										
2,834,300	100	111.0	115.0	119.1	123.4	127.9	132.5	137.2	142.2	

Source: USAID/Div. Agriculture

. . . . Production figures appearing in the Foreign Agricultural Service bulletin, Dominican Republic: Agricultural Situation, 1968, Department of Agriculture, Washington, D. C., are slightly different than those of the figures given above, although both are from the same source.

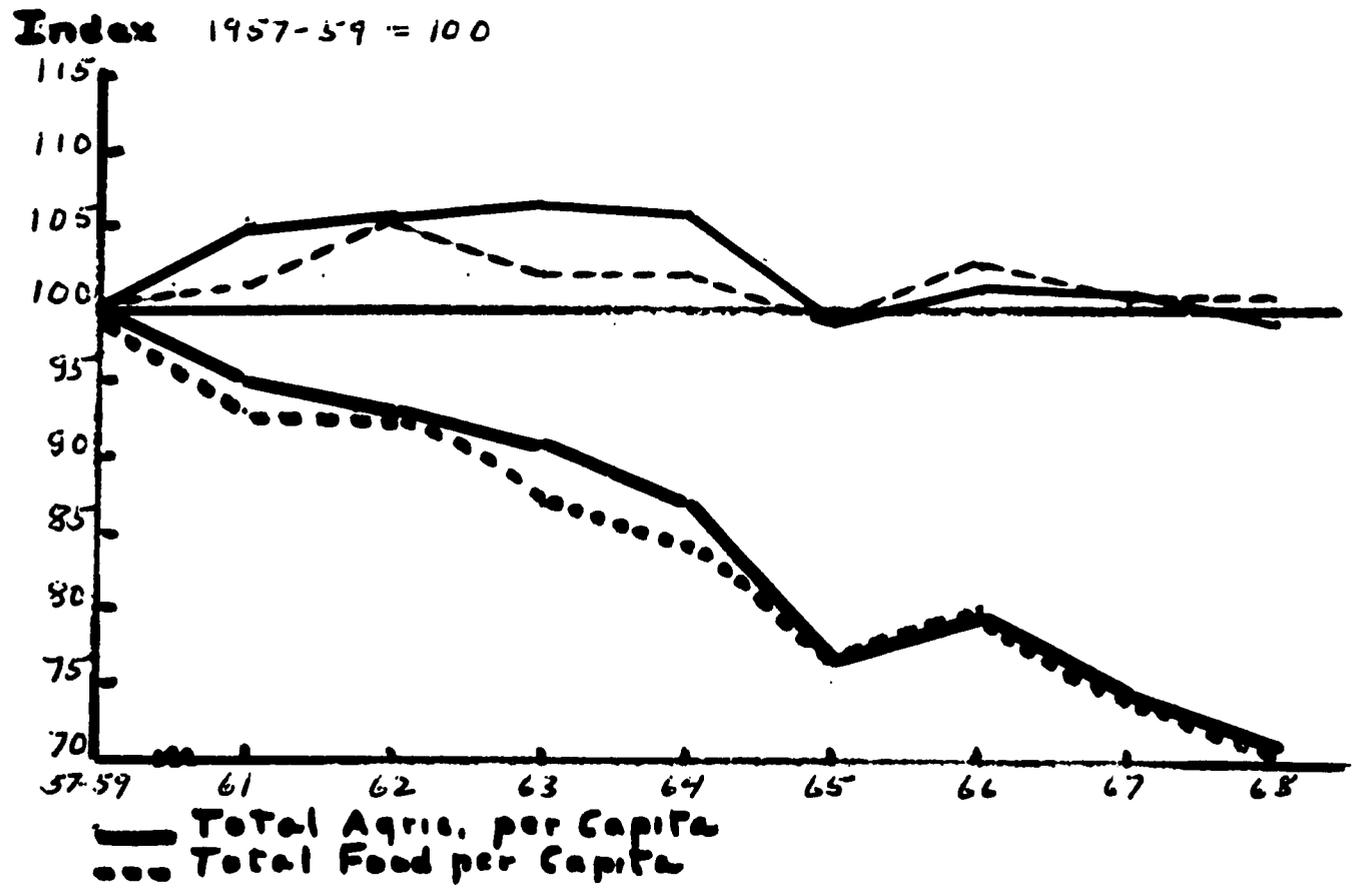
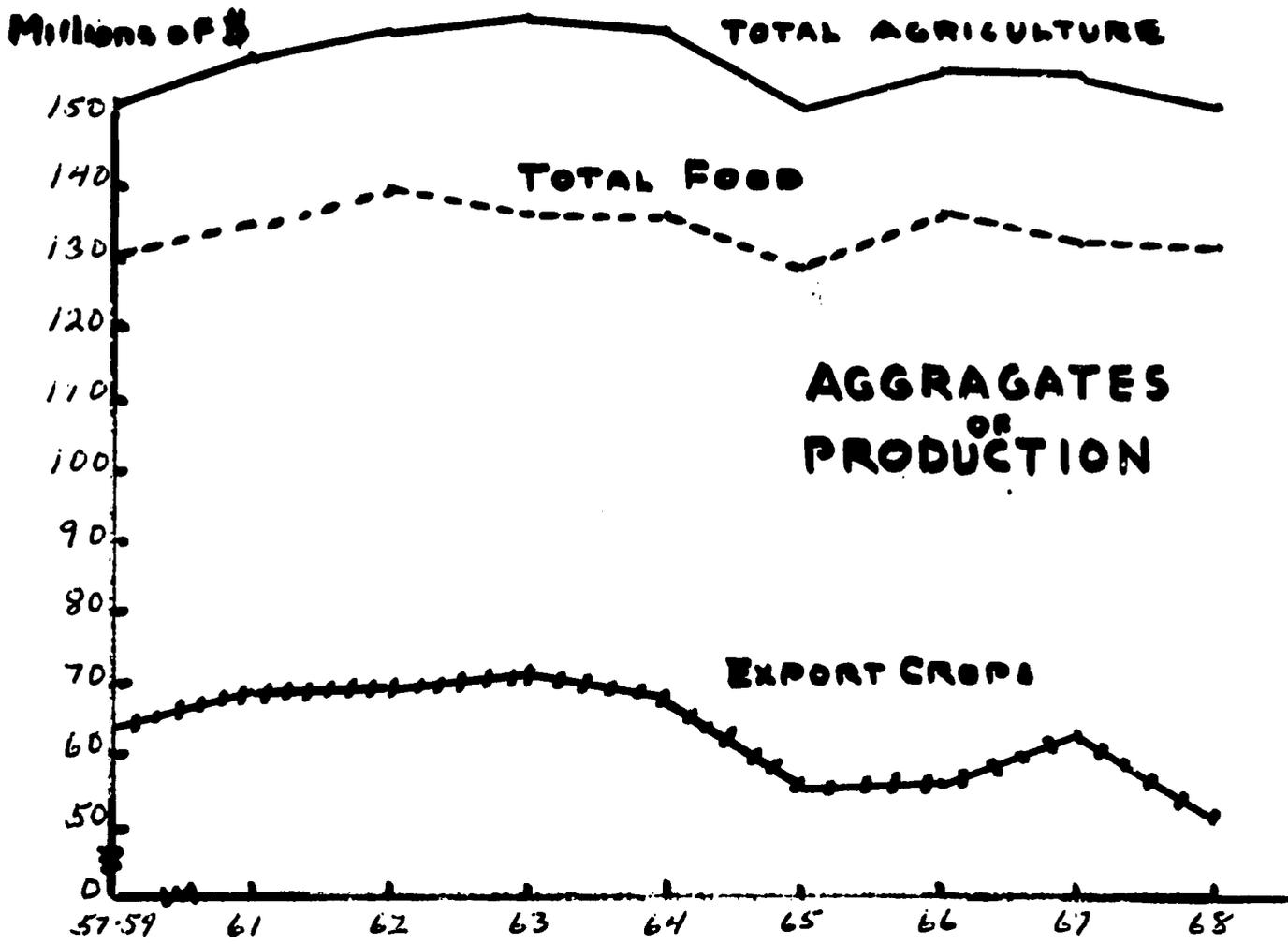


Table 17 YIELD PER ACRE OF VARIOUS CROPS

Crop	1950	1960	1960 as % of 1950
<u>CEREALS</u>			
Rice	94.3	95.5	101.2
Corn	101.2	80.4	79.4
<u>VEGETABLE OILS</u>			
Peanut	125.6	104.4	83.1
<u>ROOTS AND TUBERCLUES</u>			
Sweet Potatoes	377.9	226.3	59.8
Name	266.6	414.6	155.5
Yautia	453.6	242.9	63.0
Yuca	342.3	141.8	41.4
<u>LEGUMES</u>			
Beans	109.4	93.6	85.6
Guandales (Pigeon Peas)	125.3	41.6	32.0
<u>OTHER</u>			
Sugar Cane	2,816.6	3,331.7	118.2
Cotton	16.2	67.4	416.0
Coffee	24.5	27.6	112.6
Tobacco	135.9	191.2	140.6
Banana ¹	53.0	40.1	75.6
Plantains ²	538.0	370.7	68.9

Source: Plataforma etc., op. cit.

1 Bunches per tarea

One acre=6.4 tareas

2 Units per tarea

One kilo=2.2 pounds

- Although the area cultivated rose from 9.8 million tareas to 12.2 million between 1950 and 1960, yield per tarea for crops excluding sugar decreased 7%. Sugar increased 18% in yield.
- Although exports represent 30% of total production, they occupy only 11% of the land cultivated
- The drop in productivity of food crops such as plantain, banana, yuca, beans and guandales is alarming and there is little to indicate that this trend has been reversed since 1960.

2. Prices

As can be seen in Table 18, farm prices paid for commodities have not increased as much as might be expected between 1965 and 1967 considering the world inflationary tendencies.

Table 18 PRICES FOR VARIOUS COMMODITIES, 1965-67

Commodity	Unit	1965	1966	1967	1967 as a % of 1965
Rice, paddy	Metric ton	170.00	157.00	156.00	91.7
Corn, shelled	"	64.00	65.00	78.00	121.8
Sugar Cane ¹	"	6.30	6.30	5.40	86.7
Tobacco	"	422.00	348.00	393.00	93.1
Coffee, in cherry	"	265.50	255.50	237.30	89.3
Cocoa	"	241.00	332.00	388.00	160.9
Peanuts	"	177.00	177.00	177.00	100.00
Cotton	"	818.00	524.00	524.00	64.0
Beans	"	319.00	255.00	283.00	88.7
Peas	"	84.63	85.10	86.11	101.7
Potatoes	"	51.00	57.00	51.00	100.0
Sweet Potatoes	"	64.00	67.00	76.62	119.7
Yuca	"	45.90	60.98	66.15	144.1
Onions	"	143.00	154.00	152.00	106.2
Garlic	"	584.60	628.10	620.00	106.1
Tomatoes	"	53.50	49.00	55.10	102.9
Cucumbers	"	108.00	98.90	11.40	103.1

¹ This price is not that paid to independent growers, but is the average cost of growing the cane on all mill lands, including the computed value of the land and all other input costs.

Table 18 (cont'd) FARM PRICES FOR VARIOUS COMMODITIES, 1965-67

Commodity	Unit	1965	1966	1967	1967 as a % of 1965
Bananae	1000 hands	760.00	706.00	530.00	69.7
Pineapples	"	178.00	180.00	175.00	98.3
Mangos	"	12.00	12.00	12.00	100.0
Coconuts	"	23.00	24.00	24.00	104.3
Papaya	"	80.00	66.00	95.00	118.7
Platanos	Metric ton	9.00	10.00	12.00	133.3

Source: Cuentas Nacionales de la Republica Dominicana
Banco Central y Grupo Conjunto de Ingreso Nacional, Aug., 1968.

Many of the prices in Table 18 represent year averages, as there is considerable fluctuation on seasonal crops during the year. Lack of storage facilities prevents these items being held to avoid price drops or rises to plentiful supply or scarcities.

3. Land Use

Table 19 indicates the way in which land is used in the Dominican Republic.

Table 19 LAND USE IN THE DOMINICAN REPUBLIC

	Acres (000)	% of Total
TOTAL LAND	11,970	100.0
I. Land in farms¹	5,450	45.5
A. Irrigated (Cultivated Land)	270	2.3
1. Annual Crops (Cultivated Land)	140	1.2
a) Rice	(95)	(.8)
b) All other	(45)	(.4)
2. Perennial Crops (Cultivated)	130	1.1
a) Sugar Cane	(70)	(.6)
b) Platano	(40)	(.3)
c) All other	(20)	(.2)
B. Dry Land	1,320	11.0
1. Annual Crops	340	2.8
a) Rice	(25)	(.2)
b) All other	(315)	(2.6)
2. Perennial Crops	980	8.2
a) Sugar Cane	(280)	(2.3)
b) Coffee	(195)	(1.6)
c) Cocoa	(170)	(1.4)
d) Coconut	(55)	(.5)
e) Platano	(125)	(1.1)
f) All other	(155)	(1.3)
C. Fallow Land (Land at Rest)	510	4.3
D. Grass Land	2,040	17.0
1. Improved Pasture	1,400	11.7
2. Native Pasture	640	5.3
E. Other Land	1,310	10.9
1. Undeveloped-Suited for Cultivation	250	2.1
2. Wood & Brush- Suited for tree crops	950	7.9
3. Waste Land	110	.9

	Acres (000)	% of Total
II. Land not in Farms	<u>6,520</u>	<u>54.4</u>
A. With capabilities for Agricultural Development	<u>6,365</u>	<u>53.2</u>
1. Irrigated potential	15	.1
2. Dry land potential including tree crops	6,350	53.1
a) Presently in pine forest	(800)	(6.7)
b) Capability for soft woods)	(2,520)	(21.1)
c) Capability for hard woods	(3,030)	(25.3)
B. Unsited for Agricultural Development²	<u>155</u>	<u>1.3</u>

Source: USAID/Agriculture Division

1 Includes all sugar operations.

2 Includes waste, residential and other infra-structure land.

As shown in Table 20, only 6% of the land of the Dominican Republic is considered to be suitable for very intense or intense cultivation. In general, intensive farming is more typical of small farmers who have so little land that there is no alternative but to cultivate intensely in order to live. Usually, the larger the land holding, the less the degree of intensification, and the greater the amount of land left idle.

Table 20 PRODUCTIVE CAPACITY OF THE LAND

Cultivation	Area	% of Total
Suitable for intense cultivation	536.87 KM ²	1.1%
Intense Cultivation	2,349.98 "	4.9
Moderate Cultivation	3,111.80 "	6.6
Limited Cultivation	3,639.35 "	7.7
Intensive pasture	6,071.24 "	12.7
Moderate pasture	5,611.25 "	11.8
Limited Pasture and Forests	25,160.62 "	52.7
Forest Reserve	<u>1,201.87</u>	2.5
Total	47,682.98	100.0

Source: Plataforma, op. cit.

Irrigation studies reveal that only 5,998.65 KM² of land are suitable for irrigation, or about 12.6% of the national territory. Of this area, 3,639 KM², or 60% are considered to have too many limitations for most crops and would be better used as pastures. Twenty percent of the land, or 963,800 hectares, in the Dominican Republic is considered "suitable for agriculture" and 607,000 hectares of that amount is appropriate for growing permanent crops.

If by 1985 the population will have reached 7.3 million, as projected, the agricultural area will be reduced to 0.22 hectares per person, a prospect that cries aloud for a more rapid intensification

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of agriculture, and a less wasteful use of the relatively small amount of land available. (Table 21, Graph 14).

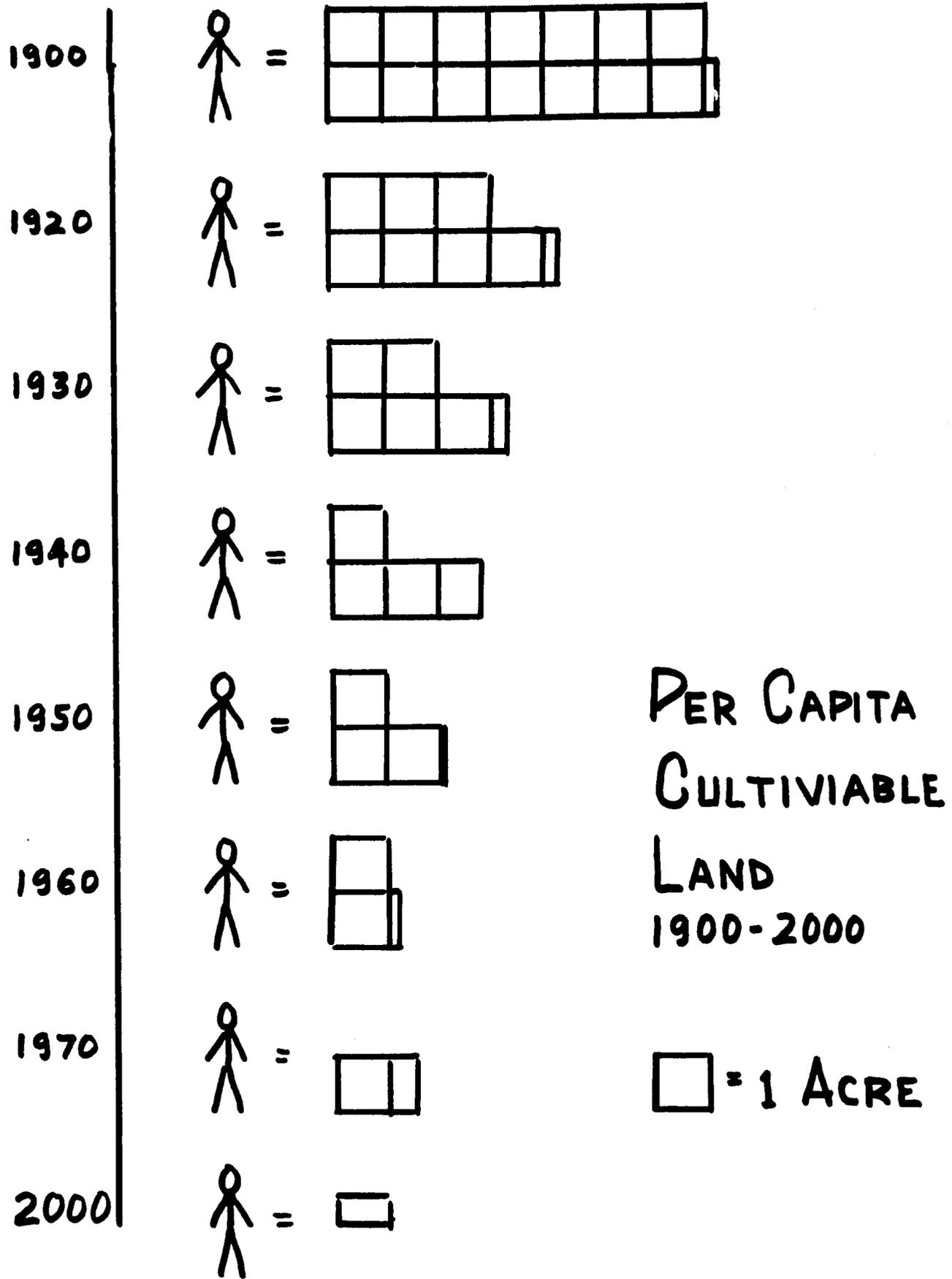
Table 21 REDUCTION OF PER CAPITA CULTIVABLE LAND BY POPULATION GROWTH

Year	Population	1900-2000		Per Capita Cultivable Land (Acres)
		Rate of Increase Period	% Increase	
1900	457,350			14.45
1905	521,270			12.67
1910	612,868			10.78
1915	732,145			9.03
1920	894,665	1900-20	3.4	7.39
1925	1,053,735			6.26
1930	1,256,048			5.26
1935	1,479,417	1920-35	3.4	4.46
1940	1,674,367			3.95
1945	1,888,910			3.60
1950	2,135,872	1935-50	2.4	3.09
1955	2,403,988			2.75
1960	3,047,070	1950-60	3.6	2.17
1965	3,608,536			1.82
1970	4,296,338	1960-70	3.5	1.53
1975	5,121,633			1.29
1980	6,099,182	1970-80	3.5	1.08
1985	7,251,558			0.96
1990	8,603,046	1980-90	3.5	0.77
1995	10,184,158			0.66
2000	12,021,753	1990-2000	3.4	0.55

Source: Plataforma, op, cit

. . . . Estimated populations except for 1920, 1935, 1950 and 1960 when censuses were taken. Estimations beyond 1960 made by National Planning Office.

. . . . The total cultivable area of the Dominican Republic is estimated at 6,609,000 acres according to an evaluation of natural resources made by OAS, 1967.



4. Land Tenancy

The census of 1950 listed a total of 251,300 land holdings in the Dominican Republic. Of these, 101,546 or 40.4% had areas of less than 3 acres. Altogether, these farms occupied 761,000 tareas (110,000 acres) or about 2% of the total cultivated area. (Table 22)

On the other hand, 357 farms, each of more than 10,000 tareas, (1,660 acres) occupied 10,700,000 tareas (1,670,000 acres). In other words, 0.1% of the land owners in the Dominican Republic owned 28.8% of the land. The small farms (minifundias) averaged 7.5 tareas (1.17 acres), while the large farms (latifundia) averaged over 30,000 tareas (4,680 acres). The large land holders possessed 4,000 times more land than did the minifundistas, a figure which gives some concept of the magnitude of the problem of land ownership facing the supporters of agrarian reform in the Dominican Republic.

Minifundia, or lands too small to afford a decent living for a family, is not a new problem in the Dominican Republic or elsewhere in Latin America, but current population pressures are speeding up the constant fracturing of lands already too small. Increasing population is creating new minifundias from lands that were once considered "middlesized," generally occupied and worked by rural families with exceptionally large families. Farms that averaged from 75 to 300 tareas (12-50 acres) made up about 16% of the total land holdings in 1950. By 1960, fracturing had decreased that proportion to 107.

The affects of a defective agrarian structure is not limited

to size of land holdings.

Table 22 NUMBER, SIZE, AND AREA OF LAND HOLDINGS, 1950 and 1960

Area in Acres	1950				1960			
	Number	%	Area	%	Number	%	Area	%
Under 3	101,546	40.4	761,600	2.0	179,267	50.4	1,344,506	4.0
3 to 12	96,666	38.5	4,350,000	11.7	131,073	36.8	5,898,300	17.9
12 to 50	39,831	15.9	7,488,300	20.2	34,160	9.6	4,405,018	19.5
50 to 150	10,382	4.1	6,748,500	18.2	8,769	2.5	5,699,781	17.3
150 to 500	2,098	0.8	4,196,900	11.3	1,846	0.5	3,691,803	11.2
500 to 1,500	434	0.2	2,818,800	7.6	457	0.1	3,206,910	9.7
More than 1,500	357	0.1	10,712,500	28.8	222	0.1	6,653,259	20.2
Total	251,314		37,076,600		355,794		32,899,577	

Source: Plataforma, op. cit.

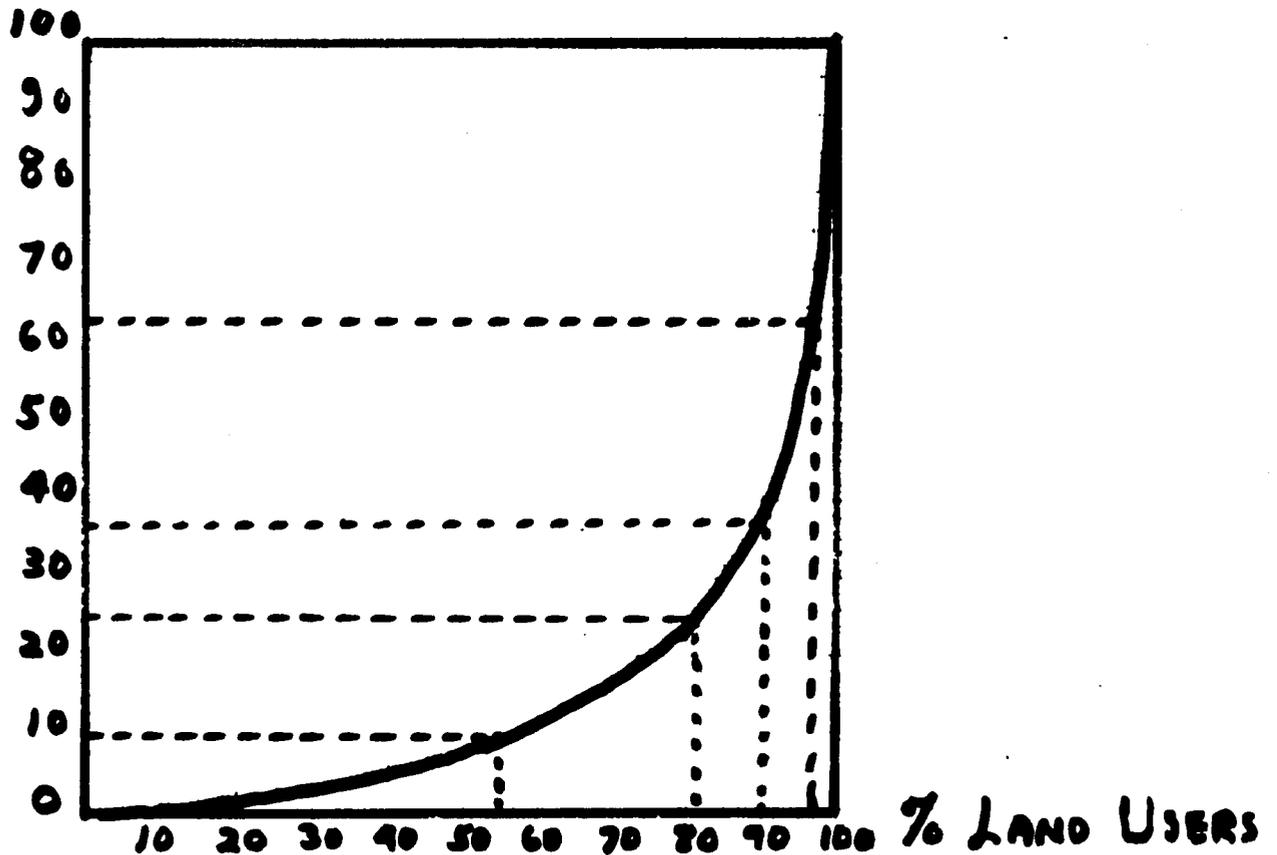
In general, irrigation systems and roads to which the State has invested large sums of public money, are located so as to benefit only a small minority of land owners who generally do not live on their land. Usually such land is cultivated by renters who pay the landlord 50% of their gross production for the use of his land.

To a large extent, the disproportionate distribution of rural income is attributable to the concentration of irrigated lands in the hands of a few individuals.

According to data regarding irrigation use prepared by the Instituto de Recursos Hidraluicos,

LAND TENANCY IN THE DOMINICAN REPUBLIC

% OF LAND



55% OF FARMERS HAVE 10% OF THE LAND

27% OF FARMERS HAVE 15% OF THE LAND

9% OF FARMERS HAVE 12% OF THE LAND

6% OF FARMERS HAVE 26% OF THE LAND

3% OF FARMERS HAVE 37% OF THE LAND

- 91% of farmers of irrigated lands occupy 36% of the irrigated land.
- 55% of the farmers of irrigated lands occupy 10% of the land.
- 9% of the farmers of irrigated lands occupy 64% of the irrigated land, and of this group,
- 0.5% of the farmers of irrigated lands occupy 25% of all irrigated land in the Dominican Republic.

In 1950, 79% of all farmers occupied lands of less than 75 tareas (12 acres). In 1960, the figure had jumped to 87%.

The 310,000 families with lands under ten acres represent a population of about 2,000,000 persons who live on tiny parcels of land in sub-human conditions. All are inadequately housed and deficiently fed, and cannot be considered either as producers or factors of demand for industrial products and services.

The land potential, including that used for annual crops, permanent crops and pastures is estimated at approximately 2.6 million hectares or 5.7 million acres. In 1960, according to the agricultural census taken at that time, 64% of the crop land and 73% of the pasture was being utilized, leaving less than one third of all potential land available for future development. Considering the present population of over 3.9 million, less than one acre of land (not counting the pastures), is available to feed each person. If the population reaches 7.3 million in 1985 as projected, the per capita land for food production will be reduced to under half an acre, facts that should give impetus to projects to develop and intensify agriculture, but which have had little effect so far.

Rather than increasing domestic agricultural production, food products have been imported in increasing quantities to meet the demand of the small sector of the population able to pay almost prohibitive prices.

Why a basically agricultural country is more and more dependent upon imported foods can be explained in several ways:

1. The lack of frontier agricultural lands which could be put into production using the traditional "extensive agriculture" practices.
2. The increasing cost of putting land into production.
3. The need for large scale irrigation and drainage projects to increase yield per acre.
4. The lack of capital to increase yield through mechanization, improved agricultural practices, better seed, fertilizers, insecticides, etc.
5. The lack of technical assistance and credit proportionate to the magnitude of the problem.
6. Inequitable and efficient marketing practices and pricing policies.
7. A defective agrarian structure in terms of land tenancy, resulting in unused and wastefully cultivated latifundia and an increasing number of uneconomic minifundia.

Table 23 PRINCIPAL EXPORTS OF THE DOMINICAN REPUBLIC

Product	1966	
	Millions of \$ Dom.	% of Total Exports
Sugar and derivatives	76.1	55.7
Coffee	21.8	15.3
Cacao and derivatives	11.2	8.2
Tobacco	6.6	4.8
Bananas	0.8	0.6
Bauxite	10.3	7.5
Other	7.1	5.2
	<u>133.1</u>	<u>97.3%</u>

Source: Plataforma, op. cit.

5. Export Crops

a) Sugar

Sugar is the most important agricultural product of the Dominican Republic. Contributing about 50% of all the exports of the country, sugar processing is also the largest single industry, accounting for between 35-45% of all manufacturing, and 22% of all employment. The importance of sugar, with its high dependence upon the prices of the international market, makes the Dominican economy extremely vulnerable to the world oscillations which are reflected in its production and exportation. Dominican sugar production steadily increased until 1958, rose sharply in 1960, and since has dropped progressively. Production in both 1965 and 1966 fell lower than that of 1950.

The large amount of land suitable for sugar cane culture has led to constant enlarging of the number of acres planted without improving yield, or a system of "extensive" rather than intensive agriculture. Surplus agricultural labor led to the locating of the sugar mills in rural areas rather than close to ports for export shipment. Both factors resulted in excessively high costs of transportation with a resultant loss of industrial profit, elements which have become progressively more serious as land and wage costs rise.

The fall of the dictatorship brought increased salaries for both agricultural and industrial labor, and sugar production as a State-owned industry became uneconomical. Transportation costs for sugar planted long distances from the mills added to the losses

which were further aggravated by the instability of the price of sugar on the international market.

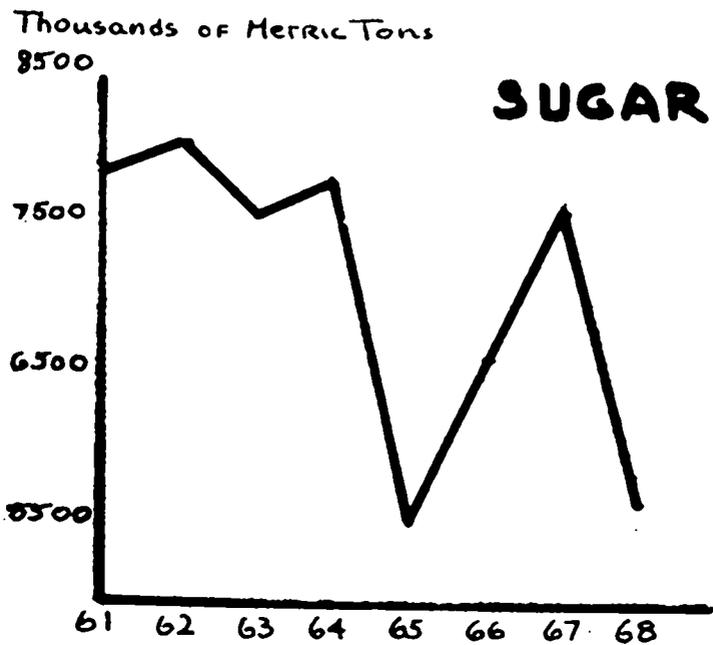
To reduce loss and increase efficiency, all state owned sugar mills were placed under the single management of the Corporacion Azucarera Dominicana (CAD) in 1964, which was replaced by the Consejo Estatal del Azucar (CEA) in 1966.

The first efforts of the new organization to reduce the costs of sugar production were frustrated by the 1967 drought which hit sugar production especially hard, causing the 1969 crop to drop 22% below that of the previous year. (The output of sugar, however, did not decline as sharply because there was some improvement in the sucrose content of the cane in 1968.) Total production in 1969 is expected to show a sharp rise.

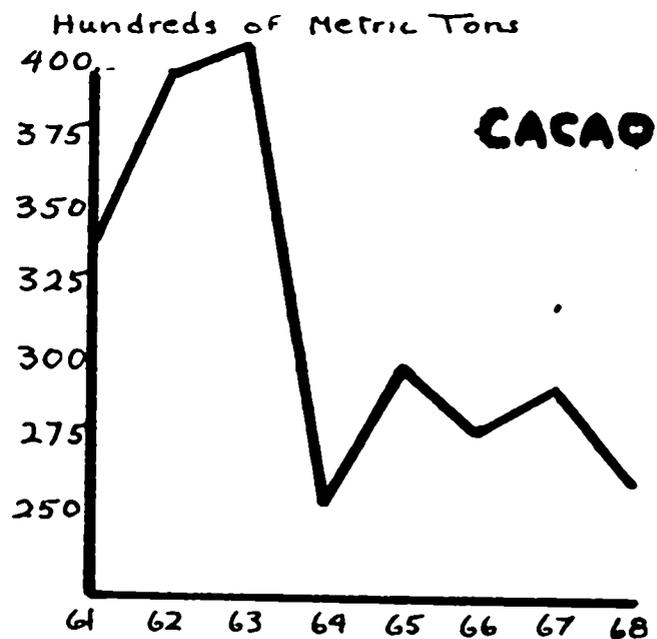
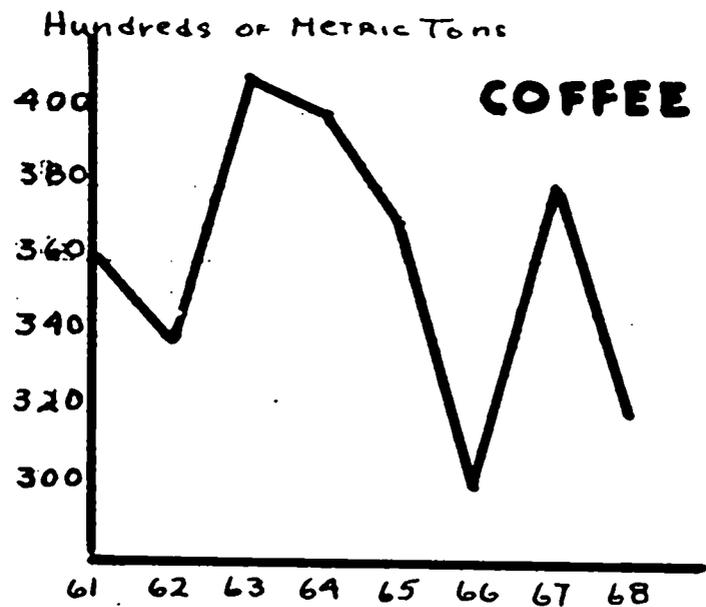
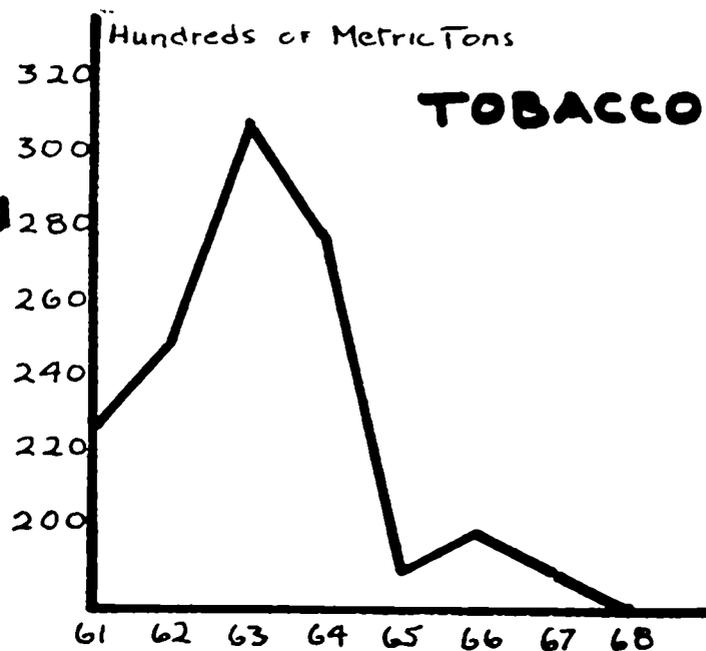
Despite the unfavorable production record during the last few years, however, the Dominican Republic was able to meet its sugar commitments to the U. S. in 1968, although it was necessary to cancel most of its other sales contracts in the world market.

Prices for sugar have fluctuated widely during the last decade. At the beginning of 1962, the price of sugar on the world market was 2.0 cents per pound; at the beginning of 1963 it rose to 13.5 cents, and after a wave of ups and downs returned to less than 2.0 cents a pound at the beginning of 1967.

The exceptionally high price in 1963 encouraged producers all over the world to increase their production, creating surpluses that undoubtedly contributed to the price decline.



**PRODUCTION
PRINCIPAL
EXPORT
CROPS
1961-1968**



During the last few years, however, and principally due to the U. S. break with Cuba, the Dominican Republic has received high sugar allotments from the U. S. market where prices are kept artificially high.

b) Coffee

In 1966, coffee accounted for 15.3% of the Dominican exports valued at \$21,000,000. The amount of coffee exported is controlled by international agreement which allots quotas to producing countries, a factor which reduces the incentive to seeking higher production levels.

From 1957 until the middle of 1963, the price of coffee on the world market dropped from 65 to 33 cents per pound, rising sharply to 55 cents at the beginning of 1964. Since then, the price has steadily declined to a 40 cent level. It is estimated that coffee production increased somewhat in 1968 over the low crop of 1967, but production level in 1969 is expected to remain at about the 1968 level.

With little change in production, and an increasing demand for local consumption, it is possible that the Dominican Republic may not completely fill its ICA (International Coffee Agreement) quota during the current year.

c) Cacao

The world price of cacao dropped steadily from 45 cents a pound in 1958 to 18 cents in 1962, and by 1966, the price had gone to 9 cents a pound. Since that low, the price of cacao has gradually re-

cuperated, and it is hoped that price can be stabilized at the 1967 price of 22 cents. It is possible that an international agreement similar to that covering the sale of coffee may be worked out for cacao to stabilize prices permanently.

The drought had an important bearing on production in both 1967 and 1968. The production in 1968 was estimated to 24,000 metric tons, the lowest in the past decade, down 23% below that 1967.

Exports in 1968 increased as compared to the previous year due to the fact that local inventories were drawn on heavily. Provided that 1969 production increases as expected, exports should correspondingly increase due to the small local consumption of cacao.

d) Tobacco

The quality of Dominican tobacco varies from crop to crop, and determines the price received for the product. In 1964, production and quality were satisfactory, but in 1965 both dropped, and to date, tobacco has not recovered from the affects of the drought. Production in 1968 fell $\frac{1}{3}$ below that of 1967, but it is hoped that 1969 production will return to the pre-1968 level. Exports in 1968 were less than in 1967 but were not off as much as production because of the shipment of stocks from previous years. Exports in 1969 are expected to be in line with those of the past several years, about 15,000 metric tons.

6. Other crops

a) Rice-

Rice is the most important cereal grown in the Dominican Republic,

It is the staple food of the inhabitants on all socio-economic levels. The production level reached by 1969 is approximately 156,000 to 175,000 metric tons annually, which, however, fails to meet domestic demand. Since 1963, an average of about 10,000 tons of milled rice has been imported annually. Strenuous efforts are being made to increase rice production to meet an anticipated demand by 1972 of 230,000 metric tons.

Approximately 200,000 tareas (31,000 acres) of rice are harvested annually, the majority of which are located throughout the Cibao Valley area as shown on Map 3.

While the drought of 1968 caught the rice crop at a critical point, the timely rains of mid-1968 caught the rice in time for extensive plantings, and a relatively high level of production in the latter part of the year. It is hoped that 1969 will show an increase over 1968 of at least 10%.

During 1968, about 18,000 metric tons of rice had to be imported to meet local demand, 30% from the U. S. and the remainder from Venezuela. It seems doubtful that it will be necessary to import rice in 1969.

Rice is one of the two crops enjoying local price support. In view of the high level of support, there will probably be little rice exported even if surpluses exist.

Many of the factors limiting rice production have been technical; using poor varieties with low yields, low quality seed, poor water management and lack of canal maintenance, lack of mechanization

resulting in poorly prepared land, high prices of fertilizer, herbicides and insecticides, and little research in rice production.

A project presently being sponsored and financed with assistance from National China is expected to increase yields by utilizing techniques successful in Taiwan.

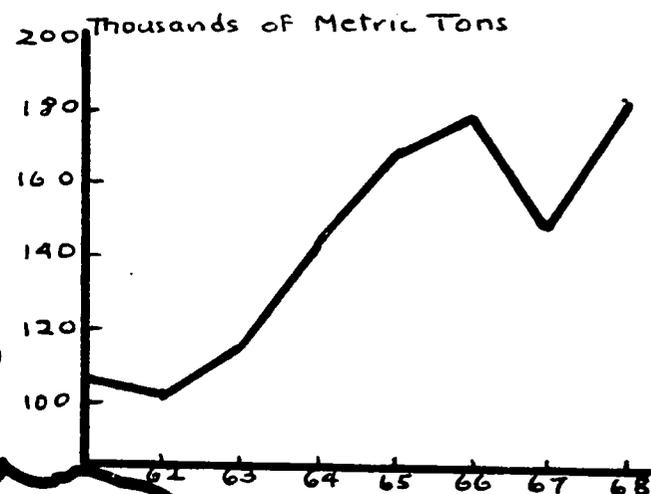
Rice is one of the few crops in the Dominican Republic that has scored a significant increase in production over that of a decade ago, undoubtedly due to the introduction of improved methods of planting and harvesting. (Graph 17). Important as it is to raise production levels of this crop, which is the most important single ingredient in the national diet, the introduction of mechanized techniques brings some new problems. An article appearing in the Listin Diario, September 19, 1969, commented that despite the record production achieved by large scale rice planters, the problem of the minifundista is becoming more acute as his labor is being replaced by "seeding by plane, aerial fumigation for weeds and pests, harvesting by combines," etc. It was also pointed out that mechanization, which was claimed to be the only means to lower the price of rice, has not succeeded in doing so, but has only increased rural unemployment and enriched the latifundistas at the expense of the agricultural laborer.

b) Plantains

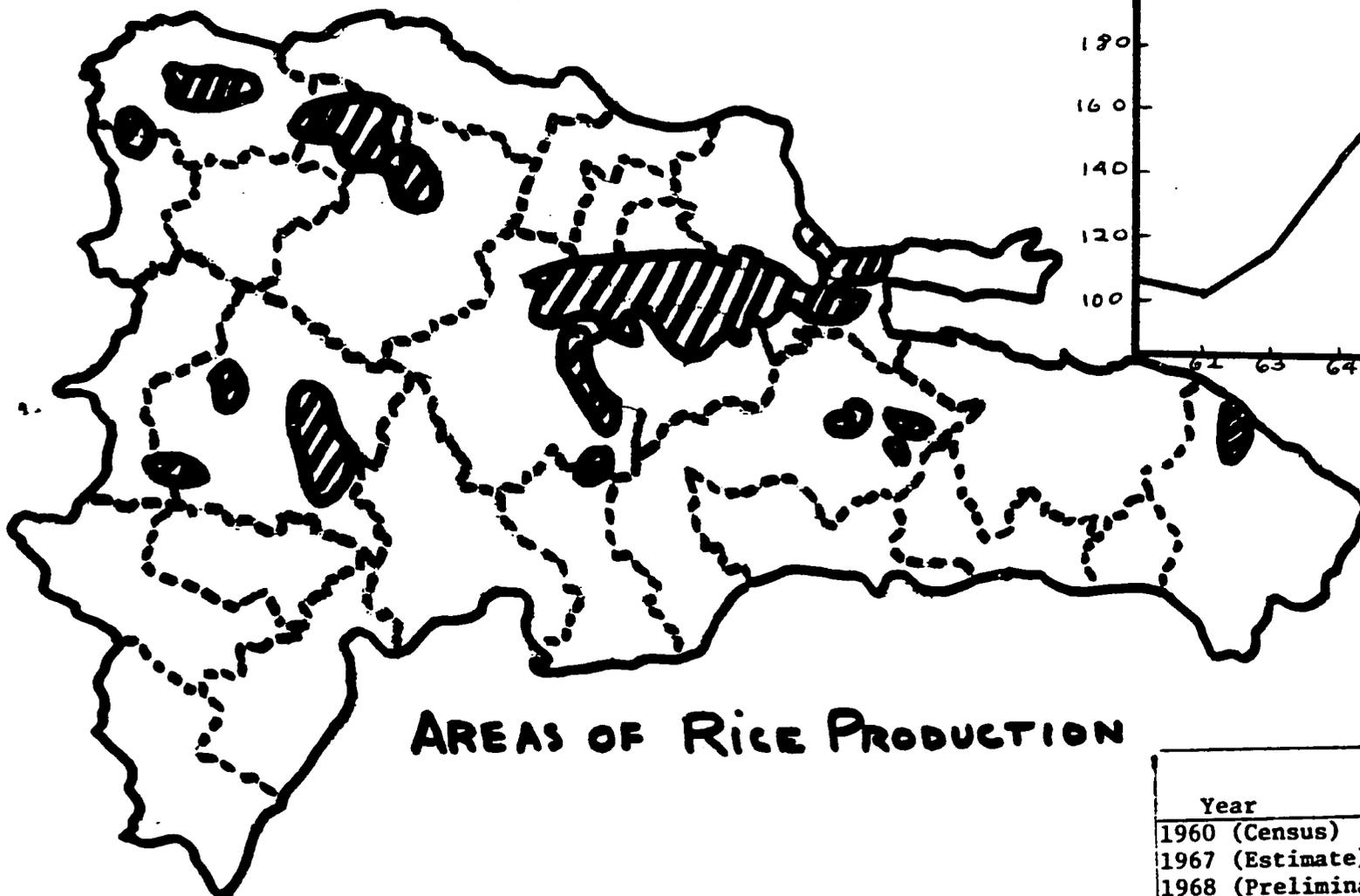
Plantains are considered a staple crop in the Dominican Republic, and are one of the most important cash crops due to local demand.

DOMINICAN REPUBLIC

RICE PRODUCTION



Page 98 a



AREAS OF RICE PRODUCTION

Year	Tareas (000)	Production (Metric Tons)
1960 (Census)	1,289	114,412
1967 (Estimate)	1,162	146,900
1968 (Preliminary)	1,140	166,000

To the small farmer working a minifundia, plantain may well be his only cash crop, since it can be grown successfully on small holdings throughout the Republic. There are about 1,000,000 tareas (156,000 acres) planted in plantain with an estimated 1,400,000,000 fingers produced annually.

Around the Barahona area where plantains are grown principally by small farmers, a variety of high quality is produced for which a strong export market exists. None were exported in 1968, however, because of local shortage in all food crops caused by the drought. The price of the Barahona variety, however, is nearly double that of those of lower quality found on the local market.

Although plantain is easily grown, the total production could be much higher and the quality (except for the Barahona variety) could be greatly improved.

Some of the principal problems include:

1. High incidence of insect pests.
2. Poor soil selection, preparation and management.
3. Poor variety selection.
4. No fertilizers used; no weed killers used; failure to prune trees.
5. Insufficient water and a deficient irrigation system.
6. Lack of windbreaks.
7. Inadequate marketing facilities.
8. Lack of modern techniques of production and marketing.

c) Peanuts

Peanuts are the main source of domestically produced edible oil

in the Dominican Republic. The present production from 700,000 to 800,000 tareas (120,000 acres) produces approximately 45,000 to 50,000 metric tons of peanuts in shell, and supplies about one third of the edible oil consumed annually. Most of the balance has been supplied by peanut imports, soybean oil imports, and recent increases in the use of coconut oil.

Since the demand of the local market cannot be met, inputs will probably increase, and modern technology become more widespread, resulting in an increased production. The use of locally grown soy to produce an edible oil for the first time in 1969, should also ease pressure on local peanut production and reduce imports. It is projected that 75,000 metric tons of peanuts will be produced in 1971. Even this level production would still supply only about 50% of the demand for edible oil in 1972. Coconut oil production is sufficient to supply about one third of the remaining deficit. To meet demand, however, it will be necessary to produce other oil crops such as soy beans, sesame or sunflower seed which are now being grown on an experimental basis. Imports, however, may be required for some time until domestic production can meet the demands of the local market.

Peanut oil is considered to be a relatively expensive oil, even in areas where production costs are low. Although costs are being gradually lowered through more efficient farming and better seed, production costs in the Dominican Republic are still high.

The 1968 production is estimated to have been about 7 times greater than that of the low 1967 level. It is hoped that the output

of peanuts will continue to increase in 1969 with a growth rate exceeding that of 1968. In 1968, imports of soy bean oil (nearly all under PL 480), totalled about 20,000 metric tons, 10 times the level of oil imports in 1967. The jump was due in part to a shortage of peanuts available for crushing and a reduced supply of coconuts, but the demand for vegetable oil, both for manufacturing margarine and for home use, is increasing at a significant rate.

Some of the major problems encountered in current peanut production are:

1. Unsuitable varieties used with low yields and low oil content.
2. No improved cultural practices and land preparation.
3. Poor usage of fungicides and land preparation.
4. Most of the crop grown on poor lands.
5. Most of the production coming from small farms of less than 10 acres in size, using inefficient and costly production methods.

At present, the largest industrial consumer of peanuts is "Manicera," which produces both peanut oil for cooking and margarine. The construction of a new plant equipped to utilize a solvent extraction process also suitable for soy beans, is expected to cut oil imports eventually and stimulate the interest of farmers in growing soy for which there has obviously been no domestic market. (See "Soy Beans.")

d) Grain Sorghum

Grain sorghum is a relatively new crop in the Dominican Republic, but is included here because of its possible use in the production

of high protein foods.

Extensive field trials of sorghum have been conducted since 1966, and favorable results indicate that the crop can economically augment the needed feed grain supply for increased production of livestock and poultry. The initial production of 8,000 metric tons in 1967 is expected to reach 12,000 metric tons in 1969.

Sorghum is considered to be a suitable crop for many areas in the Dominican Republic because of its resistance to drought. Its use as a feed grain has been accepted by livestock and poultry producers, and as storage facilities increase, feed grain prices should become more stable than in the past. There is also the possibility that the production of sorghum may be increased sufficiently to earn foreign exchange, either by exporting the grain itself or through the export of poultry, beef, and swine fed on the grain.

If sorghum can be produced in large quantities at a low enough cost to lower feed grain prices, the reduction might be passed on to the retail consumer in the form of lower meat prices resulting in a higher per capita consumption of meat by the lower income groups, and a consequent improvement of diet.¹

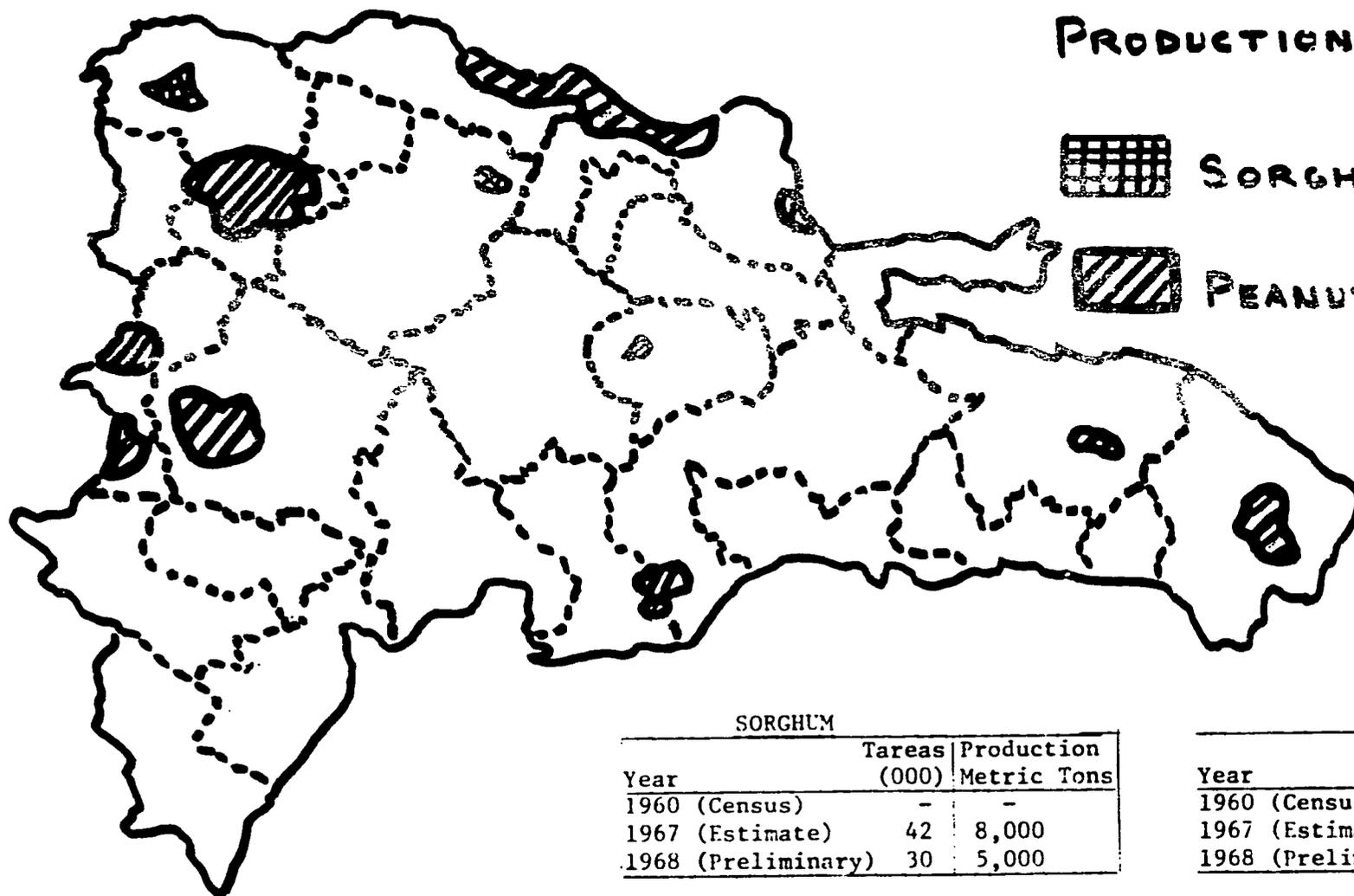
e) Bananas

Bananas were one of the principal export crops in 1960, when the Dominican Republic exported 6.9 million bunches out of a production of 16.7 million. Since that time, however, strong winds and

¹ For a discussion of sorghum possibilities, see Export Opportunities in Agriculture, Arthur D. Little Inc., Cambridge, Mass.

DOMINICAN REPUBLIC

PEANUT AND SORGHUM
PRODUCTION AREAS



 SORGHUM

 PEANUTS

Page 102 a

SORGHUM

Year	Tareas (000)	Production Metric Tons
1960 (Census)	-	-
1967 (Estimate)	42	8,000
1968 (Preliminary)	30	5,000

PEANUTS

Year	Tareas (000)	Production Metric Tons
1960 (Census)	591	61,700
1967 (Estimated)	725	45,000
1968 (Preliminary)	720	48,000

the spread of Panama disease have almost destroyed the plantings of the Gran Michel variety. Many fields were abandoned, and at present the Dominican Republic produces hardly enough bananas for local consumption. Panama disease has devastated Gran Michel fields in other countries, and this variety is now being replaced by the more resistant Cavendish.

Production of bananas apparently reached a low in 1967 when the crop only amounted to 10.2 million bunches. It is anticipated that using improved varieties and more advanced techniques, banana production can maintain an annual growth of 5 to 6%.

If this rate of increase can be maintained, it is hoped that the Dominican Republic may regain a portion of the 11.5 million banana market which it had in 1960. In 1968, \$220,000 worth of bananas were exported as compared to the low of \$19,000 in 1967.

t) Tomatoes

The rapid increase in the production of tomatoes for processing has turned the Dominican Republic from a million dollar net importer of tomato paste in 1966 to a third of a million dollar net exporter in 1968. The growing popularity of various pastas manufactured in the Dominican Republic (from imported wheat) led to the opening of two tomato processing plants in 1967 and provided a market for 33,000 hectares (5,150 acres) of tomatoes yielding 57,000 metric tons. Most farmers are growing tomatoes under contract, and consequently have the advantage of technical supervision by the processor. It has been suggested that soy might prove an excellent rotation crop for tomato growers.

Mechanization and the improvement of cultural practices could reduce production costs per acre and develop the export market for tomatoes.

Fresh tomatoes are also sold in the markets throughout the Dominican Republic. The total production, however, is small and primarily for local consumption. A few growers have been exporting fresh tomatoes to Puerto Rico, but to date the business is not too successful because of problems involving grading, packing, and shipping. A potential export market does exist, however, not only to Puerto Rico, but to the U. S. during the winter months, provided that regular shipping facilities were available.

a. Livestock

Although the Dominican Republic has some excellent pasture land, and cattle represent about 30% of the annual agricultural/livestock production of the country, beef cattle have not increased in accord with their potential. Dairy cattle, on the other hand, have increased in number and yield.

Cattle graze a total of about 14,000,000 tareas (2,180,000 acres), or something more than half of all agricultural lands in the country. Little land or pasture improvement has been attempted during the last fifteen years, and the problem of adequate food for cattle remains the principal obstacle to improved production. Animals are customarily entirely grass fed, supplementary feeding being a relatively new practice.

The number of cattle in proportion to the population has been steadily decreasing since 1935. In 1935, with a population of less than 1.5 million inhabitants, there were 913,000 head of cattle and 880,000 head of hogs. In 1960, with a population twice that of 1935, cattle had decreased 8% and hogs 10%.¹ Thus, while in 1935 there were 6.2 cattle and 5.9 hogs for each ten persons, in 1960 there were only 2.8 and 2.4 respectively.

The stagnation of the livestock industry to a large degree can be attributed to low levels of productivity and efficiency in management, illustrated by a reproduction rate of 50 or 60% (50 or 60 offspring per 100 cows). A high mortality rate among the calves reduces the reproduction rate still further to between 40 and 50% as compared with 85% in the United States.

An even more significant indication of the low productivity of livestock is found in the amount of meat per animal. As shown on Table 24, 30 head of cattle are required to produce a ton of meat in the Dominican Republic, as compared with 16.5 in the U. S. or 13.9 head in Germany.

It has recently been estimated that after years of little change in cattle culture, 1968 produced 30,000 metric tons of beef, an increase of 20% over the 1967 level. It may be, however, that the increase reflects the culling of the herds as the result of drought rather than an increase in production of cattle. In 1968, meat producers

1 Plataforma, op. cit.

were offered the opportunity to export beef to the U. S. as the result of the certification of two slaughter houses as "acceptable as sources of meat for U. S. consumption" by the U. S. Department of Agriculture. During 1968, the Dominican Republic exported about 9.5 million of pounds of meat, principally to Puerto Rico.

Table 24 PRODUCTIVITY OF CATTLE IN VARIOUS COUNTRIES AS MEASURED BY THE NUMBER OF HEAD REQUIRED TO PRODUCE A TON OF BEEF

Country	Number of Head Required to Produce a Ton of Beef	
	1950	1960
Dominican Republic	36.0	30.0
Germany	21.1	13.9
Australia	23.2	21.6
France	16.4	12.6
U. S. A.	16.5	16.5
Uruguay	26.7	25.6

Source: Food and Agriculture Organization (FAO), Anuario de Produccion.

7. Potential Crops for Use in High Protein Foods

A. Corn

Corn is one of the most suitable crops for use as a principal ingredient of a high protein food, and is grown in many areas of the Dominican Republic. It is rarely cultivated as a single crop, and is often inter-planted with other crops having little prospect of good yields. In some areas, it is planted in rotation with peanuts. The present production of about 40,000 metric tons is below that needed for domestic consumption, and in past years about 10% of the requirement has been met by importation of corn.

At present, about 350,000 tareas (54,600 acres) are planted in corn, but about half is interspersed with other crops raised by small farmers, and gives a low yield. It is anticipated that as the market for corn as a feed grain for cattle and poultry increases, 60,000 metric tons or more will be produced annually within five years.

The potential export of corn is limited by the costs of production which are in excess of the world market price. The low yield presently realized in corn is principally attributed to:

1. The use of mixed varieties which have deteriorated.
2. Poor land preparation.
3. Outdated planting techniques.
4. Little or no fertilizer used.
5. No insect control.
6. No seed treatment.

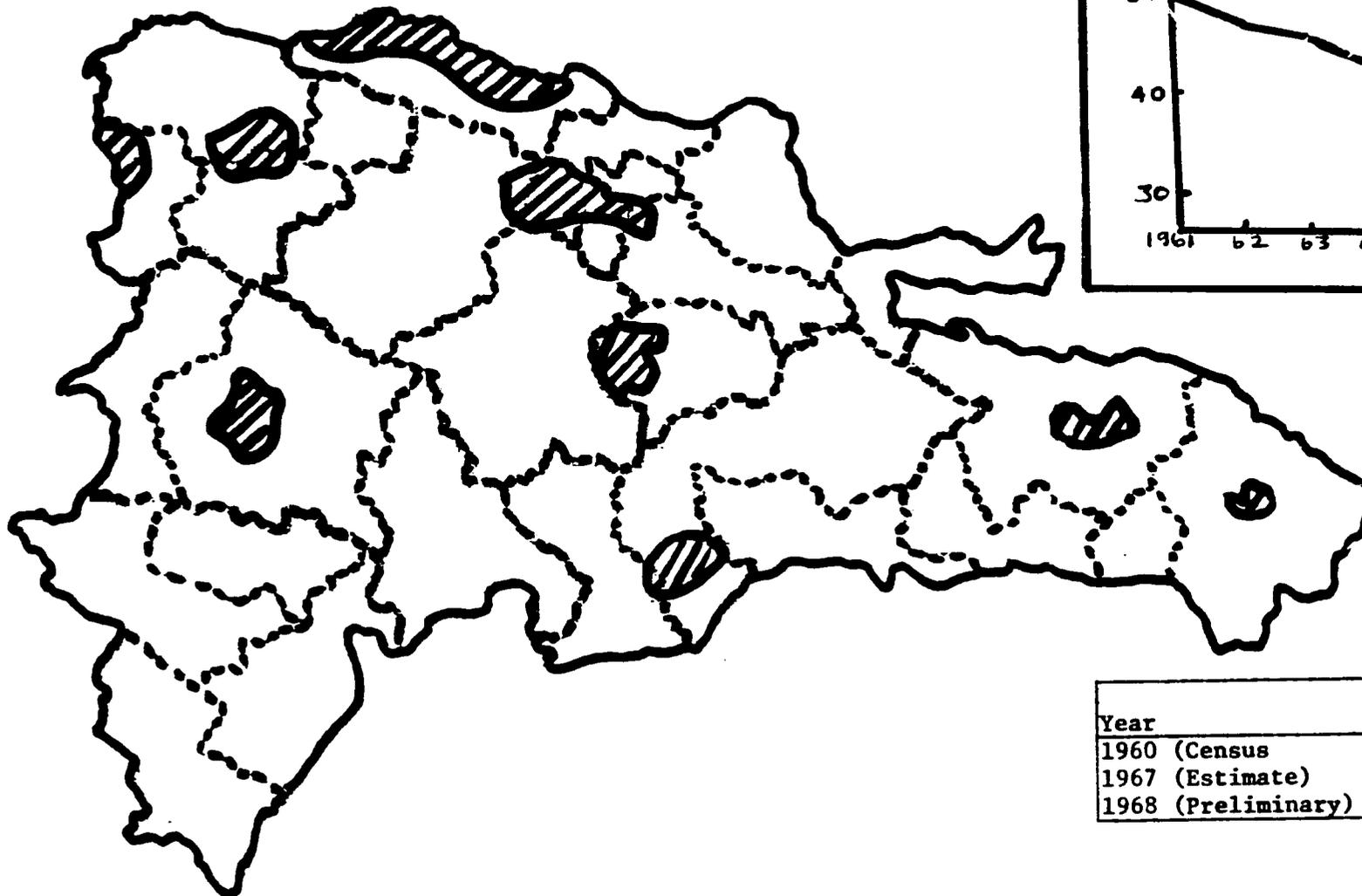
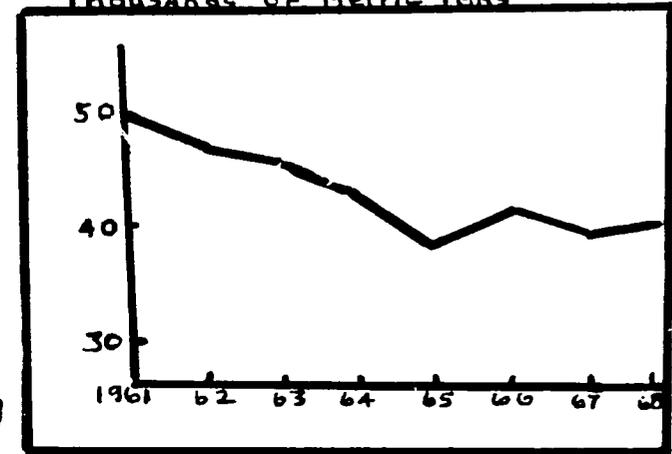
It is pointed out by the agricultural technicians employed by

CORN AREAS AND PRODUCTION - 1961-1968

DOMINICAN REPUBLIC

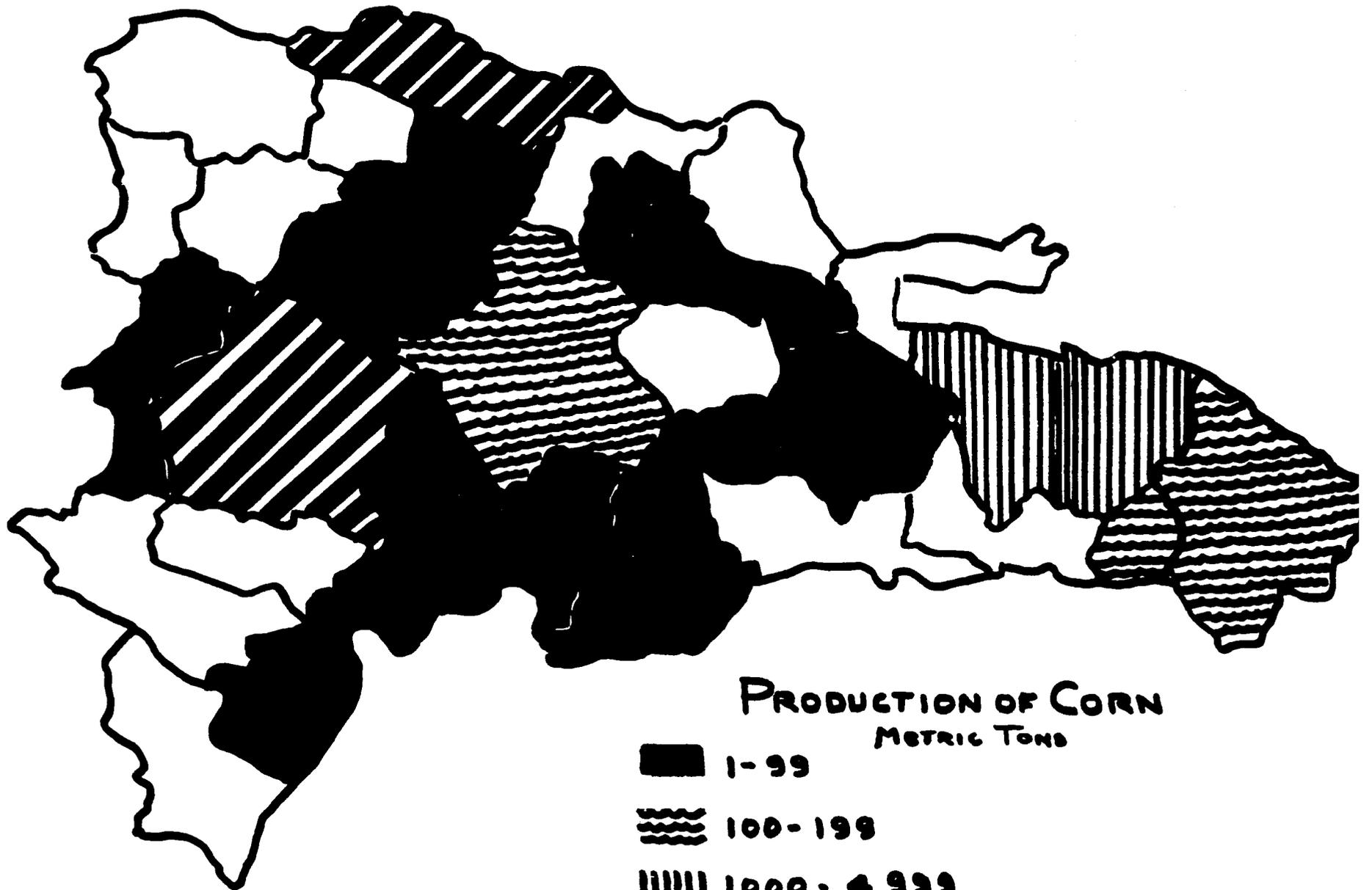
PRODUCTION

Thousands of Metric Tons

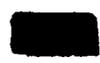


Year	Acres (000)	Production Metric Tons
1960 (Census)	105.6	M 52,106
1967 (Estimate)	50.0	38,500
1968 (Preliminary)	51.5	40,000

Page 107 a



PRODUCTION OF CORN
METRIC TONS

-  1-99
-  100-199
-  1000-4,999
-  5000-10,000

USAID that any significant progress in the corn industry requires improvement in varieties and hybrids.

Lack of concentration upon corn as a major crop probably limits its potential increase in the Dominican Republic. It is grown customarily by small farmers in quantities sufficient only for home consumption, with relatively little left for the commercial market. Those who grow corn cannot pay for the improved seed, insecticides or machinery necessary to increase production.

Corn in the commercial market is not regarded as a "human" food, and its consumption is almost entirely limited ordinarily to animals. Apparently the rejection of corn as a "poor man's food" has been progressive over the last two decades. Production in 1966 was less than in 1950 (Graph 17), and the manufacture of corn flour has decreased from 3,378,672 kilos in 1959 to 594,029 in 1967, following a reverse trend to that exhibited by the production of wheat flour which increased from 585,552 kilos in 1959 to 53,364,389 in 1967. (Graph 18)

Corn is one of the two crops, the other being rice, which enjoys price support by the government, and although this has tended to stabilize prices somewhat, to date, insufficient storage facilities have forced the Agricultural Bank to sell corn at unfavorable prices from time to time. From 1965 to 1967, the farm price for shelled corn went up from \$64.00 to \$78.00 per metric ton. In 1967, 1,050 loans amounting to \$359,659 were made by the Agricultural Bank to corn planters, but

THOUSANDS OF METRIC TONS

180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0

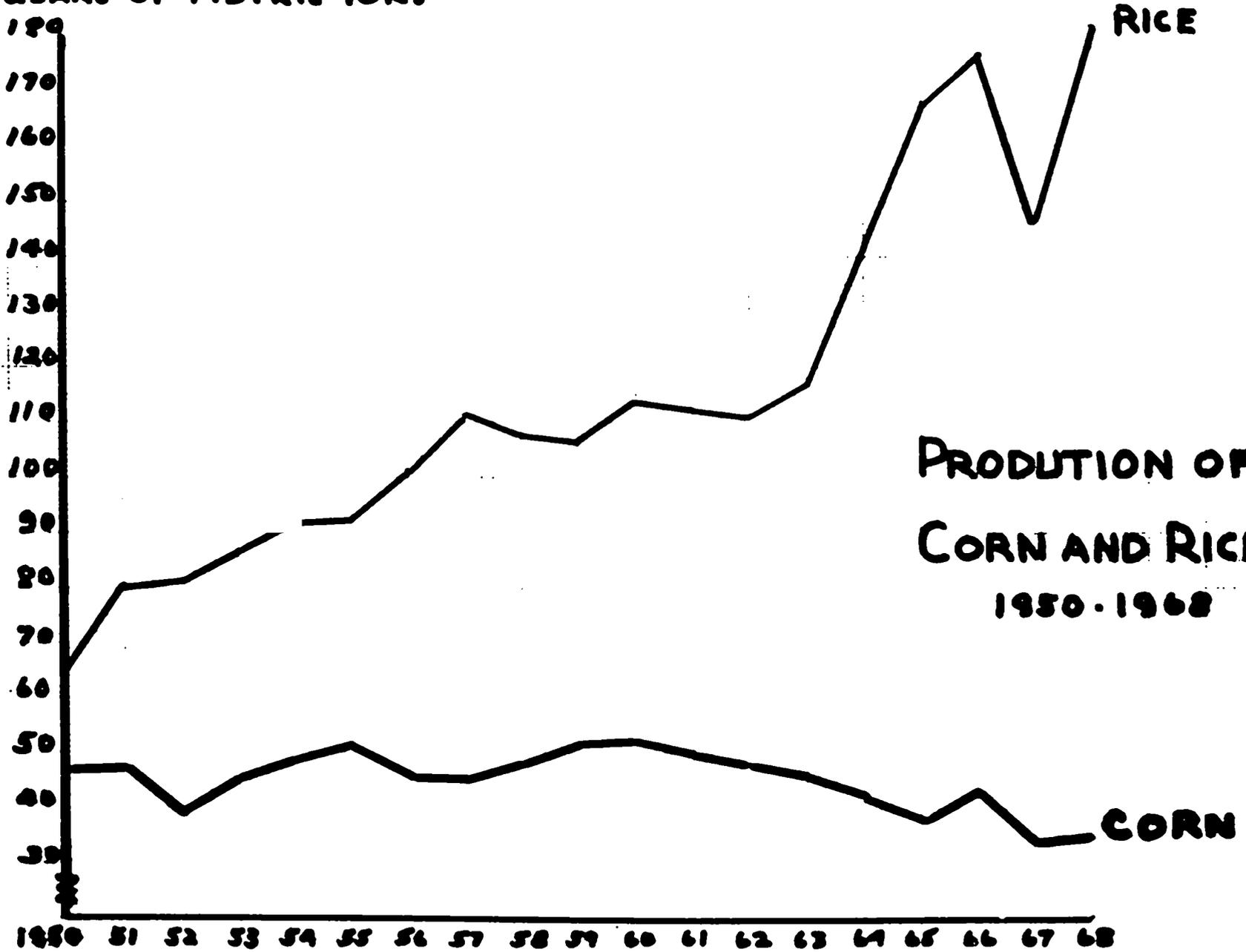
1950 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68

YEAR

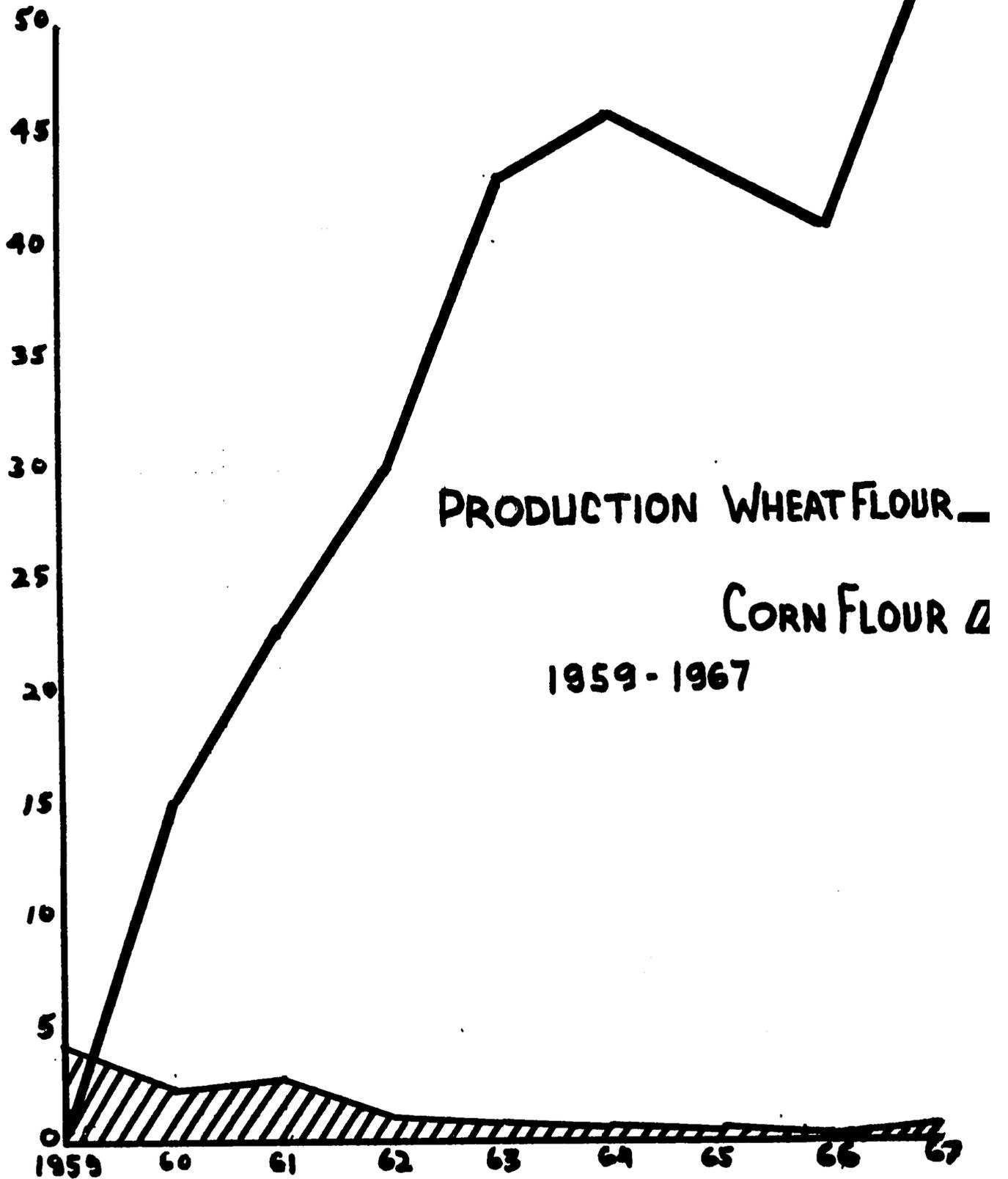
PRODUCTION OF
CORN AND RICE
1950-1968

RICE

CORN



Millions of Kgs.



PRODUCTION WHEAT FLOUR —
CORN FLOUR ▨
1959 - 1967

the import of funds does not appear to have improved production greatly.

The principal corn growing areas are illustrated by Map 5 and its yield by geographic location by Map 6. Tables 25 and 26 show the cost of production and new return to the farmer using both traditional and improved methods of farming.

Although temporary corn surpluses are occasionally announced by the government, these are caused more by lack of storage facilities than overproduction of the crop. At present, the production of corn hardly meets domestic demand, but the increasing use of corn for livestock feeding will ultimately increase the commercial demand, as well as a new plant for a corn meal and corn flour production. Given the potential production in the Dominican Republic, it should not prove too difficult to contract for the amount of corn needed to supply a high protein food plant, especially in view of the current program of storage silo construction currently being carried on by the government.

Table 25 ESTIMATED NET RETURN PER TAREA OF CORN AT VARIOUS COSTS OF PRODUCTION, YIELDS,
and PRICES IN THE DOMINICAN REPUBLIC

Cost of Production per Tarea	Yields Per Tarea								
	250 Lbs.			350 Lbs.			Price Received Per Lb. 450 Lbs.		
	Price Rec'd	Per Lb.		Price Received	Per Lb.				
	.03	.035	.04	.03	.035	.04	.030	.035	.04
8.00	-.50	.74	2.00	2.50	4.25	6.00	5.50	7.75	10.00
10.00	-2.50	-1.25	-0-	.50	2.25	4.00	3.00	5.75	8.00
12.00	-4.50	-3.25	-2.00	-1.50	.25	2.00	1.50	3.75	6.00

Source: USAID/AGR/D, industry contact and estimates based on official and unofficial information.

Note: One acre=6.4 tareas

Table 26 ESTIMATED COSTS PER TAREA FOR CORN WITH IMPROVED MANAGEMENT AND SPECIFIED INPUTS

Item	Unit	Without irrigation, oxen and horse power			With irrigation		
		Cost or Price/Unit	Quantity	Value or Cost	Cost or Price/Unit	Quantity	Value or Cost
1. Production- Gross Receipts	lb.	.035	275	9.62	.035	450	\$15.75
2. Cash Expense							
Seed	lb.	.06	1.5	.09	.06	2	.12
Fertilizer	lb.	.055	20	1.10	.055	40	2.20
Insecticide	lb.	2.50	.25	.62	2.50	.25	.62
Sacks	1	.25	3 ¹	.15	.25	5	.25
Total excluding labor				1.96			3.19
Labor	hr.	.25	15.33	3.83	.25	21.53	5.38
Total including labor				5.79			8.53
3. Return over Cash Costs				3.83			7.22
4. Other Expenses							
Machine Use ²	hr.	--	6.3	.45	.20	6.3	.45
Animal Power	hr.	.20	11.0	2.20	.20	11.0	2.20
Interest on Operating Capital				.23			.34
Total				2.88			2.99
5. Return Over Specified Expenses ³				\$.95			\$4.23

=== Footnotes attached on following page

Table 26 (cont'd)

Source: USAID/ Agriculture Division

- 1 Each sack may be used for several crops
- 2 Includes depreciation, upkeep, interest
- 3 Does not include interest on land, insurance for farm buildings, taxes or pick up truck expenses.

b) Soy Bean Production

Although AID, through its Division of Agriculture, did some experimental work in the development of soy beans, this crop is no longer part of the active program of agricultural development and diversification. The reasons given for dropping work on the soy bean project here were 1) the lack of domestic market, and 2) the inability to compete in the world market from a price standpoint.

Work on soy beans has been carried on, however, by the United Nations' "Project to Increase and Diversify Agricultural Production in the Cibao Valley," under the direction of Dr. Romain De Cock, a Belgian agronomist, working in collaboration with the Instituto Superior de Agricultura (ISA) in Santiago.

Since the initiation of the soy bean project two and a half years ago, experimental plantings have been made of 120 varieties of bean with 40 more scheduled for planting in the near future. All varieties producing less than 40 bushels an acre in the experimental program are discarded with the result that to date only four varieties have been retained, one of which is producing close to 50 bushels an acre under experimental conditions. With a span of 90-120 days from planting to harvesting according to variety, two to three crops a year could be successfully produced in almost every agricultural area of the Dominican Republic.

1. Hand Harvested Soy

Due to the general lack of agricultural machinery among the majority of farmers who have extremely small land holdings,¹ the project

¹ See Section on "Size of Holdings."

has aimed at finding the best possible variety of soy for both hand and machine harvested areas. To date, the best variety of soy for hand harvesting appears to be Hale No. 3, although another type still in the experimental phase is showing promise of giving even higher yields. Hale No. 3 has proved to be suitable for planting on a year round basis, and has the advantage of a relatively short cycle of from 90 to 100 days, and, if planted during the rainy months, requires no irrigation. If the land to be planted in soy is divided so that one piece is being prepared for planting while a second is growing, it is possible to obtain up to $3\frac{1}{2}$ crops annually with some irrigation. Hale No. 3 produces a low plant, about two feet in height, with heavy clusters of beans too close to the ground for machine harvesting, but can be successfully harvested by hand using the same system as is customary for other bean crops. The same plant is grown in the United States, but the addition of inoculum produces a much higher growth. Strangely, inoculum has so far had no effect on the height of plants treated in the Dominican Republic.

2. Machine Harvested Soy

To date, the best variety of soy suitable for machine harvesting is a variety of Hampton, although in the opinion of Dr. DeCock, a better variety will be confirmed by the end of this year. The Hampton being grown at present averages from three to four feet in height and has a growing season of 120 days, nearly a month longer than the Hale No. 3. The exact variety of Hampton is not known. The seeds used at present from San Cristobal are thought to have originated in Puerto Rico, but

specific records have been lost. Both varieties, the Hale No. 3 (hand harvested) and the Hampton (machine harvested) can produce 40 bushels per acre, and it is hoped that the crops now reaching the end of their two year testing will produce somewhat more than that.

3. Objections to Soy Production

Despite its potentials, at present no soy is produced in commercial quantities in the Dominican Republic primarily because of the lack of a domestic market. Despite its high yield in vegetable oil, a product in short supply in the Dominican Republic, soy beans have been rejected by producers because of the persistent idea that the public would not accept the substitution of soy bean for the traditional peanut or coconut oil. Actually, the use of peanut oil represents a shift in eating habits from the pork lard that was the universal favorite until about ten years ago when a drop in pork production forced the use of peanut oil for cooking. At present, the entire crop of peanuts is used for oil, and even this must be supplemented by imported peanut oil to meet the demand.

The largest peanut oil processing plant, the Sociedad Industrial Dominicana (better known locally as Manicera) produces peanut oil by a pressing process which leaves 4-6% of the oil unextracted. Previous attempts to interest Manicera in using soy bean oil as a substitute for imported peanuts and peanut oil were always rejected on the grounds that,

- 1) the public would reject soy because of its flavor, and
- 2) processing soy beans for oil would require the use of a solvent in addition to the pressing process.

Consequently, no domestic market for soy existed until a shortage of peanuts in 1968 resulted in the importation of crude soy bean oil which was refined and sold at a slightly lower price than peanut oil without producing the anticipated protest from the general consuming public. Surprised by the acceptance of soy, Manicera became interested in its potential production.

The second objection to the use of soy was answered when it was demonstrated that the same solvent required to extract soy oil could be used to process peanuts, and would also eliminate the former 4-6% loss of oil. The resultant saving was great enough to pay the entire cost of a new extraction plant in two years. Manicera's new plant, equipped to use solvent as well as pressing, will begin operations nearly by the end of 1969, and 50 tons of soy are scheduled for processing as a test of the "new" oil product.

Manicera has customarily financed the production of peanuts by a credit to the planter of \$8.00 an acre, and plans to extend this benefit to soy producers as well. Seed, pesticides, fungicides, and technical assistance will also be provided as an incentive to crop diversification. In the past, verbal contracts with peanut producers have been honored, the producer's only obligation being to sell his crop to Manicera at a price of \$9.25 for 110 pounds (50 kilos) of unshelled peanuts.

4. Recent Plans for Soy Production and Use

To obtain its first 50 tons of soy, Manicera plans to contract production from several large farms. Following the testing, an increasing

number of small farmers will be added as secondary producers and will receive the same benefits as those now available to peanut growers.

Provided that the soy bean oil is acceptable, the last year's experience indicates that it will be, the new product should increase the supply of raw materials for edible oil to the extent that the need to import peanut oil over a period of time will be eliminated. It should be possible for the Dominican Republic to become self sufficient in vegetable oils by using only four nationally produced raw materials, peanuts, soy, coconuts, and sunflower seeds. By using soy, a plant that can be produced year round, the processing plant will not have to close when the peanut crop is finished, and employment can be extended to the entire year instead of being limited to six or seven months, as is the case at present.

With a market for soy assured, farmers can be encouraged to rotate the production of tomatoes, tobacco, or corn, with soy, a diversification that offers the possibility of a significant increase in income to the small farmer or minifundista.

5. Costs and Net Return from Soy Bean Production in the United States and the Dominican Republic

Table 1 shows the approximate comparative costs of soy bean production in the United States and the Dominican Republic. Although it appears that net return to the producer is about the same in both areas, the cost to the Dominican producer to obtain a yield of 40 bushels per acre is nearly \$30.00 higher per acre. The return of \$128.00 per acre is based on a maximum yield under experimental conditions of 4 quintals

per tarea,² or a little more than 46 bushels per acre.

With 60 pounds per bushel, the United States farmer is receiving 4.17 cents per pound as compared to the Dominican rate of 4.54 cents per pound. The actual current rate of Dominican yield, however, does not exceed 14 or 15 bushels per acre without irrigation, fertilizers, herbicides, etc. Table 27, therefore, reflects probable costs and return to a large producer financially able to take advantage of improved practices of cultivation to realize a maximum yield. Mechanization would cut costs further. The net return on 100 acres and ¹2 1/2 crops annually would come to over \$12,000.

The small farmer working a minifundia of three acres, and using only unpaid family labor, harvesting by hand and lacking credit to purchase fertilizers, insecticides, and herbicides, would have a quite different return as shown in Table 27.

Table 27 COST OF SOY BEAN PRODUCTION AND RETURN ON MINIFUNDIAS

Item	Quantity	15 bu. per acre	Total (3 acres)
Land Preparation		8.00	24.00
Seed (10 cents lb.)	32 lbs.	3.20	9.60
Sacks		.15	.45
Cost (unpaid labor)		11.35	34.05

Receipts		40.90	122.70

Net Return		29.55	88.65

2 1 quintal is considered to be 50 kilos or 110 pounds
1 acre equals 6.4 tareas

Table 28 COSTS PER ACRE OF SOY BEAN PRODUCTION IN THE U. S. AND THE DOMINICAN REPUBLIC

U. S. Production				Dominican Production		
Item	Quantity	20 Bu. per acre	Quantity	40 Bu. per acre	Quantity	40 Bu. per acre
Land Preparation						\$ 8.00
Seed	60 lbs.	4.00	60 lbs.	4.00	32 lbs.	3.20
Inoculation and Molybdenum		.50		.50		
Fertilizer			400 lbs.	8.00	256 lbs.	15.36
Insecticide		2.40		2.40	3 types	13.76
Lime			1/3 ton	2.50		
Herbicide				3.50		
Machinery	4.5 hrs.	12.97	5.9 hrs.	17.00		
Labor	5.0 hrs.	6.25	7.0 hrs.	8.75	\$2 daily	34.68
Interest on Opera- ting Capital	\$17.00	.85	\$35.00	1.75	Sacks	2.88
Total per acre		26.97		43.40		77.88
Receipts	\$ 2.50 bu.	50.00		100.00	\$5 quintal	128.00
Net Return per Acre		23.03		51.60		50.12

Sources: U. S. Figures - The Progressive Farmer, Jan., 1969Dominican Figures - Calculated in tareas and converted to acres by Instituto Superior de Agricultura, Santiago, Dominican Republic

NOTES ON TABLE 28

United States

- 1) U. S. cost figures are given for unimproved land producing 20 bushels per acre and the same land potential using fertilizers, lime, etc., Both sets of figures represent averages in the U. S. using the same seed.
- 2) U. S. figures include mechanical harvesting.
- 3) The increase in the hours allotted to both machinery and labor in the 40 bushel per acre cost, is caused by the additional time needed to adjust the harvesting combine to accomodate the increased yield.
- 4) No cost was given for land preparation.
- 5) No transportation or marketing cost is included.

Dominican Republic

- 1) Dominican figures represent yield under experimental conditions using maximum input, but with hand harvesting return is calculated on the basis of four quintals per tarea at \$5.00 per quintal. Under current cultivation practices, eliminating insecticides and fertilizers, yield would probably drop to something close to 15 or less bushels per acre.
- 2) Labor is calculated at the minimum wage for agricultural labor of \$2.00 per day. Actually, the dollar cost would probably be lower due to the prevalent use of unpaid family labor. Mechanization on large holdings would reduce the overall cost considerably.
- 3) No transportation or marketing cost is included.

If labor (estimated at \$5.42 per tarea) costing \$34.68 per acre were included, the total would rise to \$46.03 per acre, and the small farmer would face a loss of \$5.13 per acre.

Disregarding labor costs, and considering his total holding of three acres and a probable 2 crops per year, the farmer's total annual income would come to around \$175.00 for a family of five or six persons (average family size). However low this return seems, it is considered high as compared to that produced by crops of corn or sorghum on minimum acreages, and is probably more than the subsistence farmer is receiving at present.

6. Problems of Price

Manicera is now offering a price to the producer of soy beans of \$5.00 per quintal (110 pounds). As has been noted in the breakdown of costs of production and yields (Tables 27 and 28), this price would probably provide sufficient incentive only to a producer with as much as 100 acres of land, but a farmer of minifundia could only show a net return by eliminating labor from his costs.

The \$5.00 price (4.5 cents per lb.) was set to be in line with the cost of imported soy, obtainable at approximately 5 cents per pound. Actually, however, the oil processing plant could probably afford to offer more. Considering that peanut growers are paid \$9.25 per quintal for unshelled peanuts, soy should bring a price of \$7.50 per quintal based on the proportionate amount of oil produced.

If it were possible to count on a yield of 5 bushels per tarea

(32 bushels per acre), a price of \$5.00 per quintal would probably provide sufficient incentive to enough farmers to satisfy the demand for soy. The United Nations agronomist feels this yield is definitely possible with the varieties of soy now tested and available. However, some plan of financing, such as that offered by Manicera to the peanut growers, would have to be available to subsistence or minifundia farmers to enable them to purchase the fertilizers, insecticides, and herbicides required for the higher yields.

It does not appear at present time that Manicera has any immediate plans to diversify their products further, and contemplates using only the 25% oil content of the soy bean. There are, however, many uses for the fat extracted soy cake, and it is possible that a high protein food processing plant that might reach a mutually advantageous agreement with Manicera to utilize their "waste" product which has no market at present.

There is no intent to imply that a processing plant for high protein food would have to be a competitor to Manicera in the purchase of soy beans. In view of the FAO agronomist's opinion that soy could be grown successfully in most areas of the country, it seems reasonable to assume that similar arrangements with producers could be made to ensure sufficient production for a ready made market.

Growers of soy in the United States feel it will be difficult for potential Dominican soy producers to meet the price of 5 cents per

pound for soy exported from the U. S. and shipped to the Dominican Republic.

In the U. S., a soy farming unit of less than 500 acres is not considered to be economical for a mechanized operation. According to the Fifth Agricultural Census in 1960, there were 457 landholdings in between 500 and 1,500 acres in size and only 222 having more than 1,500 acres in the Dominican Republic. The majority of these were planted in sugar.

REL Wilson, in Arkansas, estimates the required capital investment in equipment for a 500 acre soy operation to be:

Combine	\$10,500
Large tractor 100 H	8,500
Small tractor 70 H	6,500
Disk	1,300
Cultivator	1,500
Bedder	1,250
Planter-6 Row	1,400
Harrow	1,300
Herbicide Spray	<u>1,200</u>
	\$33,450

Labor and chemicals come to \$30.00. Interest, irrigation, and fertilizer (none of which are used by the above grower) are not included. The yield averages in excess of 30 bushels an acre. The best rotation crops have been found to be cotton and rice.

There are many factors involved in Dominican agriculture, however,

which make it difficult to compare the large scale operations carried on the United States.

Not only is little land available in the size parcels required for large scale mechanized farming, but the cost of the capital investment, in terms of the machinery indicated above would, of course, be much higher in the Dominican Republic adding freight charges and import duties. An extremely limited number of producers could contemplate an investment of this amount for any crop. Other costs, such as labor, however, are considerably under those in the U. S. One of the most productive varieties of soy tested in the Dominican Republic requires hand harvesting, which would undoubtedly be uneconomical in the U. S., but which might be profitable in the Dominican Republic when unpaid family labor is used.

The practical possibility of growing soy able to compete in price with that imported from the U. S. can be much better determined after the results of Manicera's new soy contract can be evaluated. Certainly producers will not shift to an unprofitable crop.

7. Potential Soy Bean Supply for High Protein Food Plant

This study is focused on the feasibility of establishing a processing plant for the production of high protein food requiring sufficient soy to process 4,000,000 pounds annually for consumer purchase. Although the exact proportion of soy to be used in the finished product is not known at present, a food containing 50% soy (2,000,000) would require the crop from about 850 acres producing 40 bushels per acre, or 1,700 acres yielding only 20 bushels. In many areas and/or with irrigation, however, each acre

can produce at least two crops a year which would reduce the required acreage to half.

According to Dr. DeCock, the FAO director of the soy bean project at the Instituto Superior de Agricultura, raw materials from this much acreage will be available within two years.

Work on soy cultivation is also being carried on by the Experimental Station of the Institute of Tobacco at Quiningua near Villa Gonzalez in order to provide soy seeds to tobacco producers of the area for a plan of crop rotation. Although the principal producing objective of this program is to improve the quality of the soils producing tobacco by rotation with soy, a soy food processing plant would give added impetus to the land improvement project and greater incentive to the tobacco farmers by offering a market for their secondary crop.

8. Conclusion

From the time of the initiation of this study, we were told repeatedly that no soy was produced in the Dominican Republic, and were given little reason to believe that soy would be an important crop in the future. Certainly this would have been true a very short time ago. But the elimination of the causes for rejecting soy as an edible oil have completely altered the future prospects. Not only have technical advances made a greatly increased yield per acre possible, but the new market for soy to be used for oil should provide the incentive for a production sufficient to supply the needs indicated for a high protein food processing plant as well.

For the Dominican economy, the development of soy bean oil from nationally produced raw materials would eliminate the need for requests such as that made in 1968 that "10,000 metric tons of soy bean oil be imported in 1969 under the U. S. assistance program (PL 480)." Actually, nearly 20,000 metric tons of vegetable oils had to be imported in 1968. Soy bean production can also be expected to eventually eliminate the need for imports of peanuts used to manufacture edible oils which increased from 18,800 metric tons in 1966 to 20,000 metric tons in 1968. The elimination of the need to import edible oils or oil seeds, would realize a national goal set in 1967 when the import of peanuts, peanut oil or other vegetable oils was prohibited by law to be effective in 1969.

From the standpoint of a high protein food processing plant, domestic production of soy beans will probably not offer any great advantages in price over those imported from the U. S. If, however, it seems feasible to produce high protein foods using fat free soy meal, costs could probably be significantly reduced by utilizing the "waste" of the soy bean oil processor.

Although the commercial goal of the projected processing plant has been set at a sole 4,000,000 pounds of food products annually, it is hoped that a program of free distribution of 25,000,000 pounds a year of high protein foods to combat the serious malnutrition in the Dominican Republic can ultimately be worked out with the Government and voluntary agencies.

8. Agricultural Policy of the Dominican Government

a) Price Supports:

In 1968, only two crops, rice and corn, were involved in a price support program in which the Agricultural Bank guarantees to buy any amount of these crops offered by farmers at a preannounced price. The Bank is then charged with storing the items, and selling them at an opportune time to processors and/or wholesalers.

The program, which was aimed at insuring growers steady prices and consumers a year round supply of these commodities, has not been wholly successful. The Bank has not always had the capital required to buy all of the produce offered at the prices set. Storage space, or the lack of, has been a serious problem, often forcing the sale of commodities at unfavorable prices.

b) Marketing Arrangements:

Some producer marketing groups, including cooperatives have been formed and are getting some assistance from the government, but are not yet a significant force in the agricultural market. The export licensing system provides for halting shipments of a commodity whenever the supply is not considered adequate for domestic consumption.

c) Price Control:

The wholesale and/or retail prices of many non-perishable food products is set by the government, but there are no rules and regulations governing the products included, and some decisions have not helped farmers. Periodic scarcities cause price rises, and the regulations are often difficult to enforce. Imported items are also

on the controlled list.

d) Assistance to Agriculture

In 1968, the Dominican government provided about \$4.8 million to funds to the Secretariat of Agriculture, 30% of which was utilized in action programs. Assistance to other governmental agencies concerned with agriculture, the Irrigation Institute, the Cooperative Institute, and the Agrarian Institute, totalled \$4.5 million. Considerable amounts were also spent to provide farm to market roads, storage facilities, rural schools and other programs benefiting the farm sector. Agriculture also received assistance from USAID, FAO, and the IDB in 1968.

The Dominican government does not have a formal development plan for agriculture, but uses a project approach. However, an effort has been made to coordinate the programs of the Secretariat of Agriculture and the other agencies working toward the same goal.

Development programs are being carried out to increase the production of various crops, both for export and domestic consumption, and to diversify the principal export crops to reduce the reliance on sugar for foreign exchange earnings. An attempt to restrict the use of additional lands for sugar was rejected by the legislators.

The Rural Extension program of the Secretariat of Agriculture is being improved, and regional offices were established in 1966. In 1967 eight agencies were added, and 24 technicians assigned to assist farmers solve their agricultural problems.

e) Agricultural Education:

The Instituto Superior de Agricultura in Santiago was established in 1964 on a level with a technical high school. Its three year course was the first specialized agricultural education offered in the Dominican Republic. Technical and financial assistance from USAID, FAO, and the Ford Foundation enabled the Institute to launch a full program of college level studies in 1968.

f) International Assistance:

USAID provides the largest share of technical and financial assistance to Dominican agriculture, aided by other groups such as FAO, United Nations, the IDB, and the rice team sent by the government of Nationalistic China. The work done by USAID is carried out by a contract with Texas A & M University and a PASA arrangement with the U. S. Department of Agriculture. During the period 1966-69, USAID has provided approximately 32.8 million dollars of financial assistance (including PL 480 and Supporting Assistance counterpart funds) programmed in the following manner:

Production and marketing support	\$10.0 million
Irrigation	7.7 "
Credit	6.7 "
Sugar Industry Improvement	2.4 "
Cooperatives	2.2 "
Research	2.2 "
Agricultural Education	1.0 "
Forestry	0.6 "
	<u>\$32,800,000</u>

The cost of technical assistance has averaged about 1.5 million dollars annually in recent years.

Editorial comment appearing in the El Caribe, September 25, 1969, noted that a recent study by FAO confirmed the decline in agricultural production in the Dominican Republic, and added that the news "was not surprising to Dominicans who often suffer from the scarcity of agricultural products such as rice, beans, onions, and others." The article continued, commenting on the fact that shortages still occur periodically despite the extraordinary efforts and expenditures made to stimulate agricultural development since 1966.

The complexities of the agricultural problem were admitted, including:

- 1) the need to increase efforts to raise the education level of the rural population.
- 2) the need to improve the systems of land tenancy.
- 3) the need to improve methods of cultivation and marketing, as well as make credit more easily available.
- 4) the need to insist upon the use of fertilizers, weed killers, insecticides, etc.
- 5) the need to open lines of communication to the rural areas.

The above requirements were suggested as long range goals important to achieve for the benefit of the entire Republic, but greater incentives to the former were offered as the best means to a rapid improvement. The proposals to develop agriculture and livestock currently being placed before the Dominican legislators were criticized as being

productive of an agricultural bureaucracy which would make any immediate improvement unlikely. Commenting on one proposal to set tariffs for the use of irrigation water, the need for irrigation was noted, but it was added that if agricultural production declined even while the State still permitted farmers to use water from public aqueducts at no charge, what would happen to agriculture if this privilege was withdrawn?

The project referred to by the editorial, the "Law of Agricultural and Livestock Development," is still under debate by the Dominican Senate, with only seven Articles as yet approved. The purpose of the law is stated to be "to promote the development of the agricultural and livestock sector to achieve the following objectives:

- 1) Increase the investment of private capital in agriculture and livestock,
- 2) Improve the administration and management of agricultural enterprises,
- 3) Secure the optimum utilization of land, water, capital, and labor, and
- 4) Develop an adequate social organization in rural areas."

The administration of the Law, when and if completed and passed," would fall to a *Comite Nacional de Promocion Agricola and Ganadera* (National Committee for the Promotion of Agriculture and Cattle), which would coordinate the development activities of subordinate committees established in each province.

One of the Articles already approved covers a program of rural education and technical assistance, accelerated rural construction,

maintenance of lines of communication, increased number of irrigation projects, the development of rural electrification, and amplification of agricultural credit.

Whether financial resources will allow a program of this scope, the new "Law of Agricultural and Livestock Development" is at least an acknowledgement of the serious nature of the agricultural problem and evidence of an effort to correct existing deficiencies.

9. Agrarian Reform

The stagnation of agriculture in the Dominican Republic is directly linked to the concentration of land ownership in the hands of few individuals. An increase in the production of a specific crop too often means only a larger number of acres used rather than an increase produced by improved yields achieved by modern farming methods, superior seed, mechanization, etc. The incomes rendered by these landholdings, are so great that efficiency in land use is often considered secondary to quantity of production. Much land is left idle, or wastefully and inefficiently used. Land is not taxed according to either its actual or potential value, and thus provides an "asylum for capital" not subject to taxation.

The pattern of a relatively few large land owners holding under-cultivated acres among thousands of minifundias too small to afford a decent living for a family is typical of most areas of Latin America. The Dominican Republic, however, does not have the advantage of possessing enormous areas unexploited and unhabited lands, offering the possibility of a frontier penetration and settlement. On the contrary, in the Dominican Republic the quantity of land is extremely limited by geography.

Seventy three percent of the agricultural area is already cultivated, and the rate of population growth requires that all potentially productive land be farmed for its maximum yield if actual starvation is to be avoided in the near future.

As shown on Graph 14 (Land Use) the number of individuals per acre of land in the Dominican Republic is rapidly approaching the point where only the most efficient and intensive form of agriculture will meet minimum needs.

While the large landowners fail to cultivate efficiently because it is not necessary for them to do so, the minifundias are unproductive, 1) because they are too small to be cultivated efficiently, and 2) their owners lack the financial resources and education to take advantage of modern farming methods which require expensive inputs in terms of seeds, fertilizer, machinery or irrigation. Population pressure produces constant fracturing of lands, and the misery and poverty of the rural people multiply in inverse proportion to the decrease in the size of land holdings.

The most basic agricultural problem in the Dominican Republic is the structure and distribution of land ownership, and is one that cannot be solved by advanced farming techniques, the use of fertilizers or improvement of marketing. All of these will benefit the large land owner, and increase total production to the extent that he is interested in employing them, but the basic problem remains, and becomes more acute with every year that passes.

The poverty and miserable living conditions of the rural population have been mentioned before, and will be again in considering the limitations of the commercial market in the Dominican Republic. For the present, it is enough to say that with their minimum production, and little outside work available, more than 75% of the rural population is condemned to a perpetual

marginal existence with little hope of improvement. Although the productivity levels of the population as a whole are low, they are disastrously so in the rural areas where it is estimated that the production of five persons is required to equal that of one individual in any other section of the economy. In most Latin American countries the relative productivity of agriculture only drops to three to one.

In 1961, with the signing of the Alliance for Progress, all Latin American countries agreed in principle to the concept of "agrarian reform", that is, a fundamental change in the structure of land tenancy accompanied by programs intended to bring the subsistence farmer into the money economy, raise his educational level, increase his agricultural knowledge, and hence, production, through technical assistance, credit and the introduction of improved marketing techniques. No country has found agrarian reform easy to achieve, and most efforts have been limited to a few relatively unimportant attempts at colonization or resettlement on government owned land. Many programs have died for lack of financial and political support. Humanly, the large land owners are unwilling to part with what they have, and are more than reluctant to undertake the passage of "punitive laws" which offer the alternatives of production or payment of a prohibitive tax on wastefully uncultivated or unused land.

In Latin America, those making the laws also own most of the land.

Another block to a realistic agrarian reform is the urgent need for increased production which can usually be accomplished only on parcels of land large enough to benefit from modern techniques.

Even for landless agricultural laborers, it is agreed that the creation of more minifundias constitutes no reform.

Although a defective form of land tenancy is undoubtedly the principal basic cause for many rural problems, the consequences could not be corrected by anything so simple as dividing up all the land among all the rural population. It takes more than a few additional acres to transform an illiterate, subsistence farmer into a capitalist, producer, manager and successful marketer, and the progress cannot take place overnight.

It has been suggested that the organization of cooperatives for production and marketing might provide at least a partial solution to rural problems, but the success of these too depends upon an educated administration and an understanding membership.

In the Dominican Republic, the basic programs for agricultural development have been carried on by the Instituto Nacional de Recursos Hidráulicos (National Institute of Water Resources), in irrigation, the Secretaría of Agriculture, the Banco Agrícola, agricultural credit, the Fomento Cooperativo in the organization of cooperatives, and the Dominican Agrarian Institute in agrarian reform.

Financial limitations have blocked the efforts of all of these government institutions to achieve agricultural development and improve the quality of rural human resources. The Dominican Agrarian Institute had a budget of \$2,900,000 in 1967, most of which was used to pay employees' salaries. Table 28 summarizes the activities of the agencies charged with agricultural development, and indicates their working budgets in 1967.

Since its organization in 1962, the Agrarian Institute has put more effort into land than human development. During the period 1962-1968, only about

8,000 families were settled on lands, 4,000 of these in 1967 and 1968. The number so assisted seems extremely small in view of the 200,000 families living on farms of less than 3 acres and the 350,000 unemployed in the rural labor force.

The farmers thus far settled by the Agrarian Institute have been given "provisional" titles to their land, but it is not clear when or if they will receive final titles.

None of the new "farmers" settled by the Institute lived on the land previously, although the reason for this policy is difficult to understand. The Institute develops the land, -10,000 acres were developed in 1968 with 17,100 more planned for 1969, making it ready for planting, and giving seeds and some food (under a PL 480 Title II Program) to carry a family until the "farmer's" crop is ready for harvesting. Some production supplies are made available at cost, and limited credit is available to settlers. The families thus settled have a legal responsibility to pay for their land and repay the Institute for the production inputs and loans made. The size of the land parcels provided the farmers average about 12 acres. Very few repayments for land provided have been received.

Considering the extremely low standard and level of living of the rural population, it is surprising that there has been relatively little agitation for a more effective reform program. Although the government fell heir to the extensive Trujillo land holdings at the end of 1961, these have not provided the means for a rapid or extensive settlement program. Many of the

lands were involved in the production of sugar cane, and no government has cared to change this pattern. Much of the remainder is suitable suitable only for pasture. As a result, activities of the Agrarian Institute have been concentrated on new land that it has developed, or on existing farm land purchased or owned by the government. But help extended to only about 2 or 3% of those who need it, in seven years seems a small achievement.

Table 29 BASIC PROGRAMS OF THE DOMINICAN GOVERNMENT FOR AGRICULTURAL

DEVELOPMENT, 1967		
PROGRAMS	BUDGET MILLIONS	ACCOMPLISHMENTS
AGRICULTURAL DEVELOPMENT		
<u>Secretaría de Agricultura</u>	\$ 7.8	Control of cattle disease, especially garrapata and brucelosis. Construction of two nurseries and amplification of those existing for coffee and cacao plants. Credits amounting to \$330,000 were extended to 996 agriculturists for these two crops.
AGRARIAN REFORM		
<u>Instituto Agrario Dominicano</u>	2.9	Eighteen settlements were established on government lands or lands purchased for this purpose, which benefitted 13,238 persons located on an area of 23,000 acres. With this settlement in 1967, the Institute completed 49 settlements made since 1962.
IRRIGATION WORKS		
<u>Instituto Nacional de Recursos Hidráulicos (INDHRI)</u>	6.1	Works under construction included: Canal - San Juan to benefit 125,000 tareas to be terminated in 1969. Feeding canal to the Rio Grande - to serve 4,000 tareas in Constanza, and to be completed in 1968. Maintenance work on present systems which irrigate 1,500,000 tareas and benefit 23,000 landholders. Five new projects studied.
COOPERATIVES		
<u>Fomento Cooperativo (IDECOOP)</u>	1.1	Organization of 60 new coops, 48 of which were agricultural, making a total of 260 organized which receive orientation and technical assistance.
AGRICULTURAL CREDIT		
<u>Banco Agrícola</u>	3.8	Credits amounting to 22.3 million were established, nearly 4,000,000 more than in 1966, to 28,067 borrowers. (32,611 in 1966).
<u>Other programs</u>		
<u>Secretaría de Agricultura</u>	0.9	Administrative expenses of Secretaría de Agricultura;
TOTAL	22.6	

IV THE CONSUMER

IV THE CONSUMER

A. Where is He?

1. The Rural Consumer

In the Dominican Republic, as in most other Latin American countries, urban urban population is concentrated in one or two large cities where most of the channels of production and distribution are located. The remainder, and usually the majority of the people, live on scattered farms or in small towns that serve as local market centers for the surrounding areas. Until recently many rural zones have remained isolated for lack of good roads and adequate transportation facilities, and isolation has produced a population that is "rural", both in quantity and quality.

The total population of the Dominican Republic is estimated in 1969 to be approximately 4,000,000 persons, of whom nearly 3/4 are considered as rural, living on farms or in villages with a population of than 5,000.

Qualitatively, the people are also "rural" in that characteristics of speech, dress, education, habits and way of life identify them as being rural as opposed to urban.

In the United States, the development of highway systems, the accessibility of the cities, the almost universal availability of newspapers, radio and television, movies, improved schools, and increased farm income have dissolved the barriers that formerly separated rural from urban to such an extent that today rural people dress like, act like, talk like and think like their urban cousins. This process, productive of a homogenous population, has

not yet taken place in Latin America. Continuing road construction and better transportation, however, are gradually bringing "City civilization" to the farms, and an increasing rural-urban migration is relocating thousands of the rural poor in the city slums.

The rural farmer who lives on his land in the Dominican Republic is almost invariably poor. Although large landowners receive their incomes from the soil, they rarely live on it or work it themselves. One of the primary causes for the characteristic lag in Latin American rural community development, is the absentee landlord who, living in the city and not being forced to put with the inconveniences of rural life, has little interest in working for the improvement of roads, the building of schools, or the construction of pure water systems in a community where neither he nor his family live.

In 1960, there were 179,300 farms which contained less than three acres each and which supported about 900,000 people. Although the subsistence farmer living on less than subsistence size land, was recognized by all Latin American nations signing the agreement leading to the establishment of the Alliance for Progress, as one of the most serious problems impeding agricultural development and economic growth, little has been done to correct it. In the Dominican Republic, the number of farms under five acres in size increased from 1950 to 1960, and, with no effective program of agrarian reform, the number is undoubtedly much greater today than in 1960, due to constant fracturing of land to accommodate a too rapidly increasing population.

The increase in the number of minifundia between 1950 and 1960 is shown on Table 29 and illustrated on Graph 19, and there is no reason to believe that the trend has been reversed.

Table 29 a. INCREASE OF MINIFUNDIA, 1950-1960

Size of land holdings	1950	1960	% of Increase
Under 5 acres	150,675	290,301	92.0
150 - 1,500 acres	3,273	3,336	1.1

Source: Quinto Censo Agropecuario, 1960.

Without considering the number of owners, the land that supported 900,000 persons in 1960 is now being called upon to provide sustenance for at least 1,500,000.

This segment of the rural population lives a marginal existence on tiny plots of land that are unable to supply either the quantity or quality of food required for a minimum diet, or surplus crops which could be sold to provide cash for supplementary items. Practically speaking, this group exists in an economic vacuum, being neither producers in the sense that they contribute to the demands of the market, nor consumers in that they have no cash income with which to buy. With malnutrition an unrelieved condition of life, the need of these rural families is greatest; as a commercial market, they do not exist. Underfed, underhoused, and living outside the money economy, this segment of the rural population does not represent any factor of commercial demand for industrial products or services.

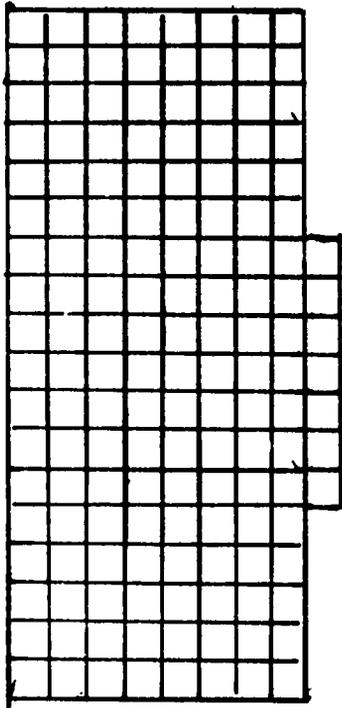
The Dominican Republic numbers about a fourth of its population in its labor force, or about 1,000,000 persons are either employed or looking for work. Sixty percent or 600,000 work in agriculture. More than half of these (300,000) farm lands under five acres in size, and are considered by census

INCREASE IN NUMBER OF MINIFUNDIA

1950 - 1960

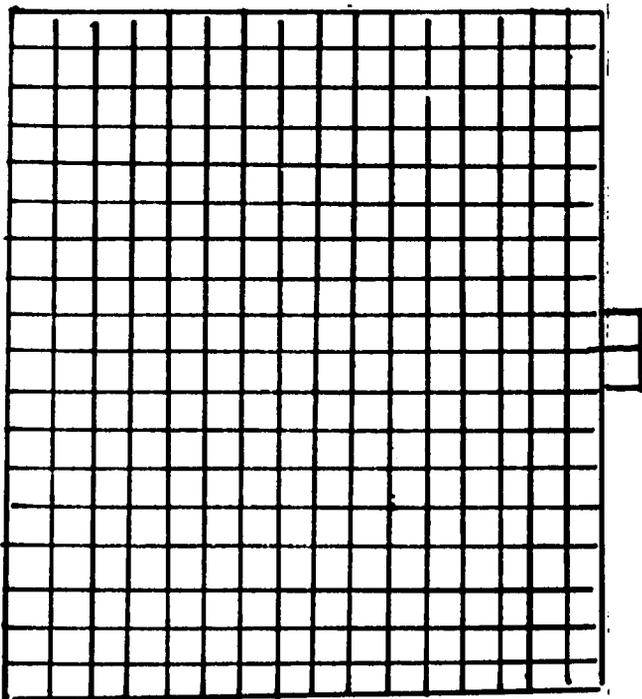
□ = 1000 Farms

Farms Under
5 Acres



1950

▤ Farms Larger
Than 150 acres



1960



definition to be "self-employed" or "unpaid family member". Per capita cash income can hardly reach \$50.00 annually, even including part time, seasonal agricultural employment.

Approximately 100,000 individuals are classified as "agricultural laborers". Neither owning, nor renting land, most are employed as cutters on the large sugar cane lands. About 40,000 seasonal workers are required to harvest the sugar crop of the Dominican Republic, and a chronic shortage of agricultural labor led to "importing" about 10,000 - 15,000 workers from Haiti, a practice now prohibited by law, but presently being reconsidered.

The Dominican seasonal worker usually occupies a subsistence farm, and supplants his meager income by working on the large land holdings when such employment is available. Many, however, are unwilling to leave their homes and work in the cane fields under conditions acceptable only to the Haitian laborers.

The minimum wage set for agricultural labor is 25 cents an hour or \$2.00 per day, bringing \$12.00 per week for six days work. At best, however, a seasonal agricultural laborer can anticipate eight or nine months a year work or a maximum annual income of \$432.00. Only a small fraction of the Dominican agricultural labor force (probably less than 2%), however, are employed on a time basis and so entitled to the minimum wage. Twenty per cent of seasonal workers are chronically unemployed, and the remainder under-employed. Those finding work are fortunate if their annual wage exceeds \$200.00.

Agriculturists farming lands ranging in size from five to fifty acres are somewhat better off, but cash to buy consumer goods is hard to come by. With

87% of all land holdings being less than 12 acres and 96.4% under fifty acres, the marginal existence of the rural population can hardly be exaggerated. The remaining 3% of the farms, which occupy 64% of the agricultural land are owned by wealthy urban families, few of whom are rural residents.

2. Market Centers

The low consumption level of the rural population is confirmed by the distribution of total retail sales as shown on Table 30 and Map 7. Sixty-one per cent of all products manufactured or processed in the Dominican Republic are sold in Santo Domingo. An additional 16% of the total sales come from Santiago. The two cities together account for more than 75% of all sales in the entire country. If we add the sales from only five other cities, seven market centers account for 96.6% of all consumer purchases.

Stated another way, we can identify 96% of the commercial consumers as those living in or adjacent to seven urban centers serving a population of about 2,500,000 (including nearby rural zones). Considering the extreme limitations of rural incomes, we can say that significant purchasing power is confined to about 1,000,000 persons, 60 - 70% of whom reside in either Santo Domingo or Santiago.

Table 30 POPULATION OF PRINCIPAL CITIES AND PROPORTION OF

City	TOTAL SALES, 1966			
	Population	Per Cent of all Cities	Total Sales Volume	% of Sales
Santo Domingo	560,636	54.7	\$238,962	61.4
Santiago	127,026	12.4	64,253	16.5
San Fran. de Macoris	36,688	3.6	Not given	
San Juan de la Maguana	34,250	3.3	1,347	0.34
Valverde	31,132	3.0	337	0.08
La Romana	29,255	2.8	11,614	2.98
Barahona	24,550	2.4	1,039	0.26
La Vega	24,019	2.3	11,812	3.03
San Pedro de Macoris	23,005	2.2	18,922	4.86
San Cristobal	22,614	2.2	6,748	1.73
Puerto Plata	21,070	2.1	19,272	4.95
Bonao	20,991	2.0	LESS	LESS
Moca	18,859	1.8	THAN .01	THAN .01
Azua	17,952	1.7	13,199	3.39
Bani	17,089	1.6	1,452	0.37
	1,024,792	100.0	388,957	100.0

1 Total sales volume given in thousands of Dominican pesos.
\$1.00 US equals \$1.00 Dom.

Source: Division Estadística y Prognostico Secretario de Estado de Agricultura, 1966.

- Population figures are from the Census of 1960. Although these have increased numerically since that date, the relative percentage is probably about the same.
- Sales in cities include those made to rural people living in close surrounding districts.
- Only \$13,199,000, or 3.4% of sales are classified coming from "other" or rural areas.

B. The Urban Consumer

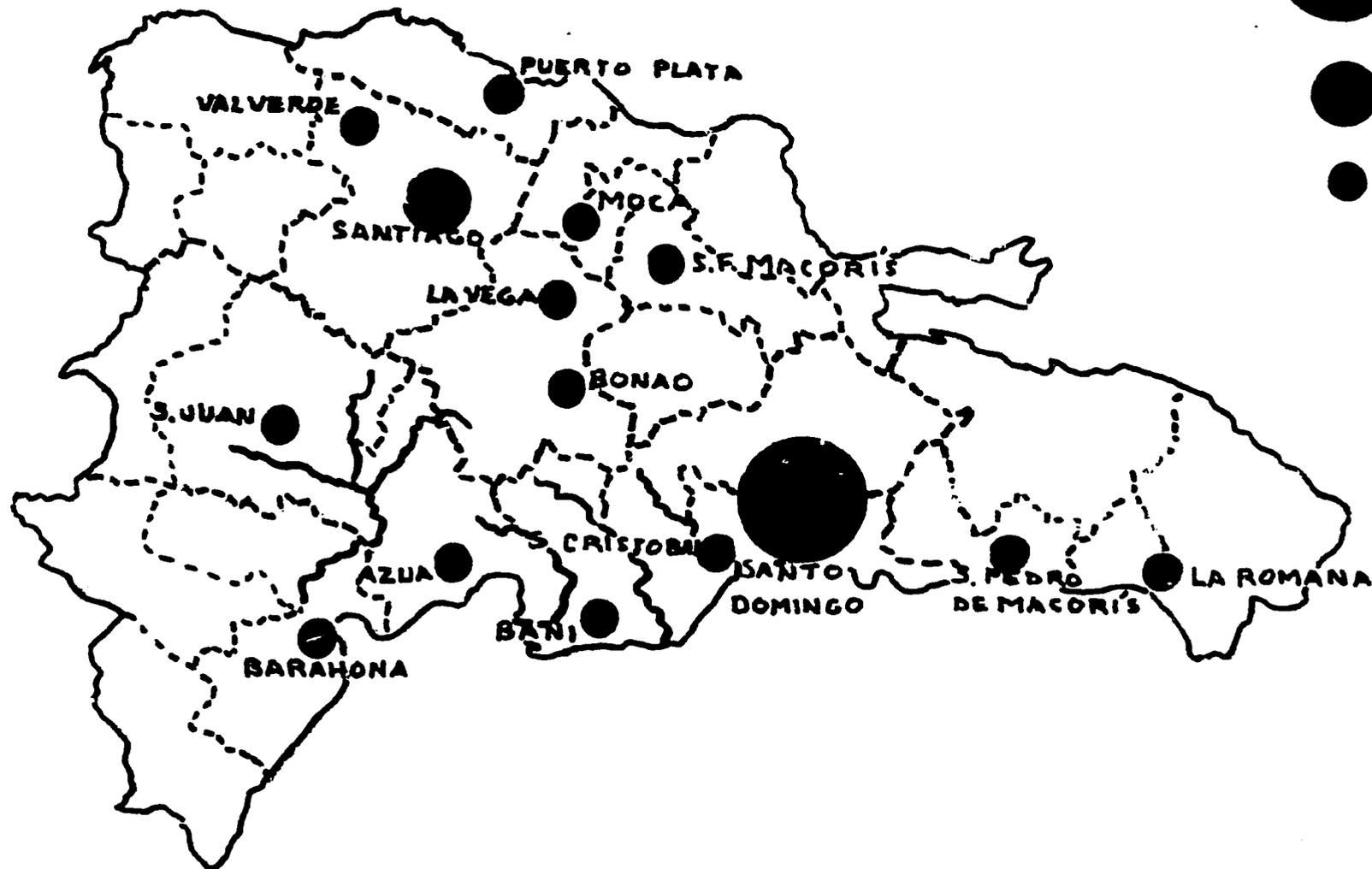
1. What Does He Do?

Although the urban population was estimated at about 1,176,989 in 1967, purchasing power is primarily confined to about 501,690 individuals (and their wives and families) over fifteen years old classified as "economically active," or as employed members of the labor force.

PRINCIPAL MARKET CENTERS

DOMINICAN REPUBLIC

TOTAL SALES



Unfortunately, information regarding the composition of the labor force comes from the 1960 Census, and is badly out of date. For lack of other comparable data, however, Tables 31, 32, 33, are included to roughly indicate the relative distribution of occupational categories, economic activities, and class of workers, which are themselves economic indicators. A later estimate of the composition of the labor force by age groups is shown on Table 34, and its distribution by occupational categories is illustrated on Graph 20.

A 1967 study of 4,398 families containing 26,626 individuals, made to determine basic characteristics of the labor force, found that:¹

- a total of 29% of the individuals over ten years old were found to be economically active,
- 66% of the households had only one economically active member,
- 19% of the households had two economically active members,
- 9.1% of the households had three economically active members,
- 10.6% of the households had from three to six economically active members,
- 22% of the household labor force sampled in Santo Domingo were unemployed and looking for work. In Azua, the proportion of unemployed rose to 33%.
- 9.1% of all households had no member working or looking for work.

2. How Much Does He Earn?

Although incomes in urban centers show the same wide range and disproportionate distribution as in the rural areas, the average level, if we do not include the unemployed, is considerably higher. Table 35

1 Kunin, H. J. Preliminary Report on a Survey of the Labor Force in Santo Domingo, Azua, and San Juan, Oct., 1967.

2 Labor Law and Practice, op. cit.

Table 31 LABOR FORCE BY BRANCH OF ECONOMIC ACTIVITY AND SEX

Economic Activity	Males	Females	-Both sexes-	
			Number	Percent
Agriculture, forestry, hunting, fishing	495,210	8,820	504,230	61.4
Mines and Quarries	2,370	20	2,390	.3
Manufacturing	55,160	11,690	66,850	8.1
Construction	20,640	70	20,710	2.5
Electricity, gas, water	3,180	140	3,320	.4
Commerce	42,720	11,900	54,620	6.7
Transport, storage, communications	21,110	320	21,430	2.6
Services	37,850	53,540	91,390	11.1
Not adequately described	<u>53,980</u>	<u>1,990</u>	<u>55,970</u>	<u>6.8</u>
Total	732,220	88,490	820,710	100.0

Source: Oficina Nacional de Estadística, Cuarto Censo Nacional de Población, 1960. Santo Domingo, 1966.

Note: The above table includes only individuals over 15 years old.

- In the Dominican Republic, farmers and agricultural laborers increased 10% between 1950 and 1960 in contrast to most other Latin American countries, where, on the average, numbers decreased about 6% during that decade.
- Over 60% of the economically active population of the DR were employed in agriculture in 1960 as compared to 55% in Central America, 45.7% in South America and 9% in North America.
- 300,000 Dominicans or about 60% of those working in agriculture cultivated minifundia of less than five acres. An additional 124,000 worked farms up to 85 acres, most of the remaining 80,000 being seasonal farmhands.
- 84% of those engaged in manufacturing were employed in the food processing industry, the majority in the state owned sugar mills.
- Approximately $\frac{1}{3}$ of the workers in "services" were employed as domestic servants.

Table 32 LABOR FORCE BY OCCUPATIONAL CATEGORY, 1960

Occupation	Both Sexes		Male	Female
	Number	Percent		
Professional, Technical and related workers	23,180	2.8	10,900	12,280
Administrative, executive managerial workers	3,260	.4	2,880	380
Clerical workers	27,360	3.3	10,070	7,290
Sales workers	45,630	5.6	36,400	9,230
Farmers, fisherman, loggers, and related workers	504,820	61.5	496,120	8,700
Transport and Communications officers	18,570	2.3	18,570	-
Craftsmen, production process workers and others not classified	109,560	12.3	87,690	12,870
Service, sport and recreation workers	51,130	6.2	14,850	36,930
Not classified	44,640	5.4	43,850	790
All occupations	820,710	100.0	732,220	88,490

Source: Cuarto Censo Nacional de Poblacion, 1960. Santo Domingo, 1966.

Note: Includes only individuals over 15 years old.

- Professional, technical, and managerial groups combined total only 3.2% of the population.
- Women, mostly teachers, outnumber the men only in the professional category.
- Only 12.8% of the women were production workers.
- More than half of the employed women were occupied in domestic or unpaid farm work.

Table 33 LABOR FORCE BY CLASS OF WORKER AND SEX, 1960

Class of Worker	Both sexes		Males	Females
	Number	Percent		
Employers	7,710	0.9	7,190	520
Self employed	359,910	43.9	340,070	19,840
Wage and Salary Earners	361,550	44.1	297,230	64,320
Unpaid Family Workers	91,710	11.1	87,730	3,810
All classes	820,710	100.0	732,220	88,490

Source: Cuarto Censo Nacional de Poblacion, 1960. Santo Domingo, 1966.

- Employers constituted only 2% of the entrepreneurial class and only 1% of the labor force.
- The large proportion of self employed reflects the large number of small farmers, peddlers, etc.
- Wage earners jumped from 28% of the labor force in 1950 to 44.1% in 1960.
- Unpaid family workers made up 11.1% of the labor force in the DR as compared with 5% in Jamaica and 0.1% in the US.

Table 34 DISTRIBUTION LABOR FORCE BY AGE GROUPS - JULY, 1967
(In thousands)

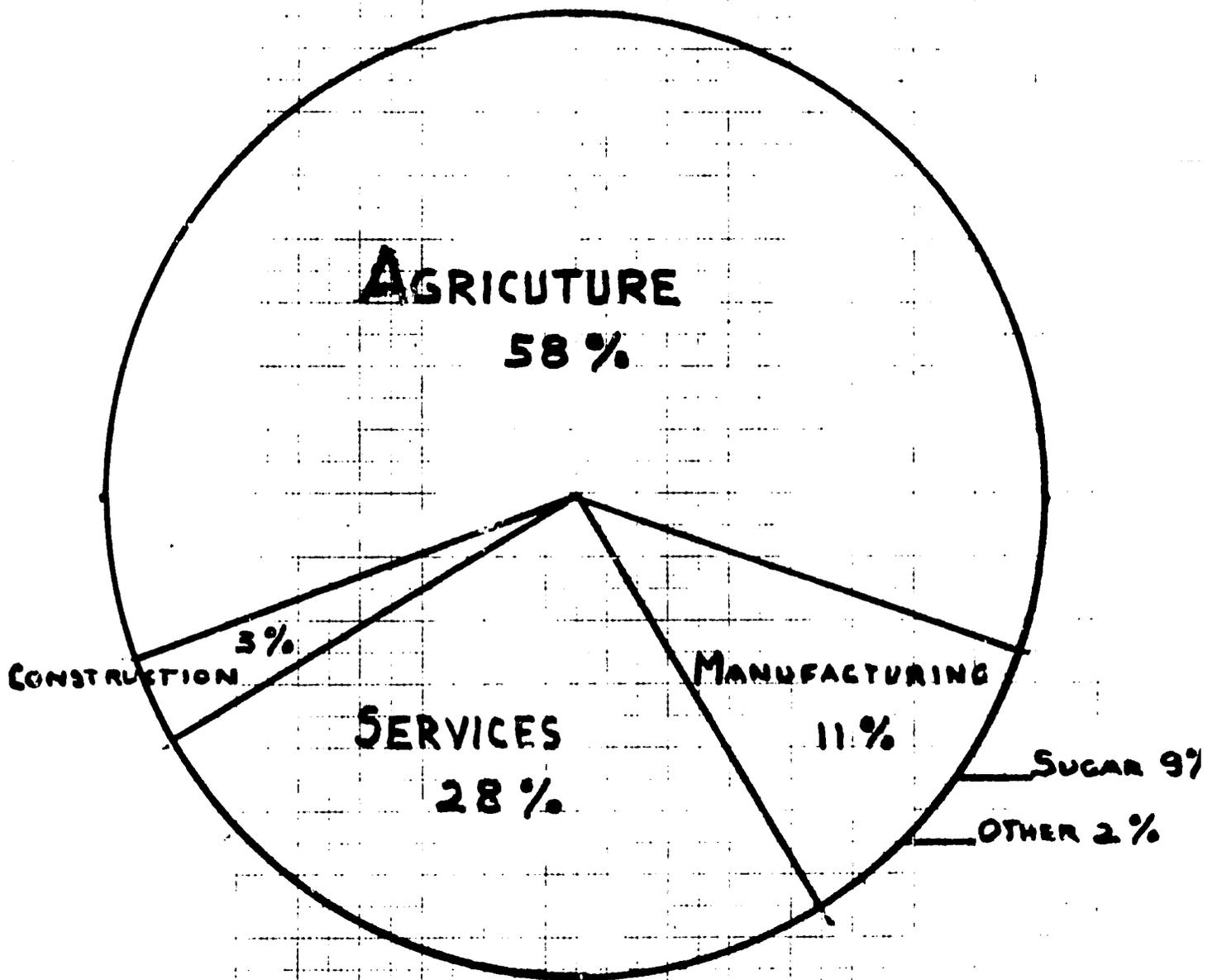
Age Groups	Number	%	Male Number	Female Number
10-14	39.5	3.3	36.3	3.2
15-19	161.1	13.5	120.9	40.2
20-24	192.2	16.1	147.2	45.0
25-29	164.5	13.8	130.8	33.7
30-49	440.9	36.9	362.6	78.3
50-54	68.7	5.8	58.7	10.0
55-59	39.8	3.3	35.6	4.2
60-64	43.3	3.6	38.7	4.6
65 & Over	44.5	3.7	39.4	5.1
All Groups	1,194.5	100.0	970.2	224.3

Source: Labor Law and Practice, Dominican Republic. U. S. Department of Labor, 1968.

. . . . With a total population estimated at 3,889,000 in 1967, the labor force included 30% of the population.

. . . . Each individual who was economically active was responsible for the support of 3.25 dependent individuals.

. . . . Unemployment was estimated at 30% or more than 350,000.



DISTRIBUTION OF ECONOMICALLY ACTIVE POPULATION - 1966

TOTAL ECO. ACTIVE - 808,600

Source : Plataforma Para el Desarrollo.

Table 35 WAGE AND SALARY LEVELS, 1960 (NOT INCLUDING AGRIC. SECTOR)

		(Person: over 15 years old)		Assuming a 42% increase in wages, 1960-1964	
Monthly wage	Number	%	Wage	Number	
Under \$50.00	209,830	58.1	Under 75	291,482	
\$50-99	52,950	14.6	\$75-149	73,246	
\$100-149	13,120	3.6	\$150-224	18,060	
\$150-199	5,410	1.5	\$225-299	7,525	
\$200-299	4,520	1.3	\$300-499	6,521	
\$300-399	1,710	.5	\$450-549	2,508	
\$400 and over	1,570	.4	Over \$550	2,006	
Unemployed	72,390	20.0	Unemployed	100,338	
TOTAL	361,550	100.0		501,686	

=== Assuming population in 1969 of 4,000,000 persons and a labor force of 501,686 of non-agricultural workers. No correction of proportionate distribution of workers in each category has been attempted.

Source: Labor Law and Practice in the Dominican Republic, U. S. Department of Labor, 1968.

- In 1960 more than 58% of wage and salary earners received less than \$50.00 per month. Assuming a wage increase between 1960 and 1965 of 42%, and a frozen wage level thereafter, approximately 290,000 workers receive \$75.00 per month or less in 1969.
- Only 2.2% of the labor force were earning over \$200.00 per month in 1960.
- Only 500 women received as much as \$200 in 1960. In 1969, however,
- Salaried technical and managerial personnel in private industry often earn over \$1,000 per month.
- Government owned business industries offer the highest rates of pay in the Dominican Republic.

TABLE 36

MINIMUM WAGES/WAGES SKILLED WORKERS
1968

	Unskilled Minimum wage		Average Month	Skilled Current wages		Average (4 weeks) Month
	Hour	Week	(4 weeks)	Hour	Week	
1. Industry						
Bauxite	.37 1/2	16.50	66.00	.50	22.0	88.00
Paint Plants	.40	17.60	70.00	1.25-2.50	55-110	330.00
Sugar Mills	.40	17.60	70.00	1.25-2.50	55-110	330.00
Tanneries	.35	15.40	62.00	1.25-2.50	55-110	330.00
Paper Mfg.	.35	15.40	62.00	1.25-2.50	55-110	330.00
Port Man- zanillo	1.25	55.00	220.00			
Food Proce- ssing	.31-.35	13.64	59.00			
Beverages	.35	15.40	61.00			
Flour Mill	.30	13.20	53.00			
2. Trades						
Bricklayer	.50	22.00	88.00	.82-1.06	36.08-46.64	167.00
Carpenter	.35	15.40	61.60	.82-1.08	36.08-47.52	168.00
Plumber	.25	11.00	44.00	.75-.80	33.00-35.20	140.00
Painter (brush)	.30	13.20	52.80	.70-.80	31.70-35.20	130.00
Painter (spray)	.30	13.20	52.80	1.00-1.05	44.00-46.20	180.00
Electrician	.25	11.00	44.00	.80-1.05	35.20-46.20	168.00
Mechanic	.25	11.00	44.00	.82-1.00	36.08-44.00	160.00
Driver (truck)	.25	11.00	44.00	.75-1.00	33.00-48.40	160.00
Driver (tractor)	.28	12.32	44.00	.70-.90	30.80-39.60	138.00
Driver (excavator)	.25	11.00	49.28	1.05-1.25	46.20-55.00	200.00

TABLE 36 (cont'd)

	Unskilled Minimum wage		Average Month (4 Weeks)	Skilled Current wages		Average (4 weeks) Month
	Hour	Week		Hour	Week	
Sheet Metal	.32	14.08	56.32	.70-.80	31.70-35.20	132.00
Welder	.25	11.00	44.00	.90-1.00	39.60-44.00	162.00
<u>3. Agriculture</u>						
Laborer (2%)	.25	11.00	44.00			
Sugar Cane Curer	.90 per ton	10.80	43.20	1.15 ton	13.80	55.00
<u>4. Clerical Office</u>						
Clerk-Office			60-70			400-600
Manager-Supervisor						150.00
Typist						175.00
Telephone operator						200.00
Stenographer						200.00
Bookkeeper						250.00
Bilingual Secretary						300.00
Accountant						
<u>AVERAGE WAGE</u>						117.00 (42% above 1960)

Source: Labor Law and Practice, op cit
USAID Records, Industrial Division

shows the range of monthly wages and salaries earned in 1960 and estimated for 1969, based upon a general 42% increase in earnings during the last eight years.²

By laws made effective in 1965 and 1966, the national wage was set at \$.25 per hour or \$2.00 per day for all occupations other than domestic servants who receive no minimum wage because it does not apply to them. Although minimums higher than those set by law are in force in various industries, any person receiving the minimum of \$624.00 per year earns two and a half times the national per capita real income of \$247.00.

Overall wages gained considerably during the early years of the 60's until the enactment of a wage freeze in 1965 halted the upward trend. Little data is available regarding the increase of real wages after 1963, but the cost of living is undoubtedly up. The lag in wages and salaries following 1965, however, has been compensated to some degree by an increased number of fringe benefits which will be discussed in the section of this report entitled "Labor."

Table 36 is a compilation of wages paid unskilled and skilled workers in various industries, and average monthly salaries of office and clerical personnel. It can be seen that unskilled workers, who greatly outnumber those with negotiable training, receive less than \$100.00 per month in all trades and industries except for stevedores working at Port Manzanillo.

² Footnote on previous page.

Skilled workers, depending upon which industry, earn from around \$100.00 to \$330.00 per month, the average being something over \$200.00.

While these industrial salaries hardly allow for luxury living, all are considerably above the national per capita income. In the clerical and office group, annual salaries of from \$2,400 to \$4,800 are more than ten times as high.

Official data in 1967 showed that 107,595 individuals were employed by industry, more than 84% working in food processing, with the majority employed in the sixteen state owned sugar mills. Table 37 shows the medium salaries paid by the food, beverage and tobacco firms from 1960 to 1965. The low level of wages paid by the food industry to 90,443 workers is caused by the inclusion of large numbers of agricultural workers and can cutters, most of whom are seasonal and work for the minimum wage. All wages in the food industry reflect the seasonal nature of the work. A 63% differential exists between peak and slack periods, contributing to the seriously high rate of unemployment and underemployment throughout the country.

Table 38 shows the trend of industrial movement and development. Although employment is up 20% and average wages are 142% over those of 1960, neither have reached the level attained in 1963. The total number of workers by industry and their annual average wage is included in Table 39.

Table 37 MEDIAN MONTHLY SALARIES PAID BY INDUSTRY
(1960-1965)

Monthly Industrial Salaries	1960	1961	1962	1963	1964	1965	% of Increase 1965 over 1960
Food Industry	28.07	31.51	60.62	52.50	75.86	69.65	148%
Beverages	96.04	83.60	127.93	154.30	180.04	158.36	64%
Tobacco	56.51	63.02	103.92	89.66	91.99	92.78	64%

Source: Cuentas Nacionales de la Republica Dominicana. Banco Central de la Republica Dominicana, 1968

- Although workers' wages in the food industry have increased more than twice as much as those paid by beverages or tobacco, they are still not much above the minimum wage of \$50.00 per month and considerably below the other two categories.
- In 1967, 82,839 of the 90,443 workers classified as being employed by food industries worked for sugar mills, many as agricultural laborers or seasonal cane cutters, at an average wage of \$536.00 per year or about \$45.00 per month, thus bringing down the overall average.
- In 1960, however, sugar wages averaged only \$325.00 per year, or about \$29.00 per month, and by 1967 had increased 64% over that amount as compared with the overall increase of 148%, vividly illustrating both the seasonal nature of the work and the substantially lower wage earned by workers in the agricultural sector.

Table 38

INDUSTRIES, EMPLOYEES, SALARIES, RAW MATERIALS, CONTAINERS, SALES
AND INVESTMENT, 1960-1965 (IN thousands of Dominican pesos).

Year	Number Inds.	Number Employees	Salaries	Raw Materials		Combustibles	Containers	Value of Sales	Capital Investment
				Nat'l	Imports				
1960	2427	89,591	33.1	77.1	17.3	10.9	8.5	271.6	280.0
1961	2331	80,054	38.3	81.6	17.8	8.7	9.0	253.6	307.2
1962	2251	89,300	72.9	00.4	27.0	11.1	14.1	326.6	306.8
1963	2427	117,831	88.8	130.3	29.6	10.9	13.8	364.6	296.4
1964	1218	104,828	106.6	136.5	41.6	12.6	15.7	406.2	348.8
1965	1225	84,032	81.3	118.3	36.3	10.8	12.1	339.5	359.7
1966	1225	96,734	87.8	139.0	37.9	10.6	14.4	403.9	374.3
1967	1230	107,595	80.3	132.4	45.2	11.2	14.9	423.5	394.4

Source: Estadística Industrial de la República Dominicana, 1966 - 1967. Oficina Nacional de Estadísticas.

<u>% OF INCREASE OF WAGES 1967 OVER 1960</u>									
-53%	20%	142%	71%	161%	2%	75%	55%	40%	

- Despite government control of imports, raw materials from outside the Dominican Republic increased from 21% of the total in 1966 to 25% in 1967 and had jumped 171% over the quantity imported in 1960.
- Average annual wages for industrial workers increased from \$368.34 in 1960 to \$746.31 in 1967.
- Although the number of persons employed by industry increased 19% from 1966 to 1967, the total amount of wages paid drop 8% during the same period.

Table 39 LABOR FORCE BY OCCUPATION AND INCOME, 1967

Occupation	Number Employed		Total Annual Wages (Thous. \$)	Per Capita Annual Incomes (\$)
	Categories	Totals		
1. Agriculture, forestry, etc.		692,810		\$50-150
2. Mining				
Bauxite	430			
Stone/Marble	17			
Non-Metallic Min.	445	892	1,764	1,970
3. Manufacturing				
Food	90,443		51,770	548
Beverages	1,419		2,760	1,945
Tobacco	782		1,125	1,438
Textiles	1,786		2,442	1,242
Clothing	1,966		1,750	890
Wood and Cork	610		481	788
Furniture	417		441	1,057
Paper and Paper Products	645		1,340	2,000
Printing	594		987	2,077
Leather	311		399	1,282
Rubber	402		688	1,661
Chemicals	1,580		3,123	1,976
Non-metallic Min.	1,572		2,883	1,834
Metal products	379		604	1,593
Machinery	43		59	1,372
Construction/Repair Equip., and Elec. Equip.	107		204	1,906
Transport Equip.	942		972	1,031
Other manufactures	307	104,305	400	1,302
Electric Plants		2,243	6,039	2,716
Water/Sanitary Services		17	26	1,529
Laundry		138	68	492
<u>TOTALS</u>		<u>800,405</u>	<u>80,305¹</u>	

Estimated Average Industrial Wage: \$746.00

¹ Figures do not add exactly due to roundingSource: Estadística Industrial de La República Dominicana, op. cit.

B. The Commercial Market

The foregoing maze of tables and statistics which have been used to determine the potential market as determined by ability to pay, are sometimes inconsistent or non-comparable, and often incomplete or out of date, but have been included to illustrate the problem of arriving at a reliable estimate of the commercial market in the Dominican Republic. A detailed study of all sources, however, suggests that the more than 1,000,000 persons making up the labor force, can be stratified into the occupational and income groups shown on Table 4().

To arrive at an estimate of commercial market potential, the rural subsistence farmer, the agricultural laborer, and the urban unemployed were eliminated, reducing the effective labor force to about 300,000.

Although it is hoped that at least a part of the agricultural population will ultimately become commercial consumers of a high protein food at a cost they can afford, it seemed advisable to err on the side of conservatism rather than otherwise.

Although the 300,000 members of the labor force, or a total of over 1,000,000 persons can all be considered as potential consumers, it is apparent from the wide range of incomes earned, that all will not consume on the same level or even buy from the same type of retail outlets.

Based upon a projected sales requirement of 4,000,000 pounds of food selling at \$.39 per pound to justify investment in a high protein food plant, the average per capita consumption for the 1,039,000¹ urban

1 The figure of 1,000,000 is based on allowing 2.5 dependents per economically active and employed person, and is probably too conservative. The Dominican family is generally considered to average at least five persons.

TABLE 40

ESTIMATION OF COMMERCIAL MARKET/LABOR FORCE

Classification	Number	Total	%Total Labor Force	Commercial Market	(\$) Average Annual Wage or Income
<u>I. OUT OF COM-</u>					
<u>MERCIAL MARKET</u>					
Agriculture Including un- employed and underemployed	610,000		55.0		50-500.00
Agricultural labor	85,000		7.6		400.00
Urban unemployed	<u>120,000</u>		<u>10.8</u>		- - -
			<u>74.4</u>		
SUB-TOTAL		<u><u>815,000</u></u>			Under \$500.00

<u>II. COMMERCIAL</u>					
<u>MARKET</u>					
Administrative, executive, Mana- gerial Agricultu- rists	6,500		.4	2.21	Over \$10,000
Professional/ Technical/ Teachers	34,000		3.1	11.6	Over \$ 5,000
Clerical/ Office	50,000		4.5	17.0	Over \$ 3,000

Table 40 (Cont'd)

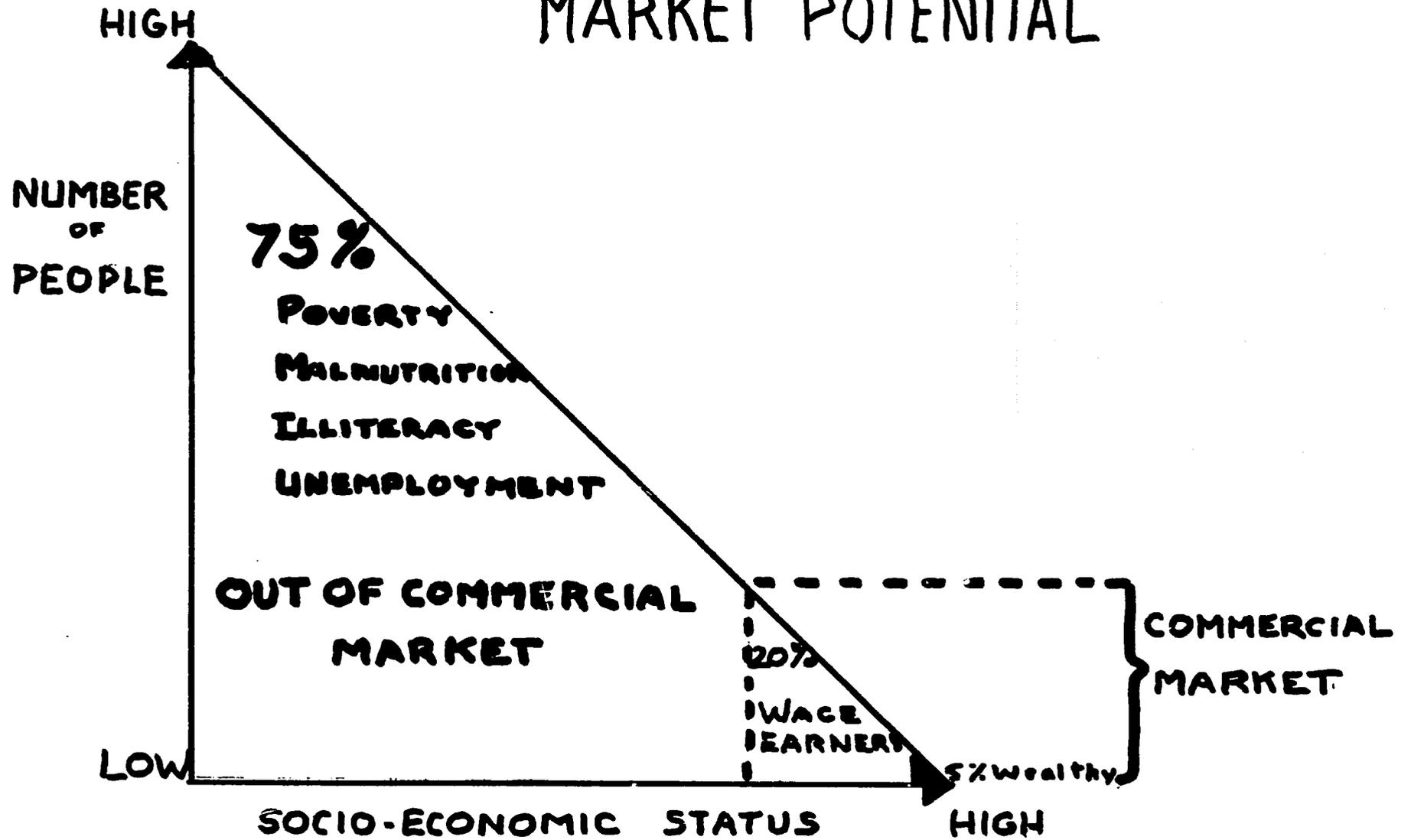
Classification	Number	Total	%Total Labor Force	Commercial Market	(\$) Average Annual Wage or Income
Transport/ Communications	25,000		2.3	8.5	Over \$ 2,000
Manufacturing/ Production	108,500		9.8	36.9	Average \$ 760
Service/Sport/ Domestic Labor ¹	70,000		6.3	23.8	Average \$ 500
SUB-TOTAL		<u>293,500</u>	26.5	100.00	
<u>GRAND TOTAL</u>		<u>1,109,000</u>			

SUMMARY

Classification	Population	INCLUDED IN TABLE 40		
		Commercial Market	Out of Commercial Market	Total
Economically Active 28%	1,220,000	294,000	815,000	1,109,000
Dependent Pop. (72%)	<u>2,888,000</u>	<u>735,000</u>	<u>2,037,000</u>	<u>2,772,000</u>
<u>TOTAL</u>	<u>4,000,000</u>	<u>1,029,000</u>	<u>2,852,000</u>	<u>3,881,000</u>

¹ Domestic workers receive about \$300.00 per year in addition to room and board, and for this reason are included in the commercial market. Additionally, the choice of purchaser is often left to the maid, who is a more important element in the purchasing market than can be assumed from her level of income.

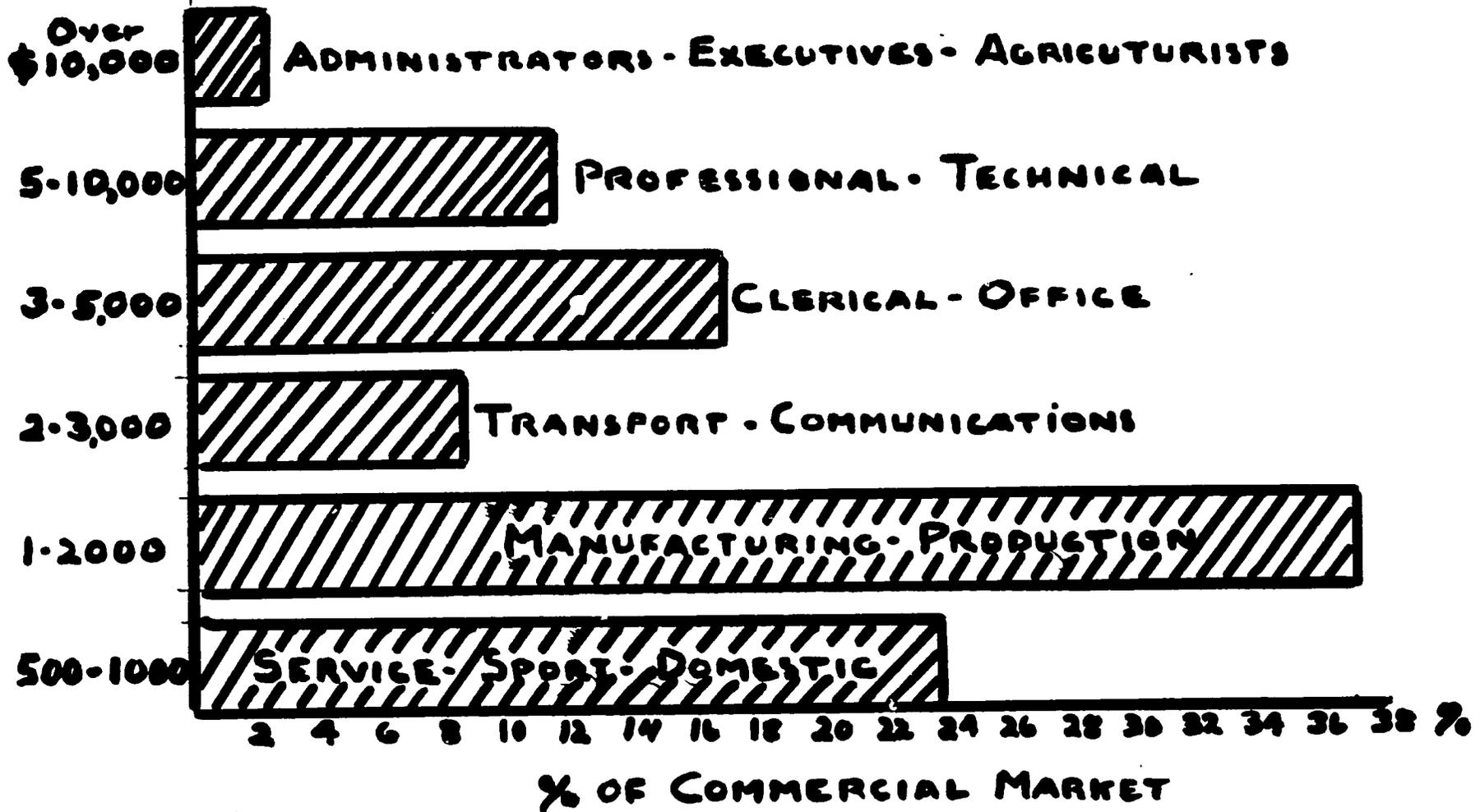
MARKET POTENTIAL



COMPOSITION OF COMMERCIAL MARKET

Average Annual Incomes

Page 166



employed population and their dependents, would have to come to 3.8 pounds annually at a cost of \$1.48, a sales goal that does not seem unreasonable, particularly in view of not including possible sales to institutions such as hospitals, prisons, or the military, and some part of the agricultural sector.

C. What Does He Buy, and How Much Does He Spend?

1. Domestically Produced or Processed Products

About 80% of the total population of the Dominican Republic must limit most of their buying to basic foods and essential clothing. In the rural area, only food items that cannot be grown are purchased, although even these are often bartered for.

Although cash incomes in the city are higher, the cost of living far exceeds that of the farmer, with the result that rural and urban food purchases for about $\frac{3}{4}$ of the population are much the same quantitatively and qualitatively, and both are deficient from a dietary standpoint.

As noted in the section of this report entitled "Agriculture," domestic food production has not increased to match the rapidly expanding population of the 60's. As a result, the per capita consumption of nationally produced or processed foods has been drastically reduced as was illustrated on Graph 11, page 73a.

Where per capita incomes average about \$250.00, and industrial wages \$760.00, (which usually must support five individuals), price obviously determines the choice of food for the majority of the population. An examination of the total sales of domestically produced or

Table 41 TOTAL AND PER CAPITA PROCESSED FOOD, BEVERAGE, AND TOBACCO SALES, 1966-1967 (Excluding Sugar)

Item	Total Sales (thous. \$ Dom.)	1966 Per Capita Sales (\$ (3,754,284))	% Total Food Sales	Total Sales (thous. \$ Dom.)	1967 Per Capita Sales (\$ 3,889.00)	Per Capita Sales Labor Force 1,194,500	Per Capita Sales less Subsistence Agriculture	% Total Food Sales
Prepared Meats	2,547	.67	1.5	2,374	.61	1.98	4.74	1.4
Dairy Products	605.00	.16	0.4	975.00	.25	.81	1.95	0.6
Ice Cream								
Butter	505.00	.13	0.3	467.00	.12	.39	.95	0.3
Cheese	1,334	.35	0.8	1,455	.37	1.21	2.91	0.9
Pasteurized Milk				2,443	.62	2.04	4.88	1.5
Canned Fruit & Veggies.								
Fruit Juices	467.00	.12	0.3	422.00	.10	.35	.84	0.3
Canned Beans	169.00	.04	0.1	493.00	.12	.41	.98	0.3
Hulled Rice	25,741	6.85	15.3	22,591	5.80	18.72	45.18	13.5
Coffee (beans)	16,800	4.47	10.0	12,865	3.30	10.27	25.73	7.7
(ground)	2,397	.63	1.4	3,879	.98	3.24	7.76	2.3
Wheat flour	6,641	1.76	3.9	8,540	2.19	7.15	17.08	5.1
Corn flour	75.00	.01	0.04	81.00	.02	.06	.16	.04
Semola (flour)	898.00	.23	0.5	1322.00	.33	1.10	2.64	0.8
Bread	2,294	.61	1.4	2,486	.63	2.08	4.97	1.5
Crackers	542.00	.14	0.3	733.00	.18	.66	1.46	0.4
Sweet Crackers	949.00	.25	0.6	906.00	.23	.75	1.81	0.5
Candies	1,777	.47	1.1	1,745	.44	1.46	3.49	1.0
Chocolate	1,607	.42	0.9	1,514	.38	1.26	3.01	0.9
Choc. Candies	225.00	.05	0.1	376.00	.09	.31	.75	0.2
Choc. Wafers	97.00	.02	0.05	120.00	.03	.10	.24	0.07
Sweets	359.00	.09	0.2	367.00	.09	.30	.93	0.2

Table 41 (continued)

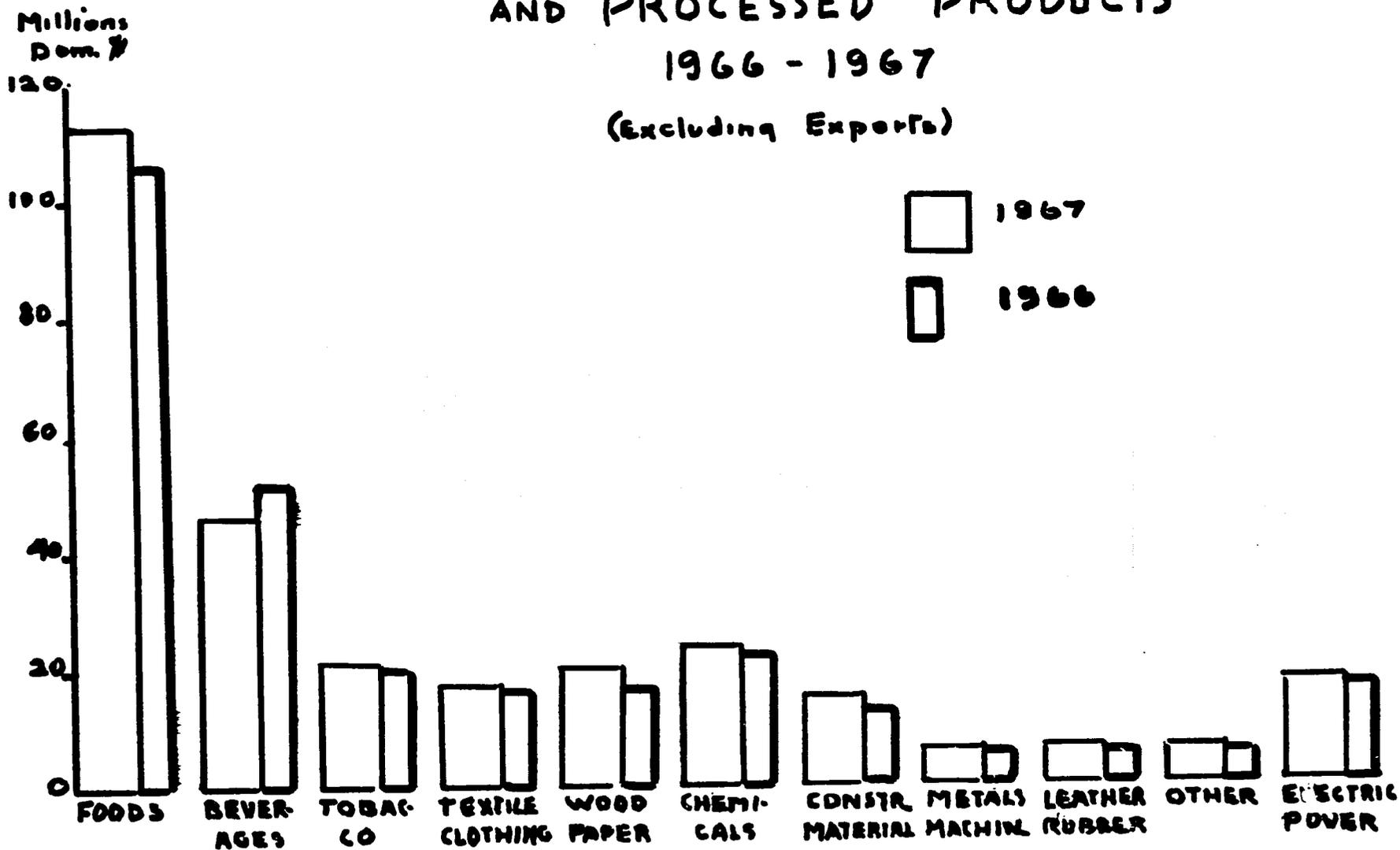
Item	1966			1967		Estimated		
	Total Sales (thous. \$ Dom.)	Per Capita Sales (\$) (3,754,284)	% Total Food Sales	Total Sales (thous. \$ Dom.)	Per Capita Sales (\$) 3,889.00	Per Capita Sales Labor Force 1,194,500	Per Capita ¹ Sales less Subsistence Agriculture	% Total Food Sales
Cotton Oil	458.00	.12	0.3	797.00	.20	.66	1.59	0.5
Coconut Oil	5,600.00	.14	0.3	1,122.00	.28	.93	2.24	0.7
Peanut Oil	21,069	5.61	12.5	20,000	5.14	16.75	40.00	11.9
Soy Oil				759.00	.19	.63	1.52	0.5
Starch	107.00	.02	0.06	96.00	.02	.08	.19	0.06
Choc. Paste	64.00	.01	0.03	71.00	.01	.05	.14	0.05
Pastas	2,560	.68	1.5	3,055	.78	2.55	6.11	1.8
Tomato Sauce	1,088	.28	0.6	1,990	.51	1.66	3.98	1.2
Margarine	216.00	.05	0.1	603.00	.15	.50	1.20	0.4
Other Prepared foods	904.00	.24	0.5	1,184	.30	.99	2.91	0.7
Liquor (Rum)	27,642	7.36	16.5	25,572	6.57	21.41	51.12	15.3
Wine, Beer	12,856	3.42	7.6	11,590	2.98	9.70	23.38	6.9
Soft drinks	7,033	1.87	4.2	6,836	1.75	5.72	13.67	4.1
Cigarettes/ Cigars	26,808	7.14	16.0	27,818	7.15	23.29	55.63	16.6
TOTAL SALES	167,360	44.41	100.0	166,756	42.91	140.27	336.14	100.0

¹ Urban Labor Force less 25% Unemployed, plus 100,000 Agricultural Labor Force.

SALES OF MANUFACTURED AND PROCESSED PRODUCTS

1966 - 1967

(Excluding Exports)



processed foods gives an idea of the proportion of incomes that must be spent to avoid starvation. In areas where it is necessary to spend over 75% of annual income for food, the general standard of living inevitably falls below any acceptable level. (Table 41)

It is surprising that the two largest expenditures, shown on Table 41 are for cigarettes and rum, which come ahead of rice, the most widely used staple food, but even in the poorest rural districts, it can be noted that nearly everyone smokes 20 cents a pack cigarettes made from the strong, black, pungent domestically grown tobacco. Older members of the family are often addicted to chewing. Rum is the favorite alcoholic liquor, and the only one cheap enough to be drunk by the lower income group. Seven times as much rum as milk is consumed annually in the Dominican Republic. Wine, beer, and soft drinks are the next highest expenditure. These beverages plus cigarettes and rum account for sales of \$71,807,000 in 1967, 43% of the total sales of all processed items included in the Estadística Industrial for 1967. (Exports excluded). The public also spends \$75,000,000 on the National Lottery which, combined with illegal lotteries, cockfights, legal casinos, etc., is estimated to place the national gambling bill at about \$125,000,000 annually. Obviously, people cannot be depended upon to buy what is good for them at the sacrifice of what they want.

Table 41 (Graph 21) also includes per capita annual sales for 1) the total population which results in an unrealistic figure,

2) the economically active population which includes the unemployed and the agricultural sector whose incomes are too low to be a part of the commercial market, and 3) for an economically active population of 500,000 which probably represents the upper limit of the commercial market.

Table 42 indicates the average range of prices of "classless" domestically produced foods (those consumed by all persons at all income levels) from 1960 to 1967. As shown on Table 43, Graph 22, prices of the most commonly used commodities, the principal component in the cost of living, has risen considerably but the general rate of inflation does not appear as severe as in other areas of Latin America.

The variation in the price of local fresh produce is indicated by an article appearing in the daily newspaper, El Caribe, September 4, 1969, in which the following prices were announced:

Beef . . . . .	.45 to .60 per lb.
Pork . . . . .	.55 per lb.
Rice . . . . .	.12 to .15 per lb.
Red Beans . . . . .	.16 to .20 per lb.
Package of lettuce or radishes . . . . .	.05
Plantains from Cibao	1.80 per 100
Plantains from Barahona	3.00 per 100
Papaya . . . . .	.20 to .50 each
Chicken . . . . .	.45 to .70 per lb.
Tomatoes . . . . .	.25 to .30 per lb.
Potatoes . . . . .	.08 to .09 per lb.
Oranges . . . . .	.15 to .20 per dozen
Avocados . . . . .	.03 to .05 each

2. Imported Foods

Despite a stagnant agriculture which failed to increase the production of foods for consumption since 1960, and of a population increase of nearly a million, the food availability per capita appears nearly the same today as it did in 1960. Actually, the per capita in-

Table 42

AVERAGE RETAIL PRICES FOR MOST COMMONLY CONSUMED COMMODITIES
1960-1969

COMMODITY	UNIT	1960	1961	1962	1963	1964	1965	1966	1967	1969
Rice	lb.	.15	.12	.12	.14	.14	.15	.14	.13	.15
Wheat Bread	lb.	.19	.27	.30	.30	.30	.30	.30	.30	.25
Beef (with bones)	lb.	.28	.32	.34	.37	.39	.40	.40	.39	.45
Milk (fresh)	bottle	.10	.13	.14	.15	.15	.15	.15	.15	.27
Eggs	each	.05	.05	.06	.06	.06	.06	.06	.06	.06
Platanos	100	1.53	1.27	2.11	2.72	2.51	2.86	2.38	2.92	3.00
Banana	12	.10	.12	.13	.14	.14	.15	.13	.16	.18
Beans	lb.	.13	.14	.15	.16	.19	.16	.17	.18	.19
Potatoes	lb.	.10	.07	.11	.10	.09	.08	.08	.07	.07
Sugar (Refined)	lb.	.08	.07	.05	.05	.05	.07	.08	.08	.10
Peanut Oil	Liter	.72	.61	.51	.59	.60	.60	.59	.57	.80
Rum (¹ / ₂ bottle)		1.11	1.12	1.14	1.16	1.26	1.25	1.26	1.25	1.25
Carbon (cooking fuel)	Sack	.95	1.28	1.55	1.81	1.58	1.95	2.08	2.07	
Cigarettes	20	.25	.20	.19	.15	.15	.16	.15	.17	.20

Source: Division Estadística y Prognostica. Sec. de Est. de Agricultura
1969 prices added.

dex of food production in 1968 dropped to an alarming 71% of its 1957-59 level while the population index climbed to 142. Some of the deficit has been filled by increasing numbers of food imports, which, by spreading "available food per capita" out to cover the total population, make it appear as though the consumption level had remained relatively stable. Actually, prohibitive prices put imported foods far beyond the meager resources of rural subsistence farmers and urban laborers whose per capita food consumption has steadily decreased. It is not unusual to see children of seven or eight clustered around an outside restaurant in Santo Domingo and begging for left over food, pleading, "I'm hungry, I'm hungry," in both Spanish and English.

Imported foods are reserved for the social strata with high and/or increasing incomes. Per capita food availability figures, therefore, are quite different than actual food consumption, which is as unequally distributed as are incomes and land holdings.

Although the theory of "producing substitutes for imports," has brought some restriction of consumer items imported, the importation of foods has steadily risen since 1960. Table 46, however, which includes the prices of both domestically produced and imported foods sold in supermarkets and colmados, as compared with current U. S. retail prices, makes clear why the diets of 80% of the population include few imports.

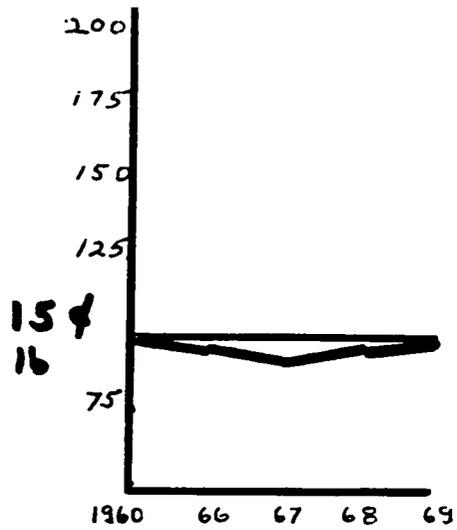
Even though limited in number, the strength of the elite consumer market is readily seen when current prices in the U. S. are contrasted with similar or equivalent items imported and sold at retail in the Dominican Republic. Total quantities sold are nearly impossible to determine, but 80 to 90% of the inventories of the supermarkets consist of imports, and the prosperity of these outlets can be measured by

Table 43 RETAIL PRICE INDEX OF MOST COMMONLY USED COMMODITIES
1960-1969

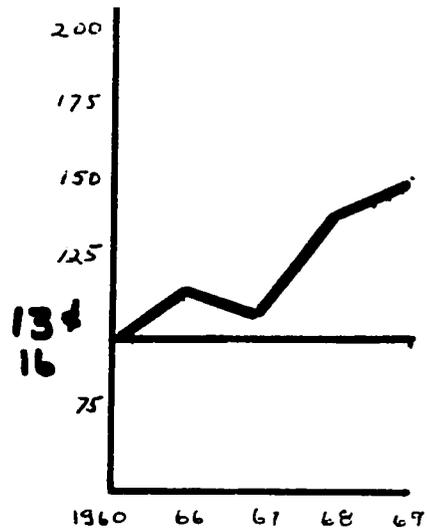
COMMODITY	Unit	1960 Price	Index 1960 = 100			
			March 1966	March 1967	March 1968	August 1969
Rice	lb.	.15	98	93	94	100
Beans	lb.	.13	113	108	141	154
Plantains	100	1.56	192	160	248	198
Meat	lb.	.36	198	124	133	140
Eggs	each	.05	130	130	110	100
Peanut Oil	liter	.63	95	90	95	127
Rum	¹ / ₂ botl.	1.08	119	108	115	130
Cigarettes	20	.20	75	75	100	100

Source: Division Estadística y Prognostica, Division Sec. de Agricultura.

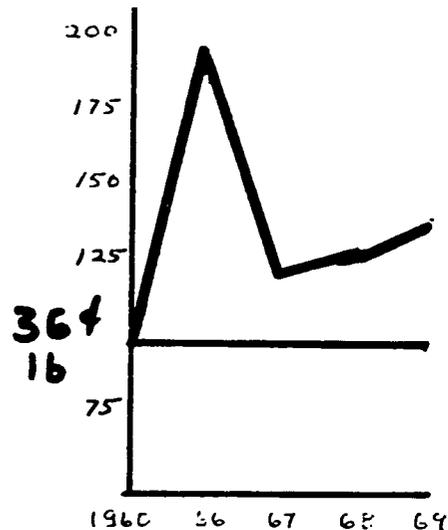
1969 Price Index Added.



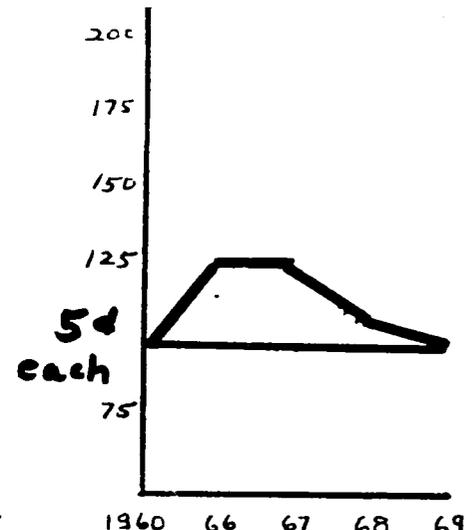
RICE



BEANS

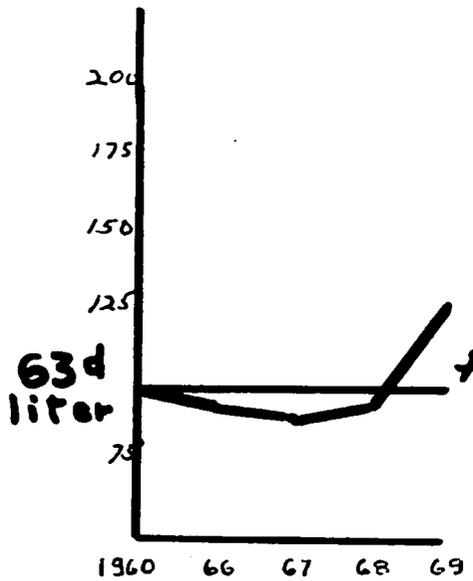


MEAT



EGGS

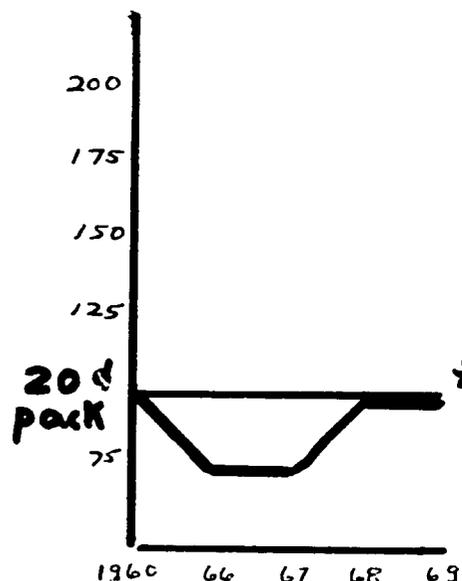
1960 = 100



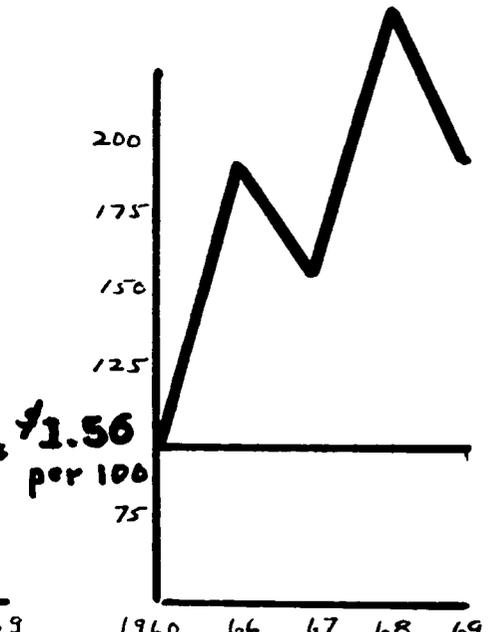
PEANUT OIL



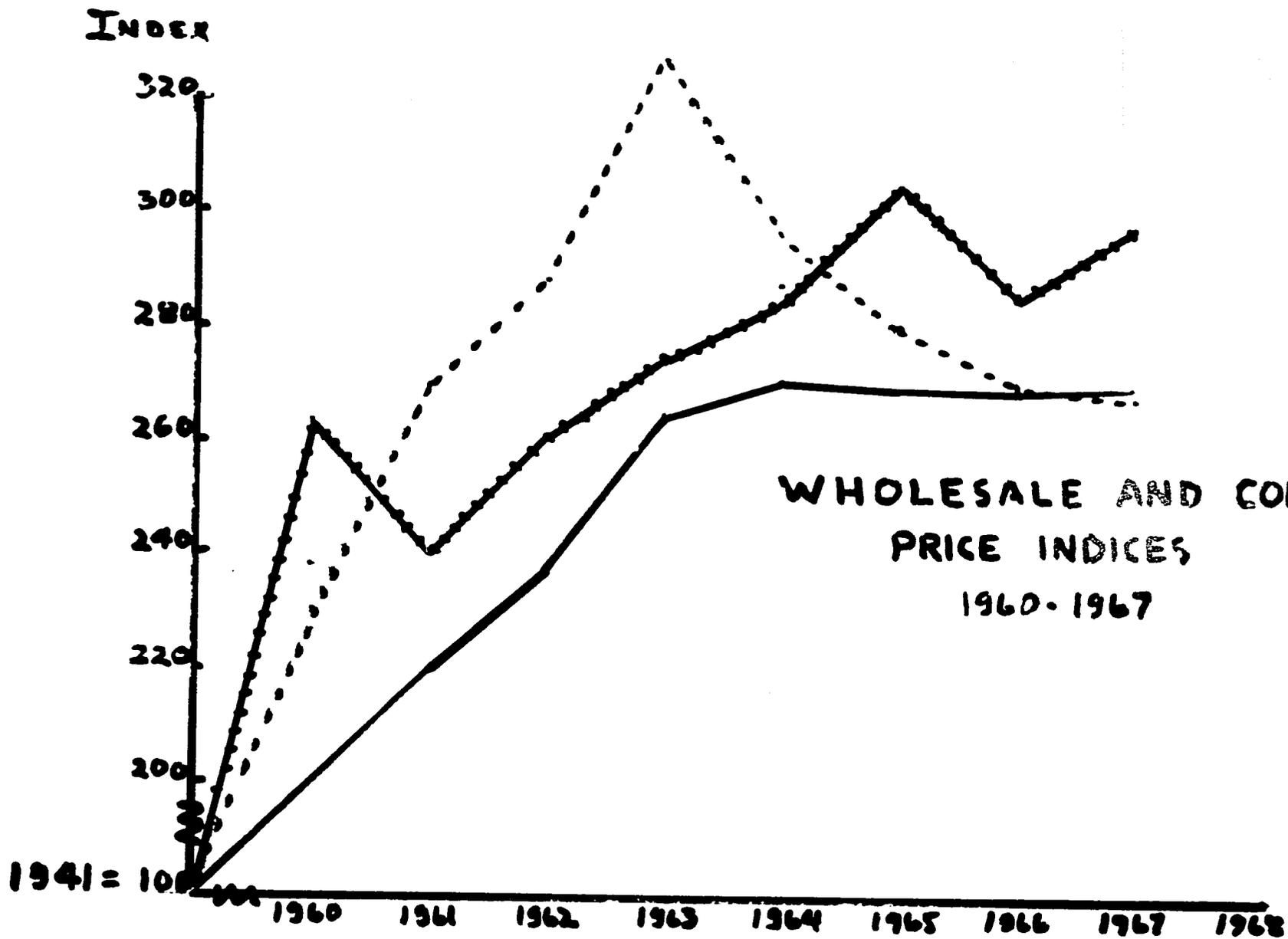
RUM



CIGARETTES



PLANTAINS



- Wholesale - Food Products
- Wholesale - Industrial Production
- Consumer - Food Products

PRICES OF SELECTED IMPORTED AND DOMESTIC FOOD PRODUCTS SOLD IN SUPERMARKETS AND COLMADOS AS COMPARED WITH RETAIN PRICES IN U.S.

Product	Unit	Imports Super M.	Col.	Domestic Super M.	Col.	U. S. Price	Price of Imports as % of US Retail Price
1. Staples							
Sugar	1 lb.			.10	.10	.13	76.0
Coarse Sugar				.08			
Conf. sugar	1 lb.	.65		.39		.21	323.0
Salt (cooking, rock)				.05	.05		
Salt (table)	26 oz.	.28		.19	.20	.15	186.6
Flour (wheat)	1 lb.	.40		.17	.10	.13	307.6
Cornmeal	1 lb.			.12	.12		
Edible Oils							
Mazola	24 oz.	1.99				.65	306.1
Kraft	24 oz.	2.25				.67	335.8
Peanut	Gal.	5.80			Bot. 3.75	3.76	154.0
Olive (Spain)	14 oz.	.95	1.00				

Product	Unit	Imports Super M.	Col.	Domestic Super M.	Col.	U. S. Price	Price of Imports as % of US Retail Price
Crisco	1 lb.	1.25				.39	320.5
	3 lb.	3.75				.95	394.0
Rice	1 lb.			.15	.15	.19	78.9
Beans	1 lb.			Red .19	.19	.19	89.4
				Blk .17	.17	.19	
				Wht .17		.15	
Kidney Beans (can)	1 lb.	.79		.25		.16	493.7
Lentils	2 lb.	.65				.42	154.7
Split peas	1 lb.	.28				.22	127.2
<u>Soap</u> (Cold Power)	large	1.25		Ajax .55	Bar	.10 .89	140.4
Lava (bar)	small	.35		1g. .10		.14	250.0
				FAB (med)			
				.65			
Chbrox	qt.	.65		.50		.20	325.0
Baking Powder (can)		.58				.19	305.2
Spaghetti-Paste	1 lb.			.15-		.24	
				.22			
2. Dairy							
Milk (fresh)	qt.			.27		.33	
Carnation (can)	14 oz.	.28	.30			.21	133.3

Price of
Imports
as % of
US Retail
Price

Product	Unit	Imports Super M.	Col.	Domestic Super M.	Col.	U. S. Price	Price of Imports as % of US Retail Price
NIDO (can)	1 lb.	1.15	1.18				
Butter	1 lb.			1.15	1.20	.89	
Margarine (diet Parkay)	1 lb.	1.49		.49	.50	.35	425.0
Cheese							
Sliced (pkg.)	6 oz.	1.15		.40		.39	294.8
Parmesan, grated	3 oz.	.75				.39	300.0
Round (red wax)	1 lb.			.95		1.43	66.0
Ready dip	pkg.	1.45				.49	295.9
Sliced	8 sls.	.99				.39	
	16 sls.	1.75		.80		.69	253.6
Eggs							
Eggs	each		.05	.06-		.65	
				.08		doz.	
<u>3. Meats/Fish</u>							
Bacon (Danish, can)	8 oz.	.95				.60	
U. S.	12 oz.	1.29		.94 lb.		.68 lb.	189.7
Salt Bacon	1 lb.			.85		.59	
Salt Pork				.85		.59	

Product	Unit	Imports Super M.	Col.	Domestic Super M.	Col.	U. S. Price	Price of Imports as % of US Retail Price
Pork Chops (steak)	1 lb.			.75		1.59	
Hamburger	1 lb.			.65		.89	
Bones (soup)	1-2 lb.			.20			
Stew (w/out bones)	1 lb.			.60	.60		
with bones	1 lb.			.25	.55	.35	
T-Bone Steak	1 lb.			.70-		1.40-	
				.90		2.80	
Round Steak	1 lb.			.90		.98	
Filet	1 lb.			1.10	1.50	3.15	
Sirloin Steak	1 lb.			.80		1.15	
Pigs feet	1 lb.			.60			
Ham bones	1 lb.			.60		.39	
Tripe	1 lb.			.30		.39	
Rabbit	1 lb.			.99		.50	
Ham(can)	3 lb.	8.00				3.50	228.5
	5 lb.	14.00				5.75	243.0
Sliced	1 lb.			1.59		.69	
						6 oz.	

Product	Unit	Imports Super M.	Col.	Domestic Super M.	Col.	U. S. Price	Price of Imports as % of US Retail Price
Lunch meat (can)	12 oz.	.99					225.0
Salami	1 lb.	.95				pkg. .49	193.8
Hot dogs	pkg.	1.59				.80	198.7
Vienna Sausage	8 oz.	.99		.19 5 oz.		.21	471.4
Deviled ham (can)	2 oz.	.45				.27	166.6
Spam	12 oz.	1.20				.63	190.0
Bacalao (codfish)	1 lb.			.39	.38		
Other dried fish	1 lb.			1.00	.24		
Shrimp (can) small	4 oz.	.99				.51	194.1
large	5 oz.	1.75				.65	343.0
Sardines (Spain)	12 oz.	.55	.18			.39	141.0
Tuna (Spain) (can)	small	1.75					
US (can)	small	.70				.50	140.0
Chicken	1 lb.				.32- .40	.49	
4. <u>Canned Foods</u>							
Mixed juices							
Pineapple	46 oz.	1.45				.39	371.0

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Product	Unit	Imports Super M.	Col.	Domestic Super M.	Col.	U. S. Price	Price of Imports as % of US retail Price
Nectars	12 oz.			.25	.25	.16	
	5 oz.	.23				.11	209.0
Tomato	6 oz.	.25	.25			.10	250.0
	12 oz.			.21		.15	
Fruit Salad	30 oz.	1.80				.81	22.0
Peach Halves	29 oz.	1.45				.39	371.0
Pineapple (sliced)	1 lb.	.66		.60		.29	227.5
Guayaba	1 lb.			.65			
Papaya	1 lb.			.60			
Orange/grapefruit (sections)	1 lb.	1.10				.39	282.0
Peas	1 lb.	.78		.33		.29	268.9
Corn	4 ears	1.45				.59	245.7
Asparagus (Spain)	30 oz.	2.55					
France	30 oz.	2.99					
U. S.	10 oz.	1.10				.65	169.0
Soup (Campbell)	can	.26				beef .21	123.8
						veg. .16	162.5
Cocktail Sauce	26 oz.	1.49				1.31	113.7

Product	Unit	Imports Super M.	Col.	Domestic Super M.	Col.	U. S. Price	Price of Imports as & of US Retail Price
Tomato paste	8 oz.	.39	.49	.23		.16	243.7
Fruit nectars	12 oz.		.35		.25		
5. <u>Beverages</u>							
Coffee (Maxwell)	10 oz.	3.99				1.49	267.0
Cocomalt (hershey)	1 lb.	1.14					
Cocoa	8 oz.	.85				.39	217.9
Tang	27 oz.	3.25				1.02	205.8
	18 oz.	2.10					
Real Lemon	12 oz.	.90				.35	257.1
Grape Juice	24 oz.	.99				.45	220.0
Sprite (can)	12 oz.	.35				.15	233.3
Coca Cola (can)	12 oz.	.35				.15	233.3
6. <u>Candies</u>							
Choc. Covered Raisins	6 oz.	1.15				.39	294.0
Orange sticks	8 oz.	1.25					
Hershey kisses	5 oz.	.99				.33	300.0

Product	Unit	Imports Super M.	Col.	Domestic Super M.	Col.	U. S. Price	Price of Imports as % of US retail price
Choc. Peanut Cluster	6 oz.	1.15				.39	294.8
Choc. small bar	each				.03		
Milkyway bars	24 bars	5.50				1.20	458.3
Choc. Cherries	12 oz-	2.50				.69	362.0
Chiclets pkgs.	100 small 20 reg.			1.60 1.60			
Marshmallows	16 oz.	1.25				.27	462.9
Raisins	10 oz.	.65				.31	209.6
Lifesavers (pkg. 6)		.90				.30	300.0
Jello	pkg.	.25				.14	178.5
Flan (custard)	pkg.			.15		.22	
7. Bakery							
Sandwich bread				.35		.25	
Raisin loaf	small			.30		.39	
Lady fingers	pkg.			.45			
Doughnuts	pkg. 4			.28		.39 (6)	
Dinner rolls	pkg. 12			.25		.43	

Price of
Imports
as % of
US retail
Price

Product	Unit	Imports Super M.	Col.	Domestic Super M.	Col.	U. S. Price	Price of Imports as % of US retail Price
Ritz crackers	8 oz.	1.10				.31	354.0
Saltines	16 oz.	.99			.01- .05 each	.31	319.3
Fig newtons (pkg.)	16	1.49				.29	513.0
Wafer jam filled Rolls	pkg. 8			.45			
water bread	4 oz.				.05	.39 (6)	
sour bread	5 oz.				.06	.39 (6)	
8. <u>Baby Food</u>							
Clapp jars	5 oz.	2/.25					Same due to no duty being charged on baby food.
Pablum	8 oz.	.41					
High Protein Cereal	8 oz.	.31					
Juice/Gerber	4 oz.	.25					
Heinz Jr. size	8 oz.	.25					
Enfamil Formula	1 lb.	1.39					

Product	Unit	Imports Super M.	Col.	Domestic Super M.	Col.	U. S. Price	Price of Imports as % of US retail Price
9. Other Foods							
Cracker meal (box)		.75				.21	357.1
Kraft Salad Dressing	bot.	.95				.41	231.7
Mustard	jar	.60				.19	315.7
Mayonnaise	1 pt'	.86				.45	191.1
	8 oz.	.59				.31	190.3
Jam (Smuckers)	12 oz.	.99		.45		.40	247.5
Maple Syrup	12 oz.	.99				.41	241.4
Karo	16 oz.	.99				.31	319.3
Honey	12 oz.	1.49		.35		.39	382.0
Cake Mix	box	.95				.43	220.9
Corn flakes	12 oz.	.35				.35	
Quaker Oats US Holland	36 oz.	.85				.67	126.8
	10 oz.	.38					
Bouillon cubes Holland Switzer.	300	3.99					
	100	1.88					
Vinegar	qt.	.75		.35		.39	192.3
Catsup	14 oz.	.69		.49		.35	197.1

Product	Unit	Imports Super M.	Col.	Domestic Super M.	Col.	U. S. Price	Price of Imports as % of US retail Price
TV Dinner (frozen)		1.75		1.10		.69	253.6
Dog food pkg. of 24 Gainsesburger		2.49				.95	262.1
<u>10. Fresh Vegetables</u>							
August cabbage (cabbage)	head	1.25					
Regular cabbage				.35		.14 lb.	
Lettuce	head			.30		.39	
Celery	bunch	.85				.39	217.0
Corn	6 ears			.18		.12 ear	
Tomatoes pkg. of 6				.40		.39 lb.	
Avocados	each			.03		.50 lb.	
plums (small)	12	2.25				.44 lb.	
Pears	6	1.50				.43 lb.	
Plantains	each				.02- .04		
Yuca	1 lb.				.08		
Potatoes	1 lb.				.07	.13	
Corn (kernels)	1 lb.				.06		

Product	Unit	Imports Super M.	Col.	Domestic Super M.	Col.	U. S. Price	Price of Imports as % of US retail price
<u>11. Beer and Liquors</u>							
Beer	1/3 lt.			.30	.30	.22	
	1 ltr.			.60			
Rum	1 ltr.			3.15 2.59	2.80	5.00	
Wine	1 ltr.				1.00	1.00	
Gin				9.00	2.25 nat'l	5.00	
Scotch				9.50		7.00	
Cigarettes	pack			.60	.20- .60	.50	
Cigars	each				.05- .06	.25	
<u>12. Miscellaneous items</u>							
Barbecue grills large-elec. mtr		125.00					
Surfboard-viewer		45.00					
Spatula		1.00					
Sponges pkg.	12	1.45				.30 (2)	
Plastic wastebasket		6.69				.99	675.0

Product	Unit	Imports		Domestic		U. S. Price	Price of Imports as % of US retail Price
		Super M.	Col.	Super M.	Col.		
Roasting pan md.-light		5.50				1.49	369.1
Set-Hamper/waste- basket/toilet cleaner		70.00					
Teflon pan cleaners	3	.89				.29	306.8
Hot-Cold Jug		11.00				2.29	480.0
Plastic Ice Bucket		9.50				3.98	238.6
Hair Spray (Halo)		3.50				.77	454.5
Kleenex	small	.85				.21	404.7
Paper towels	2	1.35				.42	321.0
Toilet paper	roll	.25				.15	166.6
Revlon Lipstick		3.00				1.50	200.0
Bird Cage		27.00				13.50	
Mops				1.09 2.29		.89 .82	
Candles	each				.01- .03	.05	
Religious	each				.05- .10		
Matches (box)	small large				.01 .03		

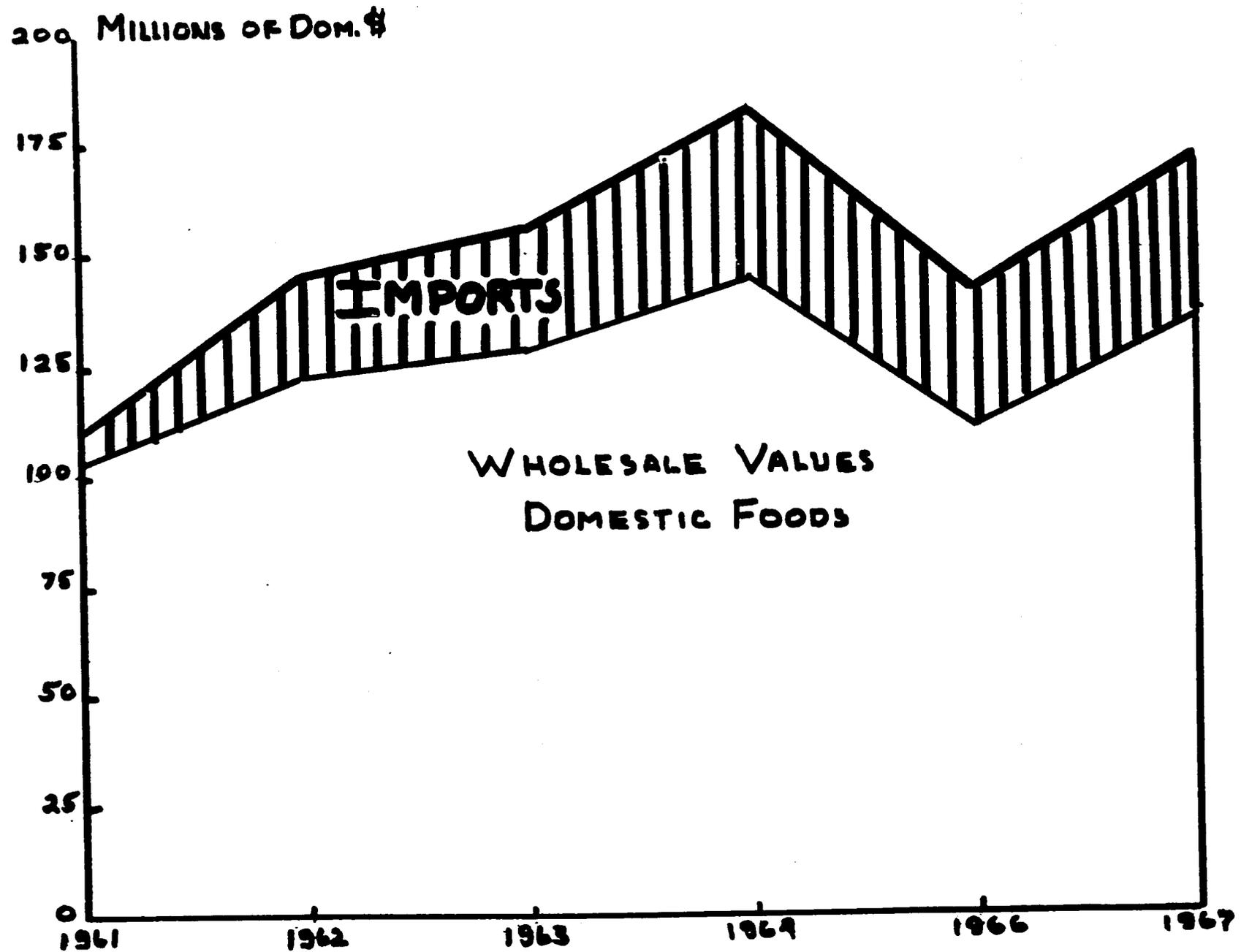
crowded aisles and lines waiting for the cashiers. Further proof of the growing demand for, and sale of, items as high priced as the imports is the growth in the number of supermarkets in Santo Domingo. At present (1969), 28 are listed in the telephone book as compared to seven in 1966. While all would not qualify as "super" markets under U. S. standards, all appear to have sufficient customers able to pay very much for an impressive quantity of merchandise at extremely high prices.

Food imports, despite the level of prices, have climbed steadily. Although the value of farm exports is still about four times greater than farm imports, in 1968 the value of agricultural imports was nearly five times greater than the level ten years ago. (Table 45, Graph 26). Exports have not shown a significant increase.

Total imports entering the Dominican Republic jumped to \$195 million in 1968, an increase of 11% over 1967. Agricultural imports increased from \$34 to \$37 million, the majority of which consisted of food items such as wheat, dairy products, canned goods, cereals, beans, peas, and other items shown on Table 46, to fill the deficit caused by a declining agriculture.

Table 45 VALUE OF WHOLESALE SALES AND IMPORTS OF PROCESSED AND UNPROCESSED FOOD PRODUCTS

Item	1961	1962	1963	1964	1966	1967
Wholesale values of domestically processed or produced foods.	104.7	121.2	129.2	143.9	111.4	136.6
Imports of processed and unprocessed foods	7.5	21.5	26.3	38.1	30.3	34.3
Total Available Foods	111.2	142.7	155.5	181.1	141.7	170.9



VALUE OF DOMESTIC AND IMPORTED FOOD

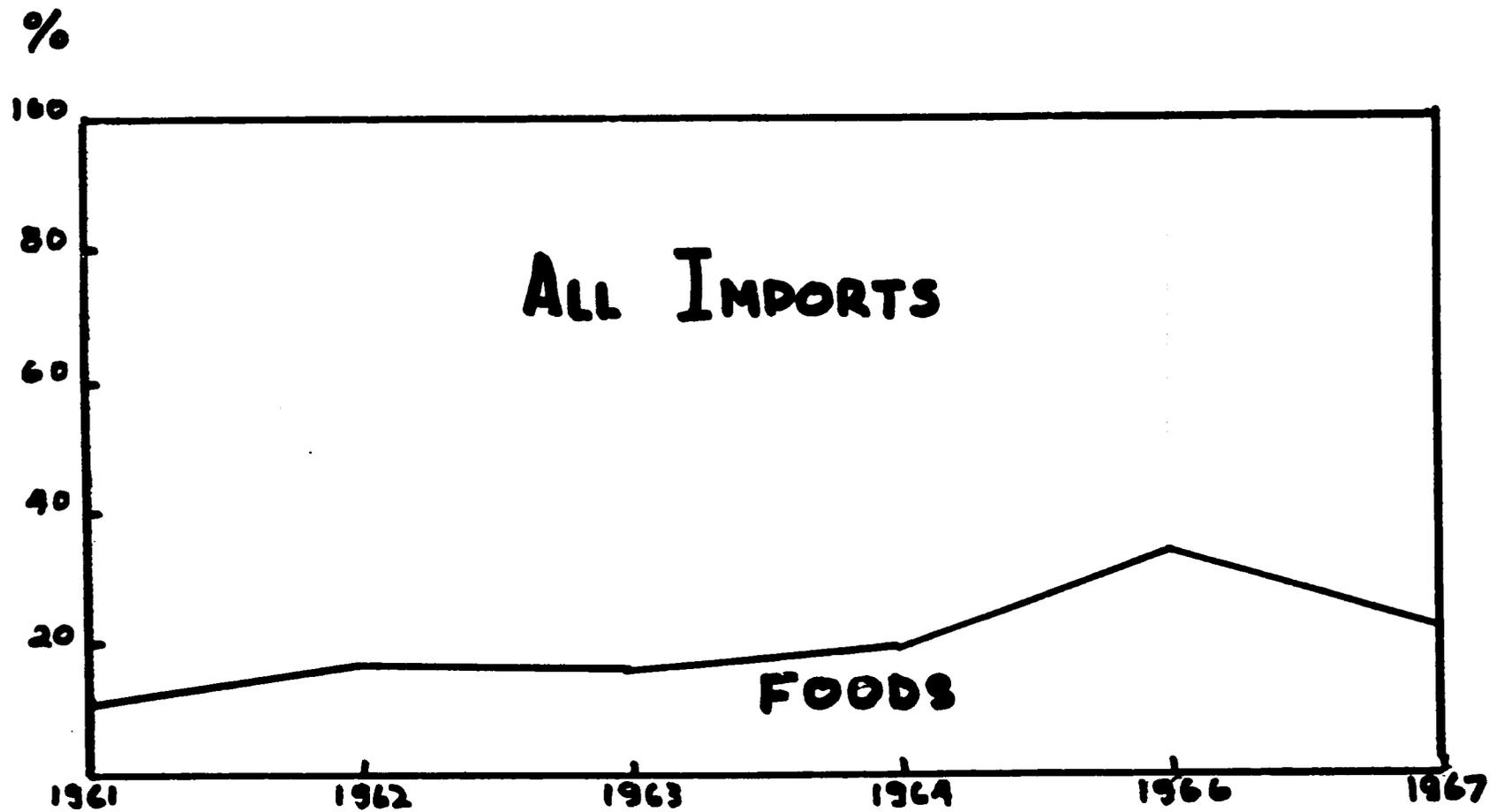
Table 46 IMPORTS OF FOOD PRODUCTS 1958-1964-1966
(In millions)

Item	1958	1961	1962	1963	1964	1966
Unprocessed Foods	3.9	4.5	9.9	11.8	11.9	13.3
Processed Foods	9.1	3.0	11.6	14.5	26.2	17.0
TOTAL	12.6	7.5	20.5	26.3	38.1	30.3
Principal Food Products Included						
To/Fish	1.1	0.1	2.9	3.2	3.4	3.2
Herring and other smoked fish	0.7	1.3	1.2	1.5	3.1	1.0
Fresh fruit	0.2	-	0.2	0.3	0.3	0.3
Preserved fruit	0.4	0.2	0.6	1.5	2.5	2.1
Wheat flour	2.4	-	1.1	0.1	0.2	0.3
Table oils	0.2	0.1	1.7	1.1	5.7	2.6
Canned Food	1.2	0.5	2.0	2.2	3.6	4.2
Condensed Milk	0.9	0.1	1.3	1.7	4.0	4.9
Processed and Un-Processed Tobacco	0.7	0.9	1.4	2.0	1.5	1.4
Cereal Preparations	0.9	0.1	1.6	0.9	1.7	0.1
Prepared and Conserved Vegetables	0.8	0.1	1.1	1.2	2.2	1.2
Butter/Cheese	0.2	0.1	0.9	0.5	0.7	0.8
Wheat Flour	2.8	0.3	0.7	0.4	0.1	-
Canned Tomatoes	-	-	-	-	1.0	0.8
Dried Beans/peas	-	0.4	1.0	1.1	2.2	0.3

Source: Plataforma para el Desarrollo Economico y Social de la R. D.

- In 1967 imports increased to 174.7 million, 13.9% above 1966.
- Food products imported in 1967 totalled 34.3 million, or 19.7% of the total imports.
- 67.4% of imports come from the United States.
- U. S. originated 51.7% of Dominican imports.

FOODS AS % OF TOTAL IMPORTS



D. High Protein Food in a Competitive Market

One of the problems in determining the extent of the potential market for a high protein food in the Dominican Republic has been the lack of a specific product to compare with the competition, either domestically produced or imported. Another difficulty is the wide range of incomes included in the "commercial market." Individuals earning the low of \$500.00 per year are not liable to make the same purchases as those having incomes over \$25,000.

Considering the prices regularly paid for food imports as shown in Table 44, it does not seem likely that the price in itself will too greatly influence the elite market. Apparently, if this segment of the purchasing public likes an item, they buy it. The question, "Will they buy 'Macho',"¹ depends entirely upon how much they like it rather than whether it is competitive in price with other similar products.

Descending the economic ladder, the situation becomes somewhat different. As incomes increase, and a larger proportion of family income is spent for food, the choice of purchase becomes more and more a matter of habit plus price. That is, it would hardly be reasonable to expect an individual to give up 39 cents of rice for 39 cents of a new product he is not sure he will like, especially when 89 cents is all he has.

The large sale, however, of small "snack like" foods, sweet crackers, bread, and candies, and recently potato chips, attests to the

1 "Macho" is the tradename tentatively decided upon for the high protein food product in the Dominican market.

allocation of at least some of the low income consumer's food money to ready-to-eat sweets. Few are purchased in 39 cent packages, however, but appeal much more to this level buyer in small sacks costing not more than 4 or 10 cents. Provided that the product developed appealed to his tastes, a significant number of sales could undoubtedly be realized even among the marginal income groups, especially with appropriate advertising and promotion.

It would be a serious mistake, however, to think that because price is not the primary consideration of the high income market, anything would be acceptable. An elite market demands an elite product. And because they are concerned with price, those in the lower income market would be even more insistent on getting something they liked or "more for their money," before spending their limited resources.

Therefore, while it is possible to state that the Dominican Republic supports an exceptionally strong, high level market with adequate purchasing power to absorb 4,000,000 pounds, at 39 cents a pound per year, it is not possible to say 4,000,000 of what, until adequate acceptability tests are made on the product finally decided upon.

Testing the acceptability of the product requires a very careful choice of the sample. While it would be much simpler to run sampling through, for example, the voluntary agencies, the results might not be reliable or even indicative of the tastes of the population segment that can afford the prices of imported foods. Recipients of donated food have little choice, and, as a rule, will eat whatever they get, even though they might not buy it if given a choice. Sampling for

acceptability for food distribution, should not be confused with sampling for commercial acceptability in a market so far separated by resources, education, experience, habits and taste.

In terms of offering a competitive price then, "Macho" food competes easily with any of the imports, but, as pointed out, the competition in this market is one of taste rather than price. The prices of the following list of imports makes "Macho" look reasonable indeed.

Chocolate covered raisins	1.15 for 6 oz.
Orange sticks	1.25 for 8 oz.
Hershey kisses	.90 for 5 oz.
Chocolate cherries	2.50 for 12 oz.
Chocolate Peanut Clusters	1.15 for 6 oz.
Milky Way Bars	.27 per bar
Marshmallows	1.25 per lb.

Competing with domestically produced foods, "Macho" comes out about even. That is, based on an ounce package to sell for 5 cents, it does not seem either under or over priced as compared to items currently purchased by the lower or middle income groups.

While "Macho" food products would be somewhat higher than locally made candies and crackers, or 5 cents an ounce, the price does not seem unreasonable or overoptimistic. As the high protein food is projected to be marketed as a "ready-to-eat snack," some comparison can be made with the items listed on Table 48, which reduces the list of domestically produced foods to those that might be considered competitive with

"Macho" high protein food on an annual per capita sales basis, and further reduces the potential market to 336,000 by eliminating the urban unemployed sector.

TABLE 47

ANNUAL PER CAPITA EXPENDITURES ON PRINCIPAL DOMESTICALLY PRODUCED FOOD
ITEMS INCLUDING BEVERAGES, TOBACCOS, 1967

Item	Per Capita 3,889,000	Per Capita Labor Force 1,194,500	Per Capita Urban Employee Labor force 336,000
Wine/Beer	2.98	9.70	34.30
Soft Drinks	1.75	5.72	20.34
Cigarettes	7.15	23.29	82.70
Rice	5.80	18.92	76.60
Coffee	4.28	14.01	50.00
Bread	.63	2.08	6.82
Crackers (inc. sweet)	.41	1.41	4.43
Wheat flour	2.19	7.15	19.76
Candies/Choc. Wafers/Sweets	1.03	3.43	13.83
Peanut Oil	5.14	16.95	62.70
Pasta	.78	2.55	
Tomato Sauce	.51	1.66	7.61
Ice Cream	.25	.81	1.80
	% Total	% Total	
Price of "Macho"	.40	1.24	4.46
	32.90	108.72	380.99
<hr/>			
Total Sales Processed Foods -- 166,756.000			
(exports excluded)			

Required Sales Macho -- 1,500,000

% Total sales processed food -- .9 at 39 cents per pound, or 1.1% at 49 cents per pound.

Note: The % of the total sales figure required by "Macho" would be less if sales of fresh meat, vegetables, and fruit including beans were added.

Table 48TOTAL WEIGHTS AND TOTAL SALES OF SELECTED DOMESTIC PRODUCTS AS COMPAREDWITH PROJECTED "MACHO" SALES

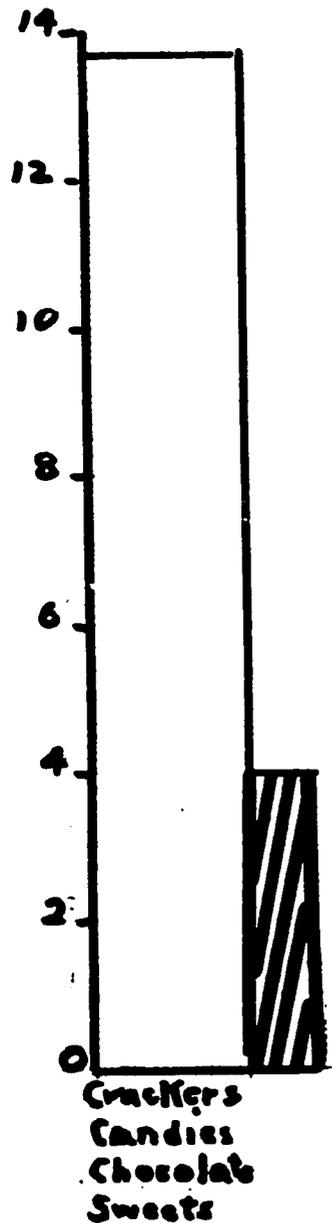
(1967)

Item	Total Weights Thous., lbs.	Total Sales Thous. \$	Price per Pound
<u>CRACKERS AND CANDY</u>			
Crackers	3,674	733	.19
Soda Crackers	2,103	906	.43
Candies	4,912	1,745	.35
Chocolate	6,294	1,813	.28
Choc. Candy	739	376	.50
Choc. Wafers	1,111	135	.12
Sweets	<u>1,263</u>	<u>367</u>	<u>.29</u>
Total	13,670	5,556 Average	.40
<u>OTHER ITEMS</u>			
Ice Cream	3,264	975	.29
Pastas	21,485	3,055	.14
Margarine	1,670	603	.36
Toilet soap	1,197	534	.44
Deodorant	73	394	5.40
Detergent (powder)	1,951	1,070	.54
Talcum powder	248	338	1.36
Carbon (cooking fuel)	413	24	.05
Wood (cooking fuel)	89,555	199	.002
Plastic Toys (each)	122	102	.83 each
<u>BEVERAGES</u>			
Beer (liter)	20,000	12,105	.60
Soft drinks (liter)	29,050	6,657	.22
Cigarettes (thous. packs)	96,025	25,759	.275
MACHO Thous., lbs.	4,000	1,560	.39

Source: Estadística Industrial, 1966-1967, op cit.

WEIGHT

Millions of Pounds



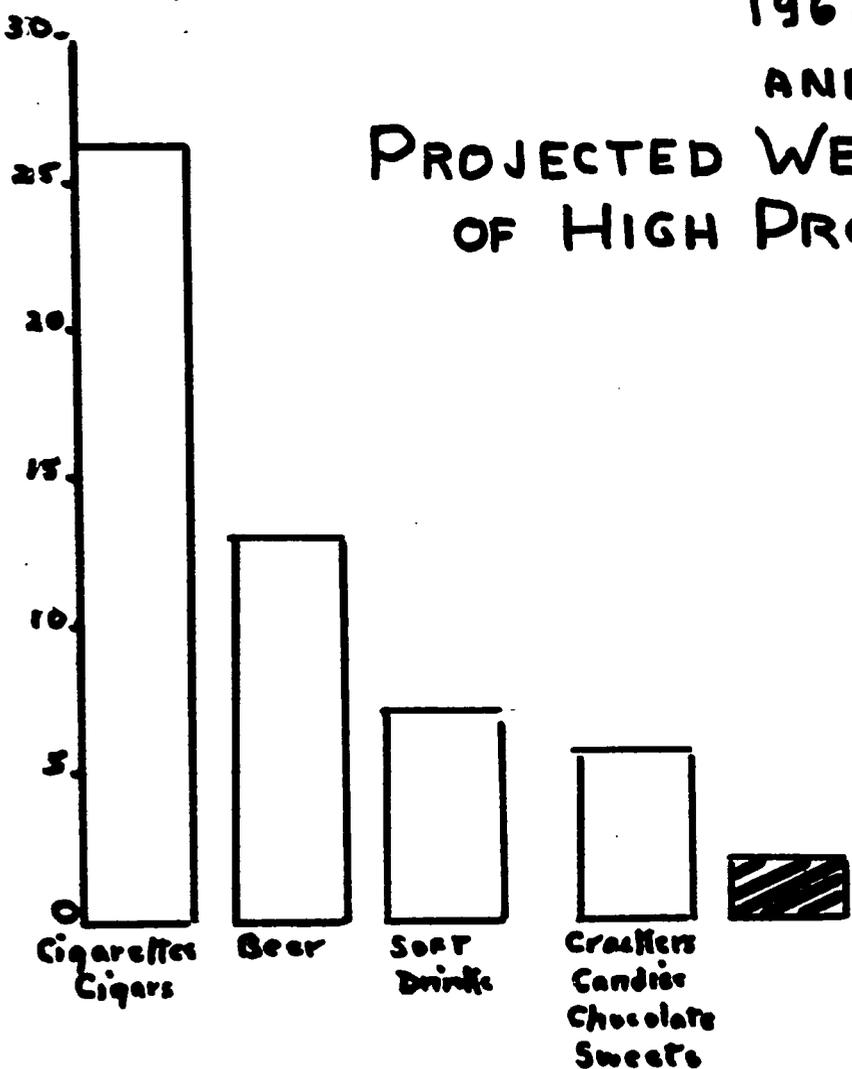
**WEIGHTS AND VALUE OF SALES
OF SELECTED PRODUCTS**

1967

AND

**PROJECTED WEIGHT AND SALE
OF HIGH PROTEIN FOOD**

Millions of \$



 Projected Weight and Sale

VALUE OF SALES

Page 157A

GRAPH 2

V THE MARKET

A. Retail Outlets

What people buy in the Dominican Republic is indicated to a considerable degree by the place where they buy, and the inventories carried by the stores where purchases are made.

The extent to which income is used for food is confirmed by the fact that 50% of all business firms registered and holding business licenses are engaged in food retailing or wholesaling. Uncounted others operate without benefit of license, especially in villages and rural areas. The exact number of retail outlets in the country has not been determined, but it has been estimated to be as high as 24,000. Stores have a wide range of type, size and status, and do not all sell the same merchandise at the same price.

1) The Supermarket:

Most of the "supermarkets" in the Dominican Republic resemble enlarged general grocery stores more than the modern versions of the "supermarket", typical in the United States. Even in 1966, when supermarkets were an innovation in Santo Domingo, seven stores had sales of over \$650,000 a year, with several running well over \$1,000,000. Twenty eight supermarkets are now listed in the Santo Domingo telephone directory, and sales appear to be increasing every year.

In contrast to U.S. supermarkets, from 30-60% of sales in the Dominican Republic are made on credit, and most stores make home deliveries. Many are located in areas accessible to the better residential neighborhoods, and the majority of sales are to those in the upper income group. The volume of sales required to support these enterprises

is proof of a strong existing market. Although small in number in proportion to total population, upper income customers have the buying capacity to make food items the principal import of the Dominican Republic, despite duties which result in inordinately high retail prices, as was illustrated in Table 44.

Considering the apparent value placed on imports as opposed to nationally produced products, it might be advisable to consider including a statement such as "Desarrollado en los E.L.U.U.", in addition to the usual "Hecho en la R.D.", on the packaging of the high protein product.

The majority of the supermarkets claim to import food products directly and undoubtedly do have the most efficient marketing system in the food distribution and purchasing business.

It was shown, however, in the study made in 1966¹, that in most cases, supermarkets were buying from wholesalers in New York or Miami rather than directly or even through a food broker. This, in effect, means that a large part of all purchases are channeled through two or more middlemen, thus increasing the retail price in the Dominican Republic. A few supermarkets purchase from a primary wholesaler or distributor, and to a small degree from intermediate wholesalers or truckers, the last being limited almost entirely to the sale of domestic produce. Although supermarkets do some retail business in fresh fruits and vegetables, these are generally sold in markets where better quality and lower prices prevail for perishable items.

1 Marketing Survey Mission Report Texas A&M University, 1966

Although the supermarkets all have limited access to credit, the majority would like to have more than is available in order to handle more of their imports directly, scarcity of credit, especially for purchasing imports or importing is always a principal problem. Another complaint of the supermarkets is the high rate of duty charged for imported food items, forcing a price which limits their sale to those in the upper income levels.

Import duties are one of the principal determinants of prices of imported foods in the Dominican Republic and represent approximately 50% of the selling price. With 80-90% of supermarket inventories consisting of imports, 45% of the total dollar sales volume consists of duties. A 40% cash deposit is required on all importing invoices, and must be left for six months, a tie-up of capital bringing no return and forcing the ultimate retail prices of imported food still higher.

Exact information regarding net profits and markup policies is difficult to obtain in the Dominican Republic. In a study made for USAID in 1966¹ it was estimated that average prices in supermarkets were about 5% higher than those in colmados in Santo Domingo and approximately 10% higher than those in colmados in other cities having over 15,000 population. The same study estimated profits at between 5½% and 7½% as a percentage of sales, according to the owners of these establishments. An analysis, however, of selected items comparing ring costs, freight, import duties and selling prices, revealed the unweighted gross markup on sales to be 23%, as compared to a 22% average in the U.S.

1. Marketing Mission Survey Report. Op. cit.

TABLE 49 COMPONENTS OF THE RETAIL SELLING PRICE AND COMPARISONS OF SELECTED IMPORTED FOOD ITEMS
IN SANTO DOMINGO SUPERMARKETS, 1966

Item	Amount	Cost	Freight	Import Duties	Landed Cost	Retail Price	Markup	Average US Price	% of Differen in S. D.
Kraft Strawberry Jelly	18 oz.	.47	.07	.66	1.20	1.40	15%	.59	.15 (25)
Libby's Green Beans	16 oz.	.14	.02	.30	.46	.65	29%	.25	.10 (40)
Campbell Pork and Beans	16 oz.	.13	.02	.21	.36	.60	40%	.18	.21 (11)
Kraft Miracle Whip	8 oz.	.22	.03	.19	.44	.60	27%	.27	.14 (52)
Libby's Pear Halves	2½ lb.	.45	.08	.66	1.19	1.25	5%	.49	.10 (20)
Tide	20 oz.	.30	.04	.30	.64	.90	29%	.35	.25 (71)
Nescafe	6 oz.	.88	.03	.70	1.61	2.25	29%	.79	.76 (96)
Campbell's Tomato Soup	10 ³ / ₄ oz.	.13	.02	None	.15	.18	17%	.13	.05 (38)
Gerber Baby Food (Pear)	4 ³ / ₄ oz.	.11	.01	None	.12	.14	14%	.12	.02 (17)
Totals		2.83	.32	3.02	6.17	7.97	23%	3.17	30

Notes: Shipping point Miami; Price difference in S. D. equals percent of selling price in U. S.

Markup - gross on selling price

Source: Marketing Survey Mission Report. Texas A & M Team, 1966.

Although this markup, based on percentage of retail sales price, does not seem to be excessive as compared with an average of 22% in the United States, it must be remembered that the retail prices in the Dominican Republic are at least 150% higher, meaning that the dollar markup is two and a half times that of the U.S. Increased expenses, freight, cost of goods, etc., push the markup about 71% higher than that of the U.S.

The report concluded that:

"the net profits reported and projected are approximately seven times the U.S. average of 1.1% of sales. This can be partially explained by the fact that cost controls and allocations in U.S. markets are minute and accurate while such is not the case in the Dominican Republic. Labor of the owners or managers may be paid out of profits and not charged to expenses, and many other costs escape recognition ... The price of labor is another factor allowing a low operating expense ratio. The average U.S. store has a net profit on all sales of 1.1% and an invested capital to sales ratio of 1 to 8.83. Santo Domingo supermarkets reported net profits of 7.3% on sales and the invested capital ratio is at least 1 to 11 from observation alone. Profit return as a percentage of invested capital then is 10.5% in the U.S. and 63.4% in Santo Domingo."

2) Colmados

Considering that the inventories of the supermarkets consist principally of imports, selling for grossly inflated prices, buying in these outlets is necessarily limited to those of the upper income brackets. Those of lower financial resources do most of their buying in colmados, stores similar to the general grocery stores once common in the U.S. Colmados, however, have an extremely wide range size, facilities and sales volumes. They are found throughout every area of the cities, at road intersections, in rural villages, squeezed between the adjacent walls of two buildings, or even located in the garage of a private home. 821 colmados are listed in the Santo Domingo telephone book, a number far complete, since many small

stores have no telephone.

Inventories carried in the colmados vary considerably, and in general, reflect the incomes or purchasing power of their customers. Most merchandise is purchased from large or intermediate wholesalers, very few stores having the financial resources to import directly or even indirectly. Credit is far more of a problem for the colmado owner than is the case in the supermarkets, and most must pay cash for their merchandise which is delivered to them in small lots.

The cost of imported products and the limited resources of colmado customers is reflected in the relatively few items of imported food offered for sale. The largest sales are for rice, beans, local canned or processed foods, bread, household supplies such as soap, cigarettes, and an array of beer, wine and liquors. Many lack refrigeration to carry any perishable products.

Colmados outside of Santo Domingo, and especially those in the smaller rural villages, tend to be more of general merchandise outlets, and may carry clothing, hardware and household items in addition to food. Few sell fresh meat or milk for lack of refrigeration. Prices on some items are lower than those found in the supermarkets; some are higher due to the inability of most colmados to buy in large quantities.

As was pointed out in the market study made in 1966¹, profits from colmados are difficult to estimate, many are family operated and

1 Marketing survey. op cit.

do not consider labor as a cost of operation.

Owners and their families often live by eating their inventories.

Sales methods are distinct from those of the supermarkets. Most small colmados in poorer districts customarily cut open a roll for a customer and smear it with a little margarine for 3 cents. A handful of rice or corn will be weighed onto a piece of newspaper twisted together and handed to the customer. Margarine is sold from bulk by the scoop for five or ten cents. Cigarettes may be purchased singly for one cent each. Cooking oil is usually carried in bulk, the customer bringing his own bottle for filling. A large supply of candies and crackers selling from one cent to five cents each are part of the merchandise display.

Prices vary from colmado to colmado, often being determined by location and/or proximity of competition. Stores in rural areas usually have somewhat higher prices than those found in town. Eggs may be purchased singly, and an egg costing five cents at a supermarket, and six cents at an urban colmado, will often bring eight cents only a short way out of the city. Some idea of the difference in prices and variety of inventory can be seen in Table 44, which compared items from a Santo Domingo supermarket with those of a colmado located in a poor neighborhood.

3) Fulperías and Reposterías

In even smaller retail food outlet, a pulpería, stocks an entire roll:

limited inventory of food items, and is generally located where other retail outlets are inaccessible. It has been estimated that 31% of all household expenditures are made at colmados,¹ and approximately 18% at pulperías .

Reposterías, selling prepared food such as empanadas, a pastry filled with a combination of meat or vegetables, sandwiches, potato or plantain chips, operate more or less marginally throughout the country. Some of the more prosperous have combination operations with bakeries (Panaderías), and use their primary product, baked goods, to prepare ready to eat items. The Santo Domingo telephone directory lists 54 reposterías/panaderías, but this number is far from all-inclusive.

4) Paleteros

Every city and small town has its corps of "corner stand merchants", and street vendors who tend boxes of merchandise set on collapsible legs, or push small carts through the streets. Advertising agencies estimate that 8-10,000 paleteros throughout the country sell inexpensive items of processed foods such as candies, crackers, and gum, as well as cigarettes, matches and even lottery tickets. Markups run from 15-40%, or even more, due to the small quantities sold. Although locations are improvised, desirable corners or building entrances are usually occupied by the same vendor each day who may realize sales of from \$5.00 to \$15.00 depending upon the number of hours he works and the merits of his "location".

¹. The Food Distribution System and Marketing Channels for Plantain and Tomatoes in the Cibao Valley. International Information Report 67-3, Texas A & M.

5) Dulcerías and Confiturías

Small shops, primarily selling candies and sweets, also stock a few other items of merchandise, such as soft drinks, crackers or cookies. Nineteen of this type retail outlet are listed for Santo Domingo.

Purchasing by the smaller outlets is haphazard, the usual method being a cash purchase from one of the many wholesale delivery trucks, the choice of items being determined by availability and price.

6) Mercados

In addition to the retail outlets already mentioned, fruit and vegetable markets are found in all cities and small towns, located outdoors or under an improvised roof. A few large markets in the cities operate in completely enclosed buildings, usually surrounded by a fringe of sellers unable to buy inside space. Fresh produce is delivered daily by truckers acting as intermediaries between the farm producer and the market retailer. Price, even when theoretically under government control, is set by availability and demand, and may be affected by events such as strikes which temporarily curtail deliveries, and enable the seller to obtain a higher price. Most markets also include meat sheds or stalls where unidentifiable cuts of meat hang on display in the open air with no refrigeration. Stalls selling cereals and

grain are manned by sellers known as Provisioners, whose products are sold in bulk, wrapped in newspapers, and handed to the customer. Other stalls offer live chickens, birds, hardware, or cheap clothing.

Each seller owns or rents his own stall, or stand and is violently competitive with his neighbor who often is selling the same kind of produce. Little attempt is made at sanitation, and markets can often be located by a sense of smell.

In many small towns, the mercados, or a combination of mercado and pulperia, may be the only retail outlet available. Even in the cities, the mercados are the main source of food for the greater part of the consuming public, including the lower income groups in the cities, and all customers in rural areas. Although upper income consumers rarely visit the markets personally, they are often represented by their servants who make regular visits to purchase fresh fruit and vegetables.

B. Wholesalers

As with retailers, there is no official data to indicate the total number of wholesalers in the Dominican Republic. The market study completed in 1966 included 54 large food wholesalers out of a total of 103, and estimated its list as 98% complete.¹

Forty-three of the wholesalers operated in Santo Domingo, and fourteen in Santiago, with the remainder scattered throughout the country.

1. Marketing Survey Mission Report. op cit

Wholesalers of food items are by no means limited in the number of lines they carry, most selling a variety of unrelated merchandise. Many are engaged in importing, exporting, processing, retailing and production as well as wholesaling. More than half carry provisions, canned goods and dry packaged goods, as well as liquors and hardware. Large wholesalers customarily sell to small and intermediate wholesalers as well as to retail outlets, institutions, and consumers through wholesaler-owned retail outlets.

Large wholesalers make deliveries using their own trucks; others hire independent truckers for this purpose, and "salesman-truck driver" can be a profitable occupation.

Direct purchases of wholesalers are about equally divided between domestic and imported sources, with the large firms buying through agents or brokers in the U.S., and smaller firms purchasing from the larger.

Truckers, who also act as salesmen, operate on a cash sale basis, and since imports are not available on credit, about 75% or more of wholesaling is carried on for cash. Because the large wholesalers are located exclusively in the large centers of population, a small retailer in rural or semi-rural area may have to buy produce that has passed through the hands of two or three wholesalers and at least one broker, unless he has the means and

a vehicle to make frequent trips to Santo Domingo or Santiago to purchase directly.

Although wholesalers carry a diverse line of products, few handle a complete food line in all brands, sizes, and price ranges. Consequently, retailers must deal with many suppliers to obtain their inventories.

The principal problems of marketing are shared by wholesalers, and retailers on all levels. In order of importance they are:

- 1) High import duties which limit the sale of imported products,
- 2) Lack of credit from suppliers and banks
- 3) The requirement for a 40% deposit on imports
- 4) Damage or pilfering of products in shipment and
- 5) Transportation problems and road conditions.

Wholesaling, despite its problems, however, is apparently a profitable business. It was estimated in 1966¹ that the profit picture for wholesalers in the Dominican Republic is 10 times greater than in the U.S., with return on invested capital being 65% as compared with 6.5% in the U.S.

It is often pointed out that high import duties on food, especially when it is not produced in sufficient quantities domest-

1. Marketin Survey op cit

ically, is a tax placed on consumers regardless of their incomes or abilities to pay. The majority of Dominicans spend the largest part of their income on food. A high tax placed on food imports forces dominicans to limit their consumption to low cost domestic products which may not be available in the required quantities and which often do not contain the degree of nutrition required for an adequate diet. With imported foods priced beyond the ability of the average consumer to pay, there is little incentive for domestic producers to improve either their product or the conditions of its sale, since, in order to eat anything, the consumer has no alternative other than to buy what and where he can afford.

C. Processors and Manufacturers of Food Products

Food manufacturing and processing represents well over half of the value of all manufactured consumer items. The industry is also the most widely dispersed, with large or small farms operating in every large city and district.

The processing of agricultural products has received little attention in terms of organization or efficiency of distribution. Most of the plants specializing in processing fruits or vegetables, slaughtering livestock, or processing meat are small and lack adequate facilities and technical help for efficient production and distribution.

Although the number of processing plants is increasing, more

are needed to provide incentive for agricultural producers, as well as to save a large part of the crops that are wasted every year. Large scale losses at the peak of the harvest, common among all the unprocessed crops, could be avoided by canning, drying or some other form of preservation.

Some new products have been developed in the last few years to preserve agricultural products which would otherwise be wasted. Potato and platano chips have been successfully introduced in the commercial market, and it has been suggested that platanos and bananas could be dried and rehabilitated by the addition of water. Jams and jellies are also being produced locally at present, as are fruit nectars, tomato juice, tomato paste, etc. The majority of processed foods, however, are still imported, and, consequently, unavailable to most people because of their exceptionally high prices.

Many of the small processing plants only operate a few months each year, and the employment provided to workers is only temporary, a problem which might be solved either by a larger production or by plant diversification to handle crops harvested at different times of the year.

As can be seen on Map 8, what the processing plants lack in quality and equipment, is made up for in quantity, although the consolidation of the numerous small enterprises would be more

efficient from an operational standpoint, and would better serve the consuming public. Rice and coffee processing plants are the largest in the country, closely followed by peanut oil manufacture. In 1966, the total list included:

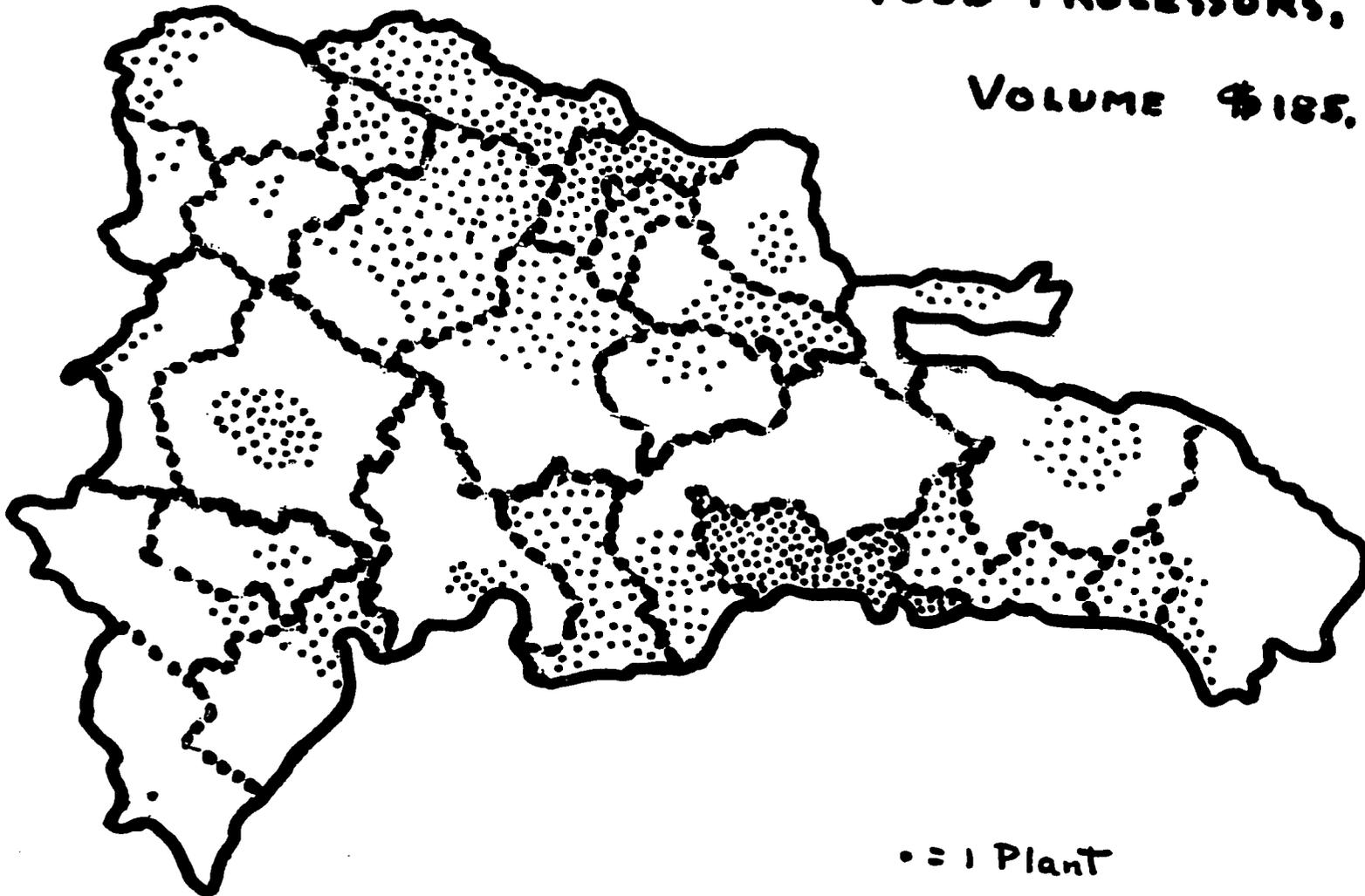
Canned fruits or vegetables.....	7 plants
Ice Creams.....	15 plants
Cheese/Butter.....	21 plants
Condensed Milk.....	1 plant
Mashed Bananas.....	1 plant
Milled Rice.....	62 mills
Milled Coffee.....	49 mills
Corn flour.....	7 plants
Wheat Flour.....	1 plant (State owned)
Sugar Refining.....	16 refineries
Candy.....	3 plants
Chocolate.....	14 plants
Sweets (honey, etc.).....	7 plants
Peanut Oil.....	1 plant
Yucca Starch.....	1 plant
Animal Food.....	3 plants
Ground Coffee.....	6 plants
Tomato Sauce.....	2 plants
Vinegar.....	4 plants
Cotton Oil.....	<u>1 plant</u>

(The above list does not include numerous small plants and bakeries producing bread, crackers, cookies, doughnuts, etc.)

DOMINICAN REPUBLIC

FOOD PROCESSORS, 1966

VOLUME \$185,129,419



D. Problems of Marketing in the Dominican Republic.

1. The General Situation.

Inadequacies of the marketing system in the Dominican Republic are a primary factor retarding agricultural development as a whole, and limit both production and consumption.

An inefficient marketing system inevitably increases the price of food, and in the Dominican Republic, money spent on food is the predominant expenditure of the majority of families. Any added or unnecessary addition to the cost of food weighs most heavily on those least able to afford it.

Market practices are usually the result of tradition and habit, and once established over a long period of time, are slow to change. Methods which have persisted for years or generations may have served the needs of a small population consuming a limited quantity of goods. As population increases, however, and more goods must pass through clogged market channels, the system becomes vastly more complex, and the antiquated system may not be adequate to serve the needs of either producer or consumer.

The problems of marketing agricultural crops in Santo Domingo have received relatively little organized attention. Rural people still walk miles to the nearest town plaza carrying a struggling chicken, a few eggs or a stem of plantains. Most small towns set one day a week aside as "market day", when whatever farm crops are surplus are offered for whatever they will bring. If there is no sale, products may be bartered. Even today, the market system that supplies the cities with food from the producing areas, is only an extension of the rural tradition.

The efficiency of a market system largely determines the ease with which products flow from the farm to the population centers, the returns received by the producer, and the prices paid by customer. For the best return, the farmer must gear his production to the demand of the market and the preferences of the buyers. In the Dominican Republic, however, the subsistence farmer has neither knowledge of nor great interest in urban demands. He grows what he can for his and his family's consumption.. If anything is left over, it is sold. Both to supply his own needs and to avoid "putting all his eggs in one basket" the farmer plants small patches of several crops, rather than concentrating on an efficient and lower cost production of one. He makes no attempt to sort or grade his produce, with the result that much inferior or unsaleable fruits and vegetables arrive in the market, adding unnecessarily to the cost of transportation. It costs as much to transport spoiled fruit as it does good.

The large agricultural producers concentrate on supplying produce for the export rather than the domestic market, and make relatively little contribution to the domestic food supply. The present food needs of the population, however, offer almost unlimited possibilities for diversification of planting, and in general, a more effective and more profitable land use.

Except for sugar and coffee, both of which are primarily raised for export, the bulk of food commodities finds its way to the consumer through the municipal markets rather than the colmados and super-markets which, are reluctant to handle short-lived fresh farm produce. In the markets, wholesaling and retailing functions are intermingled, and are often performed by the same individual. The physical facilities provided serve for the sale of wearing apparel, hardware, bulk grain, animal feed and lottery tickets as well as farm produce, and do not function efficiently for wholesaler, retailer or consumer.

Many of the problems of Dominican agriculture have previously been pointed out, and the pattern of an inefficient and stagnant agriculture is reflected in the market system that brings food to the consumer.

The conditions of the rural population have been discussed under "Food and People". Although there is some recognition of the urgent need to rehabilitate and bring the rural population into the economic and political life of the country, if agricultural productivity is to increase, a feasible and realistic plan and financial resources to implement it have so far not been available. The subsistence farmer has little, if any, incentive to shift to new methods of agriculture or diversify crops, since he cannot afford the one and does not understand the need for the other.

Dominican farmers, even large producers, apparently care very little about varieties of crops and harvesting techniques which affect the marketability of their produce. The portion of the crop to be sold is marketed without grading or appropriate packing at its source. The good and the inferior move to market together. Indiscriminate packaging and handling slow down the buying, destroy consumer confidence, and may spoil a considerable proportion of the product, all of which is reflected in the price paid by the buyer to the farmer and that charged to the consumer.

Bulk trucking of fruit, for example, results in spoilage and waste, because no attempt is made to prevent bruising and mashing. No protection against heat is provided while produce is in transit. Since sales are made "by count," each individual item has to be inspected to avoid losses from overripe or damaged merchandise. As a result, many retail food outlets, including most of the

supermarkets, make minimum purchases of fresh vegetable and fruits, thus forcing the consumer to waste time going from supermarket to colmado to mercado to bakery, etc., in order to complete his purchases.

Supermarkets find it easier to sell the attractively packaged, but prohibitively expensive, imported frozen or canned merchandise than the wilted lettuce, earth covered yuca and sweet potatoes or bruised fruits offered them.

Many crops are seasonal, and often there is overabundance or scarcity, producing consequently fluctuating prices paid to the farmer and by the consumer. Even for less perishable products, there are insufficient storage facilities to make food products available on a year round basis at a stable price.

2. Distribution of Agriculture Products.

Depending on the type of product, since each has its own market channels, food is brought to market through various intermediaries:

a). The Small Consolidator, usually lives in a small town, surrounded by a producing area, and may act as a purchasing agent for a mill or a wholesale consolidator or as a "locator" of produce. His primary function is to inform the mill or wholesaler of the existence and quantity available of agricultural products. He himself rarely does any actual buying, receiving a set fee as an agent or representative.

b). A trucker is a step upward economically, from the small consolidator, who may eventually become a trucker provided he can save the funds to buy a truck. the trucker may act simply as an employed carrier hired to pick up and deliver the merchandise to market for a wholesaler, or he may be in business for himself.

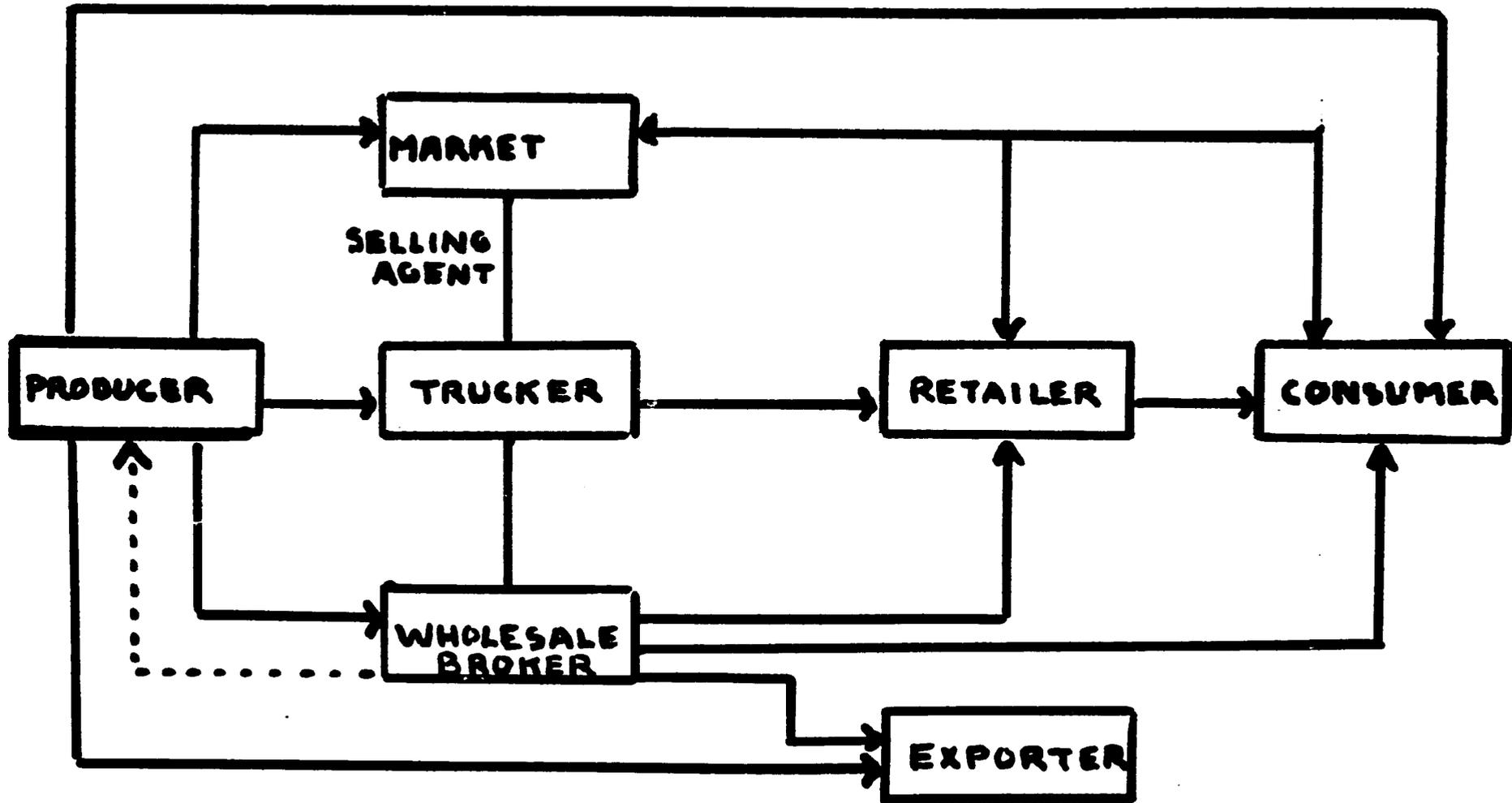
If so, he purchases produce for his own account, conveys it to market, and attempts to sell it at a profit either directly to a market or to an intermediate buyer.

c). The consolidator-wholesaler, depending on his financial resources, may employ any number of small consolidators to locate a crop and truckers to pick up and deliver it. Although he may receive some support from a mill or processing plant, he generally supplies his own financing and acts independently. He may sell directly to individuals having stands in the markets as a wholesaler, or he may sell all he collects to one or several intermediate buyers who make direct contact with those managing market stalls.

Some crops, such as peanuts and tomatoes, are sold primarily to processing plants, in which case the crop is usually contracted from small or medium sized farmers for future delivery at a specified price. Tobacco manufacturers for example, provide credit for consolidators who purchase tobacco leaf from the producers. Sugar mills apparently finance the credit requirements of the collection points for sugar, or contract with small farmers in the areas surrounding a mill. Every time produce passes through a different set of hands, a markup increases the price to the ultimate consumer.

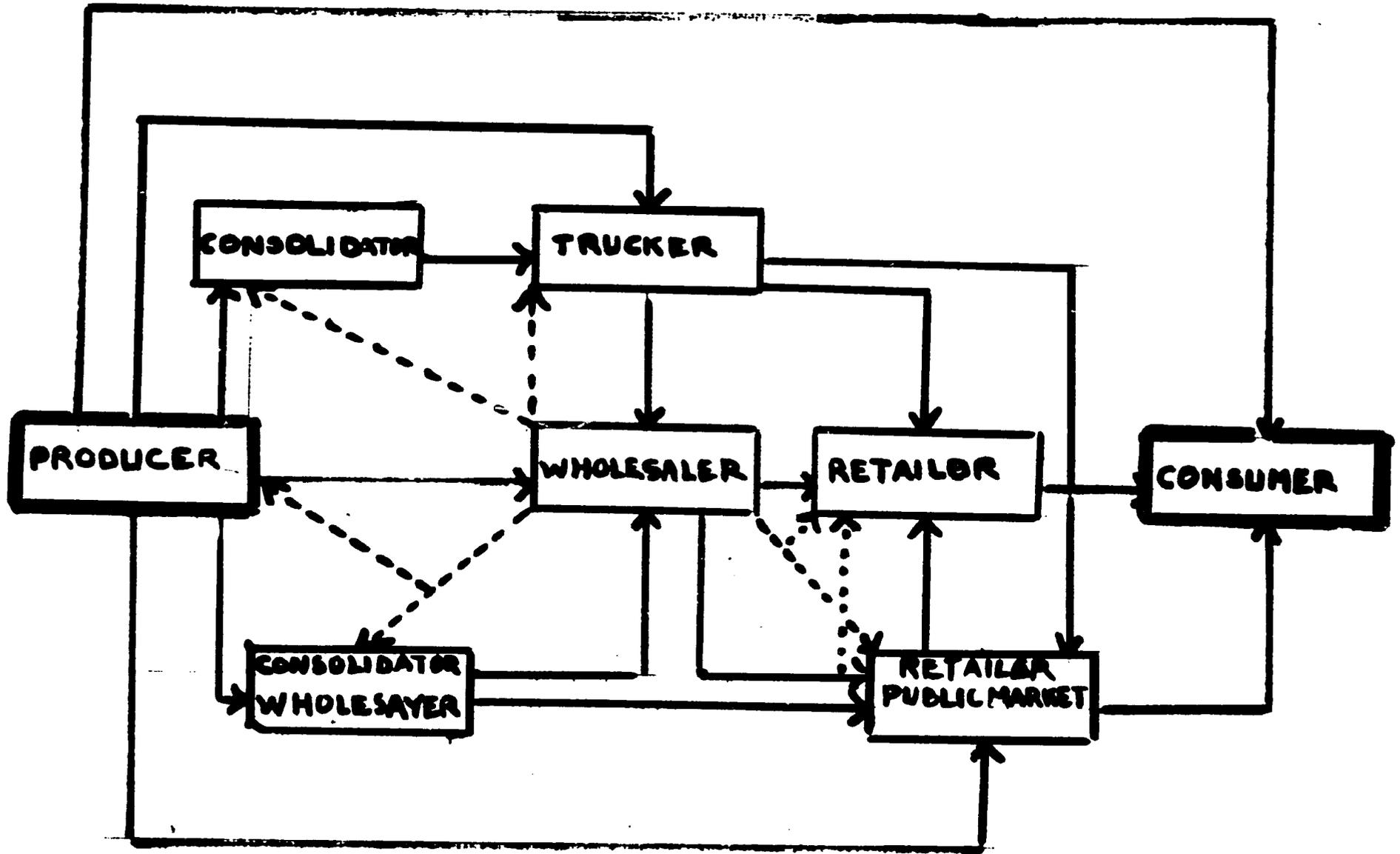
In the case of fresh produce requiring no further processing, food flows from the wholesaler-consolidator to the retailer or to the public market, where both small retailers and the public make their purchases.

DISTRIBUTION CHANNELS FOR PLANTAINS



—— Physical Movement

..... Credit Line

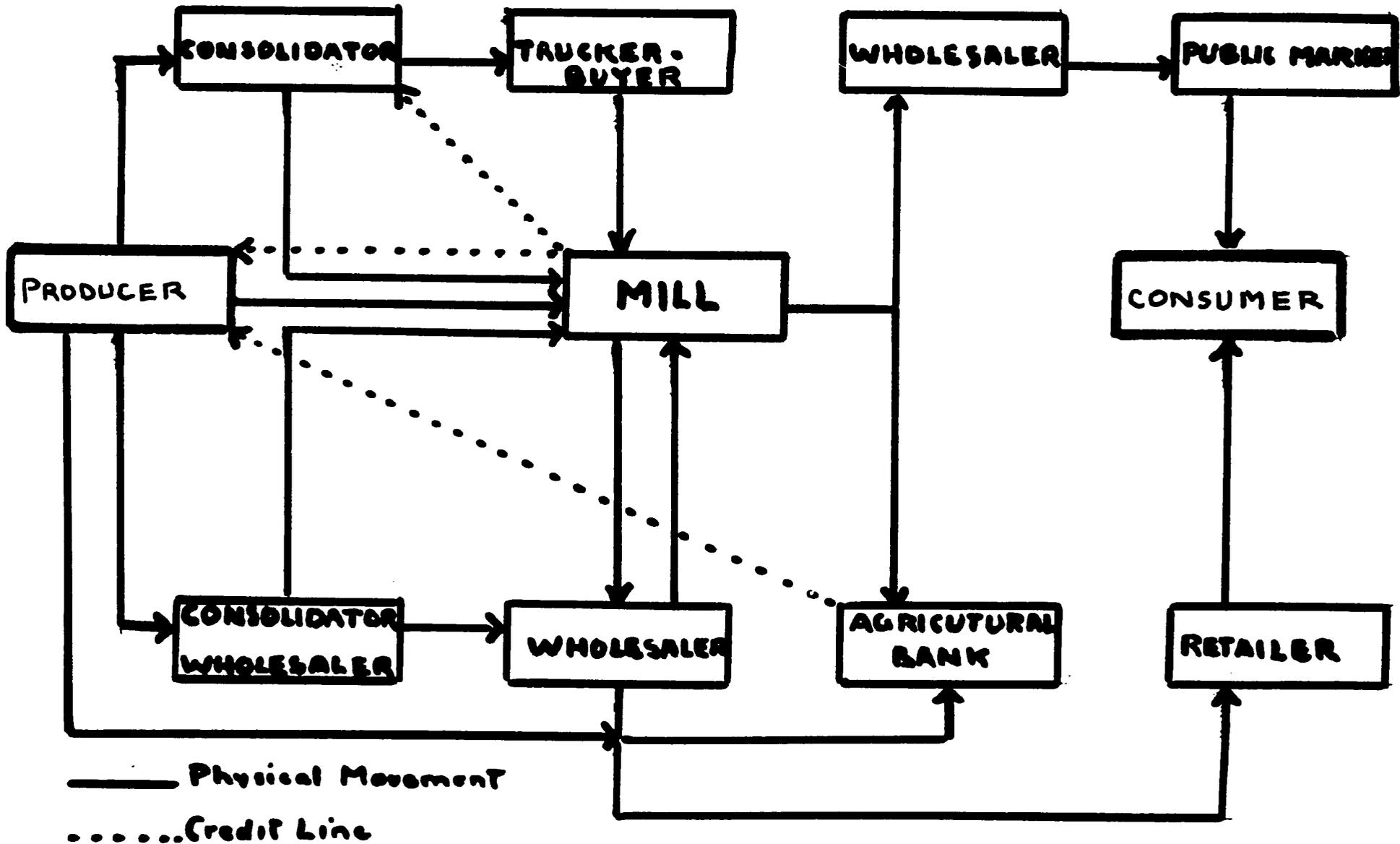


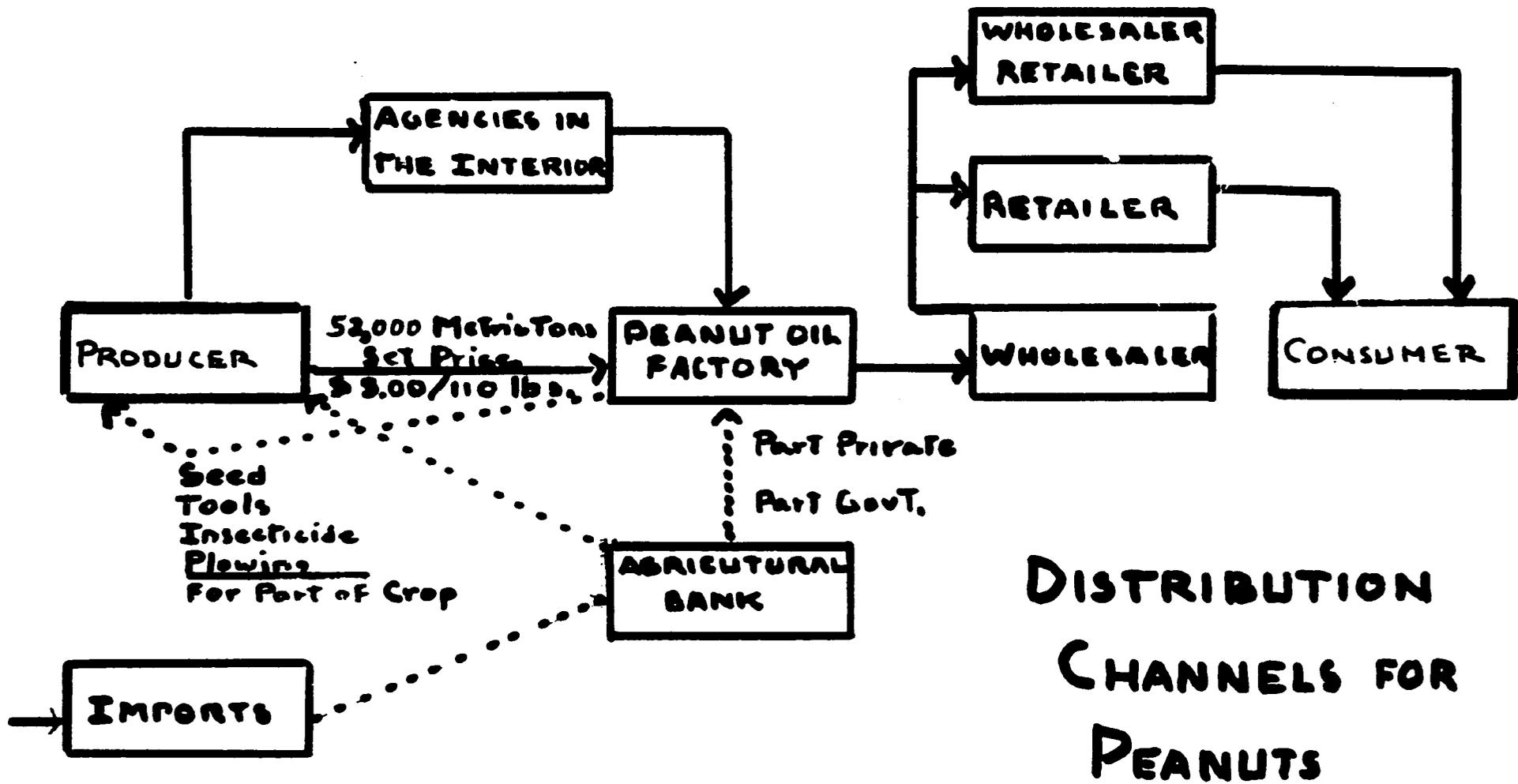
DISTRIBUTION CHANNELS FOR CORN

———— Physical Movement

..... Credit Line

DISTRIBUTION CHANNELS FOR RICE





DISTRIBUTION CHANNELS FOR PEANUTS

—— Physical Movement
 Credit Line

As shown on Graphs 29, 30, 31 and 32, distribution channels for agricultural projects differ according to crop and the financial resources of buyers and intermediaries. For plantains, for example, (graph 29), a product not requiring processing of any kind, the line from producer to consumer may go 1) from producer directly to market and to consumer provided the farmer has a means of transport for his product, 2) from producer to a trucker, who may also be a buyer, or a retailer who sells to the public, or 3) from producer to a wholesaler, who in turn sells to a retailer, and thus to the consumer, or who may export directly or indirectly.

Corn, which may or may not be processed (usually for animal feed), can be sold 1) directly to the consumer via the public market, 2) through a wholesaler, to a retailer, to the public, 3) through a consolidator who may not be a buyer, to the trucker or wholesaler, and thence to the market or retailer, and eventually the consumer.

Rice, which is first processed by a mill may be 1) sold directly to the mill by the large producer, 2) through a consolidator or trucker to a wholesaler, or to the mill, which in turn sells to wholesalers who in turn dispose of rice through the public market or through retailers. 3) A part of the crop may be sold to the agricultural bank presumably for storage and later resale.

Peanuts which are processed for oil by the peanut plant (Sociedad Industrial Dominicana), are usually grown on contract, with the plant providing seed, fertilizer, insecticide, or plowing to the producer, for which he pays a portion of the crop. From the factory, peanut oil goes to wholesalers, who in turn sell to retailers or wholesale retailers, and then to the consumer.

The farm producer, unless he is one of the few large landowners has no way to convey his good to market. If he is "prosperous" he may own a burro to carry produce to the local market, but he has no way to convey it to the more distant cities.

Food products, as a result, go through the hands of one or more intermediaries, each of whom adds his markup to the price paid the farmer, forcing the ultimate consumer to pay the bill for an inadequate and inefficient system of distribution.

3. Credit.

The possibility of obtaining credit for marketing activities is usually limited to those functioning above the level of trucker. The consolidator-wholesaler, in general, operates using his own funds plus whatever bank credit his personal financial strength may make it possible.

The large wholesaler is engaged in business rather than in agriculture, and must, therefore, rely exclusively on commercial banks and trade credit. The availability of bank credit depends entirely upon the size and scope of his activities and his credit rating. In a study made in 1966,¹ one third of the wholesalers interviewed stated that they could not get bank credit at any price. Cooperating with the Central Bank, commercial banks are reducing credit for commercial purposes as far as possible, and eliminating credit applications from all but a small minority of the largest wholesalers.

If wholesalers do receive credit, it is generally trade credit from large producers. About 25% of wholesalers are forced to pay cash for their purchases, with the others buying on terms ranging from 5 to 90 days, net thirty days being

- - - - 1. Marketing Survey Mission Report. op. cit.

the most common arrangement.

The retailer, also being engaged in a commercial operation, must rely on private sources of credit. Apparently credit is totally unavailable to about 10% of the colmado operators, and about 40% of retail stores outside of Santo Domingo do not receive bank credit. Supermarkets, with sales of over \$500,000, are usually able to obtain credit when they need it. In all, it is estimated that about 70% of the colmados in Santo Domingo and 83% of those outside of the capital do not use bank credit. ²

Probably bank credit cannot be obtained to some who claimed it was obtainable. The report stated that "many were probably reluctant to admit they were not credit worthy."

About 20% of wholesalers sell on cash terms only, and something over 50% reported that half or more of their sales are on credit. 70% of the retailers, however, reported that nearly all of their purchases from wholesalers are for cash.

As previously noted, many of the retail supermarkets sell on credit, and this is true of nearly all colmados who, in this way, bind their customers to a small, high margin, and relatively inefficient store in his immediate neighbourhood. Very small retail outlets are, of course, not in a financial position to extend credit, and very large supermarkets have no desire or little need to do so. Only about 18% of retail stores in Santo Domingo and not more than 25% outside the capital do a 100% cash business. ¹

Where retail credit is available, 30 day terms are the most common.

In general, credit in the Dominican Republic is regarded as "tight." The austerity program, initiated in 1964, sought to limit imports by requiring deposits equal to 40-80% of the FOB price of goods brought into the country. All deposits are held in the Central Bank for periods of 4-6 months. As a result, commercial deposits that had served as the basis for loans were significantly reduced, and commercial banks were forced to withhold loans to all but the lowest risk borrowers.

Commercial bank loaning has been largely reduced to working capital loans of short maturities, and many loan applications that ordinarily would be granted, have to be denied.

The possibilities of obtaining loans from sources other than commercial banks is also limited. Term loans are practically non-existent, and equipment loans of intermediate maturity rely on credit given by dealers, who in turn depend on scarce bank credit or their own funds.

The policy of credit stringency reflects the official policy to counter imports, and channel available credit into industry and agriculture rather than commerce.

Large scale producers find credit more easily come by than do those engaged in the channels of distribution. The government-owned Agricultural Bank makes loans that, although theoretically are available to both large and small farmers, actually go to those who can offer the smallest credit risk; commercial banks also make credit available for the producers of the large export money crops. Contract producers also receive some credit from

processors or wholesalers.

In short, while loans have been and are being made to agricultural producers and industrial processors, those involved in the flow of goods from producers to consumers find themselves left out of the credit structure, preventing any real improvement in the channels of marketing which in turn adversely affects both the scale of production and increases costs to the consumer.

4. Transportation.

The importance of an adequate transportation system to both the flow of goods from farm to manufacturers, and from processors to consumer goes without saying.

Although the area of the Dominican Republic is only 48,000 square kilometers, it has widely diverse topography and extreme differences in rainfall, soil fertility, and population distribution. Two mountain ranges which divide and isolate sections of the country, contrast with low, marshy coastal areas. Rainfall is heavy in the southeastern coastal areas, and sparse in much of the western part of the country.

The Dominican transportation system is called upon to provide economical and dependable transport from the scattered areas of production throughout the country to the consumption centers in the cities, and to the ports in the case of export crops. It must also provide for the reverse flow of manufactured products from the cities where most manufacturing and processing is carried on

to the remainder of the country. It requires considerable improvement to fulfill these obligations efficiently.

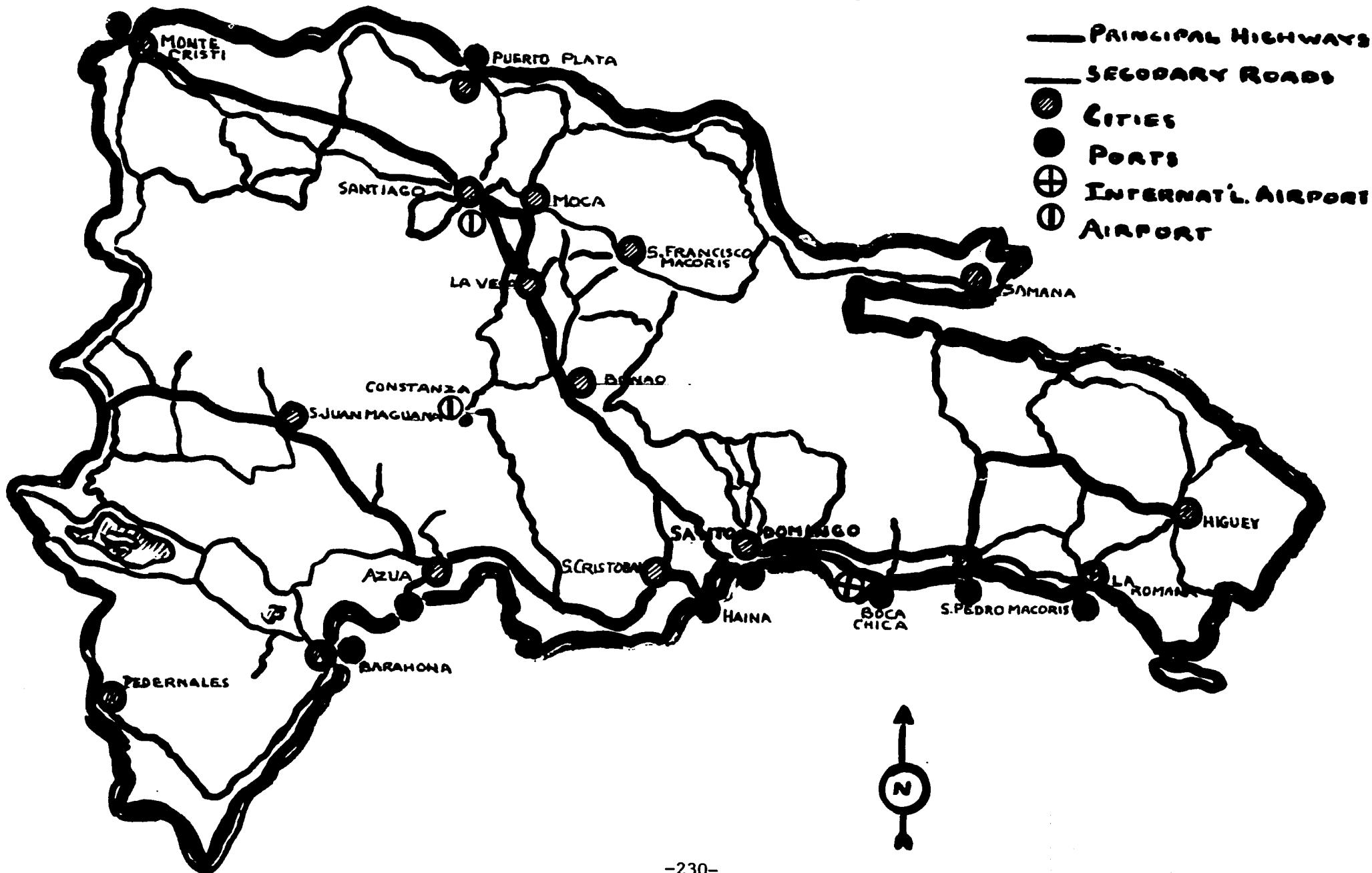
a). Highways.

Internal transportation in the Dominican Republic depends almost entirely upon highways. Although the country is surrounded by water, with the exception of its western boundary with Haiti, there is little important coastal shipping. No inland waterway system exists, and the one short railway is, for all practical purposes, inoperable. No internal air transportation connects the interior towns with the coast. The movement of both goods and people, therefore, must be over the highways.

The total highway system totalled 9,410 kilometers or over 5,800 miles in 1966, of which more than 2,800 (about 50%) were considered first class, more than 1,300 second class, and about 800, third class. ¹

- - - - 1. República Dominicana en Cifras.
Op. cit.

DOMINICAN REPUBLIC



The distribution of highways, however, as shown on Map 9, leave large sections of rural areas without any dependable connection with the cities and markets.

Although nearly 50% of the highways are "paved," only a relatively small proportion, notably the section extending from Santo Domingo to Boca Chica on the east and Haina on the west, are in excellent condition. The road from Santo Domingo to Santiago could be considered "good." The remainder of the "first class" roads are in a state of moderate or serious deterioration, although more than \$70,000,000 has been expended every year from 1960 onward on road construction and maintenance with the exception of 1962 and 1965, years for which no reliable data is available.

Most highways were apparently designed for relatively slow movement and light weight vehicles. Lack of control of weight limitations have destroyed much of the surfacing of many roads, which combined with adequate maintenance has reduced the quality of the highways to considerably below the claimed "first class."

One of the greatest needs is the construction of numerous penetration roads to fertile areas now completely isolated for lack of transport. Farmers in these areas are reduced to dependence upon animal transportation over trails impassable during much of the year, resulting in extensive crop spoilage. Costs of such transport may run from \$0.05 to \$1.00 per 100 pounds, and the high cost of lengthy and difficult transportation to market, plus loss from spoilage and a meager profit, reduce the incentive to larger production to zero. It was estimated in 1966 ¹ that a minimum of 162 kilometers of penetration roads

- - - 1. Marketing Survey Mission Report. op. cit.

would be required to serve the needs of over 150,000 people and bring 250,000 acres of cultivated land, plus an equal amount in follow into profitable production.

In 1964, 10,633 trucks and pickups were registered in the Dominican Republic, but the widespread practice of overloading has resulted in a quick deterioration of many vehicles. Loads are calculated by cubic capacity rather than weight limits. Anything that can fit on, goes on.

Trucks and transport vehicles cost considerably more in the Dominican Republic than in the U.S. Since all must be imported, freight charges alone raise the price several hundred dollars. Most important, however, are the import duties charged on trucks. Duties amount to 43% of the invoice price, plus 3% charged as a separate tax, and \$6.00 per kilogram of weight. Based on these charges, a truck costing \$7,500 in the United States costs a Dominican dealer around \$11,500.

Albwing a 10-15% dealer markup, and a five year depreciation for the life of the vehicle, ownership costs are at least \$750 a year higher than in the U.S. The annual difference is still greater if the duties must be paid on credit through a bank or other loan. The normal interest rate for truck loans is 1% per month, figured on the original amount of the loan. The \$3,750 in duties and charges would then cost the purchaser an additional \$450 a year in interest.

The increased cost of the truck through duties and taxes also influences insurance rates which are based on the total value of the vehicle insured, with

annual premiums amounting to about 10% of its value. No cargo insurance is available, but liability and vehicle loss insurance is increased \$375 a year as the result of the duties and taxes charged.

Thus, as a result of import duties, taxes and charges, associated with imports, a truck in the Dominican Republic costs its owner \$1,575 per year more than in the U.S., not including the higher costs of parts and replacements also subject to high import duties. Obviously, costs such as these substantially reduce the number of trucks imported, and raise transportation rates for all production.

Trucking rates are often determined between the trucker and the producer on an individual basis, since there is no system of rate regulation. Rates vary according to the season and the demand, the availability of trucks, and their destinations. Shippers cannot estimate what rates will be on future shipments, making it difficult to determine delivered prices.

The National Truckers Federation offers trucks of 6,000 to 12,000 pounds and trailers to 20,000 and 40,000 pounds of capacity. In all cases the following rates include insurance. ¹

<u>Between Santo Domingo and:</u>	<u>Per Trip</u>
Puerto Plata	\$ 200.00
Santiago	200.00
Valverde	150.00
Azua	150.00
Barahona	200.00
San Francisco de Macorís	110.00
Samaná	250.00
La Romana	115.00
San Pedro de Macorís	110.00

- - - 1. Transportation. Report to the Corp. de Fomento Industrial and A.I.D. by Arthur D. Little, Inc, Cambridge, Mass.

Lack of regularity of service is also a constant complaint. No shipping service schedules are available to producers, a situation particularly difficult for out of Santo Domingo merchants who order less than a truckload lot, and often wait indefinitely for their goods.

Intercity public transportation is handled entirely by privately owned and operated publicos, usually passenger automobiles that carry passengers as well as parcels, mail, and freight. Publicos also operate on a non-scheduled basis between principal towns, stopping whenever and wherever a prospective rider appears. It has been estimated by Obras Públicas that one city bus, operating on a regular schedule, could replace ten publicos at a saving of 50% in purchase price and 80% in operating cost.

Using public transportation (publicos) is also time consuming, and the passenger is never sure when he will arrive at a given point since routings are circuitous and indefinite.

The problem of city transportation is an important factor in any consideration of suitable plan locations. The Industrial Park, for example, is located about 12 miles outside the city of Santo Domingo, and has no regular transportation service. The cost of a one way trip, provided a publico could be persuaded to make a trip for this length, would be at least \$.50 (if there were sufficient passengers to make the trip worth while). Most workers cannot afford to pay \$1.00 in transportation daily. Unskilled workers only receive a \$2.00 per day minimum wage.

Any location considered for a plant should be as accessible as possible to workers, if both time and money is not to be lost due to the defects of a faulty transportation system. If skilled workers are not willing to make the trip to a particular site, labor must be located locally, and its quality may leave a great deal to be desired.

b). Railroads.

The railroads in the Dominican Republic are limited to one short government owned road extending from La Vega to Sánchez on to Samaná Peninsula. The road, which has a 42 foot gauge, was built before 1900 and has had only the most limited funds for modernization and maintenance since. When it operates, service is slow and unreliable. It is not considered economic to rebuild or repair this particular railroad, since foreseeable quantities of freight to be shipped between its two terminal points do not appear to justify the investment.

c). Water Transportation.

Water transportation is almost entirely limited to ocean shipping. There is some minor movement by barge from the large river mouths short distances upstream, limited by failure to dredge channels. There is no regular, commercial coastal waterway service. Although there are eighteen ocean ports in the Dominican Republic, but not all, by any means, are equipped, have the depth, docks, or are capable of handling large ocean vessels. Only five ports, Manzanillo, Santo Domingo, Haina, Azua and Boca Chica have had any improvement in the past fifty years.

The failure to improve and develop the northern coast port of Puerto Plata resulted in nearly all shipping being diverted to Santo Domingo producing

increased trucking costs for both incoming and outgoing cargo. The north coast is about one day closer to the Dominican Republic's main customer, the U.S.

The overall ocean freight and insurance bill for the Dominican Republic is estimated to be about \$44 million, practically all of which is paid out to foreign ship operators. This is equivalent to over 30% of all exports for 1966, a situation which adversely affects the balance of payments in the country.

A study of ports ¹ in the Dominican Republic listed the following in accord with their capability to handle substantial tonnage, their productivity, port costs, and accessibility.

1). Manzanillo.

Located at the extreme northwestern corner of the Dominican Republic, Manzanillo is capable of efficiently servicing the potential commerce of the area for some years to come. There is ample space for bulk cargo operations. The port is well protected and the approach channel has a minimum depth of 42 feet at low water. A concrete finger pier can service two ships of 700 feet drawing up to 42 feet. Manzanillo is accessible by road, some of which, however, is in need of maintenance. Because of its proximity to U.S. Atlantic and Gulf ports, Manzanillo has the potential of becoming a key facility for faster steamship service to the U.S.

2). Puerto Plata.

Beginning in 1927, Puerto Plata was bypassed by steamers offering direct service to Santo Domingo. Notwithstanding, however, the value of exports

shipped from Puerto Plata enabled it to retain second place as a port during 1964 and 1965, only dropping to third place in 1966, when La Romana moved up to second. With the port of Manzanillo, Puerto Plata on the north coast shares the advantage of proximity to the Atlantic ports of the U.S., and is closer than Manzanillo to the consumption centers in the interior of the country. Port facilities, however, have deteriorated badly in the last fifty years. The pier needs major repairs, the shed is in poor condition, and cargo handling equipment is lacking or in bad repair. The draft alongside the pier is 28 feet at low tide, 31 at high tide. The connecting road to Santiago needs repair.

3). La Romana.

La Romana is an excellent well protected port, but has only one marginal wharf capable of servicing ships up to 15,000 tons deadweight. Vessels can be loaded to a maximum draft of 35 feet.

Installations for bulk loading of sugar are used, permitting a vessel of 10,000 tons to be completely loaded within 24 hours. Present wharf occupancy permits handling of general cargo and fruit and vegetable exports, over and above sugar and sorghum, without the risk of congestion. The area surrounding the port is being developed as a "Free Port" to attract industry manufacturing or processing for export. The problem of securing labor, however, and the distance of 82 miles from Santo Domingo are disadvantages.

4). San Pedro de Macorís.

A marginal wharf capable of berthing five vessels simultaneously is available at this port. Although the channel was originally dredged to 35

and 40 feet, it has silted to 28' and 32'. Vessels can load at the wharf to a draft of 25 feet. The wharf is in reasonably good condition for fast loading of vessels. A large part of the sugar for export is brought alongside by lighters, bags are hoisted to the deck, opened, and sugar poured into the holds. This is a slow process and a 10,000 ton cargo may take ten to fifteen days, as compared to one day at either Haina or La Romana.

5). Boca Chica.

An excellent 1,200 foot marginal wharf is available for vessels drawing up to 29 feet. Adequate transit shed space is available. Labor is competent, and handle cargo efficiently using pallets and fork-lift trucks.

6). Santo Domingo.

Most imports pass through the port of Santo Domingo. The docking facilities provide space for about nine or ten vessels, and the water depth permits vessels of 34 foot draft to draw up alongside. Transit shed facilities are ample for both export and import cargo. Labor is plentiful, but although mechanized equipment is now available, productivity is considerably less than it was many years ago when port facilities were lacking, and no cargo handling equipment was installed.

A new modern grain silo handling about 90,000 tons of wheat per year is located at the northeastern part of the port. Vessels with 10,000 tons of wheat dock, and are unloaded in about five days at the rate of 2,000 tons per day of 24 hours. These facilities may be expanded. The port of Santo Domingo is now served by several steamship lines with regular and frequent service to the Caribbean Islands and the North Coast of South America.

7). Haina.

Haina is one of the more recent additions to the port development plan of the Dominican Republic. Sounding charts show a minimum channel depth of 32 feet, and alongside the sugar dock a minimum depth of 28 feet. The port is equipped with a conveyor system capable of loading bulk sugar at the rate of 700 tons per hour. In practice, however, a 10,200 ton cargo is loaded in 16 to 18 hours and a 21,000 ton cargo in 48 hours. Haina is the most important sugar shipping port on the island, and exports about 300,000 tons annually.

In addition, Haina handles some general cargo and an increasing volume of containerized cargo (Sea Land).

8). Azua.

For the past year or so, Azua has had no ship in foreign trade which regularly calls at the port. It has a good finger pier which can berth and service two vessels simultaneously. Vessels can load alongside the pier to a draft of 35 feet. Two good transit sheds are located at the head of the pier with a capacity of 4,000 tons of cargo. The port is reached over a stretch of eight miles of poor road from Azua.

9). Barahona.

Vessels load sugar at Barahona to a maximum draft of 32 feet. No bulk loading facilities are available, and it takes 10 to 12 days to load 10,000 tons of cargo. The volume of exports, about 60,000 to 65,000 tons per year, do not appear to justify the investment in bulk loading equipment.

d). Maritime Service.

Several steamship companies maintain regular service to the Dominican Republic, particularly Sea Land and Grace Lines.

Sea Land Moves up to 23 refrigerated trailers of 42,000 pounds each, twice a week between Haina and San Juan, P.R., and thence to the U.S. Rates are figured at \$700.00 minimum per trailer.

Grace Lines is presently substituting improved ships and has reduced the elapsed time between Santo Domingo and New York to under three days. Reefer, as well as container and roll on, roll off space are available.

e). Air Transport.

Two air lines presently service the Dominican Republic, Pan American World Airlines, and Dominicana de Aviación. All flights are made from the International Airport, 15 miles east of Santo Domingo.

In addition to Passenger flights, Pan American schedules 22 flights per week to the U.S., that carry freight. Dominican Airlines adds three freight flights per week. Together, the weekly freight capacity to the U.S. is 300,000 - 325,000 pounds.

In addition to the International Airport in Santo Domingo, there are 28 other airstrips in the country, but only six are long enough to handle DC-3 type aircraft. The others may be used only for small private planes.

5. Communication and Advertising.

a). Communication.

Communication, an essential element in a well integrated marketing system, identifies buyers, sellers, merchandise and price, and presents a particularly difficult problem in a country with a high degree of illiteracy and limited mass communications. Despite the fact that Dominicans appear to be market-oriented, little information is disseminated on a country wide basis regarding markets, prices, supplies of produce, collecting points, agents and transfers.

In many rural zones, the communication system is based largely on gossip and hearsay among rural producers. Information not reaching the producer by other methods required the use of local commission agents to locate production, negotiate price, and arrange for deliveries, thus adding a cost which would be unnecessary given adequate channels of communication and information. Price information is published irregularly for the principal crops, but only appears in newspapers in the capital and a few other cities, little is generally circulated among the producing rural areas, where, in any case, with an adult rural illiteracy rate of almost 70%, few could read it. Often, the only information the producer has is the selling price received by a friend or relative, a travelling buyer's cash offer, or the last price he himself sold a crop for.

For crops contracted for by mills or factories, as in the case of peanuts or sugar, price is set in advance and information supplied to the producer by the purchaser.

A normal means of communication in marketing channels is the telephone. Although relatively reliable in Santo Domingo, telephone communication to the

interior is irregular, time consuming, and, consequently, is not used often for business communication.

b). Advertising.

The techniques of advertising are only beginning to have an impact upon the consuming public. Although thirty seven advertising agencies or publicity representatives are listed in the Santo Domingo telephone directory, only ten are large enough to offer a minimum satisfactory service using all types of media to conduct a nation wide campaign.

1. Radio.

Radio is generally considered the best media for reaching the largest number of people. It is not known how many sets exist in the Dominican Republic, but the number is undoubtedly large. Ninety-six (96) radio stations, including 5 operated by the Government, are authorized, but we are informed by advertising agencies that only 82 actually operate, and of those, many are "personal stations," in that they have no national or international news coverage.

The problems of communication with many small towns and the rural areas of the country, have led several of the larger radio stations to offer service programs, during which news of illness, death, important messages, etc., are broadcast free of charge to specific people in the interior. The system appears to be remarkably effective, and confirms the large radio listening audience in all areas of the country.

No large scale audience studies have been made of any media in the Dominican Republic, although such are greatly needed if advertising is to be productively planned. For example, one advertising agency estimated about 600,000 radio

sets in the country. USIS personnel think that the number of radios may be as high as 3,000,000. Somewhere in between is probably closer than either estimate.

Prime time for radio advertising is considered to be between 6-8 in the morning, 12 noon to 2 in the afternoon and 6-10 in the evening, hours when most people are free to listen. In addition, the time before and the after the "soad operas" in the afternoon is considered an excellent time for advertising to reach the women. These hours are considered particularly effective in reaching the maids who do a great deal of shopping (usually on credit), and choose much of the food purchased from the supermarkets and colmados, and mercados.

Eight radio stations in Santo Domingo indicate that they have listening audiences of over 10,000 persons, six claim over 25,000, four claim over 50,000, and two over 100,000. The total number of listeners claimed by 20 stations in Santo Domingo amounts to 545,090, or about the total population.

Some examples of rate per radio and TV spot advertising are shown on Table 51.

Four radio stations in Santo Domingo operate on chains. The largest, "Radio Noticias" (HIN), has three stations in Santo Domingo, and others in Santiago, Santo Cerro, San Juan, Bani, San Pedro de Macorís, La Romana, Puerto Plata, Monte Cristi, and Higüey.

Table 50 indicates therradio stations by location, giving the stations estimate of their listening audience. The total of over 1,000,000 listeners does not seem unreasonable although there undoubtedly is some overlap of figures.

TABLE 50 ESTIMATED AUDIENCES OF ADVERTISING MEDIA

Type of Media	N U M B E R		Estimated Audience
	Private	Government	
<u>RADIO</u>			
Santo Domingo.	29	1	575,900 (26 stations).
Santiago. *	17		330,700 (15 stations).
Azua.	1		7,000
Bani. *	1		4,200
Barahona.	31	1	15,000
Constanza.	31	1	3,800
Cotui. * (Relay(	2		
Dajabón.	1		2,700
Hato Mayor.	1		4,000
Higüey. *	1		1,700
La Romana. *	3		4,800 (3 stations).
La Vega.	7		122,300 (7 stations).
Moca.	1		4,700
Neyba.	1		7,000
Monte Cristi.*	1		7,000
Nagua.	2		5,000 (stations 2).
Puerto Plata. *	4		117,000 (4 stations).
Salcedo.	1		2,300
Samaná.	1		3,000
San Cristobal.	2		4,300
San Francisco de Macorís.	4		26,500 (stations 3).
San Juan de la Maguana.	32	1	52,800 (2 stations).
San José de Ocoa.	1		5,000
Seybo.		1	-
San Pedro de Macorís.	3		27,700
Santiago Rodríguez.	1		-
Valverde.	2		23,400 (2 stations).
Total:	91	5	1,349.670 (82 stations).

*). Stations Members of Chains.-

TABLE 51

COMMON RATES FOR RADIO - TV - ADVERTISING MEDIA

Location	Frequency	Audience	Rates			
			Prime Time AAA 30 sec.	1 min.	Prime Time AA 30 sec.	1 min.
<u>SANTO DOMINGO</u>						
Government	once	138,500	2.00	4.00	1.00	2.00
HIN	once	9,500	1.75	2.50	1.50	2.00
MIL	once	56,000	3.00	6.00	2.00	4.00
HIZ	once	72,500	1.50	1.50	1.50	2.50
HIPJ (chain of 3)	once	16,300	1.50	2.00	1.50	2.00
HIJP (chain of 3)	once	48,100	2.00	4.00	2.00	4.00
<u>INTERIOR</u>						
La Romana	once	-	1.00	1.50	1.00	1.50
Barahona	once	15,000	2.00	2.50	2.00	2.50
San Juan	once	23,100	1.00	1.50	1.00	1.50

ON A MONTHLY BASIS RATES ARE DISCOUNTED FROM 5-10%

TELEVISION RATES

Government ¹	once	14.00	28.00	10.00	20.00
HIN	once	17.00	24.00	9.00	18.00

Private TV producers have purchased all time between 12 noon and 2 p.m. and 5 p.m. to 10 p.m. Time can be purchased from the producers who produce program for advertisers (live, film, etc.)

1 - The government TV station has relays to Barahona, Constanza and San Juan.

2. Television.

There are two television stations in Santo Domingo, and another scheduled to begin in January, 1970, in Santiago. According to a local advertising agency, there are at present about 75,000 TV sets in Santo Domingo. USIS estimates 120,000 allowing five viewers per set, however, either number would produce a sizeable audience for advertising. Considering the duty paid on TV sets in the Dominican Republic, and an estimated 100% profit per set, the total price and the number of sets sold, confirms the existence of a strong elite market in the Dominican Republic.

3. Newspapers.

Five daily newspapers in the Dominican Republic only claim a total circulation of 75,000, but it seems likely that each copy average 3 or more readers. The high illiteracy rate and no distribution in rural areas, probably account for the relatively low circulation of newspapers. Even in rural zones and towns not served by the press, however, there are many portable transistor radios and even those not considered illiterate but for whom reading is a chore, probably prefer the radio.

Three weekly newspapers are published, but these have little impact outside of a restricted local area.

Three weekly magazines are published, but only one, "Ahora" , has any significant readership.

Supermarkets and other retail outlets have not taken up the practice, common in the U.S., of inserting full or half page ads listing "specials" and

regular prices for many items. Little advertising of any kind is done by retail outlets, the majority consisting of brand advertising of cigarettes, beer, rum, margarine, etc., contracted and paid for by the manufacturers or processors.

4. Other Advertising.

A national advertising campaign would probably include billboards, point of sale, posters, etc. It is also possible to advertise by means of slides and films shown in the movie houses before the regular programs. There have been no studies of how effective this type of advertising is, but a 5,000,000 annual paid admittance to movies is estimated.

Pushing a product by means of offering premiums has not been tried in Santo Domingo, although this method has proved very successful on occasion in the United States, and might be equally or more so in the Dominican Republic.

5. "Macho Advertising".

A new product, especially one produced by a new company with no recognized brand, would require extensive advertising to succeed in the commercial market. In general, people in the Dominican Republic appear to be "brand conscious" that is, they prefer brands widely advertised in the U.S. or here, to merchandise which may be equally good in quality, but whose name is unknown. To some extent at least, this may explain the preference for an imported, more expensive product with a widely known brand to one locally manufactured by a new processor.

A local advertising agency estimated that to successfully launch a national campaign for a new product and a new brand would require from \$200,000 to \$250,000 the first year.

About twenty percent of that amount would be spent during the first two months to make the name known, with the remainder spread out over the rest of the year. The largest proportion of the funds would be spent on radio, followed by newspaper advertising and TV, (to catch the highest income group).

It was suggested by the agency that no attempt be made to produce one version of high protein food for the top commercial market and another for the lower income group. It was remarked that Dominicans reject what they feel is "poor man's food," and are willing to pay more to get what they think (or have been convinced by advertisers) is the best.

As little competitive advertising is done by retailers, nearly all ads aim at pushing brand and rarely mention price.

6.. Another problem of Marketing.

Inefficiency of distribution channels, lack of adequate credit and poor transportation facilities, have already been discussed as problems which have blocked the development of a smooth flow of goods from producer to consumer, but there are some other problems which affect both the agricultural producer and the food processor and limit the supply of domestically produced food products in the country.

a). Storage. Only the largest agricultural producers have storage facilities for their crops. Most must be sold when harvested or not sold at all. Recently storage silos have been built near Santiago, and more are planned for the future, but many more will be needed in other areas of the country, as well, if the distribution of food crops is to be spread over the year and prices stabilized.

for perishable fruits and vegetables, additional canning and preserving industries are needed to avoid the waste presently incurred.

Lack of refrigeration in many retail outlets limits the amount and variety of goods that can be sold, and reduces the shelf life of others. Ice cream can only be sold through retailers having adequate refrigeration equipment, and only a few supermarkets have facilities to handle frozen foods. Very few refrigerated trucks operate in the Dominican Republic, further limiting both the supply and the life of dairy products and others requiring refrigeration.

b). Packaging.

As mentioned, most agricultural products travel from farm to market in bulk with no packaging whatsoever. In a few cases sacks are used, but all must be filled by hand, weights are often unequal, and the whole process inefficient and wasteful. Recently, some products have begun to appear in cellophane bags - such as onions, tomatoes and potatoes, but these are available only at the better supermarkets.

Processors are also paying more attention to packaging and labelling, and increasing competition can be expected to improve packaging steadily.

Containers of various kinds are now being produced in increasing quantities in the Dominican Republic, as is shown on Table 50. As mechanics methods improve, packaging can be expected to improve and do more to sell the product.

TABLE 52 - PRODUCTION AND IMPORTATION OF CONTAINERS, 1966 - 1967
(in thousands of Units and thousands of Dominican \$).

1966 Type of Container	National Production		Imports		Total	
	Quantity	Value	Quantity	Value	Quantity	Value
Cartons.	20,282	2,277	9,041	158	29,322	2,435
Cans.	5,709	1,190	6,423	300	12,132	1,490
Wooden Crates.	100	79	410	115	510	194
Textiles (sacks, etc.).	4,396	2,032	2,690	1,144	7,086	3,176
Plastics.	1,202	62	920	107	2,122	169
Glass. ¹	29,778	2,662	65,721	2,232	95,499	4,894
Not specified	506	3	6,550	204	7,056	207
Paper sacks.	13,819	851	16,532	241	30,351	1,091
Plastic sacks.	10,766	129	4,107	66	14,873	195
Steel Drums.	-	-	1.	15	1	15
Wrapping paper	-	77	-	436	-	513
Total		9,361		5,019		14,380
1967 /						
Cartons.	24,021	2,672	9,115	102	33,136	2,774
Cans.	7,148	1,275	9,928	483	17,076	1,758
Wooden Crates.	569	162	72	20	641	182
Textiles (sacks, etc.).	4,413	2,087	2,543	1,097	6,955	3,184
Plastics.	2,353	164	997	92	3,350	256
Glass.	27,386	2,452	66,073	2,067	93,459	4,519
Not specified.	626	3	6,021	190	6,648	193
Paper sacks.	44,409	1,032	7,125	152	51,534	1,184
Plastic sacks.	11,324	126	4,268	31	15,591	157
Steel Drums.	-	-	216	1,905	216	1,905
Wrapping Paper.	-	182	-	544	-	726
Total:		10,155		4,779		14,934

Source: Estadística Industrial, op.cit.

1.- Corresponds for the most part to used bottles returned to merchants for reuse.

- . . . Nationally produced containers increased 8% in value in 1967 over those produced in 1966. Imports decreased 4.7%.
- . . . The number of containers produced nationally in 1967 (not including glass & wrapping paper) increased 67% over those of 1966.

VI. MALNUTRITION AND DOMINICAN DIET DEFICIENCY

VI MALNUTRITION AND DOMINICAN DIET DEFICIENCY

A. The World Protein Deficiency

From the beginning of the Christian era up until the 13th century, the population of the world increased to contain about 500,000,000, inhabitants. From the 18th century up to the present, population has grown to a total of more than 3,000,000,000 persons. If demographic growth continues at the same rate as today, the world population will rise to 5,000,000,000 in fifteen years, and will reach 8,000,000,000 by year 2000. According to studies made by FAO, half of the people of the world now suffer from hunger and malnutrition. Whenever the goal of a program is to raise the standard of living as a part of economic and social development, diet must be given priority consideration. The labor force, upon which the prosperity of a nation depends is efficient and productive only to the extent that it is adequately fed. The saying "an army travels on its stomach," applies equally to an army of workers as to an army of soldiers. Diet determines the degree of strength energy and general health of the worker which in turn sets the limits of his productivity.

Adequacy of diet is highly correlated with, and reflects the level of income and education available to the individual. A poorly fed population is almost invariably, badly educated, poorly paid, and plagued with unemployment. Even education, important as it is to national development, brings only a minimum benefit to people seriously afflicted with malnutrition. From a political point of view, a hungry population threatens the stability of any government, a point recognized by the United Nations in a study entitled "Economic Development Through Better Food," (Basic Study #2), in which it states

"Hunger, poverty and economic stagnation form a vicious circle, vastly complicated by a demographic increase of "population explosion" of a type never before experienced in the history of humanity. The differences in income levels among the countries of the world constantly widen. While national incomes in the developed nations rose \$20.00 per capita annually every day between 1950 and 1957, those of the underdeveloped increased by only \$1.00 per year. With this slow rate of progress it may not be possible to long contain the open rebellion of the destitute people of the world."

Not only is there an insufficient quantity of food for a galloping population, but the world diet is seriously lacking in several elements, the most important of which is protein¹. Every study made in developing countries emphasizes the disproportionate distribution of the available proteins, especially those rich in amino acids. If today the per capita protein consumption in the developed and industrialized nations would rise to 44 grams, the rest of the world would be left with 9 grams per person per day. The world protein deficit has been estimated to be from 13 to 30 million tons, and is constantly increasing.

The possibilities of filling the protein deficit through the normal sources of meat and fish are very limited. Equally, to double or triple the production of milk, cheese, eggs and meat would be prohibitive in cost.

Purchasing power in the developing countries is very low, and problems of transport and storage, alone would prevent the shipment of adequate animal

1 - The word "protein" comes from the Greek meaning "very important".

protein without considering the food tabus which exist in many areas. It seems vital and urgent, therefore, that, if that world food deficiency is to be conquered, new sources of protein must be found which can offer comparable nutritive values to the traditional sources at a much lower cost.

Soy, with a protein value of 40% as compared to 10% in most cereals, is probably the most promising single source of protein for world consumption. Since 1948, the production of soy has grown at the rate of 7% per year, but more than half is concentrated in the United States rather than in areas which need the benefits of the crop the most.

Other possible sources of protein exist in fish concentrates, powdered milk, peanuts, etc., and research is regularly carried on by private industry to discover new ways to produce acceptable high protein products.

B. The Dominican Diet

1). "Available" calories and Food Consumption.

Although agricultural development is often pointed to as the predominant element in economic and national growth, its primary function is to produce sufficient food of a high enough quality to provide the population with an adequate and nutritious diet.

The usual way to determine whether agriculture is meeting the needs of the people, is to cite figures of "per capita availability" secured by dividing domestic food production plus imports and less exports by the population. In the Dominican Republic this method results in a distorted picture

of actual food consumption. In 1959, for example, daily per capita intake was stated to be 2100 calories and 50 grams of protein, deficient, but not drastically so.

Even at that time, the diet was considered to have a deficit of about 400 calories per day, and it was recommended that "the consumption of vegetable oils be tripled, that of meat and eggs be doubled, and cereal intake be increased by one third. Only in the consumption of root plants, sugar and fruit was the Dominican diet considered adequate."¹ With a deficiency this serious in 1959, and agricultural production in 1969 below that of that period with a million more people to feed, what can be expected of the Dominican diet in 1969?

Improvement in diet is inevitably associated with increased income, and it has been pointed out that per capita income in the Dominican Republic has not been raised significantly since 1959.

Without any increase in income or food production, and a jump of one third in population, a constant per capita level of consumption can only mean that one sector of the population is maintaining an adequate diet at the expense of another, such as the minifundistas who see the land used to produce their food shrinking in size each year.

Table 53 shows the composition of food available in 1959 and 1964 and indicates the "apparent" or per capita consumption.

1 - Plataforma para El Desarrollo, etc. op.cit.

TABLE 53

Food Classifications	FOOD AVAILABILITY 1959							FOOD AVAILABILITY 1964						
	Per Capita							Per Capita						
	Gross Weight (M. Tons)	Usable for Food %	Gross By year (kg.)	Weight By day (gm)	Calories per day	Proteins Daily (gm.)	Daily Fat (gm.)	Gross Weight (M. Tons)	Usable for Food %	Gross By year (kg.)	Weight By day (gm)	Calories per day	Proteins per Day (gm.)	Fat per day (gm.)
Totals	1,769,410	74.4	611	1,672	2,118	50	43	2,026,527	76.9	579	1,587	2,265	54	55
1. Cereals	154,812	98.2	53	146	519	13	3	197,135	99.4	56	154	556	14	2
2. Roots, bulb plants	288,055	74.6	99	272	269	2	1	252,807	75.3	72	198	190	2	0
3. Sugar/syrup jams, honey	66,495	99.7	23	63	224	0	0	108,559	99.8	31	85	310	0	0
4. Legumes	44,531	100.0	10	42	124	8	1	60,160	100.0	17	47	142	9	1
5. Nuts, coconuts oil seeds	18,991	64.7	6	18	44	1	4	21,193	64.7	6	17	26	0	2
6. Vegetables (canned/fresh)	37,080	87.7	13	35	14	0	0	53,629	88.4	15	42	18	1	0
7. Fruit (canned/fresh)	921,687	61.9	319	871	553	6	6	959,412	61.6	274	751	478	5	5
8. Meat, fresh processed	56,629	79.2	19	53	115	7	9	64,680	78.2	19	51	103	7	8
9. Eggs	10,977	90.8	4	11	14	1	1	13,419	90.8	4	11	14	1	1
10. Fish, fresh processed	11,450	87.2	5	11	25	5	0	22,319	84.7	6	17	39	7	1
11. Milk and derivations	116,967	99.8	40	111	76	4	4	185,925	99.1	53	146	115	7	5
12. Oils and Fats	12,390	99.8	4	12	101	0	11	34,023	99.1	10	27	227	0	26
13. Drinks (soft and alcoholic)	26,893	100.0	9	25	31	1	2	49,078	100.0	14	38	37	2	2
14. Other	2,453	80.1	1	2	8	0	1	4,008	80.1	1	3	9	0	1

Table 54 is a summary of food available per capita in the Dominican Republic in 1964 relative to the adequacy of elements included in the diet. The recommended are those of INCAP for the adult population of 20 years and over in Central America and Panama, made in June, 1965.

TABLE 54

ADEQUACY OF AVAILABLE FOOD, DOMINICAN REPUBLIC 1964

<u>Items</u>	<u>Unit</u>	<u>Recommended</u>	<u>Available</u>	<u>Adequacy (%)</u>
Energy Value	Calorie	2,300	2,265	98.5
Protein	gm.	60	54	90.0
Calcium	mg.	450	610	135.5
Iron	mg.	10	16	160.0
Vitamin A	U.I	4,300	3,976	92.5
Thyamin	mg.	1.0	1.1	110.0
Riboflavin	mg.	1.4	1.1	78.6
Niacin	mg.	15	14	93.3
Ascorbic Acid	mg.	60	192	320.0

Source: Hoja de Balance de Alimentos para la República Dominicana
Oficina Nacional de Estadística, 1967.

It could be assured from Table 54 that the Dominican diet, while somewhat deficient in some elements, offered no particular problem on a per

capita basis.

If we consider the actual distribution and consumption of food, the picture changes completely, "adequacy" of diet being determined by income.

In 1960, the Banco Central, in a study of distribution of income in the Dominican Republic¹, pointed out that 10% of the people controlled 72.5% of the income, while 90% had only 27.5%. Examining the income curve further, 30% of the population have 86.5% of the income, and 70% of the population control 95.5%. These figures shown as Table 55, may be translated to food consumption and used to estimate the actual consumption of food in the Dominican Republic as contrasted with the per capita "availability" of food. (Table 56, illustrated by graph 33).

The per capita "availability of food" figures for 1959 and 1964, make it appear that some improvement was made in the diet, until it is recalled that the increased availability resulted from food imports, most of which which were consumed by the upper 10-20% of the population with the highest incomes. Domestic food production remaining relatively static, the same amount of food available in 1959 had to be divided up among a population which had increased 15%.

1 - The income distribution suggested by the Banco Central corresponds very closely to the definition of the commercial market as outlined in Part IV.

PER CAPITA GROSS NATIONAL PRODUCT, 1967

<u>Income Levels</u>	<u>% of Pop.</u>	<u>Number of Pop.</u>	<u>GNP 1966 Pcs.</u>	<u>% of GNP</u>	<u>Per Capita GNP \$</u>
			(Millions)		
Upper	10.0	388,930	743.9	72.5	1,913
Upper Middle	20.0	777,860	143.6	14.0	184
Lower Middle	40.0	1,555,720	92.3	9.0	59
Low	30.0	1,166,790	46.2	4.5	40
TOTALS	100.0	3,889,000	1,026.0	100.0	264

Source: Departamento de Estudios Económicos del Banco Central, 1960

Although calorie consumption is highly correlated with income, there are obviously upper limits of consumption regardless of income. As income increases, the family spends an increasingly small proportion on food. Although calories are not necessarily increased, the quality of the food purchased changes to include the expensive animal proteins foods, meat, milk, eggs, poultry and fish.

Table 56 uses the same proportional income level groups as appear in Table 55, above. For lack of precise data on food consumption according to economic status, the number of daily calories have been assumed based on food costs and ability to pay. Obviously there will be overlaps in each division, but despite admitted errors, Table 56 and Graph 34 illustrate more realistically the nutritional status of the Dominican population than do per capita "availability of calories."

TABLE 56

PER CAPITA DISTRIBUTION OF AVAILABLE CALORIES BY INCOME LEVELS
1967

Income Group	Population	% of Total	Annual Calorie Consumption (Billions)	% Total	Daily per Capita (Calories)
Upper	388,930	10.0		20.0	4000
Upper Middle	777,860	20.0		25.0	2500
Lower Middle	1,555,720	40.0		40.0	2000
Low	1,166,790	30.0		15.0	1000
TOTAL	3,889,300	100.0		100.0	2000

The sources of available calories are shown on Table 57 and Graph 35. Even disregarding distributions, it can be seen that despite food imports and PL 480, "available" calories have decreased from 2265 in 1964 to 2027 in 1967 and 1968.

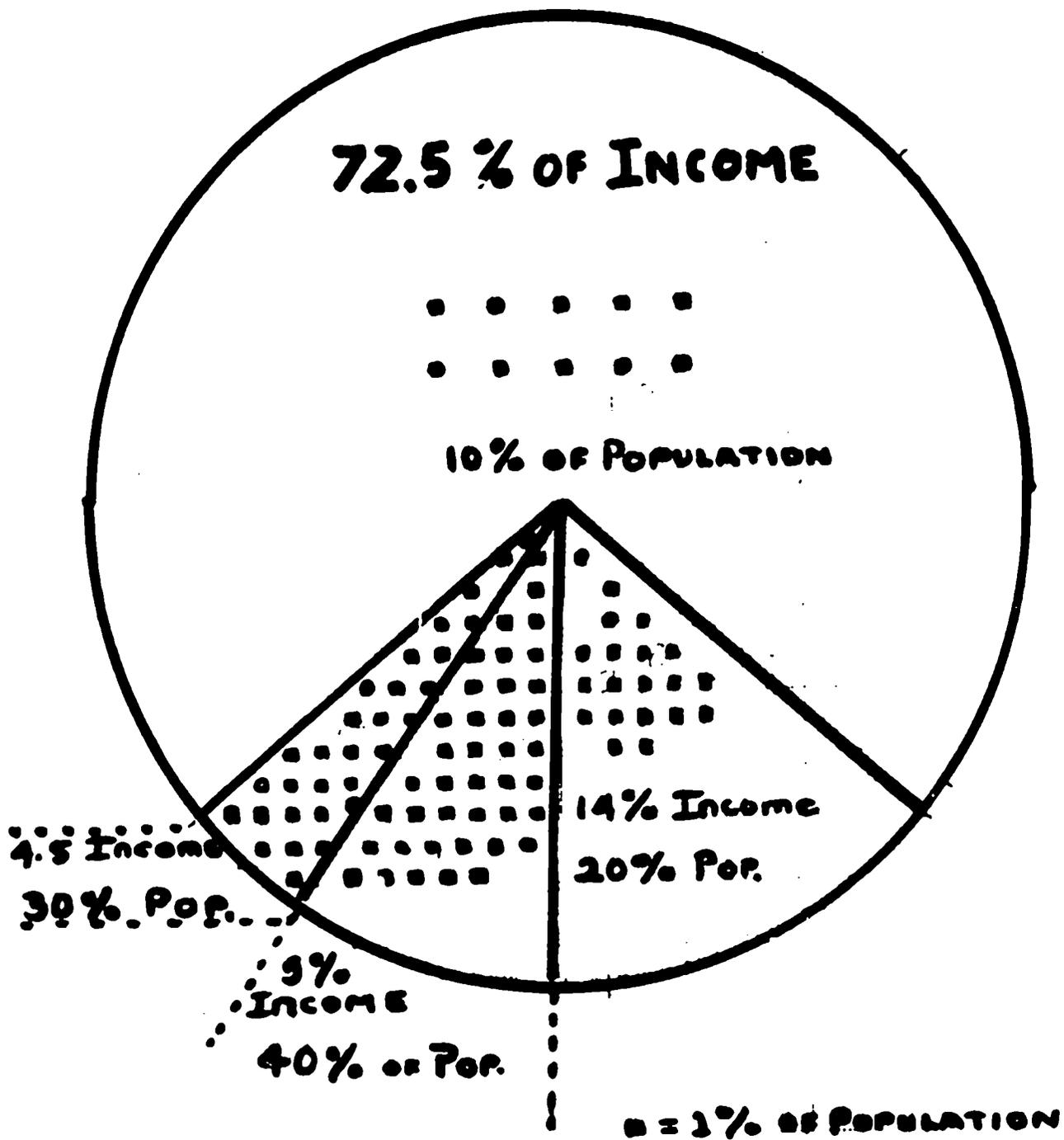
TABLE 57

NATIONAL CALORIC AVAILABILITY AND REQUIREMENTS, 1967-1968

Source	1967			1968		
	Yearly Calories (Billions)	% of Total	Daily per Capita	Yearly Calories (Billions)	% of Total	Daily per Capita
Domestic Production for Domestic Consumption (Billion calories)	2,327.9	80.0	-	2,328.0	78.6	-
Commercial Imports	472.4	16.4	-	470.0	15.9	-
PL 480 Donations	79.2	2.7	-	162.4	5.5	-
TOTAL	2,879.5	100.0	2,027	2,960.4	100.0	2,027
REQUIREMENTS						
Nutricional	3,477.7		2,450	3,602.9		2,450

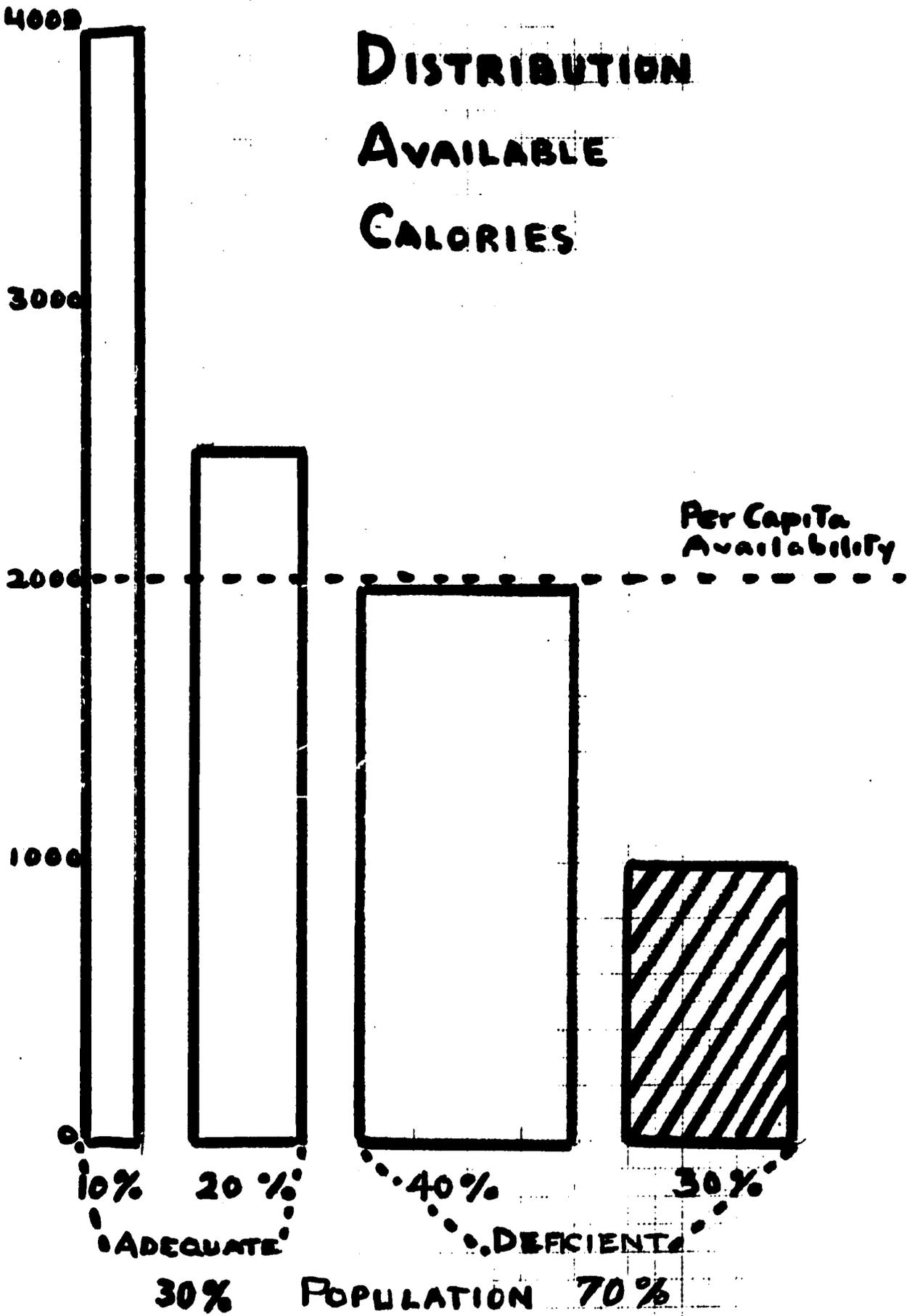
Source: AID and Office of National Statistics 1968 based on estimates.

DISTRIBUTION OF PER CAPITA GNP 1967



CALORIES PER DAY

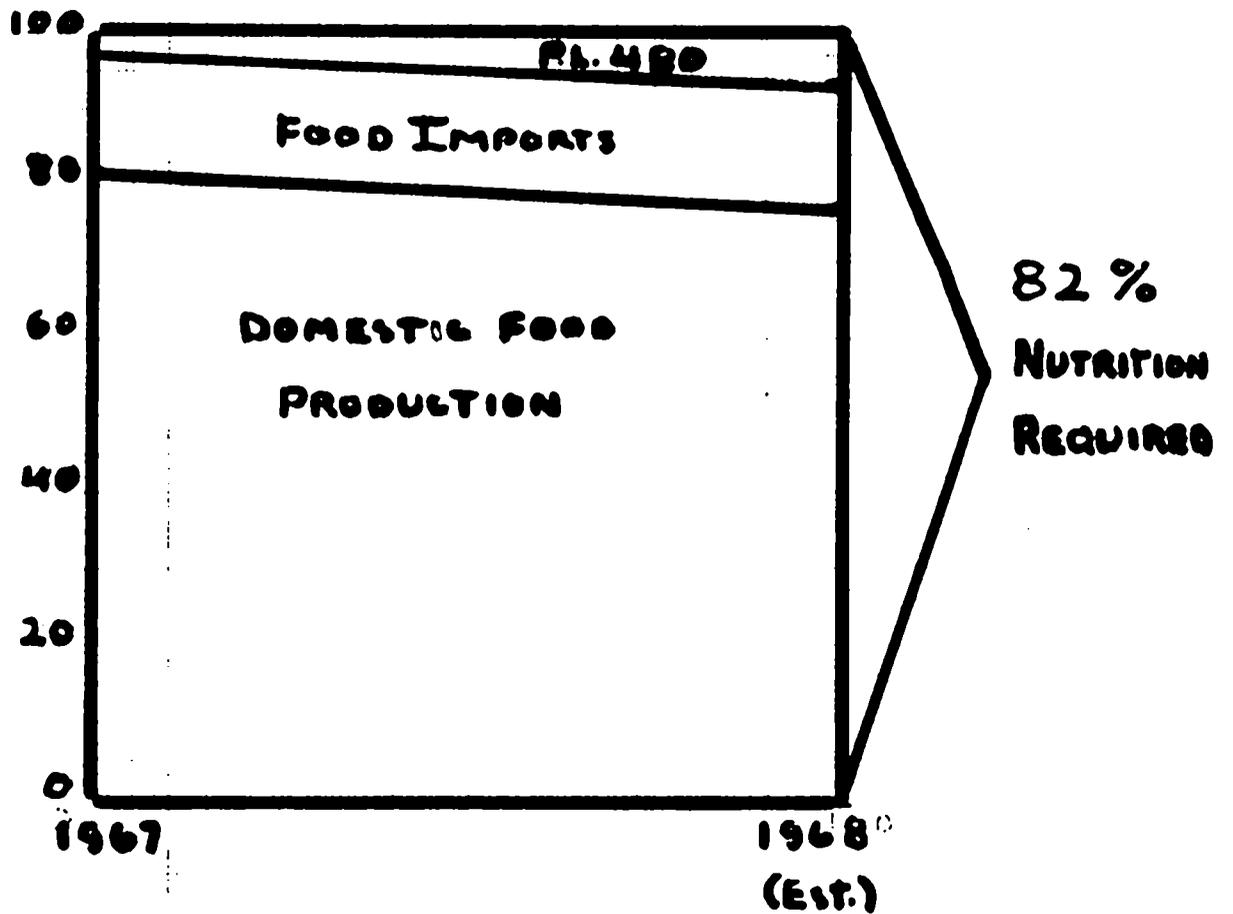
DISTRIBUTION AVAILABLE CALORIES



SOURCES OF AVAILABLE CALORIES

1967-1968

% Total Calories



2). Rural Food Consumption.

A study made in 1967 sought to determine for the first time the actual dietary habits and level of nutrition of the rural or semi-rural family, typical of 60% of the inhabitants of the Dominican Republic. To appreciate the extent of malnutrition within the country, it seems worthwhile to first cite some of the facts disclosed regarding rural families included in the sample studied.

Among the families studied:

- ... 50% of the parents had never been to school,
- ... 31% of the families had less than five members,
- ... 44% of the families had from five to nine members,
- ... 25% of the families had more than ten members,
- ... 81% of the families had incomes of less than \$2.00 per day

The families making up the sample lived in a village approximately 50 kilometers from Santo Domingo where most worked tiny parcels of land. The village containing about fifty houses was connected to the main highway between Santo Domingo and Santiago by a short stretch of badly paved and deteriorating highway. It has no electricity, nor any piped water. All water must be carried to the houses from two nearby rivers. There is a Catholic Church and a rural primary school, but no doctor nor any facility for medical attention.

Table 58 shows the actual food consumption in the village, and the percent of adequacy of the diet.

1 - Study by Division de Nutrición de la Secretaría de Salud y Asistencia Social, 1967.

TABLE 58

FOOD CONSUMPTION IN MEDINA, 1967

<u>Element</u>	<u>Daily Consumption</u>	<u>Recommended Consumption</u>	<u>% of Adequacy</u>
Calories	1,133	2,336	48.0
Proteins	30.5 gr.	63.6 gr.	45.0
Calcium	239 mgs.	1,100	22.0
Iron	12.2 mgs.	10.7 mgs.	114.0
Vitamin A	0.2 mgs.	1.2 mgs.	17.0
Vitamin B ₁	0.9 mgs.	1.2 mgs.	75.0
Vitamin B ₂	0.6 mgs.	1.6 mgs.	38.0
<u>Vitamin C</u>	76 mgs.	67.8 mgs.	112.0

Consumption, as can be seen in the above table, are incredibly low. A further investigation, extended to another village, however, found conditions even worse. Per capita calories consumption dropped to 680 per day, and proteins to 20 grams, 30.0 and 37.0% respectively, of the recommended standard consumption of 2,500 calories and 60 grams of protein.

3). The Daily Diet.

Discussing percentages and thousands of malnourished individuals, tends to overlook the individual human being, and what he can actually afford to consume.

Rice and beans are probably the two most important foods in the Dominican Republic from the standpoint of frequency of use and quantity of consumption. Many people on all levels of society think they have not really eaten at all unless rice and beans are part of their main meal of the day.

Rural people often eat a stew (sancocho) made from corn, yucca, plantains, sweet potatoes and, when possible, a little meat or meat bones.

In general, the diet of at least 50% of the population consists of:

Rice

Beans

Vegetable oil

Vegetables or Fruits in season (yucca, sweet potatoes, plantain)
avocados, mangos, pineapple, etc.)

Bacalao (cod) or Herengue (herring) when possible, although
recent price increases are limiting the consumption.

Coffee

Sugar

supplemented by tobacco and rum. Milk, when available, is reserved for children or seriously ill persons. In many areas milk is difficult to obtain, expensive, and cannot be kept for lack of refrigeration. In the last ten years, pastas, macaroni, spaghetti, etc., have become popular among the lower income group, due to being inexpensive and filling. In the cities "water bread" in the form of small rolls sell two for 5 cents. An extra penny gets a smearing of margarine or a slice of local cheese.

Fuel is an important item of expenditure, and many families limit their cooking to once a day, and eat only twice. The morning meal may consist of a roll, coffee with sugar and possibly plantain or yucca.

Late in the afternoon, "dinner" will include the usual rice and beans

(or guandules), possibly cod or meat bones, plantain, avocado, yucca or sweet potatoes depending upon which is in season and therefore cheap and plentiful, coffee and possibly a fruit in season.

Even such meager and monotonous meals as these cost many urban families more than they can afford. Based upon discussions of the family "menu" with low income level Dominicans, the average individual exists on a daily diet which includes:

Per individual:

two rolls (water bread-1flour, water, salt, yeast)	\$.04
1/3 lb. of rice	.05
2 oz. beans	.025
3 plantains (or yucca, etc.)	.09
Oil (peanut or coconut)	.095
Coffee/Sugar	<u>.05</u>
	\$.35 per day

This daily "menu" for a family of five (the national average size), comes to about to \$1.70 per day, \$51.00 per month and \$612.00 per day and does not include fuel. With a per capita income averaging \$250.00 per year, however, it is obvious that many cannot afford the diet indicated above. Rural families, who grow most of their own food, sell any excess to buy necessities such as oil or kerosene for lighting that they cannot grow. A family with two or three chickens may never have eaten an egg or a chicken, or possessing a cow, they may never drink milk, these are saved for the market.¹

1 - The extremely low calorie levels of the rural population are raised by consumption of subsistence crops which do not appear in the production figures of "available food".

Selling excess produce, however, is not an alternative open to the city resident whose income may not stretch to include the foods indicated plus kerosene at 10 cents a bottle (used for lighting), salt, charcoal (fuel) and the "necessary" cigarettes and rum. What they should eat, they often sell. (Graph 36).

Daily diets of this kind cannot contain much over 1,000 calories, have practically no protein grams, and are deficient in quantity and quality. And yet, many families do not have the \$600.00 per year to provide even this quantity.

Although these costs are indicated for a family of five, many families are larger, and the problem is complicated by the common practice of a man to maintain liaisons with two or more women, and thus have as many as 12 or 15 dependent children.

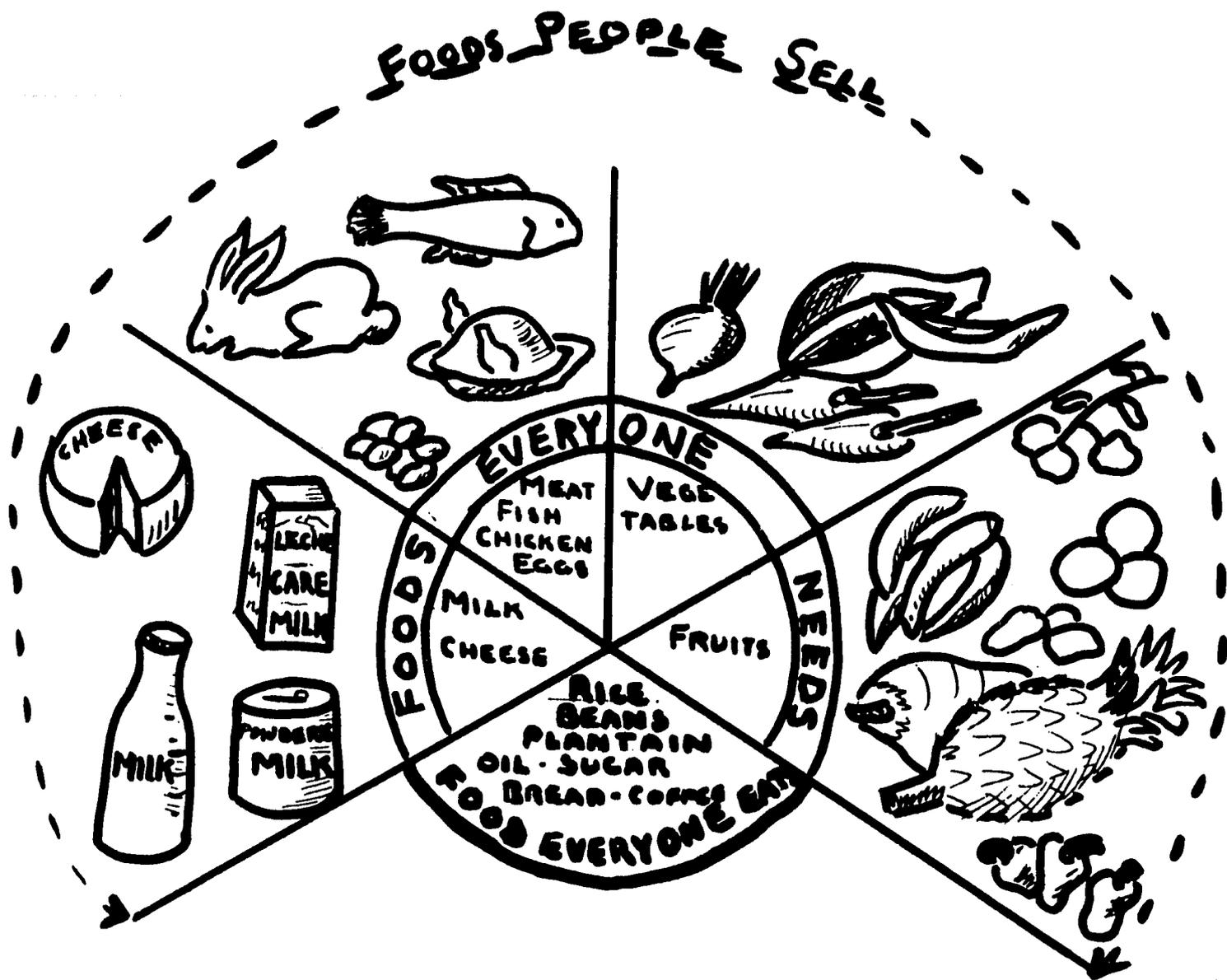
Considering the income levels of the majority of the population in the Dominican Republic, it seems obvious that the food distribution programs carried on by CARE, the Catholic Relief Service, World Food Organization, etc., may well have avoided actual starvation among a significant segment of the population.

4). Food Habits and Superstitions.

It is often commented that food habits are hard to change. While in one sense this is true, as exemplified by the consumption of rice and beans on all socio-economic levels, in most cases it is not as difficult to change

THE DAILY DIET

FOUR BASIC FOOD GROUPS



Source: Division of Nutrition, Secretariat of Health

food habits as it is to provide the income to pay for the change.

As income increases people find it quite easy to increase their consumption of meat, eggs, butter and all the things they could not afford previously. They not only increase the quantity of intake, but, more important the quality of diet is altered to include the expensive animal proteins, so notably and characteristically lacking on the diet of low income groups. Most people apparently find it as easy to eat cake as bread, and proceed to do so as soon as their income allows the extra expenditure.

Other factors also work toward a change in eating habits. Trips outside the country have acquainted many Dominicans with other menus and foods new to them, and these are often included in their "new" diets when they return. Rural migrants who have existed on whatever they could grow, find that the city offers a variety of new flavors and foods which they are not reluctant to try.

They also discover that the fruits which cost them nothing in the country must be paid for in the city, and shift from platanos to bread, or from meat from home grown chickens or pigs to spaghetti.

Advertising has also helped to change tastes, and, as mass communications become more available throughout the country, can be expected to increase its impact, and stimulate change. The food distribution program carried on by the voluntary agencies, CARE and CRS, has added new elements to the Dominican low income diet, despite an initial resistance to unknown foods.

Improved education, particularly nutritional education, made a part of the regular school curriculum, teaches women to improve the health of their families through a change of diet. These factors and others tend to reduce the traditional resistance to "something new", including diet.

Cultural practice beliefs or even superstitions based on ignorance are not always easily surrendered, however, people in Latin America often believe, for example, that all women should remain in bed for 40 days after the birth of a child. Many of the superstitions concern food, and whatever their origin, should be taken into consideration when planning a new food product.

Most of the vitamins included in the Dominican diet come from fruits, which are plentiful in all parts of the country. There are, however, certain prejudices which limit their consumption. Fruits are classified as being "cold" or "hot". "Cold" fruits are believed to cause many ailments, from a simple cold up to and including tuberculosis; "hot" fruits may produce all sort of intestinal troubles, from diarrhea to typhoid fever.

Other food superstitions and beliefs include:

- ... limes cause diphtheria
- ... pineapples, bananas and mangos are poisonous if taken with milk
- ... fruit or fruit juice taken by a woman during her menstrual period causes tuberculosis
- ... burro's milk is best for a weak infant or child
- ... a woman cannot become pregnant as long as she nurses a child.

- ... a broth made from cow's hooves is an excellent food
- ... a woman must eat no fruit after giving birth to a child
- ... no fruit should be eaten after ironing clothes or roasting coffee, nor should anything cold be eaten or drunk.
- ... eating fruit stunts the growth of children between 10 and 15 years
- ... grapefruit, guayaba and yucca harm your stomach because they are cold.
- ... Pork harms the stomach
- ... Banana, grapefruit and coconut are harmful to a person with a fever
- ... avocados harm nursing mothers and pregnant women.
- ... milk is only good for babies and invalids
- ... corn is only fit for animal, not human, consumption
- ... local eggs are superior to those imported or from U.S. chicken because they are fertile. Eggs produced by hens without roosters are "no good", even if they are twice as large and sell for the same price.

And there are many more.

5). Affects of Malnutrition and Protein Deficiency

Ten years ago, it began to be realized that deficiency of protein in the diet was the most serious and widespread nutrition problem in the world. Today this is universally recognized. Malnutrition, due to lack of sufficient

or proper proteins in the diet, is partly the result of ignorance but, to an even greater extent, of poverty. Most protein rich foods are expensive, and education on proper diet is useless to the man who cannot afford to buy its ingredients.

In countries such as the Dominican Republic, where human rather than mechanized strength, is still the primary factor of production, national productivity can be drastically reduced by malnutrition, the cause of fatigue and general debility which reduce the capacity of the individual to work.

When malnutrition has been the lot of the majority of the population since infancy, irreversible mental and physical defects progressively reduce the potential of much of the population to contribute to the social and economic growth of their nation. A study of nutritional deficiencies in Brazil pointed out that "studies of mental abnormalities and retardation reveal that genetic causes are less important than biological and sociological factors, among which, nutrition is probably the most important."

Even lesser degrees of malnutrition adversely affect the capacity to work, and, therefore, decreases the production of capital and consumer goods, which, in turn, increases the severity of malnutrition. It has long been recognized by physicians that malnutrition greatly increases man's susceptibility to infectious diseases of all kinds, and that the cause of the spread, severity or deaths attributed to the disease may be malnutrition. For example, the death rate from measles is 85 times higher in Mexico than in the United States, 268 times higher in Guatemala and 274 times higher in Ecuador.

Not only infectious diseases but the severity of all types of illnesses is directly related to the degree of malnutrition present. The relationship is particularly disastrous when it affects children under five years old. Table 59 shows the causes of death of infants under one year, as compared with children from 1-4 and those over five years old. Obviously, from birth to age five, diarrhea is the primary cause of death. But the severity of diarrhea is highly associated with the degree of malnutrition present. The death rate among children from this ailment was notably reduced in Colombia and Guatemala by the simple expedient of distributing supplementary food to the age group most affected.

In children over five, diarrhea is still the first cause of death, but 30.6% of the deaths were caused by tuberculosis, one of the diseases most closely related to malnutrition.

TABLE 59

DEATHS CAUSED BY INFECTIOUS DISEASE, 1963-65

Diseases	Total Deaths	% All Deaths	Under 1 yr.		1-4 years		5 years +	
			No.	%	No.	%	No.	%
Tuberculosis	857	6.6	19	0.3	17	0.5	821	30.6
Typhoid/Paratyphoid	266	2.0	26	0.4	44	1.3	196	7.3
Diarrhea	11,564	88.4	6,855	97.3	3,081	91.9	1,628	60.7
Diphtheria	213	1.6	79	1.1	121	3.6	13	0.5
Whooping Cough	77	0.6	41	0.6	34	1.0	2	0.1
Measles	100	0.8	21	0.3	58	1.7	21	0.8
TOTAL	13,077	100.0	7,041	100.0	3,355	100.0	2,681	100.0

Source: Seminario de Nutrición del Niño y La Familia. Instituto Interamericano del Niño. Santo Domingo, April, 1967.

In 1963, 64 and 65, 1,048 deaths from deficiency diseases were reported in the Dominican Republic.¹ Of these, 255 or 24.3% occurred among infants of less than a year old. The incidence was even higher among children 1-4. Of every 100 deaths from vitamin deficiency, at least 60 were of children 1 to 4 years old. In children over five years old, the percentage dropped to 15.2%.

It is admitted that the scattered and incomplete nutrition surveys that have been carried on and published in the Dominican Republic, need amplification to obtain a full picture of the extent of malnutrition as well as assess the damage caused by diet deficiency to national development. Interpolation of data, however, developed from global surveys places the level of serious adolescent malnutrition (children whose growth retardation is equal to or greater than 20% of the normal for their country), in 1969 at about 888,000 or 40% of the 2.2 million children between 0 and 17 years of age.

Of the seriously malnourished children, 63% are in the pre-school age category, or 0-5 years old. About 37% of the malnutrition affects children of school age.

Children afflicted by malnutrition rarely make good students in school, and the numerous failures and "repeaters" in the school system may be the result of diet deficiency.

Growth rates among malnourished children in the Dominican Republic

1 - Seminario de Nutrición del Niño y la Familia. O.E.A. Santo Domingo, April, 1967.

are slower than their normally fed contemporaries in the U.S. as shown in Graph 37.

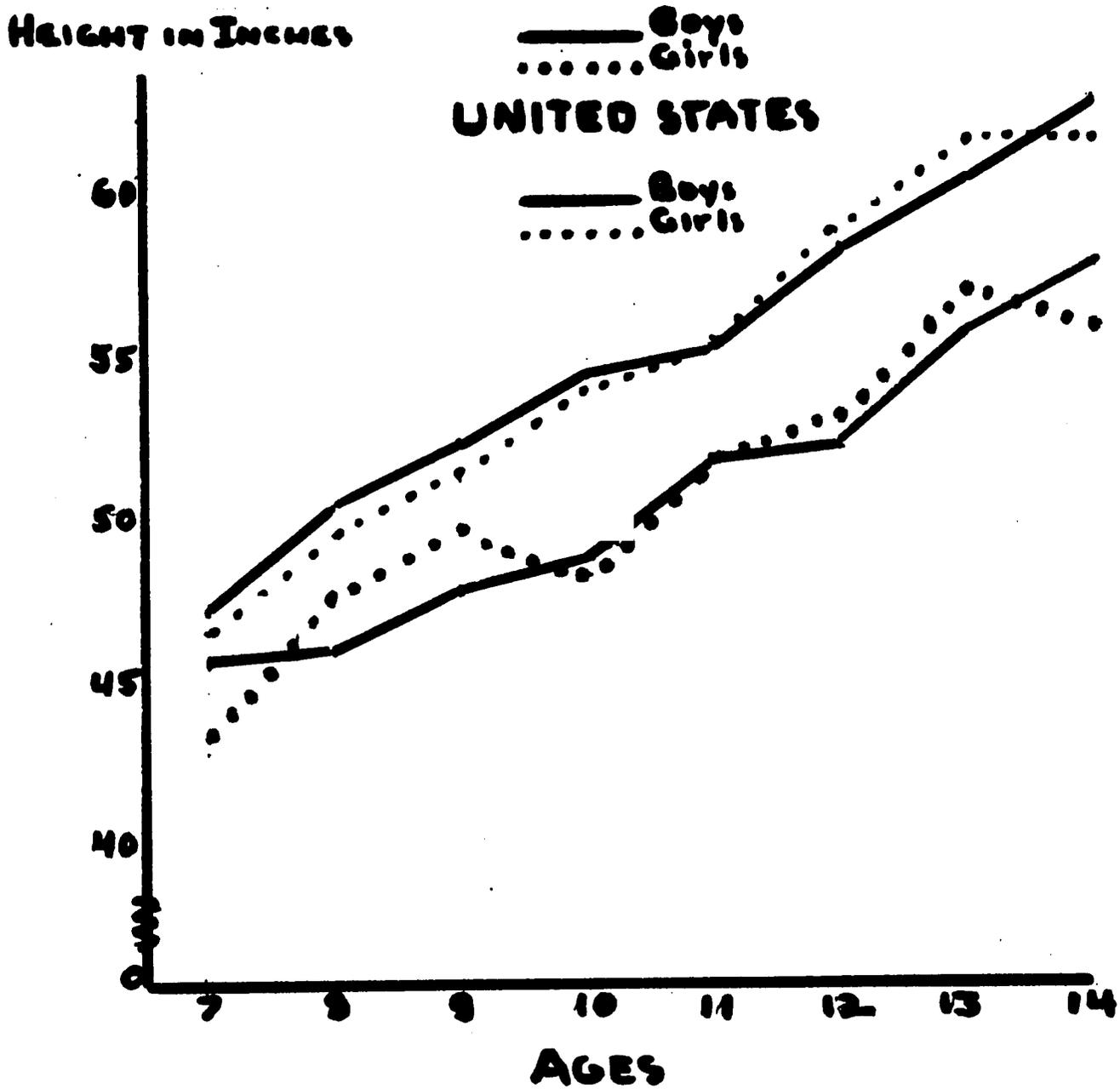
6). High Protein Food Supplement.

In 1963, the University of Santo Domingo began its first investigations and experiments to obtain a high protein, low cost food that could be used for supplementary feeding of the undernourished population. A product known as MANILAC was developed over a period of time, based upon a mixture of corn flour, peanut cake, powdered milk, starch, vitamin A, calcium and iron. The protein content was 33.5%. The product, however, has still not been adequately tested nor has its final formula been definitely determined. Several problems have prevented the further development of MANILAC.

1. Political disturbances since 1963 which interrupted the research.
2. Lack of adequate laboratory facilities, equipment, and trained personnel to continue the investigation.
3. The toxic qualities of domestically grown peanuts.
4. The high cost of powdered milk which is used to raise protein content.

Although it has not yet been possible to develop and test a high protein food supplement, an investigation and research will be renewed in January 1970 on a continuing basis. The project will be supported by UNICEF, working through the University of Santo Domingo with university and Department of Health personnel.

AVERAGE HEIGHTS BY AGE AND SEX DOMINICAN REP



7). Dominican Attitude Toward Malnutrition.

For some years serious concern about diet deficiencies and malnutrition in the Dominican Republic has been expressed in official Dominican publications. The Dominican Government development plan, the Plataforma para el Desarrollo Económico y Social, gives considerable space to discussing the urgent need to combat the chronic malnutrition of 80% of the population. A "Seminar on Child and Family Nutrition" was conducted in Santo Domingo for the first time in 1964, followed by an international meeting on the same subject in 1967, sponsored by the Dominican government and the Instituto Interamericano del Niño. The preliminary results of a recent study conducted by the Research Foundation Corp. of New York and the Institute of Nutritional Science of Columbia University at the request of the Public Health and Nutrition Division of the Dominican government, have confirmed the findings of the Seminars, and have aroused the interested and concern of the public.

Although copies of the final report are not yet available, local newspapers have printed extracts from the preliminary report and published editorials underlining the alarming state of malnutrition throughout the country.

The September 1, 1969 edition of El Caribe summarized the results of the investigation by publishing the following statistics:

".. more than 40% of the adolescents between 14 and 16 years of age are undernourished.

.. only 15-32% of the children between 0 and 5 years of age are of normal weight.

- .. less than 70% of children over 5 have attained the average weight for their ages.
- .. protein consumption was found to be far below normal in 32% of the children in the sample studied.
- .. hemoglobin was found below the normal in 54% of the sample, and vitamin C was deficient in 65% of the group.
- .. In the examinations made of blood and urine of 550 children, acceptable values were found only in 2%.
- .. in four regions of the country intake of protein was found to be less than 80% of normal and in two other regions, the level did not reach 60%
- .. riboflavina was deficient in all areas, the average receiving only 66% of the required minimum, with one area falling as low as 22%

An editorial appearing in the same paper on September 2, 1969 pointed out the need to take advantage of the information supplied by the study to change traditional eating habits to obtain the minimum requirements of proteins, carbohydrates, fats, minerals and vitamins. The writer emphasized the urgent need for national concentration on the problem, not only by government, but also private business and industry which "has an opportunity to participate in the production of high nutritional and low cost food products for the population of the country."

On September 4, 1969, it was announced that a FAO official from the World Food Program will be located permanently in Santo Domingo as a

consultant to the Dominican Government. An article appearing in Listin Diario in Santo Domingo the 4th of September, 1969 anticipated that the World Food Program would benefit greatly the sugar cane cutters by providing supplementary food for their families. It was also expected that the new World Food project would help the Dominican government to realize social and economic improvement goals such as better housing, more clinics, increased number of schools and the achievement of a significant program of agrarian reform. The World Food Program also expects to collaborate with the government in a program to improve the nutritional level of the population through educating the public about minimum dietary requirements and suggesting improved methods of food preparation.

Although it is difficult to predict whether workds will be translated into action, the evident interest of the Dominican government in correcting diet deficiency was indicated by its sponsorship of the study previously cited. Publicity given its results might open the doors of the institutional market (public hospitals, prisons, orphanages, etc.) to a new high protein, low-cost product. Collaboration with the new FAO project offers another possible avenue of distribution of high protein. Although agricultural workers themselves do not possess the financial resources to greatly improve their diets, it is possible that, as a result of the officieal recognition of the affects of poor diet on productivity, large land owners might be persuaded to supplement the diets of their workers.

At the least, the state of malnutrition of a large part of the population is recognized officially, and the installation of a high protein

low cost food processing plant should receive enthusiastic cooperation and practical assistance as a means to realize what is now stated as a national objective.

C. Food Distribution Programs.

1). PL 480 Title II Donations.

Recognizing the food deficiencies existing in the Dominican Republic, food commodities under U.S. Public Law 480, were made available on concessional terms, through both dollar credit sales and donation arrangements, shortly after the end of the Trujillo regime in 1961.

Through May, 1969, approximately \$90,000,000, including a dollar credit sales program of \$9,500,000 signed in March, 1969, and voluntary agency additions of \$11,000,000 brought the seven year total of PL 480 assistance to the Dominican Republic to nearly \$102,000,000. Since 1964, resource assistance, including both sales and donations, has averaged nearly \$15,000,000 a year. A summary of PL 480 sales and donations since 1962 is shown on Table 60.

Program proposals and monitoring of current programs in the responsibility of the Food for Freedom Division of USAID. Since its inception the program has included various projects, beginning in 1962 with a Title II Agrarian Reform Colonization Program in which commodities with a CCC value of \$1,822,000 were to have provided a grubstake of food to 5,465 families over a period of two years. Four years later, a total of 3,194 families had been located in 23 project areas throughout the country, representing the achievement of 59% of the settlement goal and utilizing 68% of the Title II

commodities programmed.

As mentioned earlier in the section dealing with Agrarian Reform, the settlement program was severely limited from the beginning by lack of Dominican government funds. Other problems also affecting the efficient distribution of Title II commodities include poor warehouse facilities for food storage, inefficient distribution practices, problems of transportation, lack of adequate records, etc.

TABLE 60

PL 480 SALES AND DONATION PROGRAM IN THE DOMINICAN REPUBLIC

	1962-1969			FY 70	Total Values
	FY 62-67	FY 68	FY 69		
	(Thousands of US \$)				
<u>SALES 1/</u>					
Commodities	12,800.0	11,200.0	9,100.0		33,100.0
Ocean Freight	900.0	741.2	400.0		2,041.2
<u>DONATIONS 2/</u>					
<u>1. Gov't/Gov't.</u>					
Commodities	4,592.0		270.9	298.0	5,160.9
Freight	1,124.0		67.1	73.8	1,264.9
<u>2. Vol. Agencies</u>					
Commodities	28,395.0	3,907.8	8,329.9	9,657.8	50,290.5
O. Freight	4,685.2	697.3	1,424.8 ^{3/}	1,425.3	8,232.6
<u>3. World Food Program</u>					
Commodities			455.3		455.3
O. Freight			276.0		276.0
<u>4. OAS (Emergency)</u>					
	1,130.9				1,130.9
<u>TOTALS: Commodities</u>					
	45,787.0	15,107.8	18,156.1	9,955.8	86,006.7
O. Freight	6,709.2	1,438.5	2,167.9	1,499.1	11,814.7
OAS/AID	1,130.9				1,130.9
<u>GRAND TOTAL</u>	<u>53,627.1</u>	<u>16,546.3</u>	<u>20,324.0</u>	<u>11,454.9</u>	<u>101,952.3</u>

Source: USAID/Food for Freedom Division

- 1/ Market Value
- 2/ CCC Cost
- 3/ Excludes port charges estimated at \$158,360

Commodities were also supplied under Title II for a "Food for Wages" program aimed to stimulate social and economic development by providing food for the worker and his family in lieu of 50% of the wages he would ordinarily receive. Problems involved in this program, as well as in the support to agrarian reform, led to a change in the orientation and goals of the food doantion program.

The major objectives of the Food for Freedom Program for FY 1970 through FY 1972 are stated to be:

1. To combat malnutrition by providing a food supplement for school children, expectant and nursing mothers and infants,
2. To maximize the use of food as a resource for development activities consistent with available financing and management capabilities,
3. To promote and assist the Dominican Government in developing a food resource management capability of increasing effectiveness.

Within the framework of these major objectives, the following goals have been established:

1. To assist the Dominican effort to reduce the degree of malnutrition affecting the economically disadvantaged sector of the population by providing a mineral fortified and vitamin enriched food supplement for selected program categories and the following number of recipients.

<u>YEAR</u>	<u>RECIPIENTS</u>
FY 1970	921,000
FY 1971	1,112,000
FY 1972	1,256,200

2. To utilize food resources as a catalyst to attract and commit the energies of able-bodied unemployed and/or under-employed people, in activities designed to alleviate the cause of the need for such assistance.

3. To assist in the organization of a National Food Resources Council to define national food resources goals, and establish and implement a national food policy assuring adequate planning and prudent use of external food resources.

4. To improve the dietary level of school children in the National District, by cooperating with and assisting the Secretariat of Education in its study and conclusion of how best to meet this need.

5. To develop understandings, knowledge and skill among selected Dominican staff, in cooperation with CARE, in planning and implementing the school lunch program.

In this program as projected, the voluntary agencies, CARE, Catholic Relief Service (CRS) and Church World Service (CWS) will carry the major administrative and program operation responsibilities. It is anticipated that increased financial and managerial participation will be required from the Dominican Government for the forthcoming period.

Table 61 outlines the programmed commodities to be distributed by the three voluntary agencies concerned, and Table 62 indicates the extent of Dominican support required for the operation of the program. A memorandum of Understanding, recorded in March, 1969, obligates the Dominican Government to finance port charges which were formerly the responsibility of the U.S. as part of the ocean transportation costs of donated commodities. This Understanding, plus increased funds budgeted for strengthening Secretariat functions related to the school lunch programs, are encouraging signs of official Dominican response to the need to correct national malnutrition.

TABLE 61

PROJECTED FOOD DONATION PROGRAM
 FY 1970 - FY 1972
 (Data in Thousands)

Volagency	Recipients	1970		
		Volume Pounds	CCC\$ Cost	Ocean Freight \$ Cost
CARE	608.5	34,028	5,690	680.6
CRS	301.0	43,178	3,811	864.0
CWS	11.7	1,981	155	39.0
TOTALS	921.2	79,187	9,656	1,583.6 <u>1/</u>
<u>1971</u>				
CARE	783.5	42,935	7,269	859
CRS	314.4	45,216	4,024	904
CWS	14.3	2,463	198	49
TOTALS	1,112.2	90,614	11,491	1,812

Continuation TABLE 61

PROJECTED FOOD DONATION PROGRAM
FY 1970 - FY 1972
(Data in Thousands)

1972

<u>Volagency</u>	<u>Recipients</u>	<u>Volume Pounds</u>	<u>CCC\$ Cost</u>	<u>Ocean Freight \$ Cost</u>
CARE	908.5	45,280	8,371	965
CRS	330.4	48,280	8,371	965
CWS	17.3	3,026	245	60
TOTALS	1,256.2	98,962	12,895	1,978
GRAND TOTALS	3,289.6	268,763	34,042	5,373.6 ^{1/}

Source: USAID/Food for Freedom Division

^{1/} Includes port charges estimated at 10% of freight costs.

TABLE 62

DOMINICAN GOVERNMENT MONETARY CONTRIBUTION
TOWARD VOLUNTARY AGENCY FOOD PROGRAMS
FY 1970 - FY 1972

	1970	1971	1972	Total
Inland Transportation	839,192	971,976	1,081,536	2,892,704
Local Port Charges	158,360	181,224	197,924	537,508
School Lunch ¹	200,000	200,000	200,000	600,000
Construction of Central Kitchen National District ²	125,000			125,000
Equipping Central Kitchen	335,000			335,000
Operation Costs of Central Kitchen	90,000	180,000	180,000	450,000
Upgrading the Dirección General de Alimentación y Nutrición Escolar	27,000	22,000	22,000	71,000
TOTALS	\$RD1,439,552 \$US 335,000	1,555,200	1,681,460	4,676,212 335,000

Source: USAID/Food for Freedom Division

1 - Monetary contribution made by the Secretariat of Education to the school district throughout the country for financing additional food, and/or ingredients, and paying other expenses related to the preparation of the school lunch.

2 - Although originally budgeted, the plan to establish a central kitchen has been abandoned, and less costly and more efficient ways are being studied to provide 40,000 students in Santo Domingo with a school lunch program.

The programs presently carried on using PL 480 donated commodities are administered through the USAID Food for Peace Office which works with and monitors the three voluntary agencies who handle the distribution of the commodities and the operation of the program. Costs of shipment and freight are paid by the US Government with costs of distribution and administration being the obligation of the Dominican Government. The cost of the combined programs is shown on Table 63.

2. The Voluntary Agencies.

a). CARE

CARE, a private international organization was organized in 1945 by Americans who wanted a means to assist war victims in Europe. CARE coordinated the activities of various social welfare organizations in the US and functioned as a delivery agent for donations and food packages sent to relatives or friends in occupied areas or those difficult to reach through regular mail channels. Since that time CARE has expanded its activities to include 35 different nations on four continents. Originally organized as a donation agency, the philosophy of CARE has changed during its more than twenty years of operation, today the need to educate and train individuals to earn their own food is recognized as a more important goal than simply giving relief.

By invitation, and under conditions stipulated by both the U.S. and the Dominican Government, CARE maintains administrative offices in Santo Domingo, and acts as a voluntary agency, collaborating with the host govern-

ment in its plans for social reform and economic development. It is not intended that CARE remain indefinitely as a food distribution agency. Its role is seen as an aid in rehabilitating and raising the productivity of human resources.

CARE's presence in the Dominican Republic is based on a written agreement signed with the Dominican government, providing for the payment of CARE administrative expenses and the cost of the food distribution, as well as duty free import of PL 480 Title II food commodities and other items imported by CARE for the implementation of the program.

CARE, in cooperation with the Secretariat of Education, supplies PL 480 commodities for the National School Lunch Program, and, in addition, contributes commodities for a maternal/child feeding program, and an institutional program in cooperation with the Secretariat of Health.

The total PL 480 food commodity requirement for carrying out the CARE program during the three year period, is 125.2 million pounds of food having an estimated CCC cost of 23.8 million dollars, of which 34 million pounds costing 6.4 million dollars will be expended in 1970. The estimated number of beneficiaries for the three year period is 2.3 million, of which 698,000 will be reached in 1970.

1). School Lunch

At present, 66% of the school enrollment on the primary level is receiving the benefits of the school lunch (432,000 of a total enrollment of

649,000). The goal of the program is to provide children with a hot breakfast or lunch to supplement their daily diets with a minimum of 582 calories and 28 grams of protein.

TABLE 63

COST OF PROPOSED PROGRAM BY RECIPIENT CATEGORIES
VOLUNTARY AGENCIES
FY 1970 - 1972
(in thousands of \$)

Program	1970	1971	1972	Total
1. School Feeding	525.0	650.0	700.0	1,875.0
2. Mother/Child	214.2	279.2	371.9	865.3
3. Other Child Feeding	10.2	10.2	10.2	30.6
4. Econ/Community Development (Workers)	26.2	26.44	26.73	79.37
5. Econ/Community Development (Dependents)	129.8	130.76	131.92	392.48
6. Institutions	5.3	5.3	5.3	15.9
7. Health Cases	5.0	5.0	5.0	15.0
8. Relief	5.5	5.3	5.15	15.95
TOTALS	921.2	1,112.20	1,256.20	3,289.6

In 1970, the program is expected to provide dietary supplements to 525,000 children, or about 78% of the primary school enrollment. In 1971, the program will be expanded to include 650,000 students, or 95% of the anticipated matriculation, and in 1972, to include 700,000, or 96.5% of the primary students.

2) Child/Maternal Feeding

It is estimated that in 1970, 940,000 out of a population of 4.3 million will fall in age group 0-5 years. Of this number, it is thought that 560,000, or 60%, are children of economically disadvantaged parents, most of whom are suffering from some degree of malnutrition. In 1969, 28,000 pre-school children are being assisted with a milk ration given them through established Health Centers and/or rural clinics in three areas of the country. The goal is to double this figure. CARE, with USAID agreement, plans to participate in the Government fresh milk distribution program which has been going on some years. In this program, the Dominican Government provides the funds through the Dept. of Public Health to purchase fresh milk for distribution through established Milk Centers. Due to budgetary limitations, the fresh milk program only reaches 35,000 beneficiaries through 100 distribution points with one bottle of milk a day. CARE participation will make it possible for new Centers to open and old Centers to increase their number of beneficiaries. Non-fat dry milk is distributed in a prepared form to supplement the Government fresh milk project. Since the initiation of this program in late 1968, fourteen new distribution points have been opened where 13,000 addi-

tional pre-school age children receive milk. Through the Health Centers and the milk distribution points, approximately 75,000 pre-school age children and mothers will be reached by 1970.

Beneficiaries of this program will be selected in the Health Centers by medical health officers. Children must be brought to the Centers every month where they will be examined, weighed and measured. Mothers will participate in conferences and demonstrations in child care, sanitation, proper use of dry non-fat milk etc. Informational, educational and consultation services on family planning will also be made available. Mothers will receive 2.7 pounds of non-fat dry milk every month. Children will be classified according to their degree of malnutrition, and appropriate treatment will be supplied. Fresh milk will be reserved for children under one year of age. The others will receive the non-fat dry milk.

3) Other Child and Institutional Feeding Program

This program provides for the use of PL 480, Title II commodities to supplement the diets of needy children under 18 years of age, residing in welfare institutions such as orphanages and hospitals. Food will also be made available to needy persons over 18 in hospitals. The level of recipients projected for 1970-72 is estimated at 5,600 children under 18, and 2,900 beneficiaries over that age living in 21 welfare institutions throughout the country. Each will receive a 9 pound food package every month with a total of 695 calories and 22.7 grams of protein daily.

b) Catholic Relief Service (CRS)/CARITAS

Catholic Relief Service (CRS) is an agency established for international relief by the Catholic Bishops of the United States. Contributions to the Bishops' Fund have supported the project in countries in every continent.

As one of the three U.S. Voluntary Agencies operating in the Dominican Republic, CRS and its local affiliate, CARITAS, has a basic agreement with the Dominican Government signed in 1962 and renewed in July, 1968. CRS/CARITAS has three central warehouses in the city of Santo Domingo with an approximate capacity of 5,000 metric tons of food. In addition, the agency has regional and local warehouse facilities.

It is estimated that in 1970 CRS will require 43,178,000 pounds of food commodities to provide a daily food supplement to 301,000 recipients in three programs.

1) Maternal/Child Feeding

Recipients in this category are undernourished children under six years of age, and expectant and nursing mothers. The food will be made available through established maternal/child feeding stations. About 60% of the participants will receive the food in a prepared form, the remainder receiving it raw. A total of 135,000 beneficiaries, including 27,000 children under 6, 3,600 children in institutions, and 8,000 expectant and nursing mothers, will receive a daily food supplement equal to 841 calories and 28.6 grams of protein.

2) Economic/Community Development Program

~~Economic/community~~ development programs carried on by CRS/CARITAS, include the construction of water control facilities (includ-

ing wells, reservoirs, drainage ditches, feeder roads, small bridges, and fences), and land improvement (clearance, drainage, reforestation, leveling and cultivating). PL 480, Title II food will be used to stimulate the participation of able-bodied citizens in economic projects to benefit the entire community. The 1970 targets are,

- a) to maintain a monthly average labor force of 25,000 volunteers who will contribute a minimum of four days labor per person per month,
- b) to promote nutritional improvement of the 25,000 participants and their 125,000 dependents.

For his work, each participant will receive approximately 68 pounds of PL 480 commodities valued at \$6.24 and equal to \$18.00 in the local market, for himself and his family each month. Projects will all be extremely simple so that they may be carried out by local people with no or very little outside technical, supply, or equipment assistance.

3.) Welfare and Relief

In the welfare and relief program, food assistance is provided for institutions, hospitals, homes for the aged, and asylums, with provisions made for outpatient health cases, aged people not in institutions, and the physically handicapped. The food is distributed through the administration of the institutions or directly to the recipients.

Approximately ten pounds of PL 480 commodities per month will be provided, equivalent to 694 calories and 18 grams of protein daily to 5,000 health cases.

A daily food supplement, equivalent to 692 calories and 16 grams of protein will be provided for 2,400 recipients in institutions, and 694 calories and 18 grams of protein to 5,000 others in the relief category. To qualify as a recipient, it must be established that the medical treatment proposed will be assisted by a more adequate diet.

c.) CWS - CHURCH WORLD SERVICE

CWS carries out a relatively small PL 480 food program in the Dominican Republic, operating through a local counterpart, Servicio Social de Iglesias Dominicanas. The total Title II requirements for the 1970-72 program are 7,470,000 pounds of food at an estimated cost of \$746,000 to benefit 43,300 recipients, 11,700 of whom will be included the first year. Of this number, 5,200 are included in the maternal/child program, 6,000 in the economic/community development program, and 500 will receive relief.

1.) Community Development

During the last fifteen years, this organization has undertaken pro-

jects in the area of education, (literacy courses, sewing clubs, etc.). From 1970 on, however, emphasis will be given to projects in community development, such as the construction of community centers. Participants will contribute a minimum of not less than four days of work every month, for which he and his dependents will receive 70 pounds of PL 480 commodities, valued at \$5.92 and worth \$13.90 on the local market.

2) Maternal/Child and Other Child Feeding Programs

This program provides food assistance to maternal/child recipients equivalent to 1,037 calories and 41 grams of protein daily. In addition, 100 recipients in orphanages will receive the same ration of 16.7 pounds of food a month. Approximately 900 children attending summer camp will receive individual rations of nine pounds of food equivalent to 480 calories and 24 grams of protein per day during a three month vacation period.

3) Welfare and Relief

Through the welfare and relief program, food assistance will be provided for selected elderly or physically handicapped, needy people, or persons in temporary need because of unemployment. A total of 500 monthly rations are planned for 1970. Beneficiaries will be selected by CWS social workers according to the economic situation of the applicants, and assistance will be limited to a three month period. All will receive monthly rations of 14 pounds, supplying 890 calories and 26.3 grams of protein per day.

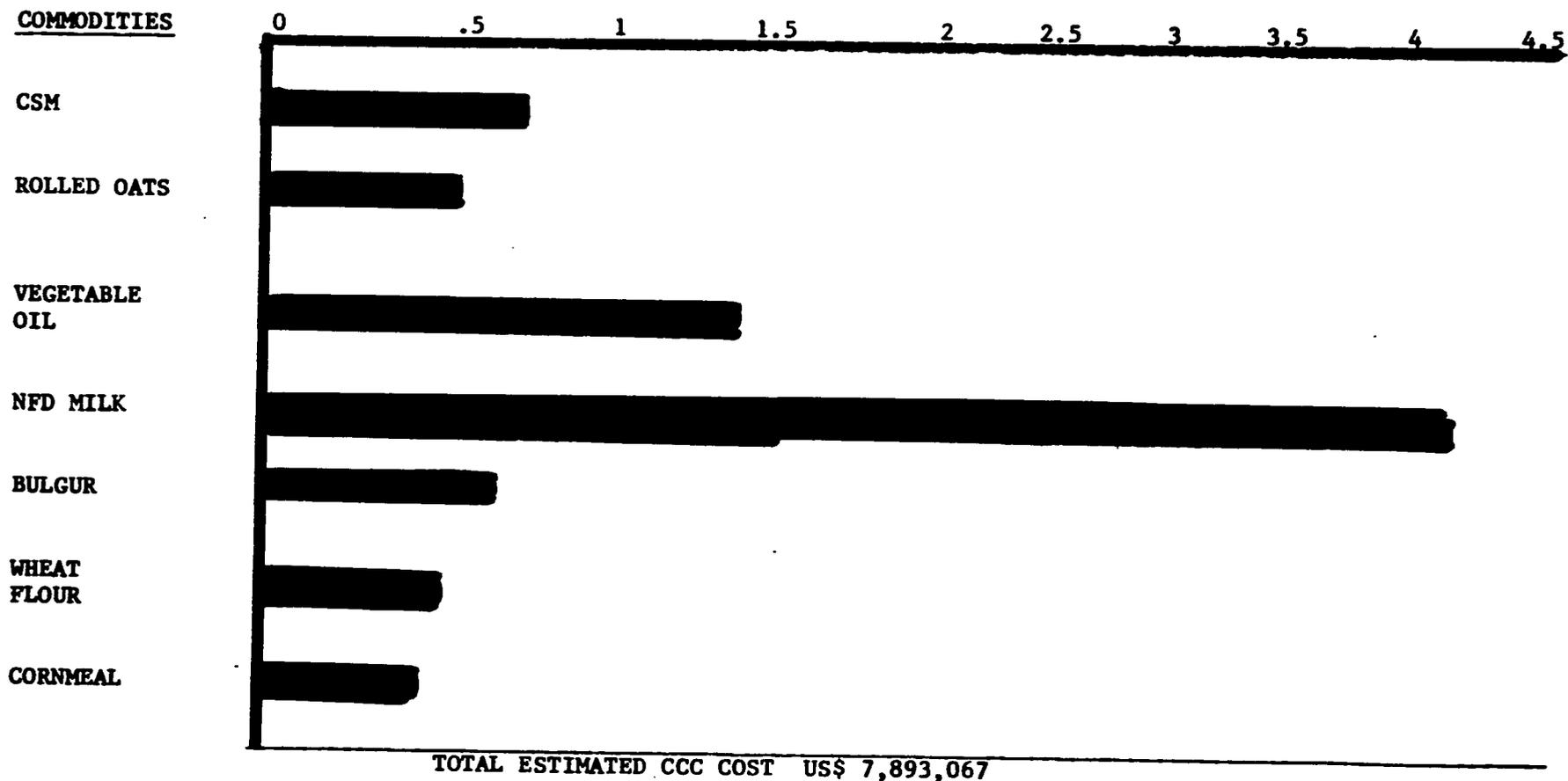
3. The World Food Program

The World Food Program was developed as the result of recommenda-

GRAPH 38

P.L. 480, Title II, U.S. Voluntary Agencies

ESTIMATED COMMODITY COST
FY 1970
(Millions)

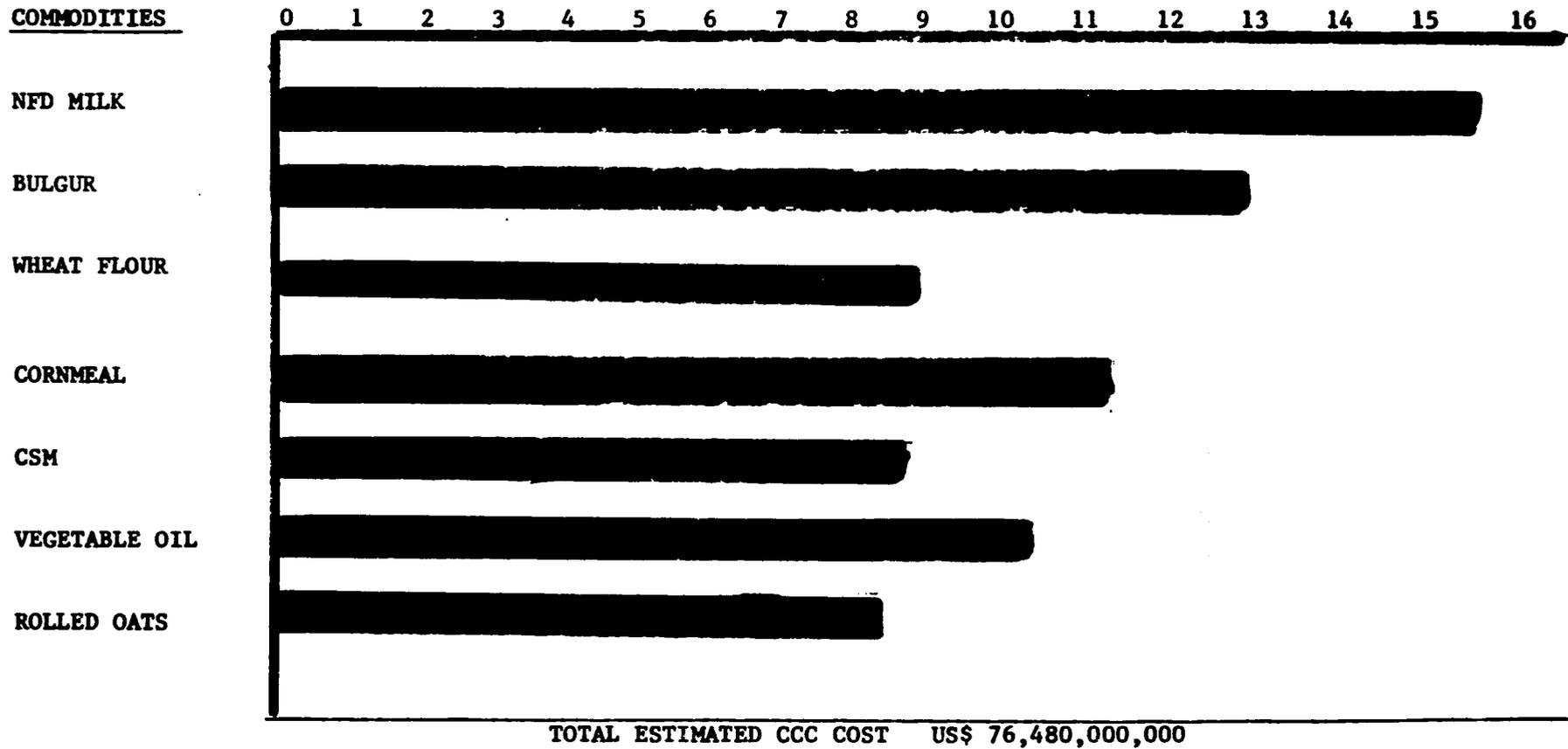


GRAPH 39

P. L. 480, Title II, U.S. Voluntary Agencies

COMMODITY REQUIREMENTS IN POUNDS

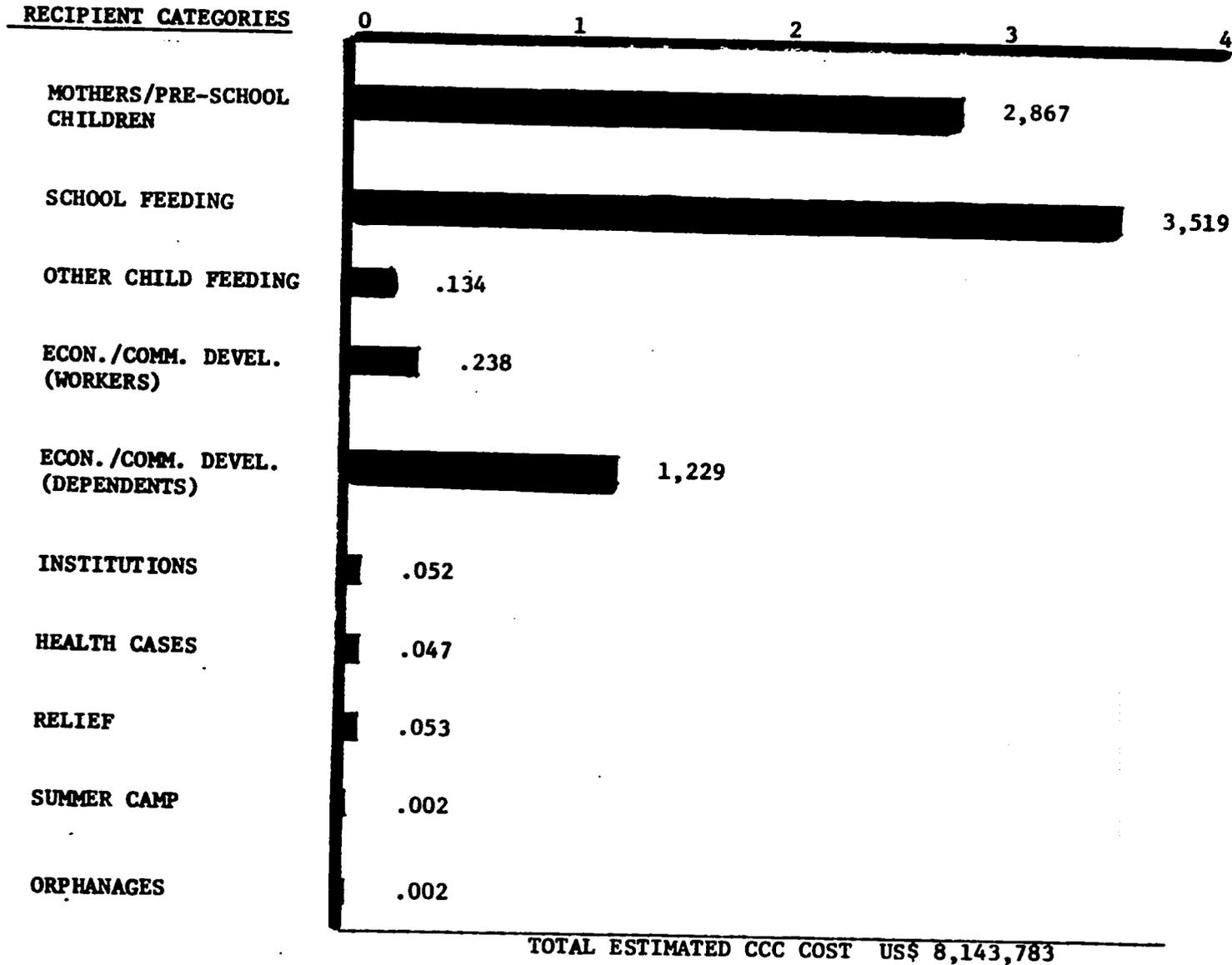
FY 1970
(Millions)



GRAPH 40

P. L. 480, Title II, U.S. Voluntary Agencies

ESTIMATED COST BY RECIPIENT CATEGORIES
 FY 1970
 (Millions)



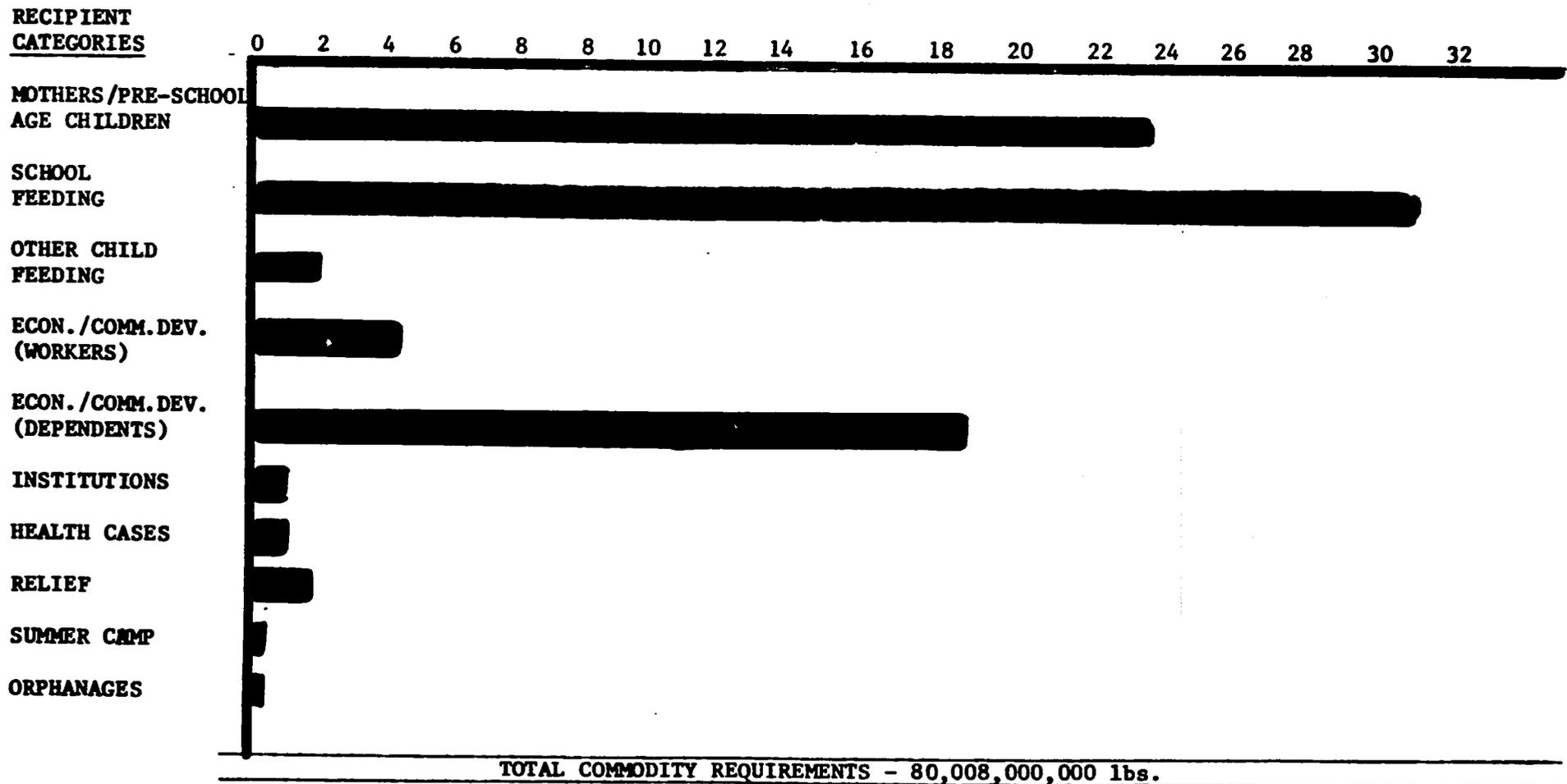
GRAPH 41

P. L. 480, Title II, U.S. Voluntary Agencies

COMMODITY REQUIREMENTS IN POUNDS

BY RECIPIENTS CATEGORY

FY 1970
(Millions)



tions made by the Food and Agriculture Administration (FAO), that a program be organized to distribute food in areas of the world where it was most needed. In 1963, the World Food Program was organized in Washington, D.C., affiliated with the United Nations, and administered through the FAO representatives resident in each of the participating countries.

In September, 1969, the World Food Program proposed an amplified program of food distribution, combined with social and economic development projects, to the Dominican Government.

Fao had previously donated large quantities of food to the Dominican Republic to assist in the drought relief program in 1968. The new project, however, is not directed toward disaster relief, but is concentrated on all aspects of human resource development.

4. The World Health Organization

In September, 1969, the Dominican Government signed an agreement with the World Health Organization (United Nations) to extend its nutritional program throughout the country. The objectives specified in the agreement included:

- a) The establishment of an adequate technical-administrative structure,
- b) The study of the principal population problems of the country,
- c) The prevention and control of infant malnutrition and other deficiency diseases,
- d) The improvement of hospital diets,
- e) The study of potential domestic food sources of high nutritional value that could be processed at low cost.

The financing of the program will be the responsibility of the Dominican Government through the Secretaria de Salud Publica (Public Health) at an estimated cost of \$1,800,000. This sum will be utilized to purchase foods to be distributed through hospitals, Health Centers, rural clinics, and Maternal/Child Feeding Centers to the benefit of 150,000 mothers and children.

The World Health Organization will contribute technical assistance and scholarships for training the personnel of Salud Publica outside of the Dominican Republic.

5. Provincial and Municipal Programs

From time to time the provincial governments make local food distributions of commodities donated by the World Food Program. The municipal government of Santo Domingo also makes some food available on an irregular basis at prices considerably below those of the market.

D. High Protein Foods in Other Areas

Statistics from all sources leave no doubt of the serious protein deficiency in many areas of the world, and the need to discover a generally acceptable source of protein to replace the traditional animal sources at a lower cost. The product has not proved easy to find, despite the production of crops which apparently fulfill the requirements from a nutritional standpoint.

The two year old program of private industry/U.S. Government collaboration to discover a high protein food combining taste appeal and a low price to improve the diet and reduce the protein deficiency among low income families, has had only marginal success. The assumption that "hungry people will eat anything provided that it is cheaper," has proved mistaken. The fact is that taste discrimination in Latin America is not limited to the affluent society. Even the hungry or the malnourished eat a food only if they like it.

Several of the large food processors and manufacturers have shown that it is possible to make a high protein food at low cost. But the expense of the refinements needed to make the food acceptable may put the product beyond the reach of those who need it most. Marketing techniques such as attractive packaging, advertising campaigns, and promotion cannot be used if the goal of the product is to reduce the malnutrition and diet deficiency characteristic of the low income population. A new product for this sector of the population must also overcome the traditional food habits, preferences or superstitions of an often illiterate, isolated population, rarely reached by modern methods of mass communica-

tion, and living outside of the money economy.

USAID has awarded contracts amounting to about \$350,000 to six companies for feasibility studies of the commercial introduction of high protein foods into Latin America. Although the studies, of which, this is one, have provided information on local diets, customs, market channels, and competitive products, none, including this one, can predict with any certainty the reception of a new food product without thorough acceptability trials. A summary of the progress of projects completed or currently being carried out, illustrates some of the principal problems of a new food product aimed at the low income, but dependent upon profitable sales.

1. El Salvador - Pillsbury

The Pillsbury Co. hoped to be able to market a low cost, high protein beverage in El Salvador. The country seemed promising, having a highly concentrated population, widespread malnutrition, and a heavy consumption of soft drinks. A considerable investment was made, including the construction of a fascimile plant in Minneapolis, simulating conditions of production in El Salvador. The product, a beverage made from wheat germ, sesame powder, and sugar, and christened "FRESCA VIDA" was manufactured in Minneapolis and shipped to El Salvador. Initial consumer taste acceptance seemed promising, but numerous technical problems remain to be solved before Pillsbury will feel justified in establishing a production plant in Central America.

2. Brazil - Krause and Swift

Krause Milling Co., which has enjoyed long time, extensive sales of a corn-soy-milk mixture to the U.S. Government for free distribution in

Latin America through the P.L. 480 distribution of food commodities, recently completed a study of the expansion of Brazil's corn milling industry, and the use of corn based products as a low cost protein food source. The market analysis showed that corn products were taste competitive with existing Brazilian grain preferences, but the company is not proceeding further until some of the technical and marketing problems can be solved.

The Swift Co. has just completed another study in Brazil of a soybean based beverage and a protein supplement for a sausage-type product. Although no definite investment has been decided upon, Swift has already arranged for audits of several local firms interested in a joint venture to manufacture and sell the product. However, Swift advises that complex technical and marketing problems must be resolved before any investment plan can be consummated.

3. Guyana - Monsanto

Monsanto's market investigation in Guyana was not financed by AID. Commercial marketing of "PUMA" a soft drink with a vegetable protein base, began in April, 1969, after a careful market survey and considerable expenditure in research and development of product to appeal to the taste of the local market. After three months of commercial sale, the beverage, which sells for 10¢, the same price as other local soft drinks, has had better than anticipated success.

After making recent market surveys in several other Latin American countries, Monsanto is considering offering franchises to secure a wider market for a "PUMA" type beverage. It is the opinion of the company that taste appeal is the principal reason for the success of the product

in Guyana, and plans to adjust the flavor of the beverage to conform to local tastes wherever it is introduced.

4. Colombia/Central America - INCAP/Quaker Oats

Although experiencing moderate success in Colombia with "INCAPARINA," Quaker Oats reports that ingrained eating habits have prevented the product from capturing a large share of the market in the years since its introduction in 1963. Although without the nutrient qualities of "INCAPARINA," its competitors have offered greater taste appeal. Consumers, apparently, have not been greatly impressed with the idea of buying "what was good for them," in spite of an extensive radio advertising program and official promotion through Government health centers. Test marketing conducted on a similar product in Venezuela and Brazil has not proved successful, although a small market in Nicaragua has been developed. The product was discontinued in Peru.

The early hopes of Quaker Oats that high protein food products would significantly improve the Latin American diet have been shown to have been overoptimistic. The years of experience with "INCAPARINA," however, have been valuable to current and future projects in that they demonstrate clearly that taste is the key to success, and that exhaustive studies of preference patterns, traditional marketing and methods of distribution are prerequisites for quantity sales.

The experience of "INCAPARINA" is particularly interesting because of the time spent in product development and the money spent in advertising and promotion. "INCAPARINA" has been on the market for nearly six years, and is available in Guatemala, El Salvador, Honduras, Colombia,

Costa Rica, Brazil and Panama.

Because "INCAPARINA" has been on the market longer than any other high protein food, the history of its development offers useful pointers to other similar products.

Before introducing a commercial product, the Institute of Nutrition of Central America (INCAP), a cooperative international institute established by the countries of Central America to study the nutrition problems of the area and assist member countries to apply the solutions discovered, studied and tested various mixtures of vegetable proteins. INCAP looked for an adequate protein supplement for the diets of people living in regions where animal proteins are scarce and too high in price for large sectors of the population. The final formulas found to be the most effective, were the culmination of twelve years of research, and were given the generic name of "INCAPARINA."

Acceptability tests were initiated in 1959 among urban and rural low income groups in Guatemala, and marketing trials indicated that "INCAPARINA" could be successfully distributed commercially. The product has the appearance and consistency of a finely ground dark flour, and is cooked in the home with the addition of water, sugar and flavoring.

The product was first tested commercially in 1959 with the cooperation of various interested commercial firms and the Guatemalan Ministry of Health, by means of a three month sales trial in a community of 3,600 inhabitants. At the end of the first four week period, a total of 4,500 bags of 75 grams, or more than 750 pounds, had been sold. The second market trial in 1960 lasted for seven months, during which 700,000

pounds were sold in the capital city and other urban areas of Guatemala. All but 25,000 pounds were sold in the 75 gram bags (about 2 1/2 ounces), containing a sufficient quantity to prepare three glasses or a day's supply. The price to the consumer was 3¢ a bag during the market trials. As a result of the tests, "INCAPARINA" was offered on a franchise basis to already established firms in Central America. In Guatemala, production was first taken over by a brewery which was later replaced by a new plant, Incaparina de Alimentos, S.A., which also supplies Honduras. Production in Colombia, Nicaragua and Brazil was assumed by Quaker Oats.

In 1968, two studies of the acceptability of "INCAPARINA" were conducted in Guatemala, one covering a sample of 800 families, and the other 1,250 families and 240 retail outlets. The findings of the two studies differed less than 6%, and, among other things, noted that:

- . . . 55% of Guatemalan families regularly use "INCAPARINA."
- . . . 29% of the consumer families had incomes of less than \$20.00 a month.
- . . . 61% of the consumer families had incomes between \$20.00 and \$100.00 a month.
- . . . 76% of the consumer families had incomes greater than \$100.00 a month.

The depth of penetration of the upper income group was taken as proof that "INCAPARINA" was not considered a "poor man's food" by the consuming public. Seventy four percent of the sales were made in the urban market, while the penetration of the rural market dropped to 41%. "INCAPARINA" was found to be regularly stocked by 70% of the retail stores included

in the sample, all of which featured a two ounce package of "INCAPARINA" selling for 5¢.

"INCAPARINA" is packaged in paper envelopes with a red design, the principal lettering reading, "Vigor con INCAPARINA - Buena para Toda la Familia." (Strength with INCAPARINA - Good for the Whole Family.) Instructions for preparation are given on the reverse side of the envelope,

- 1) "Mix the contents of the envelope with four glasses of water, adding salt, sugar, cinammon or vanilla."
- 2) "Stir well and cook at least fifteen minutes."
- 3) "If your diet does not contain much meat, eggs, or milk, you should take one envelope of INCAPARINA daily."

The packaging and instructions appear to violate several of the promotional principles that other companies have thought to be important. First, the appeal on the package is directed to "what is good for you," rather than to "what you like." Second, the product requires too many other ingredients, adding to the cost of the food, requiring literacy, time for preparation, and expense for fuel. Third, the buyer is reminded that he is so poor that he cannot buy the meat, eggs and milk that he might prefer, and is reduced to eating "poor man's food," a phrase that does not appeal to Latin Americans. Conversely, the higher income group might well assume that since they do eat meat, eggs and milk, they have little need for INCAPARINA.

Price has been a major marketing problem of "INCAPARINA," because of currency fluctuation and variation in the cost of raw materials in some of the Latin American countries where it is being produced. De-

pending on the area, "INCAPARINA" sells from 11¢ to 30¢ per pound, an amount sufficient for the preparation of 20 glasses of a drink with the nutritive value of milk.

In six years of promotion, the total sales of "INCAPARINA" in Guatemala, El Salvador, Honduras, Costa Rica, Brazil and Panama have been built up to 5.25 million pounds per year, 1.8 millions corresponding to Central America, and 3.4 million to the remaining countries, as shown on Table 64.

Table 64 ANNUAL SALES OF "INCAPARINA"

Country	Population	Annual Sales
Guatemala	4,438,000	
El Salvador	2,929,000	
Honduras	2,284,000	
Costa Rica	1,433,000	\$1,800,000
Panama	<u>1,246,000</u>	
Subtotal	12,330,000	

Colombia	17,787,000	
Brazil	<u>81,301,000</u>	\$3,400,000
Subtotal	99,088,000	

GRAND TOTAL	111,418,000	\$5,200,000

Source: Banco Central, Santo Domingo, D.R.

The experience of "INCAPARINA" in these countries is significant because from a standpoint of area, population, climate, residence, industrial development, income distribution, cultural background and language, the Central American countries have much in common with the Dominican Republic. (Table 65) Many of the marketing, distribution and sales problems experienced in that area might be anticipated here, and merit a close study.

Table 65 AREA, POPULATION AND DENSITY OF POPULATION
OF THE DOMINICAN REPUBLIC AND OTHER LATIN
AMERICAN COUNTRIES
1965

Country	Area KM ²	Population (1,000)	Density (Pop./KM ²)
DOMINICAN REPUBLIC	48,442	3,624	74.8
Guatemala	108,889	4,438	40.8
Costa Rica	50,900	1,433	28.3
El Salvador	20,935	2,929	139.9
Honduras	112,088	2,284	20.4
Nicaragua	139,000	1,655	11.9
Panama	75,650	1,246	16.5

Source: Cifras Estadísticas, op. cit.

5. Colombia - CPC International, Inc.

In August, 1969, the CPC International, Inc. announced the introduction of a new high protein corn product, "DURYEA," in Colombia. Competitive with "INCAPARINA," and intended for infant feeding, the product is made from a special strain of corn containing 10 amino acids essential for proper mental and physical development. The formula also contains soy flour fortified with vitamins and minerals. The preparation of "DURYEA" is essentially the same as that of "INCAPARINA," being a flour or gruel mixed with sugar and water and then cooked. It is too early to know the success of this product on the market.

6. Study - Rutgers University

A study, financed by AID, is presently being conducted by Rutgers University to determine ways of fortifying Central America's staple food, cornmeal tortillas, with amino acids to increase their protein value.

7. Kenya - Del Monte

A study of the commercial feasibility of the introduction of a high protein food in Kenya by the Del Monte Co., placed the commercial market at not more than 10% of the population, the upper level having a per capita income of \$641.00. (The same segment of 10% in the Dominican Republic has a per capita income of close to \$2,000.) It was found that 90-95% of the population grow their own food, and could be considered out of the money economy. Numerous food tabus would make a somewhat different product necessary for each tribe, although no significant quantity of sales could be assured for any. The Del Monte investigators concluded that, while there was an undoubted need for a high protein food,

a commercial investment was not feasible.

8. Workshop - India

A workshop, entitled, "New Foods for National Development," held in India in 1967, outlined some of the problems of high food production and marketing in developing nations, and suggested some possible answers.

- . . . It was suggested that the term "high protein foods" be dropped in favor of simply "protein products." The proportion of protein was not considered important if the product gave good value for its price.
- . . . It was not considered possible to solve all protein problems or serve all market segments at once with the same product. It was suggested that the needs and desires of each type of potential market be considered individually.
- . . . Experience in South Africa showed that a product first marketed to successful whites could be sold to poor blacks more easily than vice versa, or applied in other areas, that the low income segment readily accepted what was eaten by the high income group.
- . . . The attempt to sell maize coated with high protein in Latin America was unsuccessful because, even though the cost of treated was only 5-10% above that untreated, housewives could not tell the difference, and were, therefore, unwilling to pay the premium price.
- . . . "VITASOY" a very successful drink in Hong Kong, did not sell well until it was promoted as any other soft drink, on the

basis that it "makes girls prettier, men healthier, and everybody happier." "VITA-SOY" is now the best selling drink of cola type in Hong Kong, and has increased its sales volume by the addition of a hot winter beverage.

- . . . It was suggested that the trend toward "classless foods" be used to promote high protein food. It was agreed that status should be established if possible, but with an appeal to a wide range of classes.
- . . . It was concluded that the most important elements leading to success were, 1) the availability of inexpensive raw materials, and 2) processing facilities matched to the felt needs of each market segment.

VII THE HIGH PROTEIN PRODUCT, PLANT AND PRODUCTION

VII THE HIGH PROTEIN PRODUCT, PLANT AND PRODUCTION

A. The product

The exact high protein product proposed for marketing in the Dominican Republic has not been definitely determined. A few prototypes were shown at a meeting of persons interested in the project in September, 1969 to obtain opinions and suggestions. There are several possibilities, all of which are based upon a combination of soy corn, sugar and vitamins, cooked by an extrusion process which produces a ready-to-eat food product not requiring the addition of ingredients or cooking. The exact size and form are easily varied, and different flavors can be added. Either full fat or textured (oil removed) soy may be used, the reduction of the oil progressively increasing the "blowup" or volume of the product. Full fat soy produces a crisp snack-like product (almond, round, or like a Frito) which can be made in any shape or size desirable. Textured soy can produce an item in weight and density to popcorn or a cheese puff. The greater the amount of oil removed, the puffier the product. Water soluble flavors such as salt, meat or pizza can be added to the full fat soy with no additional cost. Oil solution flavors, however, including cheese, chocolate, coconut etc. increases the cost of the product 16 cents per pound, and would only be practical for products destined to a high income market where taste rather than price determines sale.

The sweetness of the product is determined by the proportion of sugar added, a factor also influencing the final cost. The possibility of aerating molasses to use as a sweetening agent is controversial. Honey is another possibility, but no investigation has been made of its production or price in the Dominican Republic.

The exact composition of the product is also undecided. Ordinarily, the greater the protein content, the fewer the possibilities of variety of form and texture. "Bits" made with full fat soy are oily, although not much more so than potato chips or other fried product. This might prove disadvantageous to sales in the Dominican Republic, but to what extent cannot be predicted without acceptability testing.

The product can be manufactured in an almost unlimited variety of types and flavors, but price is, of course, a major consideration. It has been pointed out many times in this report that the commercial market, although strong, is limited and elite. It is not suffering from protein deficiency, and taste rather than price would be the primary consideration. A product can be made which would probably appeal to this group and produce substantial sales, but the cost of production would probably make it prohibitively expensive for the lower income groups. The advisability of attempting to introduce two or more varieties initially is doubtful, although the addition of new products is an important part of future planning.

Whatever the form and flavor decided upon, the proposed product has several important advantages over high protein products marketed in other areas so far.

1. It does not have to be cooked. One of the problems encountered in most areas by the Voluntary Agencies engaged in food distributions, is the need to teach recipients to prepare the food provided. Powdered milk has to be mixed; cereal products have to be cooked. Some kind of kitchen and equipment is required for preparation, and fuel has to be purchased, a cost which a ready-to-eat product would eliminate. For

example, Table 62 indicated a budgeted cost by the Dominican Government of \$125,000 to construct a central kitchen for school lunches, \$335,000 to equip it, and \$180,000 a year to maintain it. None of these costs would be necessary with the high protein product proposed.

Preparation requires either teaching how to use a product or a literate consuming public. While literacy is no problem in the upper income level, except for maids who may or may not be able to read instructions on the package, it is an important factor with rural or other low income groups. The need for preparation also eliminates sales of a 5 cent package which can be torn open and eaten on the street.

2. The purchase price is the final price. "INCAPARINA" for example, requires the addition of water, salt, sugar, vanilla or cinnamon. Depending upon prevalent local prices, it is possible that the additional ingredients could cost more than the original product.

B. Price

It is difficult, if not impossible to calculate a price for a product which does not exist. That is, the cost of the principal ingredients is known, but the flavorings or ingredients which may be required to have a product suitable for the market, are as yet unknown. Present plans call for a product consisting basically of:

30% soy	
50% corn (or other cereal)	
10% sugar	= \$0.39 lb. RETAIL
10% vitamins, salt and other ingredients	

Oil content, flavor, packaging etc. could raise or lower the final price. One of the most saleable items would be a one or two ounce package selling for \$.05, and competitive with same size packages as those used for potato and plantain chips selling for \$.10.

C. Brand

With the projected inclusion of additional products, the choice of a brand name to identify all products is most important. Most advertising in the Dominican Republic pushes brand name rather than individual product, because the consuming public is brand conscious. If, for example, "Kellogg produces one good cereal food, therefore the other must also be good," is an accepted sales philosophy in the Dominican Republic. Women don't buy cosmetics; they buy "Revlon".

Because brand name is a part of the "package" to be sold, it is important that it be tested along with the taste and price of the product. The name "Macho", has been tentatively chosen as the brand name for high protein foods. The word itself simply means "male," but the connotation is one of strength, virility, and "boss". The appeal of the name to women has been questioned, but provided that an appropriate symbol illustrates its consumption by females and children as well as males, there should be no particular problem. The word has impact, is short and easy to say and remember, suitable for radio commercials, and hopefully, amusing and interesting to the public. Although at present, the brand name seems well suited to the product, its acceptability and appeal should be tested together with the product, as should any brand name proposed.

Steps are already being taken to register the brand name "Macho," for use on all products of the basic plant, so that future product diversifications may benefit from identification with an established brand associated with high quality and high food value.

D. Raw Materials

The domestic production of corn and soy have been discussed in the section, "Potential Products for High Protein Foods." Although there is some difference of opinion as to the potential production of soy in Santo Domingo, it could be pointed out that sales of peanut oil amounted to \$22,000,000 in 1967, and that peanuts were not grown in the Dominican Republic until there was a demand. Local production has had to be supplemented by imports, although 45,300 metric tons were produced in the Dominican Republic in 1967. Apparently "Manicera," the peanut oil factory, has experienced no great difficulty in contracting farmers to grow soy for their new plant which will produce both peanut and soy oil. However, since no information on this production will be available until 1970, it is too early to comment on the market success of soybean oil as compared to the "habit" of peanut oil.

Although it may take some time for sufficient quantities of soy to be grown domestically, the crop is suitable for the country, the problem being one of price and marketing. Until such time as soy is produced commercially, however, it can be imported from the U.S. at a present price under that of the local production.

Corn is grown everywhere in the Dominican Republic in lesser or greater quantities. Fluctuating prices caused largely by lack of storage facilities,

have been an impediment to larger production. With new silos going up in both the Santiago and La Vega area, the problem should be somewhat reduced. In any case, there should be relatively little trouble in contracting the amount of corn needed for production of high protein food.

Sorghum grain, a new crop recently introduced in the Dominican Republic, is another possibility for high protein food ingredients. It has been remarked, however, that, although untested, the acceptability of sorghum is doubtful. Milo has also been suggested as an ingredient, the problem being the variation of protein content, making it difficult to standardize a final product. Both milo and sorghum, however, offer possible ingredients which can be locally grown.

Sugar is plentiful, but its price is high at \$.07 a pound.

Flavorings such as chocolate, coconut, fruit, etc. are locally available, but would add to the cost of the final product.

The total cost of raw materials is not included since we do not know the exact composition of the total quantities of the ingredients required.

In general, although actual production of raw materials is not adequate for a high protein food plant, potential production is, particularly if the production of basic ingredients is contracted in advance, thus ensuring the farmer of a market for his produce.

D. Labor and Manpower

Remarks concerning availability, productivity and cost of labor in the Dominican Republic will have to be general, since we have no information

regarding the number of workers or their skill levels that would be required in a plant such as that contemplated.

The labor force, as it affects the commercial market was discussed in the Section of this report entitled "The Consumer."

It has been commented that "stability is the main characteristic of the Dominican labor force." 1 Although the statement is somewhat hard to accept in view of the seasonal nature of both agriculture and food processing, the principal manufacturing activity in the Dominican Republic, it is true, that laborers rarely move from urban to rural areas even when work is available. Most urban workers consider farmwork beneath their skills and dignity.

Actually, the labor force in general lacks skills required by industry. Approximately 45% of the industrial work force was estimated to be skilled or semi-skilled as of mid-1967. Although this proportion was considered nearly sufficient for present requirements, it falls far short of even a moderate industrialization program. It is also agreed moreover, that there is a general need to upgrade the capabilities of the semi-skilled and give further training to the "skilled." If highly skilled workers are required, they must generally be imported, particularly personnel for supervisory or management positions. Overall, including the agricultural population, only about 20% of all workers (182,000) had any skills in 1967.

1. Labor Law and Practice in the Dominican Republic. U.S. Department of Labor, 1968.

Table 66 shows the indices of production, man hours, productivity, and the ratio of real wages to productivity.

TABLE 66 INDICES OF PRODUCTION, MAN HOURS, PRODUCTIVITY AND
REAL WAGES IN ALL INDUSTRIES IN THE DOMINICAN REPUBLIC EXCEPT SUGAR

Year	1950 - 1963 1960 = 100				RATIO Real Wages/ Productivity
	Production	Man-Hours	Productivity	Real Wages	
1950	56.5	59.7	94.6	71.7	75.8
1951	64.7	68.2	94.9	64.1	67.5
1952	73.3	72.0	101.8	66.5	65.3
1953	73.0	73.3	99.6	68.3	68.6
1954	76.9	76.9	100.0	69.6	69.6
1955	80.8	82.7	97.7	67.3	68.9
1956	87.4	85.6	102.1	81.3	79.6
1957	96.8	90.8	106.6	80.6	75.6
1958	108.3	97.1	111.5	81.8	73.4
1959	104.0	106.2	97.6	87.0	88.9
1960	100	100	100	100	100
1961	107.3	97.6	109.9	105.9	96.4
1962	146.6	108.7	134.9	133.6	99
1963	163.6	112.1	145.9	147.2	100.9

Source: La Relación "Densidad de Capital" en la R.D. Corporación de Fomento Industrial de la R.D.

. . . Productivity = $\frac{\text{Production Index}}{\text{Man hours Index}}$

. . . Real Wages = $\frac{\text{Average Wages Index}}{\text{Cost of Living Index}}$

Table 66 (cont'd)

- . . . Production showed a steady increase from 1950 to 1958, declining in 1959-60 and rising in 1961 to match the 1958 level.
- . . . Man hours kept pace with production from 1950-1961 resulting in little increase of productivity during that period.
- . . . From 1962 to 1963 man hours increased at a rate below that of production resulting in a significant increase of productivity.
- . . . Real wages rose slowly from 1950 to 1961 and much rapidly from 1962-1963.
- . . . Real wages rose 105% between 1950 and 1963 as compared to a 54% increase in productivity.
- . . . Column 6 (real wages) shows the degree to which real wages have (productivity) or have not outdistanced productivity. In the food product or processing industry, productivity has consistently lagged behind the rise of real wages.
- . . . Although these figures would be more valuable if they covered 1963-1968, the record of productivity and wage increases serves to indicate trends and cause and affect relationships between the four factors of production. To the extent that wage increases are consistent with increased productivity, units labor costs can be expected to remain fairly constant. If, however, real wages rise or fall more

Table 66 (cont'd)

rapidly than productivity, changes in unit labor costs will affect prices, employment, consumer purchasing power and the international competitive position of national industry.

Prior to the downfall of Trujillo in 1961, the labor movement was strictly controlled by the government. The only labor union, the Dominican Workers Confederation, with 188,000 members, was created as a tool of the authorities rather than as an organization to serve the interests of the workers. After 1961, new legitimate trade unions evolved which in turn formed national labor centers of varied orientation and aims, with close ties to emerging political parties.

Between 1961 and 1965, the unions fought for and won big pay increases, and also became important factors in the political scene. At the time of the 1965 Revolution, there were six loosely organized national labor centers consisting of some 30 Federations and 600 local unions, with a membership of 100,000. Another 50,000 workers belonged to independent unions not affiliated with any national Confederation. (The figures are estimates, because there has never been, and is not now, a valid record of union membership anywhere in the country. 1)

Union dues average about \$0.25 a week and, unless collected through payroll deduction, are rarely paid. As a result few Federations receive significant financial support from their constituent unions, and contributions to Confederations from their affiliates are in no case sufficient to support

1. IBID.

their operation. Officers of labor organizations serve without pay.

Following the revolution, and as of 1968, there were approximately 850 unions registered with the Secretariat of Labor, only 350 of which were active.

The principal organ of the Secretariat of State for Labor is the Department of Labor which has five subdivisions and 135 employees. Through 100 inspectors stationed throughout the country, the Service investigates working conditions, and workplaces, and enforces pertinent legislation and individual work contracts.

The Intervention Section hears, and attempts to settle, disputes arising from employment contracts between employers and individual workers. Complaints not settled are referred to the courts, but in mid-1968, there were only two labor courts in the entire country.

A feature of the Constitution (adopted in 1966), guarantees the "freedom of work," and allows the law to "establish the maximum working day, days of rest and vacations, minimum wages and salaries and their form of payment, social security and the participation of nationals in all work . . . whether the work is manual or intellectual."

The freedom to organize labor unions is guaranteed, provided that the unions "adopt in their by-laws and in their conduct a democratic organization compatible with the principles affirmed," and are "strictly for labor and peaceful ends." The law may determine the extent of participation of permanent workers in the profits of an enterprise, and guarantees the right to strike. Strikes, obstruction or intentional interruption or reduction of output in

government service or public utilities is unlawful.

The Labor Code came into effect in 1951, and although repeatedly amended, still remains in force. So many changes and revisions have been made, however, that the Code has become contradictory in parts, and extremely complex and unwieldy. It contains nearly 700 Articles, 25 Appendices and innumerable amendments.

Under the Labor Code, it is unlawful for an employer to refuse to bargain collectively. Agreements generally cover pay, supplemental benefits and incentives, union dues checkoffs, performance measurement and promotions, length of annual and sick leave, disciplinary measures, and grievance procedures.

Promulgation of legislation freezing wages in 1966 (renewed in 1969) eliminated wage consideration, the most important issue in bargaining, with the result that the number of agreements went from 25 in 1966 to 9 in 1967.

The wage structure is based on a minimum of \$.25 per hour, or \$2.00 per day as of 1966, and applies to all occupations with the exception of domestic servants. Minimums higher than the basic, however, have been established over a period of years by various industries.

By occupation, the average hourly rates paid selected skilled workers in 1968 were approximately as follows:

Bricklayer	\$.82 - 1.06
Carpenter	.82 - 1.06
Plumber	.75 - 0.80
Painter (brush)	.75 - 0.80

Painter (spray)	\$ 1.00 - 1.05
Electrician	.80 - 1.05
Mechanic	.82 - 1.00
Driver (truck)	.75 - 1.10
Driver (tractor)	.70 - .90
Driver (excavator)	1.05 - 1.25
Sheet Metal Worker	.70 - .80
Welder	.90 - 1.00

Wages, which have increased about 42% since 1960, realized most of the gain previous to the Revolution of 1965, the upward trend being halted by the wage freeze of 1966. The position of workers since 1966, however, has been improved by increased fringe benefits not controlled by law, and achieved by collective bargaining, a few of which are as follows:

1. Christmas Bonus (Thirteenth Month's Pay). In 1966, this bonus amounted to a specified percentage of monthly pay:

<u>Monthly Pay</u>	<u>Percent</u>
Up to \$100	60%
\$101 - 200	50%
Over \$200	0

In 1967, under the austerity program, the bonus was fixed at \$25.00 payable only to those earning under \$100 a month. The same year, however, the State owned enterprises granted a bonus of a full months pay to all employees earning under \$200 per month, to be granted every year the corporations show a profit. Other bonuses are stipulated in collective agreements.

2. Paid leave, industrial accident compensation, retirement fund,
3. Low interest loans up to \$500, housing loans, low cost land and survivor benefits,
4. Total or partial life insurance payment,
5. Housing, meals in isolated locations,
6. Work clothes and tools.

All of the above benefits are, of course, not paid by all companies. It is estimated, however, that supplemental payments increase labor costs by approximately 30%, not including contingent liabilities such as maternity, marriage or funeral leave and gratuities.

Income taxes are not deducted from pay. Income is taxed upon the purchase or renewal of an official identification card, the fee for which amounts to approximately 2% of the applicant's monthly income.

An examination of fifteen collective bargaining contracts in 1966 gives an idea of the requirements of the Labor Code and the gains made by organized labor.

TABLE 67 EXAMPLES OF FIFTEEN COLLECTIVE BARGAINING CONTRACTS

<u>Required by Law</u>	<u>Achieved by Contract</u>
<u>DURATION OF THE CONTRACT</u>	
Maximum three years, one year if not specified. Automatically extended one year if neither side asks negotiation 60 days before expiration.	Eight Contracts - one year Four Contracts - two years Two Contracts - three years One Contract - Indefinite

TABLE 67 (cont'd)

<u>Required by Law</u>	<u>Achieved by Contract</u>
<u>HOURS</u>	
Eight hours per day, five days a week plus four hours Saturday.	Confirmed - 44 hours
<u>WAGES</u>	
No lower than \$.25 minimum per hour.	All contracts provided above minimum, having a schedule of rates by occupation. Only one contract provided for job description. A few provided specific rates for named individuals. Some piece rates specified.
<u>OVERTIME</u>	
From 44 to 68 hours - 30%	44-68 hours - 50%
Over 69 hours - 100%	
<u>SHIFT PREMIUM</u>	
No provision	Night shift, 15 - 30% extra
<u>CHRISTMAS BONUS</u>	
Law - none	To be paid annually ranging from one month's pay to 50 days. Average 1/2 month bonus.
<u>PROFIT SHARING/PRODUCTION BONUS</u>	
Law - none	Two contracts provided profit sharing. Two contracts provided production bonuses

TABLE 67 (cont'd)

Required by Law

Achieved by Contract

VACATION WITH PAY

Law - two weeks for each year of employment.

Two weeks, but with extra pay (18 days for a two week vacation)

HOLIDAYS

Law - 21 holidays with pay
50% extra pay if work (only with special government permission)

Confirmed. One contract specified 150% extra for working holidays.

REPRESENTATION

Law - Plant union given preference in bargaining. Collective agreement covers non-union employees as well as union.

All contracts must be made with plant union (about 1/2 affiliated with Federations and Confederations). Most excluded administrative supervisory and inspection personnel. A few excluded temporary help and office employees.

CHECK-OFF

Law - Permits check-off of union dues if employer agrees, and if employee from whom dues deductible, gives written consent.

All contracts provided for check-off of dues.

TABLE 67 (cont'd)

<u>Required by Law</u>	<u>Achieved by Contract</u>
<u>UNION SECURITY</u>	
Law - None except no adverse action by employer against employees engaging in union activity. Permits discharge without cause if time notice required by law observed (24 days for a year's service), plus the payment of termination pay (Termination pay = 1/2 month wages for each year up to 24 years of service.)	One contract - employer agreed to give up right of <u>deshuicio</u> (discharge without cause). Two contracts - No <u>deshuicio</u> against a union official. One contract - extra terminal indemnity for union official if <u>deshuicio</u> used. One contract if <u>deshuicio</u> used, termination pay at current salary rather than previous years average.
<u>UNION SHOP</u>	
Law - Prohibits any form of agreement requiring union membership as condition of employment.	Most silent One contract - New employees to be requested from union. One contract - "maintenance of membership" clause.
<u>NO STRIKE</u>	
No specific prohibition against strike "under the contract." To be legal strike must have as objective the resolution of economic disputes in place of work.	1/2 contain the clause "the union agrees not to strike during the term of the contract," but several add, "except if contract is violated."

TABLE 67 (cont'd)

Required by Law

Achieved by Contract

GRIEVANCES

Law - none

All but three Contracts specified some form of procedure for contract violation. Most indicated joint consideration of grievance at successively higher levels of authority, with maximum time levels between steps, and grievance committees with an equal number of union and management representatives.

Several Contracts - No provision for binding arbitration as a last resort, making court action necessary to achieve final decision.

TRADE UNION CONVENTIONS AND
EDUCATIONAL COURSES

Law - No provision

Most Contracts specify leave to attend union education courses, specifying maximum hours and duration. Most provided leave for specified number union officials to attend trade union conventions.

TABLE 67 (cont'd)

<u>Required by Law</u>	<u>Achieved by Contract</u>
<u>SENIORITY</u>	
Law - Primary consideration in the case of layoffs. No provision for seniority rights in promotion actions.	Promdion clauses consider ability rather than length of service. No provision for "super-seniority" of union officials in case of layoffs.
<u>NATIONALIZATION OF WORK FORCE</u>	
Law - Work force must contain 70% Dominicans. 70% of all wages to Dominicans (except technicians) provided there are no qualified Dominicans.	All silent except - One contract specified that a non-Dominican must be replaced when a qualified Dominican is available. Other Contracts required all foreign technicians to teach their skills to Dominican understudies.
<u>GROUP LIFE INSURANCE</u>	
Law - No provision	Employer must provide group insurance. Usual policy - \$1,000.
<u>UNIFORMS</u>	
Law - No provision	Employer to provide specified number to each employee each year.
<u>TRANSPORTATION</u>	
Law - No provision	Half of the Contracts provide transportation home/work/home at employer's expense.

TABLE 67 (cont'd)

<u>Required by Law</u>	<u>Achieved by Contract</u>
<u>LEAVE FOR CHILDBIRTH, DEATH IN FAMILY OR MARRIAGE</u>	
Birth . . 1 day with pay	Usually extend leave without pay two or three days more than is allowed.
Death in Family - 1 day with pay	Some companies provide cash benefits in addition to leave with pay.
Marriage - 1 day with pay	
 <u>SAFETY</u>	
Law - Employer to maintain "safe work place and protect against hazards." No penalty prescribed for non-compliance. Presidential decree of 1966 provides penalties and detailed safety regulations, and establishes joint labor-management plant safety committees.	All Contracts had safety and health provisions, and generally required first aid stations and protective equipment. One Contract required a full time plant physician and nurse. One other established a joint management-union safety committee.
 <u>MATERNITY LEAVE</u>	
Law - six weeks with pay before delivery, and six weeks with pay after delivery. If covered by Social Security, employer pays 1/2 regular wages during leave and Social Security the remaining 1/2. Retention of employment rights and seniority.	Confirmed.

TABLE 67 (cont'd)

Required by Law

Achieved by Contract

MISCELLANEOUS BENEFITS NOT PROVIDED BY LAW

Call In Time. Three contracts provided guarantee of minimum hours paid if employee called in with legitimate excuse not to work.

Crew Size. Three contracts specified size of crews.

Employee Coops. 1/2 Contracts provided for employer assistance to coops (housing, savings and loan, consumer coops, etc.)

Labor Day Contribution. Two Contracts specified employer's contribution to union expenditures for Labor Day celebration.

Pension. Two Contracts specified private pension plans.

Two Contracts called for the development and implementation of private plans within contract period.

TABLE 67 (cont'd)

Required by Law

Achieved by Contract

Shift Rotation. One Contract called for weekly rotation of shift personnel.

Training. Several Contracts specified scholarships to be given to employees' children at employer's expense.

Some Contracts called for in-service training with partial pay by employer.

As stated previously, these comments regarding labor are made without full knowledge of the manpower requirements or skills needed for the operation of the high protein food plant.

F. THE INVESTMENT

1. Plant Site. Mr. White has spent a great deal of time attempting to locate a suitable plant site for a high protein food production plant. He decided that, ideally, the plant should have a dock side location large enough to provide for the installation of bulk unloading facilities, resulting in a considerable saving of freight costs for the shipment of imported raw materials for the plant, and possibly for the U.S. government shipment of PL 480 foods. Unfortunately, dock side sites are few and far between in the Dominican Republic. A request for the only available space at Haina (owned by the Sugar Council) was refused. A small piece of land adjacent to the docks in San Pedro de Macoris was quoted at \$20.00 per square meter, ¹ (and it could be assumed

1. A cost of \$400,000 for 20,000 sq. mts.

that even if willing to sell, the space at Haina would be much higher.) Other sites have been investigated, but none have proved completely suitable.

Map 10 locates the Industrial Park, an officially sponsored location for industrial development. The land required by the plant as proposed, plus a 20 meter surrounding area, would be 4,860 square meters. An area of 20,000 square meters, however, is proposed to take care of future expansion. Although 10,000 square meters of land in the Industrial Park was available free of charge provided another 10,000 were purchased, up until January 1969, all land now is valued at \$2.50 a square meter. For 20,000 square meters, the cost would come to about \$50,000. This is the least expensive land in any relatively suitable location.

The Industrial Park has several handicaps which may be remedied in the future at an uncertain date.

- a) There have been problems of electric power and water supply, both of which are essential to the operation of the high protein food plant as planned.

- b) The Industrial Park is located 10-12 miles outside of the developed area of the city of Santo Domingo. There is no local transportation, other than públicos (described in "Transportation"), and there is some doubt that skilled personnel would be willing to spend approximately \$.50 to \$1.00 per day to pay públicos, provided they could be persuaded to make the trip. The importance of this factor would depend upon the number and qualifications of the personnel needed to operate the plant. Local unskilled labor is

probably available, but its productivity leaves a good deal to be desired.

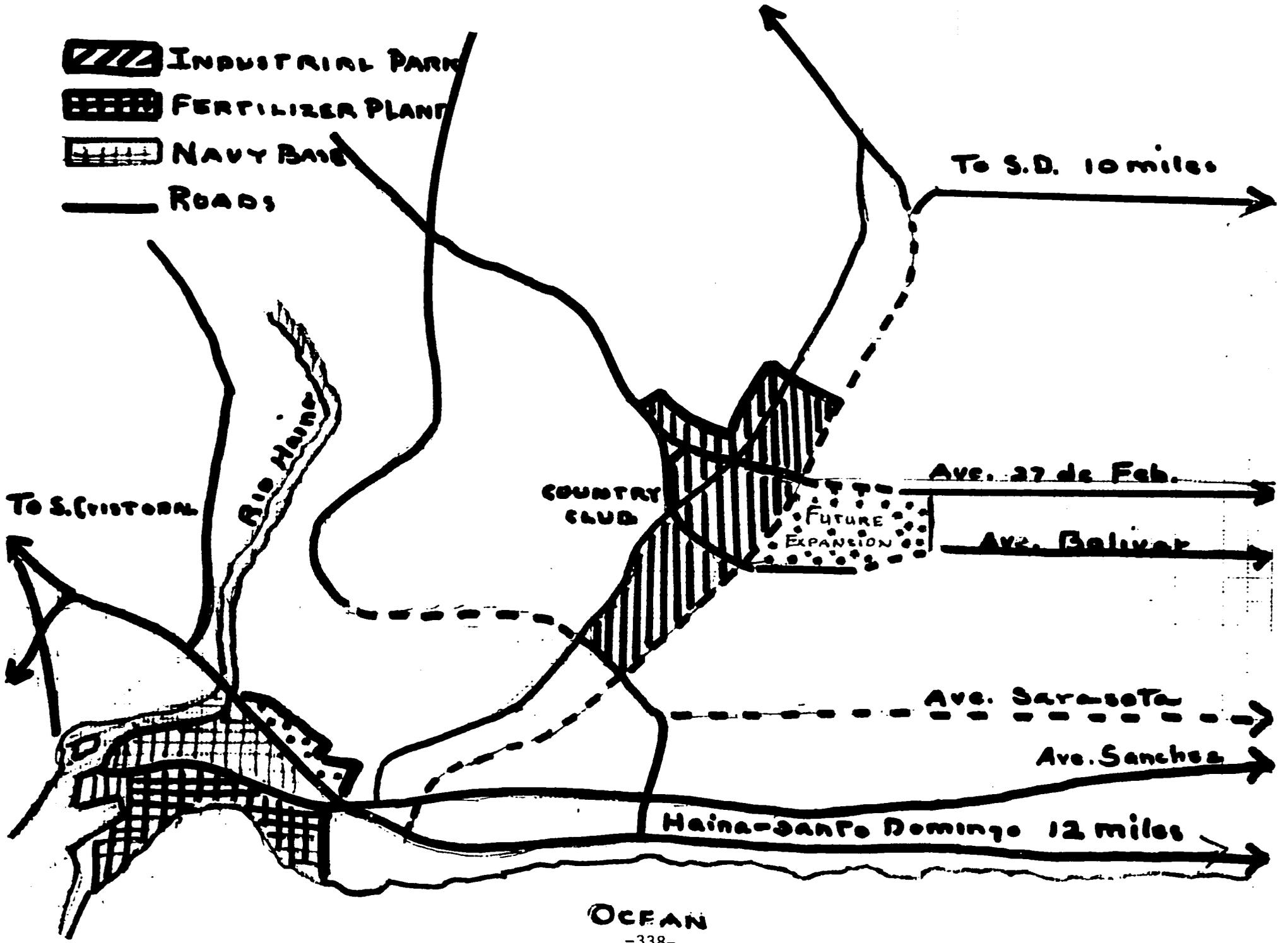
An industrial site located on Avenida Kennedy would cost approximately \$8.00 to \$9.00 per square meter, and 20,000 square meters would mean a site cost of about \$170,000. On Máximo Gómez, another industrial site possibility, land is even more costly, averaging about \$14.00 per square meter, or a site cost of \$380,000.

Obviously, there are areas outside of the industrial complex where land costs are much less. However, the potential problems of adequate power and water, and transportation might be multiplied.

2. The Building. A Butler pre-fabricated building was considered for a high protein food plant, but discarded because of the possibility of hurricanes and inevitable deterioration due to rust. It was generally agreed that an all-concrete building would prove more sanitary and also more resistant to the climatic conditions found in the Dominican Republic. A concrete plant, constructed of local materials, would cost in the neighborhood of \$100,000, or 15% more than the Butler Prefab. A builder pointed out that in some areas such as Haina, construction would require heavy pilings to support the foundation at an unestimated additional cost.

If built according to present plans, with beams, special approaches, etc., the building for the high protein food plant would come to approximately \$150,000. An additional \$50,000 would be required to construct storage silos for the ingredient grains.

-  INDUSTRIAL PARK
-  FERTILIZER PLANT
-  NAVY BASE
- ROADS



3. The Plant and Operating Costs. Mr. Oak Smith, of the Wenger Mixer Manufacturing Company has estimated the investment for Wenger equipment, as well as the operating costs of the plant, as far as possible at this stage of the project. The following information is from his report dated October 10, 1969.

A. NEW FIXED INVESTMENT:

\$300,000.00	Wenger equipment and conveying equipment
150,000.00	Building costs (including inside make-up bins and grinding bins)
19,000.00	Three outside steel storage tanks (one 29'x40' and two at 9'x16')
15,000.00	Ducting and dust collectors to be fabricated in Dominican Republic
20,000.00	Land (per Bob White estimate 2 October)
65,000.00	Packaging machinery
30,000.00	Two boilers
25,000.00	Two bulk delivery trucks (Wenger) for delivery of bulk ingredients to plant
15,000.00	Two delivery trucks - flat bed, van type
100,000.00	Installation costs (Wenger machinery, storage tanks, ducting and dust collectors)
50,000.00	Laboratory equipment
20,000.00	Office equipment
15,000.00	Platform scale
50,000.00	Alpine Contraplex Mill (Model 710) and Companion Alpine Air Separator (including installation cost)

New Fixed Investment (cont'd)

\$ 20,000.00 Ocean freight and insurance Wenger equipment
15,000.00 Ocean freight and insurance on boilers, trucks,
and platform scale
\$909,000.00 TOTAL ESTIMATED FIXED INVESTMENT

B. DEPRECIATION COSTS PER OPERATING HOUR:

1. Depreciation scheduling has been based on the following:

- a) Machinery plus estimated installation costs have been estimated to be depreciated over 20,000 operating hours (even though we have a number of extrusion cooking systems still in operation which have been in use for more than 40,000 operating hours).
- b) Trucks and boilers have been depreciated over 12,000 operating hours. However, no specific quotations are available at this writing for trucks and lab equipment, so we have used the round figures suggested at Santo Domingo on the basis of depreciation scheduling on trucks and lab equipment.
- c) The building (with built-in bulk storage and make-up tanks) have been priced per quick estimate of \$150,000.00 advanced by Eng. Orlando Haza for cement construction. Building and platform scale and laboratory equipment have been depreciated over 40,000 operating hours, although our Government in this country would require a depreciation

Depreciation Costs per Operating Hour (cont'd)

Office equipment	20,000.00
Platform scale	<u>15,000.00</u>
TOTAL	\$269,000.00 ÷ 40,000 operating hours = 6.72 per operating hour
TOTAL DEPRECIATION COSTS PER OPERATING HOUR	<u>\$40.56</u>

Since we have calculated 4000 lbs. production capacity per operating hour, the depreciation costs per pound of finished product are estimated at \$0.01014.

C. OPERATING COSTS

1. Operating costs have been based on the following assumption:

- a) Fuel oil costs will be \$0.0827 per gallon.
- b) Electrical costs will average \$0.015 per KWH.
- c) Labor costs estimated as follows per hour, based on 44 hour week (substantially higher hourly rate than shown in Dominican Republic Investors Handbook).

1 - \$1.00 per hour for labor receiving materials, packing and warehousing, and cleanup.

2 - \$1.50 per hour for man compounding, mixing, and grinding, and for man applying liquids externally.

3 - \$2.00 per hour for operator of extrusion cooking system and for maintenance labor.

Operating Costs (cont'd)

Note that hourly labor costs are substantially higher than indicated for the Dominican Republic, but it is my hope that the payment of hourly wages substantially above the average paid by the food industry in Dominican Republic will attract the caliber of laborer needed to maintain top sanitation standards, and operate equipment in a manner required for adequate life of sophisticated processing equipment.

- d) Operating costs have been assumed on the basis of 4,000 lbs. per hour of production capacity on a single line of Wenger X-150 extrusion cooking equipment. Production capacity on X-150 line will vary according to formulation of end product produced, and the density in pounds per cubic foot of the final product. For example, production capacity can be assumed as follows for the X-150 line:
- Full fat soy - approximately 6000 lbs. per hour at density of 27 lbs/cu. ft.
 - High protein beverage powder produced at density of 22 lbs/cu. ft. - approximately 6000 lbs. per hour.
 - High protein snack or school lunch wafer produced at 12 lbs. per cu. ft. - approximately 2400 lbs. per hour.
 - High protein snack or school lunch wafer produced at 8 lbs. per cu. ft. - approximately 1800 lbs. per hour.

Operating Costs (cont'd)

- Textured soy protein from defatted soy flours at approximately 2000 lbs. per hour at density of 11 lbs. per cu. ft.

Obviously, density and formula effect capacity, so I have selected 4000 lbs. as estimated average.

- e) It will be seen that labor costs per ton will reduce dramatically when a second system is added to the installation, since only one man would be required for compounding and mixing, and one only for operating extrusion cookers whether there is only one or whether there are two sets of extrusion cooking systems.

2. UTILITY COSTS PER OPERATING HOUR

- a) Electrical Power Costs Based on average system usage of horsepower utilized per operating hour:

Circular bin discharger, X-150	5 HP
Preconditioner, X-150	2 HP
High speed mixer, X-150	10 HP
Extruder, X-150	140 HP
Knife	2 HP
Product drier/cooler	36 HP
Flavor applicator	1-1/2 HP
Liquid feeder	1-1/2 HP

Utility Costs Per Operating Hour (cont'd)

Circular bin & feeder, Alpine	5-1/2 HP
100 Series syrup feeder	3/4 HP
Belt conveyor, 8 feet	3/4 HP
Storage tank pump, molasses	5 HP
Scourer	5 HP
Dresser & blender	7-1/2 HP
Drier for soybean dehulling	25 HP
Cooler for soybean dehulling	3/4 HP
Cooler fan	22-1/2 HP
Weigh blender	15 HP
Premixer	3-3/4 HP
Shakers (two)	1-1/2 HP
Screw conveyors (three)	3 HP
Live bottom bin	1 HP
Pneumatic systems (seven)	51 HP
Prater hammermill	55 HP
Hammermill fan	25 HP
Alpine 710 CW mill	90 HP
Alpine 1000 MPVI air classifier	40 HP
Boiler burners	2 HP
Packaging machiner	5 HP
Odds and Ends	<u>20 HP</u>
TOTAL USSAGE PER OPERATING HOUR	583 HP

Utility Costs per Operating Hour (cont'd)

K.W. Hours (HP x 0.7457)	435 kilowatt hours/ operating hour
Electrical rate per KWH	\$0.015
Electrical cost per operating hour	\$6.53

b) Steam requirements per operating hour, pounds of steam:

(1)	EQUIPMENT	LBS. STEAM USAGE PER OPERATING HOUR
	- Preconditioner, X-150	200
	- High speed mixer, X-150	250
	- Steam jackets, X-150	30
	- Drier for X-150	6472
	- Drier for dehulling soybeans	1618
	- 100 Series	<u>25</u>
		8595 LBS. STEAM HOUR
	Add 10% for line loss	<u>860</u>
	TOTAL STEAM REQUIREMENT	9455 LBS. STEAM OPERATING HOUR = 275 Boiler HP

(2) Since need 9455 lbs. of steam at boiler/hr. at 150 PSI at boiler, and since 150 PSI steam will release 1195.6 BTU per lb. of steam; therefore, 1195.6×9455 lbs. steam per hour = 11,304,398 BTUH at boiler. Boilers will burn #2 fuel oil, which oil normally produces 140,000 BTU per gallon. However, fuel conversions in Scotch Marine boilers are only 82% efficient, so it must be planned that each

Utility Costs per Operating Hour (cont'd)

gallon of oil will produce only 114,800 BTU per
gallon of #2 fuel oil.

Hence, 11,304,398 BTU per hour \div 114,800 BTU per
gallon = 98.5 gallons fuel/hr. Since need 98.5
gallons #2 fuel oil per hour at \$0.0827/gal. =
\$8.15/Fuel Costs/Operating Hour.

3. LABOR COSTS PER OPERATING HOUR:

Productive Labor, Costs per Operating Hour:

- 1 man receiving, warehousing, cleanup at 1.00/hr.	= \$ 1.00
- 1 man compounding, dehulling, mixing, grinding, boilers at 1.50/hr.	= 1.50
- 1 man extrusion cooking, drying, and Alpine milling at 2.00/hr.	= 2.00
- 1 man operates drier/cooler and liquid application at 1.00/hr.	= 1.00
- 3 men packing in small packages at 1.00/hr.	= 3.00
- 1 man warehousing - loading out trucks and clean up at 1.50/hr.	= 1.50
- 1 man maintaining equipment at 2.00/hr.	= <u>2.00</u>
TOTAL LABOR COSTS PER OPERATING HOUR	\$12.00

4. LUBRICATION COSTS PER OPERATING HOUR ARE ESTIMATED AT \$ 0.50

5. TOTAL COSTS PER OPERATING HOUR, COMPILATION:

- Depreciation costs per operating hour	\$ 40.56
- Electrical costs per operating hour	6.53
- Fuel costs per operating hour	8.15
- Labor costs per operating hour	12.00
- Lubrication costs per operating hour	<u>.50</u>
TOTAL COSTS PER OPERATING HOUR	\$ 67.74

Based on 4,000 lbs./hr. average throughput per operating hour, this makes production costs per pound of product (including all of the foregoing cost factors at \$0.01694 per pound of product.

This figure does not include supervisory costs, administration costs, selling costs, or profit. Nor does it include cost of ingredients, insurance of plant or advertising expense.

The above list has made no provision for the purchase of a stock of spare parts, repair equipment, etc. which are customarily purchased in the Dominican Republic. A breakdown of equipment, for lack of parts, could cause costly delays and losses if no provision is made for replacements.

Any additional equipment or facilities such as bulk handling, molasses clarification, a premium location etc. would be required to stand on their own and be justified over and above the costs included above.

The foregoing cost projections must be considered as estimates. The costs for the Wenger equipment are definite, but other expenses, (land, Buildings, etc.) are approximations based on figures we were given in the Dominican

Republic. Hence, the total of \$909,000 is only approximate, but probably valid at plus or minus 10%.

4. Cost of the Product

The estimated cost of a pound of high protein food comes to \$.12-1/2. The wholesale price would be approximately \$.26, leaving a margin of \$.13-1/2 per pound to cover advertising, estimated at \$200,000 the first year for a national campaign to launch a new product, interest and debt charges, administrative and sales force, packaging materials and printing. Although not all of these costs have been exactly calculated, Mr. White estimates the gross return to be in the neighborhood of 20%, and appropriate for the safety of the investment.

The cost figure of \$.12-1/2 is for the basic product and would not cover the additional cost and lower rate of production of texturized or "puffed" products which may be required to sell 4,000,000 pounds in the high income market. Necessary product refinements and their cost, of course, can only be determined by acceptability tests as planned for Phase III.

Two types of packaging have been tentatively projected. Sales of a pound package selling (retail) at 39¢ would be supplemented by 1-2 ounce "snack" packages which could be sold through colmados, street salesmen (paleteros), bars, etc. at 5¢.

5. Plant Capacity

The production of 4,000,000 pounds of high protein food would not be sufficient to operate the plant proposed full time. Mr. Smith based his cost figures upon a 4000 pound per hour plant capacity and the production of

4,000,000 pounds of food would, therefore, require 1000 hours. If the machines operate 7 hours a day, and no breakdowns occur, which may be optimistic, 4,000,000 pounds of food would be produced in about 143 days, or seven months of 20 working days. If a decision is made to produce a texturized or puffed product, the time required for production would double and occupy the plant full time, using one shift a day, for a year, but would increase unit costs correspondingly.

Using a year of 240 work days (1,680 hours), at 7 hours a day machine use, 4000 lbs. per hour would result in the following production depending upon the number of shifts employed:

1 shift	=	6,720,000 lbs. per year
2 shifts	=	13,440,000 lbs. per year
3 shifts	=	20,160,000 lbs. per year

(the maximum with the plant equipment
as specified)

If the production of 4,000,000 lbs. is spread to cover a year, labor, operating and maintenance costs will be higher than the figure of \$64.74 per operating hour.

At a cost figure for the product of 12-1/2 cents per pound and a wholesale price of \$.26, the margin would bring a gross of \$540,000. If a net profit of 2 cents per lb. could be realized on contracts for food processing and/or flour fortification with the Dominican Government ¹ which would use the remaining plant capacity (16,160,000 lbs.), an additional \$323,000 could be added, or a gross of \$863,000 and a much more interesting investment.

¹ See Section VII, Item K

H. Financing

While it is hoped that investment in the high protein food plant would pay for itself in from 5 -7 years, with a return of 5-7%, we do not have all the information necessary for a complete investment analysis needed for plant justification.

As Mr. Smith pointed out, plant and operating costs are estimates. Land costs are unknown as are "extras", such as access roads, etc. The amounts of raw materials are dependent upon the final product formula, and freight costs will be determined by the quantities imported. The number and salaries of administrative personnel are undecided. Without full information, we cannot fill in the blanks in the equation, "sales less plant cost and administration = operating income less depreciation," to produce a 5-7% return.

The financing of the high protein food plant is projected on the basis of a \$300,000 equity and \$900,000 debt financing. In a report to interested parties meeting in the Dominican Republic in September 1969, Mr. William Crosby, of the Hanover Trust Company, New York, pointed out some of the problems involved in financing the project.

Mr. Crosby indicated that in discussions with two banks, one felt that a \$900,000 loan was too great for the present Dominican economy. The other felt that the economy could absorb the loan, provided the project had the support of the Dominican Government. The present tight credit situation in the United States has caused bank preference to short term proposals of

preferably not more than 18 months, and a maximum of three to four years. Interest on such loans is high, in accord with the estimated risk involved.

At present, loans from U.S. banks are difficult to arrange. Most will not make loans for acquisitions, and the investment climate is not favorable for debt financing.

Definitive and written agreements, binding upon this and succeeding administrations of the Dominican Government, specifying the extent of exoneration from import duties and taxes, are basic to determining the feasibility of the investment. While it is assumed that the high protein food plant would qualify for a "B" classification under the Law of Investment Incentive, the exact benefits are often items for negotiation. The Government should, if possible, be involved in the process of product promotion as an aid to the correction of malnutrition and diet deficiency, and as an economic benefit to the country. Government support would lend credence to any claims made for the product, and help to establish it with the consuming public.

I. Source of Funding

Mr. Crosby emphasized the need for Dominican financial participation to make the project more interesting to the Dominican Government, although, in his opinion, few Dominicans would be interested in an investment with a net return of only 5-7%.

Mr. Bob White, however, has said repeatedly that Dominican financial investment in the high protein food plant is neither solicited nor required.

It is difficult to see how the operation as proposed could be successful with Dominican commitment, since the level of Dominican financial investment greatly influences the degree of cooperation afforded by the Government.

J. Expansion and Long Range Goals

The plant equipment that has been projected for manufacturing high protein food is capable of producing a versatile selection of extrusion cooked and extrusion expanded products which may be formed into various shapes, flakes or granules. In the process, products may be sweetened, flavored, colored, enriched, coated and tailored for end use by housewives or for ingredient use by food processors.

Systems can also be modified for extruding precooked wafers, protein enriched snack foods, and breakfast cereals, noodles and shell-roni, wafers for school lunch feeding programs, and precooked cereals for grinding into flours. Precooked soy flours may be used to enrich wheat flour or may be quickly reconstituted with boiling water to form ready-to-eat porridge or gruel for infant feeding.

Full fat soy flours may be incorporated into bread, rolls, cakes and toppings. Soy flours can be texturized into various shaped and sized bits of granules. Flaked products can be used for dehydrated soups, casseroles or similar mixes.

In addition to products being fruit, nut or meat flavored, they can be enhanced with cheese and other seasonings. Die-shaped extrudate can be

rotary knife-cut into pellets of desired length or into flakes or wafers.

Protein enriched mixtures can be particularly formulated to meet specific needs. Obviously the weaning infant does not need the same food as that of an adult male. It is anticipated that specific formulas may and should be developed for weaning foods, for school feeding programs, for pregnant and lactating women, as well as foods for the working adult. A list of the product forms most practical for the commercial market and/or effective in correcting malnutrition are shown on Table 68.

TABLE 68 PRODUCT FORMS OF PROTEIN ENRICHED FOODS

The product forms of protein enriched precooked foods which are practical today form short time/high temperature extrusion cooking techniques include:

- 1- Easily suspendable cereal based protein enriched precooked grits or flakes for mixing with water in homes or schools as protein enriched beverages or as atoles or as hot breakfast cereals.
- 2- Protein enriched wafers and snacks for school feeding programs and for home consumption.
- 3- Protein enriched noodles and shell-roni.
- 4- Protein enriched cold breakfast cereals in the form of beads, flakes, chips, or bite sized chunks.
- 5- Soy beverages and soy milks.
- 6- Protein enriched snacks or candy.
- 7- The production of full fat soy flours for breads, cakes, pastries, sausages, infant bottle feeding, etc.

TABLE 68 Product Forms of Protein Enriched Foods (cont'd)

8- Precooked flours of cereals and vegetable proteins for quick blending into atoles, soups, stews, gruels, chapatas, tortillas, pasta products, mealy meal, etc.

A powder which would be sold to bottlers for the preparation of a thick drink of a consistency like that of the very popular fruit nectars, is another excellent possibility for future production.

K. High Protein Foods to Correct Malnutrition

From everything discovered regarding the market potential in the Dominican Republic, it does not appear that a product capable of capturing a portion of the commercial market could be priced low enough to contribute to the correction of malnutrition and diet deficiency among the low income sector of the Dominican population.

1) PL 480 Title II Program

For the sector of population who can buy only minimum food products, a high protein food plant in the Dominican Republic could contribute to the success of the food distribution program. A joint PL 480/Dominican Government project could amplify the school lunch program by making available up to 25,000,000 pounds annually of a ready-to-eat, low cost product of high nutritive value.

Provided the Dominican Government would budget the costs of processing, soy-corn based products, containing 20-30% of protein, plus suitable vitamin and amino acids could be produced at low cost, using PL 480, Title II donated

foods. Ready-to-eat "youth" foods, appropriate for school lunch programs, and/or "instant" gruels for infant feeding could be produced, using the equipment projected for the proposed plant, at a cost of around 2-3 cents a pound.

2) Flour Fortification

Flour fortification also offers an excellent means to increase the nutritive quality of the Dominican diet. Wheat flour, used in bread and pastas, is widely consumed on all income levels, and could be enriched by the addition of full fat soy flour produced by the high protein food plant.

Recent concern expressed by Dominican leaders regarding the low nutritional level of much of the population, and the urgent need to eliminate diet deficiency makes obligatory flour fortification, a realistic possibility in the near future.

Flour production is a State owned enterprise and monopoly in the Dominican Republic, and a contract with the management of the flour mills to supply enrichment ingredients would eliminate price competition with non-fortified brands, which has been a barrier to sales in countries where flour is not a State monopoly.

The State owned flour mills purchase about 105,000 tons of wheat from the U.S. annually, and produce 83,000 tons of flour. If flour were enriched even a minimum 5%, 9,000,000 lbs. of full fat soy flour would be required.

Soy is considered to be the best vegetable source of lincine, and, although slightly more expensive than synthetic lincine, soy also adds fats and the

protein, the most deficient item in the Dominican diet. The cost of production of a loaf of bread would be increased only 1/4 of a cent by 5% enrichment using soy flour. The retail price would undoubtedly go up one cent.

The production of full fat soy flour would require additional investment for an alpine grinding mill which is included in the new fixed investment figures. The cost to the flour mill and the return to the high protein food plant would be approximately as follows:

Pound of soy	\$.05
10% loss in hulling	.005
Extrusion cooker	.005
Alpine milling	<u>.015</u>
	.075 or .08 per pound
Profit (25%)	.02
Depreciation	.02
Other Costs	<u>.005</u>
TOTAL	\$.12-1/2 per pound to flour mill

. . . For 5% enrichment, the price of 1 lb. loaf of bread would increase 1/4 cent.

. . . 9,000,000 pounds at 12.5 per pound = \$1,125,000 per year, with a profit of \$180,000 to the high protein food plant.

At a price increase of one cent per loaf of bread, enrichment of flour would be a means to increase protein consumption on a national level, and a contract with the flour mills would significantly increase the feasibility of the investment.

It should be pointed out that supplying soy flour for wheat flour enrichment and processing PL 480 foods for Voluntary Agency distribution would require contracts with the Dominican Government. Any agreements of this kind should be firmly concluded with both the U.S. and Dominican Governments before considering the effect of either activity upon the feasibility of the investment needed to establish the high protein plant.

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