AGRICULTURAL MARKETING IN GUYANA

GUYANA AGRICULTURAL SECTOR PLANNING PROJECT

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About this Report

The Agricultural Sector Planning Project has brought a series of short-term specialists to Guyana to prepare "building blocks" of information, analysis and recommendations that will contribute to the preparation of an agricultural sector plan. Previous consultants and their assignments in this series were Julia N. Chryst, Nutrition; Michael Hanrahan, Food Crops; Edward J. Stone, Livestock and Poultry; and Ronald S. Baskett, Rice and Sugar.

Mr. Richard Abbott, a sepcialist in Agricultural Marketing, Credit and Development, was employed through the Checchi and Company contract to study Agricultural Marketing in Guyana under the Agricultural Sector Planning Project. He was in Guyana from July 19th to September 17th, 1982. This report is the product of that assignment.

Mr. Patricia Bender served as counterpart to Mr. Abbott. She was assisted by Ronald Annamunthodo, Chanderdat Gopaul and Aubrey McDonald; the latter three accompanied Mr. Abbott on his field trips. The cooperation and support of these persons and of others who assisted in various ways is gratefully acknowledged.

Dr. Robert M. Reeser
Agricultural Planning Adviser
and Chief of Party

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GLOSSARY OF ACRONYMS

CARICOM	-	Caribbean Commonwealth Market
CARDI	-	Caribbean Agricultural Research and Development Institute
CAS	-	Central Agricultural Station
CDB	-	Caribbean Development Bank
CIF	-	Cost Insurance Freight
EC$	-	Eastern Caribbean Dollars
EEC	-	European Economy Community
FCP&M	-	Food Crop Production & Marketing Project
GAC	-	Guyana Airways Corporation
GAIBANK	-	Guyana Agricultural & Industrial Bank
GAPC	-	Guyana Agricultural Products Corporation
GDF	-	Guyana Defense Force
GMC	-	Guyana Marketing Corporation
GNS	-	Guyana National Service
GPC	-	Guyana Pharmaceutical Corporation
GRB	-	Guyana Rice Board
GS	-	Guyana Stockfeeds
GUYSUCO	-	Guyana Sugar Corporation
H & B	-	Ham and Bacon Factory
IDB	-	Inter-American Development Bank
INTSOY	-	International Soybean Program
IRI	-	International Research Institute
ISA	-	International Sugar Agency
LIDCO	-	Livestock Development Company
MMA	-	Mahaica/Mahaicony/Abary Project

MML	-	Meat Marketing Limited
MSG	-	Mono Sodium Glutamate
NEOCOL	-	National Edible Oil Company Limited
OFA	-	Oils and Fats Agreement
QF	-	Quality Foods
RDC	-	Rupununi Development Corporation
UHT	-	Ultra High Temperature
US	-	United States

FOREWORD

A consultant visiting from abroad in these difficult times for Guyana may despair of accomplishing anything. Among Guyanese with whom he talks there is discouragement, apathy, resignation. Nowhere does one feel that hard-headed decisions are being made to overcome major problems facing the country. While it is evident that Guyana's public officials are spending much time in meetings, discussions and drafting and redrafting of policy papers, it is less clear that this amounts to a concerted effort to meet the challenges facing the country. In marked contrast is the "parallel economy" where Guyanese energy and inventiveness flourish.

It is correct to say that external factors are the major cause of Guyana's problems. Heavy reliance on sugar and bauxite to earn foreign exchange has - under present depressed conditions in these markets - seriously affected the state of the economy. But diversification of exports, once an announced government policy to overcome this problem, seems to have been lost sight of, while attempts are made to deal with the current crisis in piece-meal and short-run fashion.

Beneath these economic problem lies a political dilemma. The ruling party does not wish to turn away from the egalitarian society it is endeavouring to create in order to rebuild the economy. The "tri-sectorial economy", properly managed, could indeed be the basis for sound economic growth. Unfortunately current world economic conditions and --it must be recognized-- mismanagement of the Guyana economy by the State, has placed the country in a position where it must turn to external sources of aid and development capital at much higher levels than at present. How to do so without compromising socialist principles appears to be the problem facing Guyana's leaders today. In our view, the people of Guyana have a right to expect their government to reconcile those apparent conflicts and get on with the task of recovery.

External aid in the form of technical assistance, sectoral or program-type lending, or project loans continues to be available from multi-lateral and bi-lateral agencies under certain conditions. Private capital can likewise be attracted if conditions are suitable. Developing countries are learning to utilize external financial resources without losing control of the development process. Guyana can benefit from the experience of other countries and adapt them to her own situation.

This directionless state of affairs in the public sector is nowhere more evident than in the realm of agricultural sector planning, the subject of the contract under which the present report was prepared. Two agencies are charged with this responsibility but they have not agreed upon, nor has any higher authority established, the approach, procedure, schedule or how responsibilities are to be divided. So it is not surprising that Guyana

has no agricultural sector plan and is making but little progress toward one. (It is encouraging to note, however, that general guidelines for plan preparation recently drafted by the Checchi Chief of Party are now being reviewed at the Ministry of Agriculture).

The need for action in the agricultural sector is particularly urgent. Capital assets in the form of machinery and equipment are deteriorating rapidly. Land is being taken out of cultivation. Human resources are becoming non-productive or have left the country entirely. Among the more critical situations are the following:

1. Government funds are insufficient to support even the local currency portion of much-needed drainage and irrigation schemes supported by international lending agencies, causing suspension of work on two major projects;

2. No concerted action is being taken to maintain existing drainage and irrigation works, other than on sugar estates. Well defined policies to provide for user participation in water control are lacking;

3. Crop production by private farmers --the backbone of Guyana's agriculture-- is restricted by unavailability of a few key inputs such as sprayers, pumps, outboard motors, and spare parts, as well as shortages of fertilizers and agricultural chemicals;

4. Due to unrealistic price control policies, incentives for farmers such as these producing rice, milk and copra are insufficient to stimulate production. This problem is largely responsible for an alarming decline in rice production;

5. The state has proven unable to manage rice processing facilities so as to produce in a cost-effective way a product acceptable in export markets;

6. Production in the key state-controlled sugar industry is beginning to be affected by lack of foreign exchange to upgrade and replace aging plant and equipment; and

7. Production of balanced animal feed has virtually ceased, seriously affecting production of pork and poultry, two staples of the Guyana diet.

Why an agricultural sector plan? Certainly not because Guyana needs another document to circulate and discuss. The work required to produce a plan is only justified if there is a true commitment to do something about the problems listed above. In our view a plan should serve to guide development toward a set of specific objectives and should assign responsibilities and fix time-tables. It should not try to set forth every action required but instead should rely on the initiative and energy of managers in all sectors of economy

and to provide for regular monitoring of results. A plan also provides a rational basis for budgeting of resources. It can attract aid from multi-lateral and bi-lateral agencies by clearly indicating how such aid will be used and how it will mesh with domestic resources.

We wish to add a few words about the civil servants of Guyana upon which so much depands if the government is to implement action plans to restore the economy. The visitor to Guyana is struck by the fact that statements by political leaders appear to demonstrate an understanding of some of the economic problems they face. Efforts are made to deal with them by appointment of committees of commissions to study the matter and propose solutions. Yet little results. Where does the breaksown between rhetoric and action occur?

It has been suggested that at least part of the problem lies in (1) the shortage of skilled, motivated managers at the middle or working level of government (due in large part to emigration, (2) their reluctance to make decisions and carry them into action in the highly politicized environment of Guyana, and (3) inadequate renumeration.

If this is true, it should be the urgent task of the country's political leadership to properly motivate and reqard those who will be responsible for putting plans into action. A basis for that motivation could be, first of all, the type of plan alluded to above which makes it clear what each ministry, department or corporation's tasks are and fixes time schedules. Second, it should reward performance against measured objectives, possibly through a bonus system, and should penalize non-performance. Finally managers and administration need to know that they have freedom of action within defined limits.

One thing is clear, or should be: the proper approach to rebuilding the economy and producing increased government revenues and foreign exchange to support development does not lie in increasing the size and scope of government operations. This has been tried and demonstrably does not work. Instead a truly balanced approach utilizing all three sectors --state, cooperatives, and entrepreneurial or private-- is required, each contributing according to its capital and human resources. This will, it should be clearly inderstood, result in a more narrowly focused role for the state, designed to make best use of available management talent and capital.

Some measures proposed in this paper may result in additional hardships for the people of Guyana in the form of higher prices for essential food items. It is our firm belief --based on talking to Guyanese people all over the country-- that the people are ready to support government initiatives to improve economic conditions, even if it means additional harshhips for them, provided they can feel that the government understands the severity of the problems and demonstrates it by firm and positive actions to get at root causes. We have been struck by the grasp of the country's agricultural problems demonstrated by the average farmer. It would be a mistake to underestimate their ab lities. At present far too many Guyanese are exercising their talents and energies in unproductive ways outside the traditional economy. A key feature of proposals in the report is increased reliance on these talents and energies expressed through the cooperative and entrepreneurial sectors.

AGRICULTURAL MARKETING IN GUYANA

INTRODUCTION

Terms of Reference for the Checchi Agricultural Marketing Specialist called for:

(1) Investigation of marketing channels for sugar, rice, fruits, vegetables, ground provisions, and livestock, and identification of problems, constraints and losses, as well as pricing and payment arrangements;

(2) Identification of food processing activities appropriate for the local market;

(3) Identify Guyanese produce most apt for export; and

(4) Assess the role of the private sector, cooperatives, parastatal organizations, and the Government of Guyana in marketing.

The scope of the consultant's work thus covered all agricultural products and embraced marketing - in the narrow sense of moving goods from farm to market - but also included processing and export. The assignment has also to be viewed in terms of the overall objectives of the Agricultural Sector Planning Project, and thus includes formulation of policy recommendations that can become part of the Agricultural Sector Plan.

With these objectives in mind, the consultant undertook field investigation in five regions of the country and conducted numerous interviews in Georgetown with those in all sectors of the economy engaged in agriculture. As constraints in agricultural marketing and processing became evident, work was concentrated in those areas, always with the aim of producing relevant policy recommendations . If the reader finds that certain aspects of agricultural marketing have been neglected it is for this reason.

The report is organized in five parts:

Part I contains summary statements of ten policy recommendations with references made to parts of the report where further detail and supporting information will be found.

Part II is a detailed description of the Agricultural Marketing system of Guyana which serves as the data base for the rest of the report.

Part III presents our evaluation and findings of key elements of this marketing system, organized in terms of the tri-sectoral economy of Guyana.

Part IV is a brief survey of potential export markets for Guyana products in the CARICOM region.

Part V covers prospects for agricultural processing industries in Guyana.

Under current conditions in Guyana, it is impossible for the consultant to ignore the serious constraints in the agricultural economy of the country, such as declining world prices, foreign exchange shortages inhibiting import of agricultural inputs or foodstuffs, or drainage and irrigation deficiencies. He is likewise aware of organizational and administrative problems having to do with involvement of the state in agriculture. This report therefore attempts to deal with the more serious of these current constraints in agriculture - including some not strictly marketing in nature - and hopefully to focus agricultural planning efforts on finding solutions.

PART I

RECOMMENDATIONS

Included in this section are ten policy recommendations covering the following subjects:

#1 - Rice Processing and Marketing

#2 - Agricultural Inputs

#3 - Animal Feed Industry

#4 - Soybean and Sorghum Development

#5 - Copra and Coconut Oil

#6 - Sugar Prices

#7 - Entrepreneurial Sector

#8 - Guyana Marketing Corporation

#9 - Citrus Juice

#10 - Rupununi Beef

POLICY RECOMMENDATION No. 1

RESTRUCTURE RICE PROCESSING AND MARKETING BY PERMITTING PRIVATE MILLERS TO BUY PADDY AND SELL RICE AT UNREGULATED PRICES, AND TO OFFER RICE FOR EXPORT THROUGH BIDDING.

It is recommended that Guyana take immediate steps to increase the quality and quantity of its rice productuon. In a time of extreme shortages of foreign exchange, and with available export markets for rice which are not being exploited, this is a matter of the highest priority for Guyana. No other recommendations in this report have the potential of contributing as much to improving the economy as this one.

Allowing private millers to enter the market on their own account will take better advantage of the rice milling expertise which Guyana possesses. We believe that this will, in time, will result in a general upgrading of rice available,for export, and that farmers will benefit through higher prices for better grades of paddy,

GRB's continuance as rice processor should be contingent upon performance. We recommend technical assistance at both the managerial and operational levels to improve drying and milling operations, record-keeping and reporting, and financial accounting. Operations that prove to operate at a loss should be disposed of to farmer groups or private interests.

GRB should act as rice exporters, negotiating contracts and handling packaging and shipping. Rice would be obtained from millers through summission of sealed bids. Quality of rice according to international standards would be monitored by a panel including GRB, rice millers and marketing experts.

A revolving fund should be established under control of the Central Bank which would make foreign exchange available to millers in proporatin to export performance for import of needed machinery and spare parts.

Further details on this recommendation are found on pages 65-68.

POLICY RECOMMENDATION No. 2

INCREASE AVAILABILITY OF AGRICULTURAL INPUTS TO RICE FARMERS AND THOSE PRODUCING OTHER FOOD CROPS.

Far more important than any inefficiencies that might exist in the marketing of agricultural produce is the unavailability of certain key inputs such as sprayers, outboard motors, spare parts, agricultural chemicals and fertilizer. This unavailability has, for example, impeded the use of existing U.S. dollar loan funds provided by IDB under the Food Crop Production and Marketing Program. Firm and decisive action is needed to overcome what appear to be mainly administrative problems. In the meantime, field surveys have revealed extreme dissatisfaction on the part of farmers who are prevented from increasing production of food crops by the lack of key pieces of equipment costing very little.

Further detials on this problem are given in a memorandum addressed to the IDB Regional Representative, which is found in the Appendix to this report.

POLICY RECOMMENDATION No. 3

PROMOTE AS A PLANNING CONCEPT AN "INTEGRATED FOOD INDUSTRY PLAN" CENTERED ON THE ANIMAL FEED INDUSTRY.

Import restrictions caused by foreign exchange shortages have virtually stopped production of balanced animal feeds in Guyana, except for occasional special shipments. As a result, poultry and pork are beginning to disappear from the market, adding markedly to food shortages.

It is recommended that an "Integrated Food Industry Plan" be put forward as a means of mobilizing domestic --and hopefully external-- resources in building an indigenous material-based animal feed industry.

Animal feed manufacture is connected by numerous backward linkages to production of a whole range of agricultural and fisheries products (paddy, coconuts, palm oil, soybeans, sorghum, cassava and fish) and by forward linkages to basic food items such as rice, edible oil, milk, ham and bacon, chicken, eggs and flour. Thus, promoting the growing of soybeans, for example, increases availability of edible oil for cooking and soybean meal for animal feed. Increased fishing adds to fresh fish supplies but can also supply fish meal for animal feeds.

A series of seven separate development projects based on animal feed are outlined in this report (see pages 81-84). Discussions are also included of key projects on this list, such as coconut and copra, soybeans, palm oil, cassava, fish meal and sorghum.

POLICY RECOMMENDATION No. 4

ESTABLISH AND IMPLEMENT A DEVELOPMENT PLAN FOR THE RAPID EXPANSION OF SOYBEAN AND SORGHUM PRODUCTION ON STATE OR PRIVATE FARMS IN THE INTERMEDIATE SAVANNAH AND ON COASTLAND AREAS.

As important steps toward the goal of achieving self-sufficiency in animal feed production --discussed under the "Integrated Food Industries Plan"-- a well-defined and comprehensive plan is needed for the rapid expansion of soybean and sorghum cultivation in the Intermediate Savannah, and possibly also on coastland areas. Cultivation of soybeans should be started as soon as possible at the GNS station at Kimbia, where farm equipment as well as drying and storage facilities already exist. To further accelerate production, qualified private farmers with the necessary financial resources should be encouraged to produce these crops on land in the area, with suitable tenure provisions.

Sufficient research and experimentation work has already been done to establish the feasibility of growing soybeans. While reliable cost and return data may be lacking, it is believed that a base has been laid down upon which to build. Soybeans are doubly justified for Guyana as they can help relieve the edible oil shortage while contributing protein-rich material for livestock feed.

There is more uncertainty regarding sorghum than soybeans. The attractiveness of the crop lies in its relatively low input requirements and the fact that as many as three crops - including two ratoon crops - can be obtained from a single planting. Much research on varieties suited to the tropics has already been done, as in India for example, and Guyana should benefit from this work. Sorghum could replace broken rice as a carbohydrate component in animal feeds. This could be important to Guyana if and when GRB rice mills improve their operations and are able to produce a higher percentage of exportable rice.

This matter is discussed in more detail on pages 85-88.

POLICY RECOMMENDATION No. 5

DECONTROL COPRA AND COCONUT OIL PRICES AS AN ESSENTIAL FIRST STEP IN REVITALIZING THE EDIBLE OIL INDUSTRY.

It is recommended that copra and coconut oil prices be decontrolled and allowed to seek their own levels.

The current price structure has diverted coconuts to home or small-scale manufacture of crude oil, with the result that only this low-grade product is available at a high price on the market. A revitalized edible oil industry would mean that oil milling and refining capacity, now operating at a fraction of capacity, would be processing large quantities of Guyana's coconut crop which are now diverted to uneconomic production. Equally important, the industry would again be able to supply copra meal for animal feed manufacture.

As a temporary measure to restore equilibrium to the market by bringing edible oil supply and demand more into balance, soybeans should be imported at the rate of 1,500 tons per month. This would produce about 1,200 tons of soybean meal monthly to supply Guyana Stockfeeds at levels that existed before import restrictions. This would be a temporary measure pending local production of soybeans, which is also recommended.

These measures are discussed more fully on pages 58-60.

POLICY RECOMMENDATION No. 6

DOMESTIC SUGAR PRICES SHOULD BE RAISED TO GUYSUCO'S COST OF PRODUCTION AND THE SAVINGS PARTLY UTILIZED TO INCREASE PRICES TO CANE FARMERS.

Guyana's current domestic price for sugar at 12.5¢/lb. is a fraction of that in neighbouring countries, encouraging waste and over-utilization on the one hand, and smuggling on the other. At the same time payments to cane farmers for sugar are currently insufficient to cover production costs. Rapidly falling world market sugar prices will mean further reduction in the future.

As a device to counter this disturbing trend, it is recommended that domestic sugar prices be raised to Guysuco's production cost of 57¢/lb. This will result in generation of some G$35 million in additional revenue which could be passed on to the cane farmers in higher prices for cane.

This measure should be undertaken as part of a program to aid cane farmers which also includes crop diversification. Sorghum and soybeans have been mentioned in this report as possible crops for this purpose.

These recommendations are discussed on page 69.

POLICY RECOMMENDATION No. 7

ENCOURAGE PARTICIPATION FROM THE ENTREPRENEURIAL OR PRIVATE SECTOR IN INCREASENG EXPORTS BY LINKING FOREIGN EXCHANGE AVAILABILITY TO EXPORT PERFORMANCE.

The entrepreneurial sector of Guyana, uncertain about Government policies in the current economic crisis, is contributing less than it should to the country's development.

There are still energetic and innovative businessmen in the country but many have already left, depleting an important natural resource of Guyana.

Measures proposed in this study should help revive rice milling and edible oil production, two traditional private industry sectors. It is further proposed that as a stimulus to establishment of new export industries, (1) exporters be allowed access to 50 percent of foreign currency earnings for imports of equipment, materials, and services directly used in the business, (2) that the foreign exchange also be made available in the business, firm export orders, and (3) imports of goods purchased abroad with private sources of foreign funds be allowed entry on a "no questions asked" basis.

A policy similar to (1) and (2) above could be applied to public corporations. We believe this would provide a stimulus to managers of these enterprises also.

Further detail relative to this recommendation will be found on pages 63-64.

POLICY RECOMMENDATION No. 8

GUYANA MARKETING CORPORATION SHOULD CEASE ITS BROAD PRICE SUPPORT FUNCTIONS, BE MERGED WITH QUALITY FOODS, AND BECOME A PURCHASER/PROCESSOR/EXPORTER OF A LIMITED RANGE OF PRODUCTS.

The government can no longer afford a costly price support program for a wide range of agricultural produce. In most coastal areas of the country GMC's role is not crucial to protecting the income of the farmer due to current high demand and relatively good prices for his food crops. However, to safeguard the interests of farmers in the Northwest and in those riverain areas where transport facilities are not adequate, resources of the Food Crop Production and Marketing Program (FCP&M) should be utilized to finance the purchase of boats to be operated by farmer groups.

The transfer of the Marketing Centers now being constructed under the FCP&M to the regions, which has already begun, should be continued. GMC and Quality Foods, already linked by common management and a supplier - processor relationship, should be merged and the new organization, possibly re-named "Quality Foods Corporation", placed on a sound financial footing. An analysis of the new entity would be required to determine required financial resources, physical facilities and equipment needs to enable efficient production of carambola products, coffee and possibly other products. As one of the very few exporting industries in Guyana other than rice and sugar, the GMC/QF operation is deserving of government's support.

Discussion of these issues will be found on pages 70-72.

POLICY RECOMMENDATION No. 9

CITRUS JUICE

It is recommended that the Government encourage establishment of a citrus juice export project by the entrepreneurial sector. Local investors are interested in such a project and already have some equipment.

Feasibility of exporting needs to be studied, but we suggest leaving that task to the investors themselves. Incentives regarding foreign exchange availability, recommended elsewhere in this report, would be an additional incentive.

Our recommendations also takes into account our view that the state corporations engaged in processing need to concentrate on restoring financial health to their operation and should not take on new projects at this time.

A discussion of the subject appears on pages 88-89.

POLICY RECOMMENDATION No. 10

RUPUNUNI BEEF

It is recommended that the government again consider supporting a proposal to establish an airfreight service between Lethem and Georgetown on a joint venture basis between MML, Regional Council of Region 9, and foreign and local investors. This would facilitate shipment of beef, and through better scheduling of slaughtering would reduce production costs. Supplies of other types of meat in the coastal areas are decreasing. The Rupununi is an important source of beef, but to hold down costs of the product delivered in Georgetown, air transport has to be improved. Eventual expansion of the freight service to international markets is also a possibility, provided beef from Guyana can be competitive.

A discussion of these issues appears on page 60-62.

PART II

DESCRIPTION OF AGRICULTURAL MARKETING SYSTEM

A. THE SYSTEM IN GENERAL

The purpose of this section is to describe how agricultural marketing is carried out in Guyana at present. Under headings for each category of crop or livestock product, production is first discussed, then the market process itself is analyzed, and finally processing and export activities, where applicable, are reviewed.

Exhibit 1 presents a generalized flow chart of agricultural marketing, showing which products flow through the various channels. The farmer - huckster - retailer channel, and numerous permutations thereof, serves to move most fruits and vegetables to the consumer. Crops for processing and export are sold directly to processing plants, most of which are in the public sector. A few crops more through both channels, for example coconuts, cassava, corn and milk, with resulting complications for processors. Government estates, while given "equal billing" with the private farmer in Exhibit 1, account for less than 5 percent of all production outside the sugar sector.

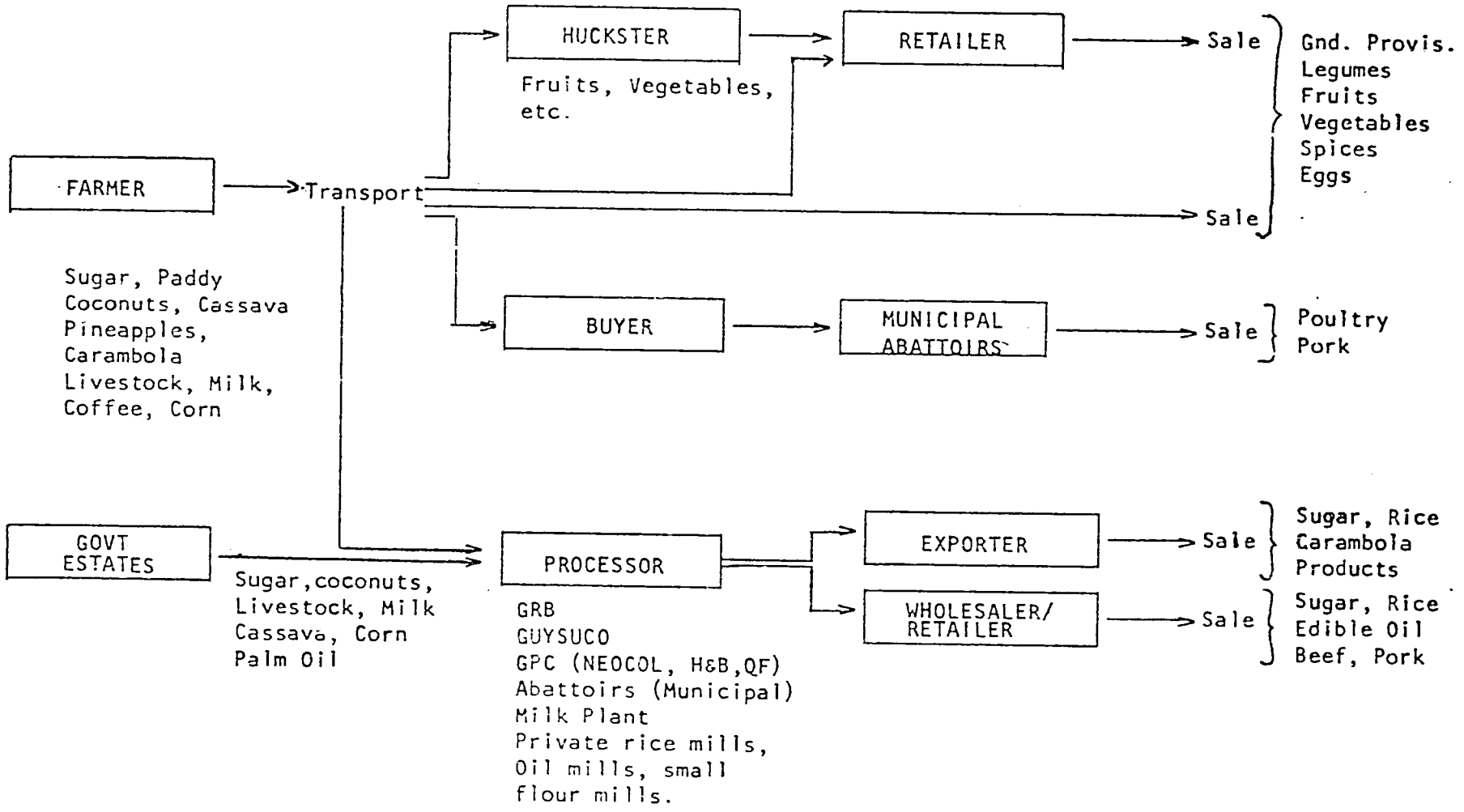
An approximation of the physical flow of agricultural goods is shown on an outline map of Guyana in Exhibit 2. A principle feature of the system that a high proportion of all produce flows into Georgetown, so that road and water transport is geared accordingly. Due to the centralization in Georgetown of most processing facilities and the major markets, all agricultural products travel these routes.

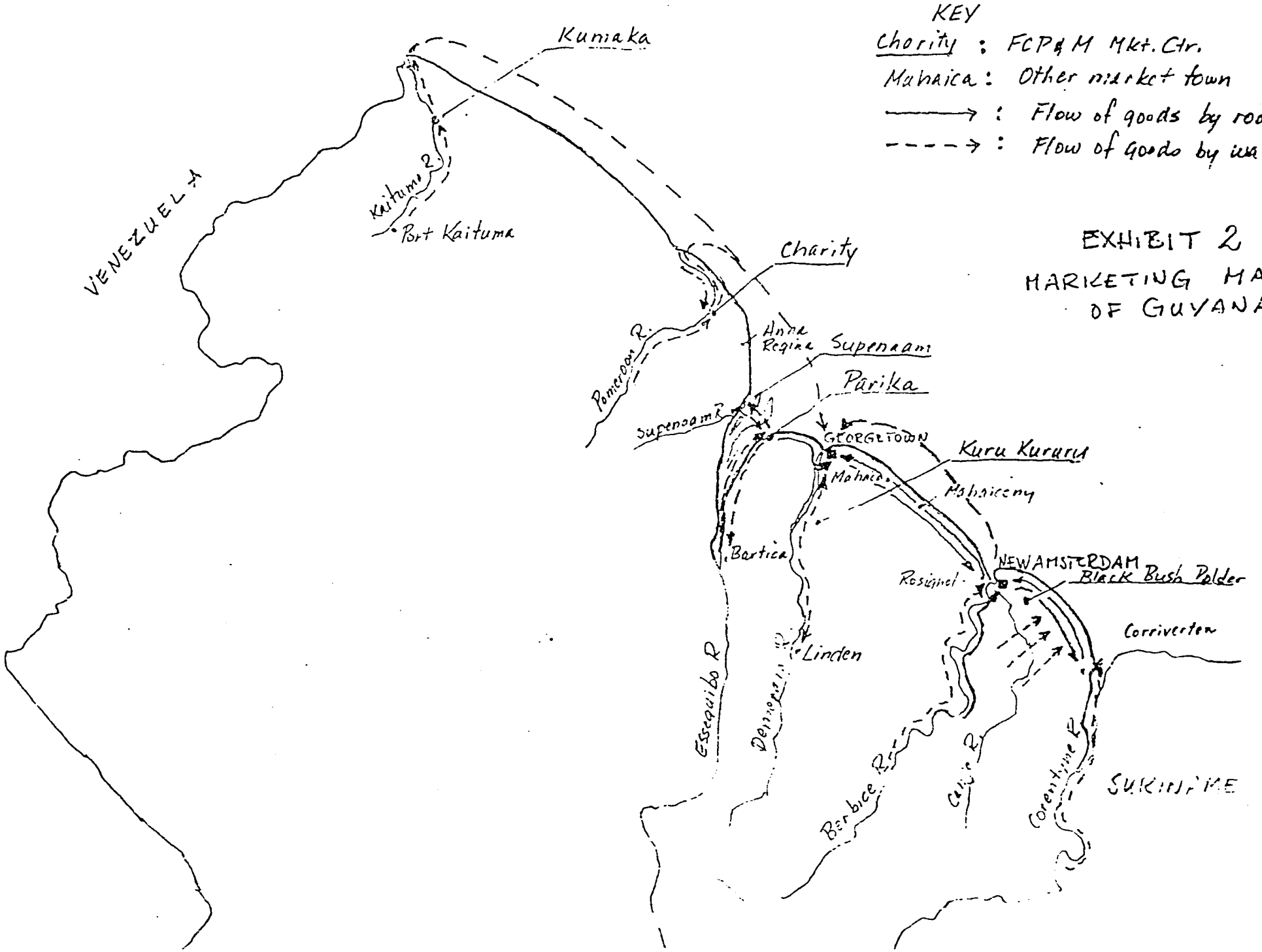
The Rosignol - Georgetown link is all hard-sufaced highway with no ferry crossings, and is extremely well traveled. The stretch from Corriverton to New Amsterdam carries almost as much traffic. Farmers generally carry produce by small canal boat or vehicle to the highway where numerous hucksters vie for their products. Many farmers bring goods directly to market towns and retail at least a portion before disposing of excess to permanent retailers occupying stalls. Hucksters traveling to Georgetown may sell and buy at intermediate points both coming and going.

With the exception of these areas, the majority of goods are carried by boats on major rivers. Trading takes place at Charity, Parika, Supenaam, and Bartica. From these points, the bulk of the goods moves to Georgetown by highway, except from the northwest where everything moves by boat. River crossings by ferry add enormously to the transit time to Georgetown and are a major factor in transportation and spoilage of produce.

EXHIBIT I

AGRICULTURAL PRODUCTS FLOW CHART




KEY
Chority : FCP&M Mkt. Ctr.
Mahaica : Other market town
——→ : Flow of goods by road
- - - - → : Flow of goods by water
EXHIBIT 2
MARKETING MAP
OF GUYANA
Kuniaka
Kaituma R.
Port Kaituma
VENEZUELA
Charity
Pomeroon R.
Anna Regina
Supenaam
Parika
Supenaam R.
GEORGETOWN
Kuru Kururu
Mahaica
Mahaicony
Bartica
NEW AMSTERDAM
Black Bush Polder
Rosignol
Corriverton
Linden
Essequibo R.
Demerara R.
Berbice R.
Corentyne R.
SURINAME
-152-

B. RICE

Production

Official paddy and rice production figures (Exhibit 3) indicate an alarming downward trend since 1977, following a series of increases in the years 1972 to 1975. Those good years were characterized by increases in area planted, in part due to opening of new rice land schemes, and large yield increases from introduction of new varieties. Since 1971 the yield increases have continued at a steady pace but have not been sufficient to compensate for declining area planted. As reported by other Checchi specialists* these production declines are due to:

- poor water control at the farm level, especially operation, maintenance and control of irrigation and drainage works;
- Shortage of inputs such as sprayers, pumps, spare parts, and to a lesser degree fertilizer and chemicals;
- high production costs, especially for labor and hired machinery; and
- insufficient price incentives for paddy produced.

For these reasons land is being taken out of rice production. This can be observed by any traveler in Guyana. The traveler who talks to rice farmers will detect profound dissatisfaction with the state of affairs in rice. As a consequence there is a shift toward production of vegetables, fruits, ground provisions and legumes where prices are quite attractive, but here again the farmer encounters --to his extreme frustration-- shortages of inputs.

Marketing

GRB domestic and export sales of rice for the past seven years are shown in Exhibit 4. Exports in 1981 were lower than they were in 1975, as were total sales. It is understood that due to a fall in rice production in 1979, Guyana was unable to meet its contract obligations to CARICOM countries in 1980. CARICOM officials state that Guyana's inability to supply the desired qualities and quantities in recent years is causing the islands to turn more toward U.S. suppliers, even though those imports are subject to 15 percent tariff. For the first six months of the year exports were only 18,000 tons. Even allowing for seasonal variations, this may be one of the worst years ever for rice export. According to some, the Trinidad market may have been lost to Guyana.

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* See reports by Michael Hanrahan, Tropical Food Crops Specialist and Ronald Baskett, Sugar and Rice Specialist.

EXHIBIT 3

RICE PLANTING, PRODUCTION AND YIELD, 1972-1981

Year	Acreage		Production (tons)		Yield - 140 Bags of Paddy Per Acre Harvested
	Planted	Harvested	Paddy	Rice*	
1972	202,210	196,270	144,780	94,107	11.8
1973	357,000	229,270	149,924	94,450	10.5
1974	n.a.	261,180	251,782	163,658	15.4
1975	n.a.	287,361	285,888	185,828	15.4
1976	n.a.	207,546	170,151	102,090	13.1
1977	357,375	337,322	351,121	210,672	16.7
1978	n.a.	283,672	303,234	181,940	17.1
1979	n.a.	214,763	236,239	141,744	17.6
1980	248,882	237,100	277,325	166,394	18.7
1981	224,092	219,962	271,610	162,984	19.8

* Rice production is calculated from paddy production by applying a factor of 0.6 (0.63 before 1976) as a milling factor and to allow for seed and other losses. GRB plans to use a factor of 0.55 beginning in 1982 to allow for lower milling yields from the widely-planted Rustic variety. If this factor were used for 1981, as it should have been, rice production would have been 149,400 tons.

Source: Planning Department
Ministry of Agriculture

EXHIBIT 4

RICE SALES BY GUYANA RICE BOARD, 1975 to 1981
(000 tons)

	Domestic Consumption	Exports			Total Sales	Total Production
		CARICOM	Other	Total		
1975	43	74	10	84	127	186
1976	36	72	-	72	108	102
1977	45	67	-	67	112	211
1978	39	86	19	105	144	182
1979	35	75	9	84	119	142
1980	37	69	3	72	109	166[1]
1981	45	72	6	78	123	163[2]
1982 (6 mths.)	21	18	-	18	39	-

Source: Ministry of Agriculture

1) 153,000 tons if 0.55 milling factor used.
2) 149,000 tons if 0.55 milling factor used.

The CARICOM Market --which currently take 90 to 95 percent of Guyana's exports-- demands white rice of long-grain, translucent quality with few inpurities or red rice, and a low percentage of brokens. Parboiled rice in demand is to be light in colour, relatively aroma-free and with a low percent of brokens. With increasing urbanization and affluence and with spread of supermarket chains in these countries the demand is for more attractively packaged, higher-quality rice. In Trinidad more parboiled rice is demanded; importers in that country recently notified the GRB that one sack of parboiled rice should be shipped for every two bags of white rice.*

To meet these exports standards, GRB is forced to engage in a very costly re-cleaning, re-milling, and re-packing exercise, since rice produced by its mills is not of export quality. This excess handling results in additional rice losses and adds greatly to GRB's operating costs.

Total rice production figures have been included in Exhibit 4 for the sake of comparison. There is a disturbing gap between production and sales. Allowing for a one year lag, the figures show a difference of 40,000 to 60,000 tons unaccounted for annually. Where did this rice go to? Utilizing a different milling factor as explained on Exhibit 3, this difference is reduced to perhaps 25,000 to 35,000 tons. Certainly some of this goes to animal feed but not all. It appears that there is considerable "leakage" from the system.

Part III of this report contains our evaluation and findings on rice marketing and the GRB.

C. SUGAR

Production

Eighty-five percent of Guyana's sugar is grown on large estates in coastal areas controlled by the state sugar monopoly, GUYSUCO. The remainder is grown by private cane farmers who deliver their cane to mills on the estate for purchase and processing by GUYSUCO.

Production of sugar cane and sugar over the past 10 years is shown in Exhibit 5. Total acreage and sugar production do not show any marked trends during this period. Yields, however, have generally declined since 1975 when a fungus called smut began to affect production from the two highest-yielding varieties. Replacement varieties had lower sugar yields. Heavy rain occurring at harvest time in the last three years caused sugar production to fall below the 1978 figure of 325,000 tons. Yields by private farmers have been consistently lower than estate yields, due mainly to lower investments by farmers in fertilizer, re-planting and other practices.

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* GRB is now trying to deal with this matter, but has discovered that there are very few parboiling facilities in operating condition left in Guyana and they can each produce a maximum of 6 tons/day.

EXHIBIT 5

SUGAR CANE PLANTED, SUGAR PRODUCTION AND YIELDS, 1972-1981

Year	Acreage Reaped			Sugar Production, Tons			Yield of Sugar/Acre	
	Estates	Others	Total	Estates	Others	Total	Estates	Farms
1972	115,905	13,595	129,500	279,114	35,486	314,600	2.41	2.61
1973	100,062	12,838	112,900	237,771	27,933	265,704	2,38	2.18
1974	118,984	20,266	139,250	297,969	42,841	340,815	2.50	2.11
1975	90,100	18,000	108,200	260,097	40,253	300,350	2.89	2.22
1976	120,353	17,445	137,798	297,673	34,784	332,457	2.47	1.99
1977	95,847	17,915	113,762	206,474	35,053	241,527	2.15	1.96
1978	124,586	19,824	144,410	284,656	40,149	324,805	2.28	2.03
1979	118,661	32,123	150,748	254,031	44,237	298,268	2.25	2.00
1980	108,897	20,452	129,349	230,848	38,786	269,634	2.23	1.90
1981	122,022	21,056	143,078	261,289	39,501	300,790	2.25	1.87

Source: Planning Department
Ministry of Agriculture and Guysuco

The Private Cane Farmer

Conditions under which the private cane farmer sells his cane to GUYSUCO are regulated by the National Cane Farmers Committee, created by an act of parliament in 1965, and chaired by a cane farmer.

Guysuco encourages farmers to form marketing cooperatives so as to deliver cane in larger block, permitting more efficient and lower cost handling of cane. As an inducement, maturity sampling of cane is provided free of charge to cooperatives. Guysuco reports that some production cooperatives have also been formed in which land is actually farmed jointly. While the area concerned is small, there are in fact some five such groups in existence, one each at Bellevue, Good Samaritan and Rose Hall, and two at Skeldon. Overall, Guysuco obtains roughly half its privately-grown cane from cooperatives.

Coordination at the estate level between cane farmers and estate management is carried out by Cane Farmers Liaison Committees, which meet monthly and have representatives from both groups.

There is in fact considerable dissatisfaction on the part of cane farmers with the present system. They feel that Guysuco, as sole purchaser of their sugar and operator of the water transport system by which most cane is delivered, dictates terms to them. Among their complaints is that the bulking of cane deliveries fails to reward higher than average yields by individual farmers. Payment conditions, covered below, is however their major complaint.

Payment to Cane Farmers

Prices paid to farmers by Guysuco are derived from a common base price, calculated after marketing is completed by taking the average price obtained on all markets and subtractors shipping, handling, and insurance charges. A transport differential is subtracted to derive the value of the sugar at each location. The farmer receives 70 percent of this amount for his sugar, the balance covering milling costs. To this price is added a small allowance for molasses produced. Finally the price is converted to a cane base, using yields recorded for each seller or cooperative. In 1980, for example, Guyana received an average of $1,246/ton for its sugar. The common base price was $1,044/ton, so the farmer received $731/ton for his sugar, less a transport differential (which amounted to $25/ton at a typical estate).

The farmers' dissatisfaction has to do with the system of payment in four installments. In order to permit payment to the farmers in advance of actual sale on world markets, Guysuco makes a conservative estimate of the average price which it will receive, then bases payments to farmers on that price. The initial and largest payment is made after delivery of cane. In 1981 this payment was 75 percent of the estimated price. This was raised in steps from 65 percent of a few years ago when farmers complained that the payment didn't cover labor costs or harvesting. With declining world prices for sugar, the situation has become extremely serious, particularly in 1982 when world open market prices dropped below £100/ton.

A second payment is made several months later, after GUYSUCO earnings are more firm; then two final payments are made, the first to cover the balance of the sugar value and a second small one for the molasses by-product. In 1981 these payments were 15 percent, 8 percent and 3 percent respectively.

Sugar Marketing

Sugar exports over the past five years by destination appear in Exhibit 6.

Domestic sales have increased slightly over the 5 years to 35,000 tons in 1981, of which 6,000 tons was semi-refined "crystal white" and the balance unrefined. The price for brown sugar is a highly-subsidized 12.5 cents per pound retail. Retail prices in neighboring countries, including other sugar producers, is anywhere from 3 to 6 times higher. As GUYSUCO's cost of production is 57 cents per pound, sugar consumers received in 1981 a subsidy from GUYSUCO of G$35 million.

The small CARICOM sales are to the non sugar-producing islands. Amounts are fixed by agreement within CAICOM, prices being determined by a composit index of EEC, world market, and local domestic prices. Guyana did not ship her full quota of 4,200 tons due to purchases by CARICOM countries elsewhere at lower world prices.

Under the EEC Lomé Convention, Guyana has a quota of 165,000 tons, most of which goes to the U.K. The price in 1981-1982 was fixed at £240 per ton CIF, to which should be added to 9½ percent increase effective July 1982.

Canada has bought from Guyana at world market prices in the past. This year sugar is overstocked in Canada and prices offered are about £10 below world prices.

U.S. policies on sugar imports have fluctuated since the 1974 expiry of the Sugar Act with its system of quotas and sales at U.S. domestic prices. From 1979 through 1981, U.S. imports of Guyana sugar were duty-free but at world market prices. In 1982 the U.S. reverted to a quota system based on the history of imports over the past 7 years. Guyana's quota of about 35,000 tons is much lower than the roughly 60,000 tons exported in recent years, but the price is close the U.S. domestic prices --thus much higher than world market prices.

In 1982, a crop of 280,000 tons was forecast (though production may exceed the forecast thanks to favorable weather). Disposal of this amount would be roughly as follows:

Domestic Sale)		
)	35,000 tons	12%
CARICOM)		
EEC	165,000 "	59%
U.S.	35,000 "	13%
Other	41,000 "	15%
ISA Special Stock	4,000 "	1%
	280,000 tons	100%

EXHIBIT 6

GUYSUCO SUGAR SALES, 1977-1981

(000 Long tons)

	1977	1978	1979	1980	1981
Domestic Consumption	31.5	32.1	31.5	33.0	35.2
CARICOM	0.3	0.9	0.8	4.2	1.9
EEC - (Mostly U.K.)	177.4	169.4	152.8	154.9	189.0
CANADA	20.2	54.0	75.2	40.3	10.0
U.S.A.	11.0	54.5	37.5	57.4	63.6
Other	1.0	14.8	0.5	9.6	0
TOTAL	241.5	324.8	298.3	299.5	299.7

Source: Ministry of Agriculture
Planning Department

The "Other" 41,000 tons or 15 percent of total production may be held in temporary storage pending improvement in prices but must eventually be sold at world market prices, which by September 1982 had fallen to below £90/ton (less than £70/ton equivalent in Guyana). This may be compared to production cost of f210 to £220/ton. The chief cause of the decline is the 7 million ton EEC surplus of beet sugar (mostly from France) which is being sold on world markets.

D. CROPS FOR PROCESSING

1. Coconuts and Copra

Production

Coconuts are grown widely in the coastal regions, especially along the Pomeroon River, on the Essequibo Coast and Islands, in East Demerara and West Berbice and on the Corentyne Coast. Official figures show that the planted area has increased from 33,000 acres in 1972 to 38,000 acres in 1981. Reported production of nuts declined, however, from 75 million to 43 million in the same period. Based on production figures for 1971 yields of 2,270 nuts per acre would have been achieved.* Using this yield, the figures would suggest that some 86 million nuts should have been harvested in 1981, exactly twice the reported figure. Reports from those in the coconut industry are that acreage has in fact declined, trees in some areas having been removed and crops planted in their place. Furthermore, many plantations which remain contain over-age trees with low yields. Others are partially inaccessible due to lack of bush removal. One of the largest plantings of coconuts is on Hope Plantation, near Clonbrook. Purchased by the Government in 1981, the 1,000 acre plantation is inhibited by 45 families who, with help from volunteer teams from government agencies, maintain the plantation, harvest nuts and produce copra under the name "Hope Coconut Industries Limited." The plantation is however in a serious state of neglet, only about 10 percent of the trees being accessible due to the need for clearing of underbush. Forty to fifty thousand nuts are reportedly harvested weekly, producing roughly 12,000 lbs. of copra which is shipped to the NEOCOL mill.

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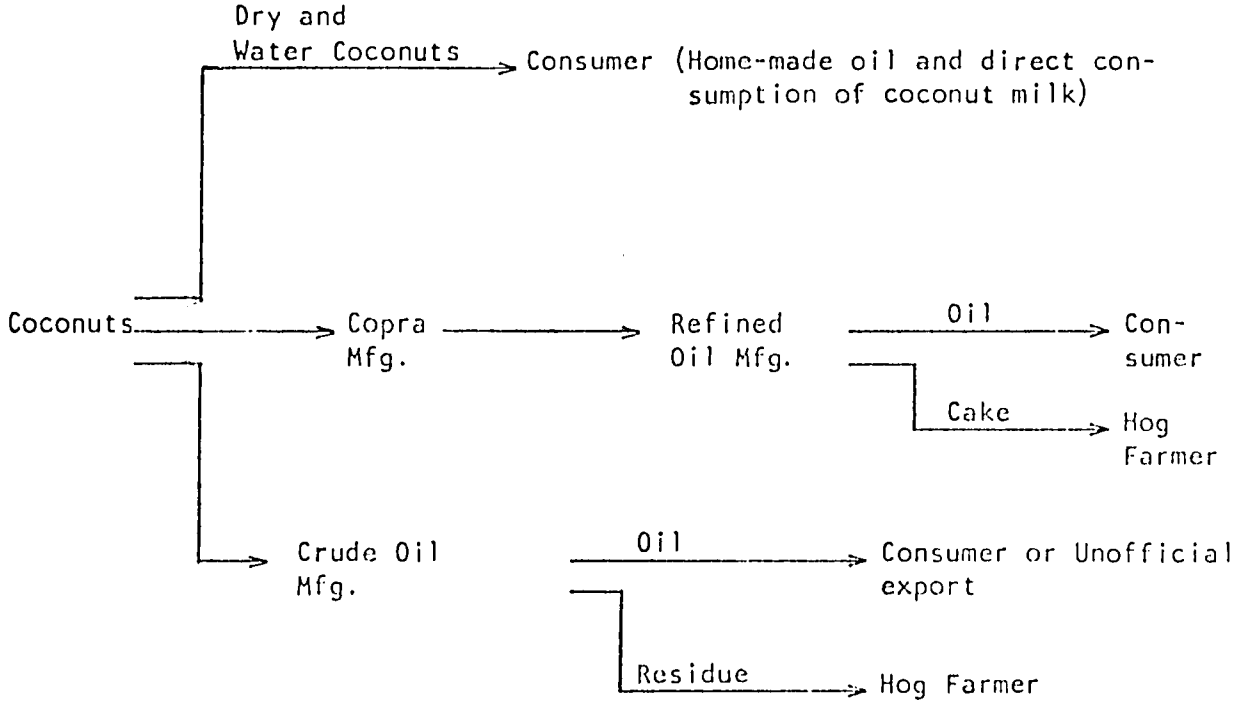
* The Ministry of Agriculture estimates that current yields in Guyana are 25 nuts/tree from 75 trees/acre or 1,875 nuts/acre. This may be compared to reported optimum yields from improved varieties of 120 nuts/tree and 58 trees/acre, or 6,960 nuts/acre; and to CARICOM averages of 50 nuts/tree, 60 trees/acre, or 3,000 nuts/acre.

Several large estates are owned by private farmers, including the operators of the two private oil mills, Maharajah Oil Mills at Cove and John, East Demerara and Demerara Oils Mills in Georgetown. The present high unofficial price of coconuts is attracting new investment by farmers who have the resources to hire labor for clearing and trenching, as well as the costly maintenance of existing plantations. As edible oil prices are regulated and nut prices are not (see discussions below) it may be expected that any increases in harvesting will not go into producing of refined oil.

Marketing of coconuts, copra and oil in Guyana can be shown schematically as follows:



There has in recent months been a total distortion of the marketing system for coconuts, copra and oil. With restricted inputs of edible oil, the price of nuts has increased rapidly. Average wholesale prices in Georgetown for dry nuts increased from 19¢ in March to 37¢ in June. As of mid-August they were selling for 25 to 30¢ each on the Pomeroon River and for 35¢ to 40¢ each wholesale in Georgetown. As the government has fixed the price of copra at 55¢/lb. (for Grade I) and it takes roughly 3.3 nuts to make a pound of copra, it would cost producers in the Pomeroon about 90¢ just to purchase the nuts to make a pound of copra. As a result copra producers have ceased operations everywhere, and are trying to survive by buying and selling nuts. Along the Pomeroon River one sees large quantities of coconuts in the husk being transported by boat to the Charity Stelling or directly to Georgetown and other river points.

Referring to the above diagram, then, coconuts are being diverted from the traditional market channel (path in middle) to the upper and lower channels. Makers of refined oil receive very limited quantities of nuts which come almost entirely from their own plantations. Based on reported refined oil production we estimate this amount to be roughly 8 million nuts, or roughly 20 percent of reported total nuts harvested. Thus about 80 percent of all coconuts are being diverted to direct home consumption as "water nuts" or for making crude oil,* or to crude oil manufacturers.

Processing (of Edible Oil)

There are three industrial-scale edible oil mills in Guyana processing copra:

National Edible Oil Company (NEOCOL), Farm (45 percent of total)
Maharajah Oil Mills, Cove and John (40 percent of total)
Demerara Oil Mills, Georgetown (15 percent of total)

Pending completion of its refinery, NEOCOL produces crude coconut oil only. Their combined production over the past four years, as reported by the Ministry of Agriculture, was as follows:

	Copra Consumption '000 lbs.	Coconut Oil Production '000 gals.
1979	6,335	209
1980	8,909	584
1981	5,024	305
1982 (6 months)	2,411	139

* The process of grating the coconut meat, squeezing out excess water, then boiling it and skimming oil from the surface is very inefficient in oil recovery. The oil-rich residue is often fed to pigs, resulting in poor quality meat.

A marked decline between 1980 and 1981 is evident and this appears to be continuing in 1982.

The NEOCOL mill is supplied by copra from the state-owned Hope Plantation, the others mostly from company-owned plantations. Coconut oil is sold at the official price of $15.70 per gallon wholesale, or $2.00 pint retail. Press cake is sold by the private mills directly to hog farmers at 6¢ per pound (official price). Much of it is resold on the "parallel market" at 17¢/lb.

Numerous small crude-oil producers have sprung up quite recently. There are reported to be about 30 of these now in the Mahaica area alone. They have crude machinery which grates coconut meat from the halved nut, the meat being heated in vats and the oil skimmed off. They may produce as much as 45 gallons of oil per day in this manner. While by law they are required to sell the crude oil to refiners for further processing, they are in fact marketing crude oil directly at $4 to $4.50 per pint.

2. Palm Oil

The Other Crops Division of GUYSUCO is responsible for the two oil palm plantations in Guyana, having taken over operations from the Ministry of Agriculture in 1978/1979.

At San Jan on the West Bank of the Demerara (about 40 miles from Georgetown) there is a plantation of 180 acres and an oil mill which can process only a small amount of oil (from the pericarp of the fruit). A new mill was under construction but there are said to be deficiencies in the design as well as missing equipment, so work has been suspended.

At Wauna in the Northwest a much larger plantation of about 1,500 acres exists together with a rudimentary oil mill. Planting of trees began in 1973. At present, fruit is being harvested from 150 acres. New planting was being done at the rate of 200 acres/year but has slowed considerably recently due to lack of funds to purchase seedlings. Seedlings have also been provided to farmers in the surrounding area. Trees on the Guysuco plantation appear to be well maintained.

The mill consists of open drums for cooking the fruit, a digester, and a manually operated Stork press. The oil is recovered by simple heating in open drums and skimming from the surface. Production is 70-80 gallons/day or about 350 gallons/week. However the mill was recently shut down for two and half months due to lack of spare parts for the engine which operates the digester. Of the total of 105 tons of oil produced to date, 20 tons came from private farmers.

Total oil production from these plantations over the past three years was as follows:

1979	-	34,076 gallons
1980	-	7,304 gallons
1981	-	10,020 gallons

The oil was shipped to the Maharajah Oil Mills for refining and was marketed through one of the state trading agencies.

3. Corn, Sorghum and Soybeans

These three crops are treated together as they have been considered at one time or another as potential ingredients in animal feed. Corn (maize) is grown for human consumption at present; the other two crops are not grown except in experimental plots.

Efforts have been made in the past to grow all three crops on a large area (over 200 acres) on government estates, but for a variety of reasons work has been suspended. At present, however, plans are being made for their cultivation as possible sources of animal feed to replace imports now stopped.

Corn:

Only corn has ever been grown in any substantial amounts. Official figures indicate that as much as 7,200 tons may have been grown in 1977 under various government programs and by private farmers. In 1981 only about 1,500 tons were produced, all by private farmers. The crop is widely grown in the Northwest and Pomeroon areas, usually on new land being opened up by the "slash and burn" method. Corn, a demanding crop in terms of soil nutrients, is the first crop grown to take advantage of available nutrients and minerals. Typically it is not grown on the same land for another six years.

Small mills operated by local entrepreneurs process corn bought from farmers. Two such mills along the Pomeroon River were visited. One miller reported that he buys almost 100,000 lbs. (45 tons) of corn annually at prices ranging from 40¢ to 75¢/lb, then dries and grinds it into meal for sale in small plastic packages at $2.40/lb. wholesale or $2.75 retail. The product is sold in Georgetown and at intermediate market points. This miller has his own power plant, drying trays and a hammer mill, which is also used to make ground coffee and rice flour.

Guysuco's Other Crops Division has grown corn at their Blairmont Estate beginning in 1978. According to a recent report,* 200 acres were planted in 1978 and 450 acres in 1979, but yields of only 27 to 28 bushels were obtained due to flooding and pests. The use of local open-polinated varieties rather than hybrids was also a factor. Plans were then made to transfer the programme to Manaribisi, on new land back of the Skeldon Estate, and to alternate corn and black-eye peas. However, drainage problems were again encountered, caused by the difficulty of timing crop operations with rainfall, and in late 1981 the whole program was dropped in favor of rice cultivation. (A very successful harvest of 800 acres of paddy was completed in June). Corn produced under these programs was sold to Guyana Stockfeeds or utilized as seed.

Corn, together with sorghum and soybeans, was grown at Eberoabo in the Intermediate Savannah area beginning in 1977 as part of a CARICOM project. Funded by the Caribbean Food Corporation with participation from Trinidad

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* Guysuco Other Crops Division, Dr. James Allen, February 18,1981.

and St. Kitts and Nevis, the CARICOM Corn/Soya project envisaged eventual cultivation of 10,000 acres. Crops were cultivated for five years at the site, but the project ceased operation in 1981. In 1979 average yields were reported as 1,064 lbs/acre. Among other reasons for the failure of the project was the fact that funds were never made available to drill a well for water supply or build a wharf on the Berbice River, so goods could be moved in and out by river. Buildings and equipment were removed from the site in August 1982. Corn was grown at the farm, but it proved to have very heavy fertilizer reqùirements. Corn was also grown, with soybeans, at Kibilibri by "Global-Agri", a joint American/Guyana government venture. The American partners withdrew after only a year. Several years later operations ceased entirely.

The Guyana National Service (GNS) has recently been given responsibility for corn and is reportedly growing some 50 acres on the new station at Koriri (near the Canje River), as well as a small plot at the Kimbia Station.

Some experts in Guyana doubt the wisdom of investing under present economic conditions in the growing or a crop which requires such large inputs of fertilizer to achieve acceptable yields. They would favor concentration on soybeans and/or sorghum instead. (See discussion below).

Sorghum:

Small areas have been planted to this crop on various projects since 1971. The last known planting was 80 acres at Eberoabo in 1981. Sorghum was generally considered to be a good crop for the area. Typically a first harvest of 1,400 lbs./acre was obtained, with first and second ratoon crops yielding about 800 and 500 lbs./acre respectively. Seed is reported to have come from the CAS at Mon Repos. It grew to about 7 feet in height and had a head about 14 inches long. The advantage of sorghum it that it requires minimum inputs compared to corn. Weed control was reported to have been the major problem encountered. Also proper storage and drying facilities were lacking at Eberoabo.

The potential for sorghum in Guyana has never been adequately explored. Recommendations are made in Part V in this regard.

Soybeans:

Experiments in Guyana with soybeans date back to the early 1960's. Limited commercial production started in 1971. The Director of the Central Agricultural Station reports that by 1974, with assistance from the University of Florida team, five good cultivars had been developed which were appropriate to local climate and photoperiod conditions.

Seeds were made available to the "Global-Agri" firm at Kibilibiri and crops were grown from the 1970/1971 to the 1974/1975 season, so far as we know, before operations ceased. Yields ranged from a low of 600 lbs/acre to a high of 1,566 lbs./acre. The CARICOM project at Eberaobo --mentioned above

under corn-- grew 200 to 300 acres of soya successfully, using mechanized techniques, from 1977 through 1981. This project has also ceased operations. Yields reportedly ranged from 700 lbs./acre to 1,500 lbs./acre. As with other crops discussed in this section, yields were highly dependent on the timing of rainfall.

In an effort to learn more about past work on soybeans, several reports in the USAID library were reviewed.

A team of six technicians from the University of Illionois visited Guyana in 1973/1974 on a USAID contract under the International Soybean Program (INTSOY), to evaluate soybean growing and processing potential.* Their findings included the following:

1. Yields at Ebini in 1970 from trials on 6 varieties averaged 2,700 pounds per acre. The same varieties in Florida would have yielded 2,100 pounds per acre. However, the data were too limited to draw firm conclusions. Yields from "other experiments" were reported as 2,100 pounds per acre;

2. Yields reported at Kibilibiri (Global-Agri and Ministry of Agriculture) from 1971 to 1974 ranged from 700 to 1,500 pounds per acre in the main rainy season, and less in the short rainy season. This compares to average yields in the Southern U.S. (in 1974) of 1,500 pounds per acre. It was felt that low yeilds at Kibilibiri were due to inadequate farm management on the inherently infertile soils;

3. Recommendations were made to proceed with growing tests, using the "Jupiter" variety imported from the U.S., which has given the best results, at total of 10 locations, including 800 acres at Kibilibiri and 500 at Mathews Ridge;

4. It was recommended that technical assistance be provided to Guyana in Plant seeding and innoculants, application of herbicides and fertilizers, control of ants, soil preparation, and harvesting/cleaning/drying; and

5. Finally it was recommended that a standard "package of practices" be developed for growing soybeans in Guyana.

Another report published by Guysuco in 1976* reported on soybean trials in 1975/1976 on coastal clay soils (on or near sugar estates) A total of 15 varieties were grown during an unusually heavy rainy season which inundated the fields for up to 48 hours. Fertilizer and lime was applied to the clay and peat soils which were described as "extremely infertile." Mean seed yield of all varieties was 2,800 pounds per acre. The Jupiter variety was by far the best, producing about 3,500 pounds per acre on one soil type. Second best yields were obtained from the Hardee variety.

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* "Final Report of Work Done by International Soybean Program (INTSOY), University of Illinois", AID contract AID/CM/TA-BOA-73-30, Sept. 1975.

* "Soybean Progress Report #7", Abdul H. Wahab and Imran Hassan, Guysuco Project Evaluation Unit" (undated).

The report concluded: "Results confirm those of an earlier trial in which economically acceptable soybean yields were obtained from marginal and presently unexploited soils."

A report prepared for the Weaning Food Project of GPC (see bibliography) concluded that it would be possible to obtain acceptable yields of 1,200 lbs./acre from the Jupiter variety in the Intermediate Savannah area (Ebini, Ituni, Kwakwani) if the crop were grown in the May to September season and proper weed control and fertilizer applications were carried out. It was recommended that technical assistance be obtained trough the CARDI porgram.

Currently initiatives are being taken to re-launch soybean production in Guyana. The Central Agriculture Station (CAS) has been instructed to start multiplication of seed from stocks still on hand. Preliminary plans are to start planting, possibly at the GNS's Kimbia Station, as early as this November 1982 and to have 500 acres growing by 1985 (two crops/year). At the end of 5 years (1987), it is hoped to grow 1,000 acres. Guysuco's Other Crops Division may also get involved.

Questions of costs and returns for soybean growing have not yet been adequately answered. Previous studies would have to be updated using current costs for agricultural inputs. In the time available to the consultant, it was not possible to delve further into the results of large scale culti ation of soybeans from 1975 to 1981. We suspect, however, that whatever information might be available will not fully resolve the issue of the commercial viability of this crop, given the number of non-technical constraints encountered.

Despite the inconclusive results to date it seems likely that the government will re-start a seed multiplication program. If any substantial areas are to be grown soon, however, importation of seed instead of or in addition to multiplication of the small amount of existing seed will be required.

Recommendations on Soybeans are contained in Part V.

4. Carambola

Purchasing

Carambola, or "five-finger" fruit, is purchased by GMC directly from farmers, mainly in the Pomeroon River area. Buying agents are at the Charity Stelling every Monday (market day in the area) and Tuesday, where they purchase at 12¢/lb. everything brought to them. On Wednesdays they may also purchase from a boat at another point on the Pomeroon River. Lacking crates, the fruit is packed in sacks, causing some crushing of the fruit in handling. Except for small amounts sold in local markets, GMC is the sole buyer.

GMC ships the fruit to the Quality Foods subsidiary of GPC in Kingston, Georgetown by truck. Quantities vary but may reach as high as 100,000 lbs. weekly. Shipments arriving Tuesday and Wednesday are stored outside the plant awaiting processing. The fruit is apparently hardy as no more than 5 percent is reported lost to spoilage.

Processing

Products of Quality Foods from carambola include candied fruit, rum-flavored dried fruit, chopped fruit for confections, juice and table sauce. Production in 1981 was:

Candied fruit	-	18,121 lbs.
Rum-flavored fruit	-	16,113 lbs.
Table sauce	-	14,304 bottles (170 ml.)
		1,999 bottles (500 ml.)
Chopped fruit	-	50,000 lbs. approx.
Fruit juice	-	35,000 gallons (est'd 1981 prod'n)

Quality Foods occupies a building not designed for the purpose but a considerable improvement over the site at Ruimveldt it occupied until May 1982.

Equipment in use was mostly inherited from other now-defunct processing plants. It includes a pulper-finisher (for juice), fiberglass tanks for sugaring of candy, steam-jacketed kettles (to pasteurize juice and to cook in syrup pre-soaked fruit for candy), and gas-fired drying ovens. Fruit is peeled and washed by hand. Lacking a filter to clarify the juice, QF is forced to truck a container of juice weekly to another GPC location for filtering, then return it and re-heat it for pasteurization.

The Production Manager, Mrs. Warner, is doing a good job under difficult conditions. The system lacks a few key pieces of equipemnt which would ensure production of a better product under more controlled conditions. The two most important of these are:

- a filter press (stainless) to handle four 250 gallon batches per day of juice at 29°C with soluble solids at 21.1 (refractometer), as well as to filter sugar syrup at 78 Brix; and

- A pasteurizer (stainless) unit capable of handling 2,000 gallons of jucie daily at maximum of 100°C, with cooling to a minimum of 16°C.

Additionally, a continuous sugaring system with a boiler to allow re-constitution of syrup for recirculation would allow more efficient use of sugar and better product. Application has been made for import of all the above-mentioned, but it was not approved. QF did benefit recently by the acquisition of a new fruit crusher designed and built by GUYSUCO . This improved the quality of the juice produced.

Marketing

The Quality Foods Manager, Mr. Rhodes, has succeeded in exporting sample quantities of dried and chopped carambola to Barbados, where it has been well received as a substitue for raisins in bakery products. Mr. Rhodes is investigating markets in West Germany for candy and has been in touch with a Nestlé subsidiary in Trinidad who ordered samples of carambola juice for testing. QF has also sold 47,000 gallons of table sauce to Jamaica. A large shipment of carambola candy has also gone to the GDR as part of a trade agreement. Domestic marketing is limited to sale of 690 gallons of juice weekly to Banks D.I.H., who produce an aerated drink from it. Sales of chopped fruit which might have been made to local bakeries are not possible since wheat flour imports were stopped.

Table sauce is made from juice with the addition of monosodium glutamate (MSG) and seasoning. Production has been sharply restricted in 1982 by the lack of MSG, normally imported from Hong Kong but stopped due to foreign exchange shortages.

Quality Foods also produces pineapple juice, and a small amount of peanut butter. These are discussed below.

5. Pineapple

The Ministry of Agriculture estimates that in 1981 about 4 million pounds of pineapple were produced in Guyana. Main growing areas are East Demerara, especially on the Soesdyke-Linden Highway, and in West Demerara. Many growers on the Soesdyke-Linden Highway have stopped planting due to insect problems and badly depleted sandy soils. Of the Montserrat variety, the fruit has a good flavor and a relatively soft core, but is small and tapered and therefore not suitable for processing except for juice. Fresh pineapples are exported from Guyana; GMC currently ships about 5,000 lbs./ week to Barbados.

Quality Foods is the only processor at present. Thus far in 1982 they have purchased 168,331 lbs. of fruit and produced 48,306 twelve-ounce cans of juice. This small amount of juice is produced at the Kingston plant of QF. After peeling, the fruit is pulped; the juice is extracted in a small press, then pasteurized in open kettles and filled hot into cans which are closed on a manually-operated seamer. The juice sells at $4/12-oz. can, which puts it in the luxury item class.

6. Coffee

Official figures show 1,500 tons of coffee beans as being produced annually in Guyana, but this may exaggerate actual production. The Northwest and Pomeroon areas are the major producers. GMC is the only industrial-scale processor. They purchase about 100 tons a year at a fixed price of $3/lb. The remainder is bought by small mills which typically handle either corn meal or rice flour as well.

One such miller on the Pomeroon River purchases about 20 tons of beans during the November to April harvesting season, paying the same $3 per pound price as GMC. He sun-dries the beans on large trays with sliding roofs for rain protectio, roasts the beans in a simple 55-gallon drum rotating over a charcoal fire, grinds the beans in a small hammer mill, and packages ground coffee in quarter pound imprinted plastic sacks. The product is wholesaled to hucksters at $1.65 for sale in Georgetown, or retailed locally at $2 per package. The miller reports that farmers are planting more trees, so it seems apparent that returns to the farmer from growing this crop are considered adequate. Disease and pest problems are reported here as well, calling for agricultural chemicals.

GMC partially dries coffee beans in an oil-fired drum dryer, then ships them to Jamaica for final roasting, blending with Jamaican coffee, processing into instant coffee, and packaging in jars. This off-shore processing appears to make sense as such small quantities could not be economically processed in Guyana. Problems in making payment to the Jamaican Company (Salada Foods) has delayed shipment of almost 6,000 cases of the product still in Jamaica. For the same reason, some 83 tons of coffee beans are being held in the GMC warehouse.*

7. Peanuts

Peanut processing at present is limited to small amounts of peanut butter produced by Quality Foods and some small commercial enterprises doing jams, jellies and syrups.

One producing area is the Northwest. A visit was made to the Peanut Growers Cooperative Society at Wauna. This group with 20 members is growing about 70 acres during the current season, achieving yields of about 800 pounds per acre. Peanuts are being sold through a huckster who transport the nuts to Georgetown, where they are roasted and sacked for sale as a snack food.

It is reported that the farmer gets about $4.50 per pound delivered at the Kumaka Stelling, so that gross returns per acre must be about $3,600. Production costs are fairly high as labor is running $14-15 per day in the area, and it is hard to find. Problems are being experienced from extremely wet weather which inhibits land clearing by the slash and burn technique. The head of the cooperative plans to increase his acreage from 2½ acres to as much as 6 acres as soon as he can clear it. It is apparent that peanuts are a profitable crop.

Some peanuts are also imported by GMC under CARICOM trade agreements from St. Kitts at $3.50 per pound CIF. The low price is fixed by terms of the agreement.

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* As of September 1982, these problems have been solved and the goods are being shipped.

E. OTHER FOOD CROPS

1. Overall View

Other Food Crops are defined as:

Ground Provisions - Eddoes, Yams, Sweet Potatoes, Tannias, Dasheen, and Plantain, (Cassava covered in Crops for Processing).

Legumes - Black-eye peas, bora, pigeon peas, soya.

Vegetables - Mainly pumpkin, tomato, cucumber, boulanger, cabbage, calaloo, lettuce, squash.

Fruit - Mainly watermelon, papaya, mango, pear (Avocado), citrus (orange, tangerine, grapefruit, lemon, lime), banana.

These crops are grown all along the coastal area shown on the foregoing map (Exhibit 2), and are the principal ones entering the traditional marketing channels, the farmer - huckster - retailer system. The system moves these perishable products to and between the main consuming centers with considerable efficiency, though often at high cost.

Some idea of regional differences may be gained from Exhibit 7. Points to be noted are:

- Ground provisions tend to be concentrated in the Northwest but are grown almost everywhere;
- Citrus is a big Pomeroon River crop, though East Berbice is also a big producer. Citrus is in fact grown to some extent everywhere in the country, but heavily in the Pomeroon and East Berbice;
- Vegetables (tomatoes, cabbage, greens) are most commonly grown in East Demerara (close to Georgetown) and to a lesser extent in East Berbice; and
- Bananas and Plantain are both widely grown.

2. Production

A five-year look at production of some of the key crops considered in this section is contained in Exhibit 8. (Corn, coconuts and coffee, though included there, are discussed elsewhere in the report).

It is apparent from the rounded figures, some repeated year after year, that this data is not very reliable. If there is anything at all to be gleaned from these figures, it is that there were no marked increases in production registered in any crop during this five-year period, and in fact some seemed to have declined.

EXHIBIT 7

VOLUME OF CROPS SOLD BY REGION, 1978

Crop	Units	Northwest	Pomeroon	Essequibo Coast & Isl	West Demerara	East Demerara	West Berbice	East Berbice	Total
Cassava	000 lbs	768	1,112	284	158	1,204	29	209	3,764
Eddoes	000 lbs	552	121	1,133	196	442	3	629	3,076
Yams	000 lbs	1,141	5	53	4	37	-	-	1,239
Other Gnd. Prov.	000 lbs	772	23	12	11	156	5	139	1,118
Plantains	(bunches)	34	39	97	138	147	14	72	554
Bananas	(bunches)	10	66	116	7	77	13	90	379
Citrus	000 fruit	552	2,667	395	227	545	10	1,220	5.616
Pineapples	000 fruit		301	6	24	310	-	1	642
Dry peas & beans	000 lbs		19	2	-	43	3	20	87
Peanuts	000 lbs	14	-	-	-	-	3	-	17
Tomatoes	000 lbs		2	3	4	454	22	150	635
Cabbage	000 lbs		-	-	-	122	1	68	191
Veg & Greens	000 lbs	3	11	41	16	1,527	42	910	2,550
Coffee	000 lbs	199	64	2	30	3	-	-	298
Corn	000 lbs	1,225	235	52	4	25	3	1,872	3,416
Coconuts (dry)	000 nuts	21	1,096	2,129	25	6,540	1,376	488	11,675

Source: Tables 31, 26, 28; Guyana Rural Farm Household Survey

EXHIBIT 8

OTHER FOOD CROPS:
ESTIMATED PRODUCTION, 1977-1981

Crop	Units	1977	1978	1979	1980	1981
Corn	000 lbs	7,200	4,600	3,700	3,700	1,500*
Black-eye pea	000 lbs	2,400	3,200	2,900	2,900	1,800
Ground provision	000 lbs	54,000	62,100	40,000	40,000	40,000
Plantain	000 lbs	43,000	47,000	25,000	25,000	25,000
Banana	000 lbs	11,000	14,300	11,000	11,000	11,000
Citrus	000 lbs	26,000	24,000	22,800	23,500	24,000
Pineapples	000 lbs	4,200	3,600	4,000	4,100	4,100
Coconut	000 lbs	25,200	25,000	35,300	42,200	43,000
Tomatoes	000 lbs	5,500	6,300	6,000	6,200	6,500
Cabbage	000 lbs	3,100	2,000	1,800	1,900	2,000
Coffee	000 lbs	n.a.	n.a.	1,500	1,500	n.a.

* No Production by CARICOM Corn and Soybean Project in 1981.

n.a.: not available

Source: Planning Department
Ministry of Agriculture

More recently, following restrictions early this year on flour, edible oil and split pea imports, planting of virtually all crops seems to be increasing. This conclusion is based on farmer interviews in the field. Rapidly rising market prices for flour subsitutes such as cassava, plantain, and other ground provisions are an obvious stimulus to production. Planting of black-eye peas and other legumes is clearly increasing as a replacement for split peas.

3. Roles of Marketers

Recent field investigation has shown that in Guyana, as in every country in the world, private individuals respond in remarkably diverse ways to profit-making opportunities in the marketing of agricultural products.

Simplified definitions of the various functions carried in marketing in Guyana might go as follows:

Farmer - The producer who traditionally sells his produce to the wholesaler or huckster at the farm gate;

Transporter - An owner or renter of a truck, van, car, bus, or boat who carries agricultural products from farm to market or between markets for a fee;

Huckster - The traditional "middleman" or wholesaler; basically a merchant who buys from the farmer and sells to retailer, usually having his own transport; and

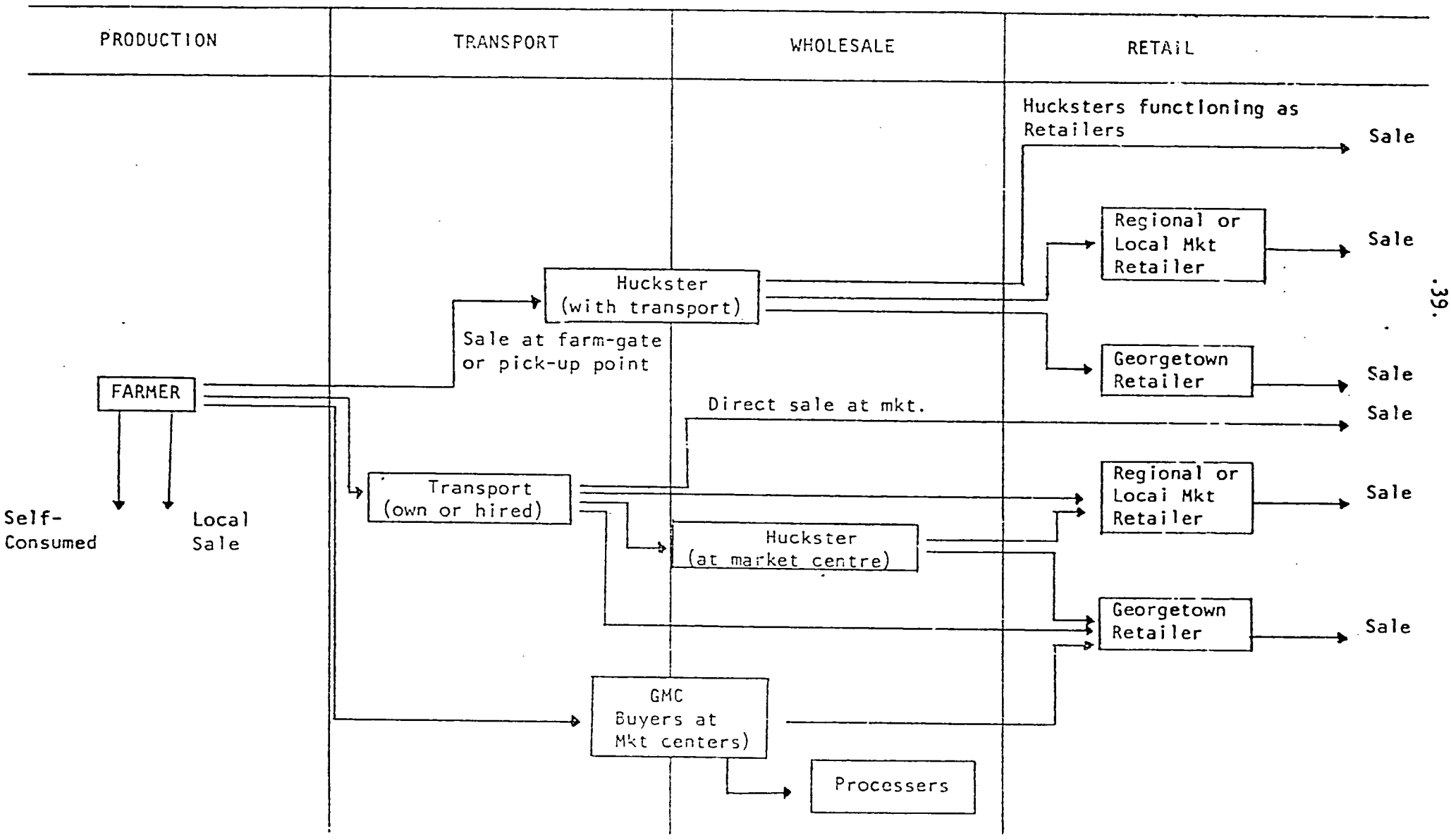
Retailer - A person who rents a stall at local, regional, or Georgetown market halls, and who sells produce from this location, usually on a daily basis.

In practice, however, relatively few marketers perform in only one role. Exhibit 9 is an attempt to portray schematically these multiple roles. Farmer/producers may have their own transport to carry goods to local, regional or even Georgetown markets; they often retail their products on principal market days (though usually disposing of excess to established retailers at the end of the day), or they may sell larger amounts of produce to hucksters at the market or landing place, thus performing all four functions.

Anyone who is able to purchase a truck is in a position to play almost any role. Some transport only for a fee per bag or basket, but more often they will buy and sell. Commonly they operate between regional market centers and Georgetown, stopping at key road junctions or canal-road points to purchase produce. In Georgetown they may sell only wholesale, or might sell at retail which involves an overnight stay in town. They are efficient marketers in that they recognize any opportunity to fill a chink in the marketing system and will, for example, buy and sell at intermediate points on the Georgetown trip, and will buy in Georgetown both agricultural products and supplies or household goods to sell on the return trip.

EXHIBIT 9

MARKETING SYSTEM - OTHER FOOD CROPS



The true retailer is a fixture at local, regional and Georgetown markets and may be at his (usually her) post five, six or even seven days per week and up to 12 hours a day.

An evaluation of the performance of the entrepreneur as marketer of food crops appears in Part III of this report. Prices and margins are covered in the discussion.

4. Role of Guyana Marketing Corporation

GMC intervenes in the marketing system for food crops primarily as a buyer of last resort for the farmers. They operate with a two-tier pricing system: a fixed floor price designed to provide a market outlet in times of glut, and a variable current price which is typically about 20 percent below current market price to provide the farmer an alternative outlet for his produce should he prefer not to sell through other channels.

Major crops purchased by GMC from 1980 to 1982 are shown in Exhibit 10. The effect of increases in market prices can be seem in terms of reduced purchases by GMC. The exception is for carambola fruit where GMC is virtually the sole buyer for the juice and candy operation of Quality Foods. GMC is also a major buyer of coffee for its (off shore) manufacture of instant coffee.

The high current market demand for root crops is reflected in sharply reduced purchases by GMC. Oranges are frequently in glut during the main production season and have been purchased in large amounts. The 1982 figure should climb rapidly as the main harvest reaches market in November.

Large pumpkin purchases in 1982 may reflect over-planting by farmers or a high GMC purchase price, or both. Purchases in 1982 of corn and copra are deceptive, as recent stopping of imports of flour and edible oil have driven up prices and virtually excluded GMC from the market.

F. LIVESTOCK AND RELATED PRODUCTS

1. Overall View

The domestic supply of meat in Guyana has undergone some rather dramatic changes in the past ten years. As shown in Exhibit 11, beef production had declined in 1981 to less than half the 1972 figure, pork increased to a peak in 1977 then dropped back to less than the 1972 level, while poultry more than doubled during the same ten-year period. Some of the reasons for these changes are explored in the following sections.

Current events in Guyana are causing another shift, this time back toward beef, as the unavailability of prepared feeds has devastated the poultry industry and also affected pork production.

EXHIBIT 10

MAIN GMC PURCHASES, 1980-1982

	1980		1981		1928 (6 mths)	
	000 lbs	$/lb	000 lbs	$/lb	000 lbs	$/lb
Plantain	1,365	.29	1,101	.24	36	0.57
Eddoes	640	.25	235	.31	47	0.64
Sweet Potatoes	56	.26	80	.30	120	1.00
Cassava	33	.18	2	.26	-	1.00
Bananas	325	.15	63	.21	11	.25
Oranges	888	.16	145	.28	72	.30
Carambola	22	.12	123	.12	470	.12
Pumpkins	1,052	.09	80	.15	789	.19
Coffee beans	440	3.00	238	3.00	185	3.00
Corn	255	.24	465	.26	233	.33
Ginger	84	.40	61	.57	1	.55
Copra	371	.43	951	.45	226	.59

Source: Planning Department
Ministry of Agriculture

EXHIBIT 11

ESTIMATED MEAT PRODUCTION 1972-1981

(000 lbs)

Year	Beef	Pork	Mutton	Poultry	Total
1972.....	9,600	3,400	100	10,843	23,943
1973.....	9,612	3,122	60	12,553	25,347
1974.....	8,300	2,465	69	12,500	23,334
1975.....	8,500	3,500	80	17,000	29,080
1976.....	8,800	4,900	20	20,900	34,620
1977.....	6,900	5,100	60	16,300	28,360
1978.....	4,100	3,700	60	22,900	30,760
1979.....	3,900	4,000	n.a.	23,300	31,200
1980.....	3,600	3,100	n.a.	23,000	29,700
1981.....	4,600	3,000	n.a.	23,000	30,600

n.a.: not available

Source: Planning Department
Ministry of Agriculture

2. Beef

a. The Rupununi

Those concerned with cattle-raising in the Rupununi estimate that there are now, conservatively, about 30,000 head in this vast hinterland area of Guyana.* The largest rancher, with approximately 11,000 head, is the Rupununi Development Corporation (RDC). This private concern, founded in 1919, has its ranch head-quarters at Dadanawa in the southern part of the region. Another 9 privately owned ranches and one LIDCO operation together have approximately 15,000 head, and the remaining 4,000 head are accounted for by 21 small ranches, many of them in fact herds owned by Indian tribes.

The current herd is perhaps 60 percent as large as it was ten years ago. Cattle rustling and illegal sales in Brazil by small ranchers have taken a considerable toil, especially with increasing beef prices after 1973.

Cattle theft ranges from one or two head stolen by local residents and slaughtered for their own consumption, to state-of-the-art rustling by gangs equipped with vehicles who drive 50 head or more over the border for sale in Brazil. Recently, with full cooperation from Brazilian police at Boa Vista, a gang was captured and all but 7 of 50 stolen head returned to the RDC ranch.

Tightened surveillance on both sides of the border should reduce the number of large thefts in the future, though the opportunity to sell live animals for cruzeiros in Brazil will continue to divert some stock away from Guyana.

Hoof and mouth disease has been a problem in the past, as it adversely affects reproduction and weight gain, but there has been no outbreak since 1978. Precautions are taken at all border crossings, and Guyanese authorities at Lethem report that Brazilian officials are cooperative in this regard.

The extraction rate from these herds is very low. Only about 5 percent or an average of 1,400 head are slaughtered annually at the Lethem abattoir, of which roughly half comes from the RDC ranch. Estimates of the number of head stolen or otherwise diverted are based on guesswork by ranchers and local authorities; a reasonable number might be 1,000 head annually. If true, total extraction is 2,400 head or about 8 percent.

This very low rate is a consequence of the low carrying capacity of the rangelands, approximately 60 acres/animal (compared to 3 acres/animal in coastal areas). Plans to improve pasture on these mineral-deficient soils have until now foundered on the high delivered cost of inputs such as fertilizer. These schemes envisioned pasture improvement in water-available areas, to be used for fattening of animals driven in and enclosed within fenced boundaries.

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* Though LIDCO estimates 20,000 head.

Assured transport of beef slaughtered at the Lethem abattoir to Georgetown remains the single biggest problem in the Rupununi cattle business. Due to delays or rescheduling of aircraft, cattle driven to Lethem from distant points may be held 2, 3 or even 4 weeks awaiting slaughter (which does not commence until aircraft arrival is confirmed). The loss in weight of 50 or 75 lbs. per animal while held in pens or grazing on poor pasture in the vicinity of Lethem represent an enormous financial loss to the ranchers, not to mention a significant loss to Guyana in terms of protein foods.

Meat Marketing Limited

This share company, with offices in Georgetown, markets a major portion of the meat slaughtered at Lethem. Share-holding is as follows:

260	-	RDC
85	-	LIDCO
5	-	Regional Democratic Council, Region 9
125	-	Private Ranchers
475	-	Paid up total ($100/share)

Ownership is thus 81 percent private and 19 percent state (not taking into account the 10 percent non-state shareholding in LIDCO).

As noted, the key factor in marketing beef from the Rupununi is transport. Though Meat Marketing Limited (MML) has arranged with Guyana Airways Corporation (GAC) regular Monday flights by an HS 748 aircraft carrying 10,000 lbs. of carcass beef, this schedule is subject to frequent changes and delay.

The transport situation worsened in July when one of the two HS 748 aircraft serving Lethem crash-landed at that airport. GAC is considering whether the high cost of repairs to the craft is warranted. In the meantime only one aircraft is available.

The MML arranges for purchase of Rupununi Beef through a local purchasing agent. Animals come mainly from the RDC but also from other ranchers. The MML accounts for roughly 70 percent of all beef marketing. The remaining amount is bought by local agents of Georgetown merchants who arrange their own transport. The Guyana Defense Force (GDF) is another sizable buyer; they are able to transport beef in Skyvan aircraft owned by the military.

The MMl buys beef at Lethem at $2.50/lb. of carcass weight. It costs MML 78¢/lb. to have the beef slaughtered at Lethem and transported to Georgetown, where it is sold at $3.60/lb. wholesale. Profits on these sales are modest --about 5¢/lb. The wholesale price is expected to increase in the near future.

Lethem Abattoir

The Lethem abattoir, located adjacent to the airstrip, processes 22 to 24 head in a 7 hour shift, employing a crew of 15 men and 2 women. (The number of head is determined by the 10,000 lb. capacity of the HS 748 aircraft and the length of the airstrip). If all goes according to schedule, slaughtering starts at 2 to 4 A.M. to be ready for the air shipment around 9 A.M.

While the premises are kept reasonably neat and clean, management is handicapped by having no operable power tools (saws, de-hiding equipment or hoists), no way to sanitize knives, no water purification, and no cold storage or chilling room. Moreover, workers are not equipped with boots, gowns or helmets, and toilet facilities are unsuitable for a food processing plant.

Exhibit 12 shows production of the abattoir since 1976. The decline in monthly slaughters since 1977/1978 is indicative chiefly of the worsening transport situation.

At the rate achieved in the first 7 months of 1982, total carcass weight for the year would be 522,000 lbs., well below the 1981 figure of 681,000 lbs. On the other hand, the average carcass weight appears to have generally increased, suggesting better animal husbandry, better pasture conditions, or both.

b. Government Ranches

LIDCO operates two cattle ranches in the Berbice River area (in addition to the Pirara Ranch in the Rupununi).

Ebini Ranch

This ranch in the Intermediate Savannah Area has a cow-calf operation with 2,050 head and a dairy herd of 345 head. It is visually impressive as cattle graze on pasture of planted humidicola grasses. Serious mineral deficiency problems which caused high mortality in the past appear to have been solved by feeding mineral supplements.

Steers from Ebini are driven to other LIDCO Ranches down the Berbice River for fattening (Kabawer Ranch in the past, Mara Ranch henceforth), from which point they are marketed. This amounts to only about 300 head per year.

Milk produced on the ranch is used for consumption on the Ebini ranch, at the Kimbia GNS Station, and in small communities on the river. Production amounts to only about 75 gallons per day (from 58 cows), which is sold as raw milk.

EXHIBIT 12

LETHEM ABATTOIR PRODUCTION, 1977-1982

	No. Head Slaughtered	Average No. per month	Total Carcas wt. 000 lbs.	Wt. per Carcass
1977	2,138	178	733	343
1978	1,938	162	697	360
1979	1,320	118	462	350
1980*	645	108	244	378
1981	1,670	139	681	408
1982 (7 months)	792	113	305	385

* No slaughter for 5 months due to closure of first the abattoir, then the airstrip.

Source: Lethem Abattoir

Mara Ranch

This ranch is near the Berbice River, about 50 miles upstream from New Amsterdam, and is basically a cow-calf operation. In the future it will receive steers from Ebini, and when they reach market weight they will be moved by boat to the Kabawer ranch downstream on the other side of the river and thence by road to New Amsterdam to be sold.

Kabawer Ranch

This is a steer-finishing operation located back of the Blairmont Sugar Estate. It is considered by the Checchi Livestock Specialist to be one of LIDCO's best operations. Some 715 animals were "finished" in 1981, with an average live weight of 740 lbs. However, large losses were suffered from theft.

Sales in 1981 amounted to $890,000, but possibly as much as $500,000 in additional sales were lost due to theft.

a. Coastal Areas

Of the 18,000 to 20,000 head of cattle slaughtered annually in Guyana, probably 90 percent comes from small farmers in the coastal areas. It has been estimated that about 4,400 of the total of 7,000 farmers in the country own cattle. Herds may number from 1 to as much as 50 head. The small farmer treats his herd like a "bank", milking his lactating cows and selling the milk locally, and selling male animals as he needs money. The live animals are driven or trucked to municipal abattoirs, either by the farmer himself or by agents of meat buyers operating throughout the coastal regions. Dressed beef is sold to butchers who may also operate retail markets, or sell to retailers.

The problem with this system is that the cattle compete with rice. Though the farmer may be acting quite rationally in diversifying his operations, the result is that while the farmer is growing rice and the cattle cannot graze on rice stubble, they are relegated to "backland" areas where they frequently damage vegetable plots. Some roam about, damaging rice fields and canal banks and blocking road traffic. Regional authorities in Region VI cite this as one of their major problems.

An additional problem is that milk production drops substantially in the months when the farmer is busy in his rice fields. LIDCO figures show a peak in milk collections in the months from September through December. This has an obvious effect on milk production at the Georgetown plant.

The problem becomes particularly acute in the case of large ricelands projects like the MMA project. LIDCO officials estimate there are 35,000 head of cattle in the project area. If increases in rice cultivation are to be realized, large numbers of cattle must be moved out. The government wished to avoid a situation such as occurred on the Tapakuma project. There, farmers who began growing 2 crops of rice slaughtered or sold for slaughter large numbers of cattle they could no longer handle. Reducing the total herd in this manner is considered undesirable and wasteful.

The government would like to change this system by inducing some farmers from the MMA area and elsewhere to move to the Intermediate Savannahs where they would cultivate crops other then rice and raise cattle more intensively using modern technology. Techniques being developed at government farms in the area would be transferred to the farmer under this scheme.

3. Pork

Production

Pork production increased rapidly in the 1970 to 1977 period, in response to government encouragement through GAIBANK's feed credit program. Production exceeded 5 million pounds in 1977. However, a glut developed in 1977 and there was a 6-month waiting period for slaughtering at the government's Ham and Bacon Factory. It appears that market prices for pork were considered too high by the consumer, causing decreased consumption relative to chicken. The cost of feed from Guyana Stockfeeds has been cited as the major reason for high pork prices. As a result, pig farmers cut back production, which dropped to about three million pounds in 1981. Only within the last year did production begin to revive, and it was then hit with feed shortages. By September 1982 only limited amounts of sow ration were available and this feed is low in protein (ten to eleven percent instead of fourteen to fifteen percent).

Some large producers, such as C & F Meat Centre Limited, control their own feed resources and will be able to survive without prepared feed from Guyana Stockfeeds. The firm has rice lands and coconuts, and so has copra meal, rice bran, and reject rice to feed. High protein ingredients are in short supply. They have been able to buy fish offal in the past, and dry it themselves, but this is getting hard to find due to high demand.

C & F buys "weaner" pigs from small farmers and fattens about 120 hogs per month. They expect to have soon to go into breeding, since many of their suppliers are going out of business. They also buy fattened animals at $3.00 per pound carcass weight, and slaughter a total of sixty to seventy-five pigs per week.

One pig farmer on the Essequibo Coast has been through a whole cycle of frustrations. He formerly raised six hundred pigs and sold one hundred pounds per week of pork. He purchased feed from Guyana Stockfeeds and supplemented it with rice bran from the Anna Regina mill. When good feed became unavailable he switched to a mixture of cassava middlings from the cassava mill at Charity, plus rice bran and shrimp meal if he could get it. Now that the cassava mill is practically shut down (as they can't get cassava at the low fixed price of eleven cents per pound) he is feeding "wind paddy" (rejected paddy, mostly empty husks), grass, and any rice bran or fish meal he can get. The result is a production of about three hundred pounds per week of low grade pork.

Processing and Marketing

The C & F Meat Centre Limited is a vertically integrated operation with its own feed sources, pig fattening operation and chain of meat and grocery stores. Slaughtering is carried out at the Georgetown Abattoir. C & F is Guyana's largest producer of sausages (about 70 percent of market).

The Ham and Bacon Factory (H & B) of GPC at Farm outside Georgetown is the largest pork processor in Guyana. They are operating at a fraction of capacity at present, due to a combination of fixed prices lower than market prices and transportation problems. Buying prices in August 1982 averaged $2.50 per pound for all grades of pork at a time when C & F was paying $2.60 per pound. H & B's two trucks are out of commission, so they are forced to buy pigs on a delivered basis rather than picking them up at the farm as they formerly did. Most farmers do not have trucks so they tend to sell to others who pick up. H & B slaughtered 6,865 pigs in 1981, or an average of 572 per month. In June 1982, 438 pigs were slaughtered. The whole area of buying and selling prices of the Ham and Bacon Factory needs further study.

Export Potential

One pork processor investigated export markets in Trinidad but found that pork would have to be available wholesale in Guyana for under $2 per pound in order to be competitive. Current prices are around $3 per pound and are going higher due to the scarcity of meat. Competition comes from U.S. The 5 percent tariff protection enjoyed by CARICOM members is insufficient to allow local pork to compete successfully against U.S. pork.

4. Poultry

Another Checchi specialist has analyzed the poultry business in considerable detail.* He states: "Poultry in Guyana has contributed significantly to the protein needs of the population in the past. At present the future of the industry is in jeopardy." He points out that unavailability of good prepared poultry feeds is driving producers out of business. In August 1982 no poultry feed was being produced and import of hatching eggs has ceased.

In September the government began importing eggs for the broiler industry at 35 percent of the previous rate together with soybean meal, vitamins, and sufficient to provide feed for these birds. Many farmers are not interested in a 35 percent supply of chicks. First of all, it is too small a scale to be economic, but more importantly they state that they cannot be sure enough of a continuing supply of feed to justify the risk of investing in chicks.

The economics of the poultry business is well covered in Mr. Stones' report and will not be repeated here.

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* See report of Edward J. Stone, Checchi Livestock Specialist.

Poultry has become a staple of the Guyana diet, though a relatively expensive one. Flying in hatching eggs from the U.S on a weekly basis contributes to this high cost. In the long run, breeding flocks should be started here and imports of eggs stopped.

Local producers have made proposals to do this but would no longer consider it without assured feed supplies. Other problems include the unwillingness of the government (at least in one case) to lease sufficient land allowing separation of houses as a disease-control measure, and the lack of a proper veterinary service and laboratory.

It seems clear that the future of this industry is linked to that of the animal feed industry. Proposals to produce animal feeds from locally-produced materials are found in Part V of this report.

5. Milk

Milk production in Guyana has been treated in the report of the Checchi Livestock Specialist, Edward Stone. Guyana at present produces about 3.2 million gallons a year, as against about 12 million gallons said to be total requirements of the country. Almost all the fresh milk produced is consumed locally; only 200,000 to 300,000 gallons annually reach the Georgetown milk plant.

Total milk product imports are shown for 1979 to 1981 in Exhibit 13. In 1981, the equivalent of 8.1 million gallons was imported, which together with local production approximated the 12 million gallon figure mentioned above. The rapidly increasing unit cost of this imported milk has necessitated cut-backs in imports. In 1982 imports at previous levels would have cost over $40 million, compared to $34.8 million in 1981, and so imports were stopped entirely earlier this year, other than those from EEC (see below).

The Georgetown milk plant is producing about 4,000 gallons daily from locally produced milk picked up through its collection system along the coast, plus reconstituted powdered milk and butter oil obtained under the EEC Food Aid Project. In 1981, these amounts were 245,429 gallons locally and 1,100,000 gallons imported. Local milk purchases have declined from 350,000 gallons in 1979, and are continuing to decline as farmers generally receive better prices selling locally. EEC shipments in 1982 will be 1.2 million gallons. LIDCO will be preparing a feasibility study, with the aid of consultants financed by IDB, on development of the local dairy industry. Included will be small farm dairy development, specialized dairy units, milk collection and a milk processing plant with UHT equipment to produce a shelf-stable milk.

EXHIBIT 13

MILK IMPORTS

(000 gallon equivalent)

	1979	1980	1981
Full cream powdered milk	2,190	5,521	6,960
Skim milk powder	2,080	1,184	1,100
Evaporated milk	4,456	1,723	-
Condensed milk	108	-	-
TOTAL	9,207	8,429	8,114
Average price per gallon	$2.44	$3.18	$4.29

Note: Of these amounts, EEC Food Aid provided 1.10 million gallons, 1.10 million gallons, and 1.1 million gallons in 1979, 1980 and 1981 respectively.

Source: LIDCO

6. Animal Feed

Guyana Stockfeeds in Georgetown is the sole producer of complete or prepared livestock feeds. In 1981, prior to import restrictions on its raw materials, it produced a range of 6 poultry feeds, 5 pig feeds, 2 dairy cattle feeds, a rabbit ration and sheep feed. Total production in that year was 52,800 tons, or an average of 4,400 tons monthly, of which 79 percent was poultry feed and 19 percent pig feed. Principal raw materials included imported soybean meal (1,200 tons per month), feed concentrates, urea, and phosphates; and locally available rice bran, molasses, corn (small amount), wheat middlings, copra meal (small amount) and broken rice.

Due to import restrictions, production dropped to an average of only 380 tons per month during the first six months of 1982, less than a tenth of what it had been. Further restrictions imposed in May 1982 stopped imports altogether. As of July 1, only 25 tons per week of sow ration was prepared from local materials (rice and rice bran) plus vitamins from reserve stocks. Protein content is 10 to 11 percent compared to 14-15 percent when soybean meal was available.

In September 1982, orders were placed for $300,000 of soybean meal, vitamins and minerals to start production of a limited amount of broiler ration. The government having restricted importation of hatching eggs for broilers (at about 35 percent of previous levels) and some day-old chicks for laying, the feed is needed for these flocks.

PART III

EVALUATION & FINDINGS

A. INTRODUCTION: THE TRI-SECTORIAL ECONOMY

Our evaluation of Guyana's agricultural marketing system, which we have defined to include transport, marketing, processing and export, is presented below under the three headings of Guyana's Tri-Sectoral Economy. These are the:

1. The Entrepreneurial or Private Sector;
2. The Co-operative Sector; and
3. The State or Public Sector.

The involvement of the three sectors by functions and by crop category is shown in Exhibit 14.

In production, it is the entrepreneurial sector - the private farmer - who is responsible for all production other than sugar and palm oil (both Guysuco) and limited production of milk and beef on LIDCO farms. (State farm also grow some black-eye beans). The farmer or huckster transports all crops except for the above mentioned state-production, plus GMC-purchased carambola and coffee.

The state assumes a larger role as we move into marketing of unprocessed products, as they buy all rice and some copra, as well as pork. In processing, the state has a dominant role. Entrepreneurs mill some rice (25 to 30 percent), produce about 2/3 of the edible oil, perhaps half the coffee, at present virtually all the corn meal, and all the chicken meat.

The state, through its trading agencies, buys almost all processed products except for meat, and is the sole exporter.

In the following sections, we evaluate the principal marketing and processing activities of the three sectors.

B. THE ENTREPRENEURIAL OR PRIVATE SECTOR

1. Food Crop Marketing

Our evaluation of food crop marketing (which excludes rice and sugar) by the entrepreneurial sector is that they are carrying out vital activities in a relatively efficient manner, given the constraints under which they operate.

Exhibit 15 presents some price and margin data from various market centers on some widely-traded items. The data collected from some locations was incomplete. Also it was collected over a period of 4 to 6 weeks which, in this volatile market, reduces comparability. In some cases individual prices (no margin calculation) have been included for reference.

EXHIBIT 14

SECTORAL ROLES IN AGRICULTURE

Category	Production (growing or raising)	Transport of Raw Products	Buyer of Unprocessed Product	Processor	Marketing of Processed Products	Export
1. Rice	E	E	S	S,E	S	S
2. Sugar	S,E	S,E,C	S	S	S	S
3. Crops for Processing:						
Coconut	E	E	E,S	E,S	S	-
Oil Palm	S,E	S	S	S	S	-
Carambola	E	S	S	S	S	S
Coffee	E	S	S	S	S,E	S
Corn	E	E	E	E	E	-
4. Other Food Crops:						
Legumes	E	E	E	-	-	-
Ground Provision	E	E	E	-	-	-
Fruit	E	E	E	-	-	-
Vegetables	E	E	E	-	-	-
5. Livestock:						
Beef	E,S	E,S	E	S	E	-
Pork	E	E	E,S	S	E	-
Poultry	E	E	E	E	E	-
Eggs	E	E	E	-	E	-
Milk	E.S	E,S	S	S	S	-

E = Entrepreneurial or Private Sector
S = State or Public Sector
C = Co-operative Sector

(first letter indicates predominant role)

EXHIBIT 15

MARKET PRICES AND MARGINS AT SOME MARKET CENTERS

Product	Units	Farm Price	Wholesale Price	Margin on Wholesale (%)	Retail Price	Margin on Retail (%)
Eddoes						
Corriverton	$/lb.	0.60	0.80	25	1.25	36
New Amsterdam	$/lb.	0.73	1.00			
Parika	$/lb.		1.00		1.25	20
Charity	$/lb.	0.90			1.50*	
Kumaka	$/lb.	0.65				
Mahaica	$/lb.		1.00*		1.25	20
Linden	$/lb.				2.00	
Plantains						
New Amsterdam	$/lb	1.20	1.40	14	1.60	12
Corriverton		1.10	1.20	8		
Mahaica			1.50*		1.75	14
Parika		1.25	1.50	17	1.75	
Charity		1.25			2.00*	
Linden					1.75	
Kumaka		1.00				
Bananas						
Corriverton	$/lb.	0.35	0.45	22	0.63	29
Parika		0.55	1.00	45	1.50	33
Charity					1.50*	
Oranges						
Corriverton	$/ea.	0.12			0.20	
New Amsterdam			0.16		0.22	27
Parika		0.12	0.18	33	0.22	18
Charity		0.11			0.20	
Coconuts (dry)						
Corriverton	$/ea.		0.83		1.00	17
Parika			0.35		0.50	30
Charity		0.25	0.30	17	0.40*	25
Linden					0.75	
Cassava						
New Amsterdam	$/lb.	1.30			1.65	
Linden					2.50	
Sweet Potatoes						
Parika	$/lb.				1.75	
Kumaka		1.00				
Charity		1.00			1.75*	
Tomatoes						
Black Bush	$/lb.	0.70			1.25	
New Amsterdam		1.00			1.37	
Mahaica		1.25*			1.50	

* Price in Georgetown for goods bought or sold there.

Some points to be noted:

1. Wholesaler margins vary from 8 to 45 percent, the average for those listed being 22 percent;

2. Retail margins vary from 12 to 36 percent, the average for all those listed being 23 percent; and

3. There is a fair degree of comparability in prices, especially among markets connected by good transport, as one might expect.

In general, the dominant role of the Georgetown markets has a strong effect on prices everywhere in the country, since goods move to and from the capital from all market centers.

The data in Exhibit 15 is inadequate for a thorough analysis of the effect on prices and margins of such factors as distance from market or state of the transport system. Nor is it possible to conclude that hucksters are or are not making excessive margins. A subjective opinion, but one based on many observations in the field, is that competition among hucksters is active in most areas and it is therefore unlikely that farmers are being exploited. One has always to treat remote areas with poor transport links, like the Northwest and perhaps communities far up the rivers, as special cases. Here the few intrepid hucksters who venture in may indeed be making high margins, but with some of the conditions they face it would be difficult to say that the margin is not merited.

Exhibit 16 shows what percent of the retail dollar the farmer receives, based on average prices derived from the preceeding exhibit. The range is from 37 to 72 percent. The differences probably have to do mainly with the extent of competition for the farmers' produce by hucksters, and also the degree of perishability.

Hucksters pick up the farmers' produce at canal and highway intersections and "stellings." The farmer is responsible to getting it to these points. Thus major share of the transport problems fall on the farmer, and it is for this reason that we heard few complaints about hucksters but many about the need for boats, outboard motors and parts, poor conditions of local roads and "dams", canals silting up, and stellings in need of repair. While many of these needs require infrastructural-type investment, the provision of motors and parts is a problem which can be quickly remedied.

We conclude then, that the food crop marketing system is not imposing constraints on production at this time. Availability of key inputs is instead the limiting factor.

In the long run the answer to the problem of high transport and other marketing costs, including spoilage, and of wide market price fluctuations, lies in preservation of the farmers'produce through further processing. There are limited new opportunities for such processing. Citrus products, juice and oil, are two possibilities. Ginger drying and packaging may be another. This subject is taken up again in Parts IV and V.

EXHIBIT 16

FARMER SHARE OF RETAIL PRICES

	Ave Price to Farmer	Ave. retail Price	% of retail to Farmer
Eddoes	$0.74/lb.	$1.45/lb.	51%
Plantains	1.20	1.81	66
Bananas	0.45	1.21	37
Oranges	0.12	0.21	57
Coconuts (dry)	0.25	0.66	38
Sweet Potatoes	1.00	1.75	57
Tomatoes	0.98	1.37	72

2. Processing of Edible Oil

Fixed price policies for copra, coconut oil and coconut meal have has a devastating impact on this industry. Prices now in force have had the effect of driving virtually all copra producers out of business and have diverted copra away from refined edible oil manufacture.

What has in fact transpired is a case study of the effects of restricted imports combined with unrealistic domestic price controls. One justification for the current price system might have been to control price domestically so as to prevent undue profiteering from supply shortages. The actual sequence of events went something like this:

- Import restrictions on oil increased demand for local substitutes;
- This in turn drove up the price of the raw material (coconuts);
- Low official prices for copra restricted copra supply to refined oil producers to whatever sources they directly controlled;
- This created a parallel market for crude coconut oil with a free-market price more than double the official price. ($4 to $4.50/pint). (The crude oil is high in free fatty acids and is not nearly as good a product as refined oil). Some of this oil is illegally exported; and
- Only small quantities of copra meal are available from oil millers for animal feed manufacture. The by-product from crude oil making is too high in fat to produce good quality pork.

So the net effect of attempting to control domestic prices has been to more than double the price of oil, to produce an oil of inferior quality, to decrease domestic oil supplies due to illegal exports, and to reduce the availability of good animal feed. The presumed objective has not been accomplished and several undesirable side effects have been created.

It is recommended that copra, edible oil and copra meal prices be decontrolled immediately as a means of restoring the edible oil industry, encouraging the proper use of Guyana's coconut resources and increasing the supply of animal feed materials.

What will be the effects of this policy? One oil miller estimates that copra prices would eventually stabilize at around $1.65/lb. At this raw material price, oil would retail for about $6 per pint. There is evidence of consumer demand, especially in urban areas, for refined oil. Merchants believe that consumers are willing to pay this much for good oil. In rural areas it is likely that people will prefer to pay less and buy the crude oil. If so, both crude and refined oil would have a place in the market. Crude oil producers would also have the option of having their oil refined for a fee at the large oil mills. It should be noted that the ratio of crude to refined oil price ($4.50 and $6 per pint respectively) is almost exactly the same as the differential in the current CARICOM-established prices under the OFA ($11.42 per gallon vs. $15.11/gal.) which is supposed to represent the additional costs of making refined oil. Thus the price differential can be considered normal.

How does all this relate to Guyana's commitments under the CARICOM Oils and Fats Agreement? According to this agreement, prices are fixed periodically for intra-regional trade in oils and oil-bearing materials. In the case of coconut products, the agreement fixes the copra price, then derives crude oil and refined oil prices from the copra price allowing for processing cost and profit margins to millers. Current CARICOM prices and the corresponding domestic Guyana prices (both in Guyana dollars) are as follows:

	CARICOM	DOMESTIC GUYANA
	$	$
Copra	0.55/lb	0.55/lb
Crude coconut oil	11.42/gal	-
Refined coconut oil	15.11/gal	15.61/gal*

Guyana does not set a price for crude oil. However, the observed retail price of $4.50 per pint would correspond to $36 per gallon.

It should be noted that CARICOM prices are for intra-regional trade only, of which in fact there is little. Internal prices in other coconut-producing countries, such as Trinidad and Jamaica, bear little relation to the above scale.

There is no rationale on trade grounds for maintaining Guyana demestic prices at CARICOM levels, should that indeed be the intention. Guyana does not export copra or oil, and if she is ever able to do so, presumably the overdue modification of CARICOM prices would have taken effect. The CARICOM copra price is generally regarded by member countries as insufficient to attract coconuts to copra manufacture; as early as 1979 Jamaica increased domestic copra prices to the equivalent of $0.75 per pound.

Should there be concern about increasing domestic oil prices, we have pointed out that already the majority of the oil available is crude oil at $4.50 per pint. The proposals made here would give the consumer an option of buying refined oil at perhaps $6 per pint as well as crude oil.

Over the short term, it can be expected that if no other oil-bearing materials are available, there might be a general increase in oil prices as refined and crude oil makers compete for the limited supply of copra. This will moderate as the demand calls forth more coconuts from existing trees (which it is already beginning to do). In time other sources such as soybeans should be developed as recommended elsewhere, and palm oil production increased. These are however long-term effects.

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* "Distributors' Price," roughly equivalent to exporters' price

To deal with this problem of temporary shortages, it is recommended that oil millers be allowed to import soybeans. This would have the effect of relieving the current shortages of oil and mitigating possible price increases. Copra producers should again be able to operate as prices find their own levels. Moreover, the soybeans meal produced could supply Guyana Stockfeeds with critically needed raw materials. About 1,500 tons of soybeans would be needed monthly to meet Guyana Stockfeed's demand. (In this connection, see discussion of soybeans in Part V). This benefit is at least as important as that of increasing edible oil supplies.

Soybeans were at one time imported to Guyana and also have been grown and processed here. The NEOCOL mill will be able to extract soybean oil very efficiently once the solvent extraction and refinery facilities are started up (projected for early 1983). Between the 3 mills, capacity exists to handle the recommended 1,500 tons per month.

3. Beef:

The Rupununi

Most experts would agree that the total herd size in the Rupununi can be increased somewhat, perhaps to the earlier figure of 50,000 head, but the carrying capacity of rangelands without pasture improvements can never be much greater than that. Instead, the emphasis should be on herd improvement and greater extraction rates.

Extraction Rate/Beef Production

LIDCO management bases current extraction rates on the following calculation (if the 30,000 herd size estimate is adopted):

Assumed herd size	-	30,000 head
Female animals @ 40%	-	12,000 head
Calving rate @ 25%	-	3,000 calves
Male calves @ 50%	-	1,500 animals extracted
Carcass wt. of beef @ 400 lb. animal	-	100,000 lbs.

LIDCO further estimates that the maximum calving rate which could ever be achieved by improved practices in the Rupununi is 52 percent, which would produce 6,240 calves or 3,120 marketable animals yearly (on the assumption that the present herd size is the maximum which can be carried). This in turn would increase beef production to 1,248,000 pounds annually.

At current slaughter rates, approximately 1,400 animals will be extracted in 1982 from Rupununi herds, producing about 550,000 pounds of beef (carcass weight). RDC management believes that extractions from their herds could in a few years be doubled, from the present roughly 740 head

to as much as 1,500 head. Assuming a 20 percent increase from other herds, total available animals could reach 2,400 per year within 5 years, or 960,000 pounds of beef. This may be compared with LIDCO estimates of optimum extraction of 3,120 animals or 1.25 million pounds of beef, which assumes improved practices.

The RDC Ranch Manager, Mr. Lennox Ramsahoy, is one of the Rupununi's leading innovators. His ideas and experiments with water retention and control associated with pasture improvement (such as with elephant grass), appear to hold promise for increased production from the Rupununi. It is hoped that his ideas will be made available to others, perhaps through the ranchers' association.

As noted below, private investments by ranchers will improve operations at the Lethem abattoir. Ranchers need government assistance only in making a bulldozer available for earth moving in connection with water retention works. Longer tenure for homestead sites in the Rupununi would also tend to encourage investments in these ranchers.

Conditions of the Lethem Abattoir

The condition of the Lethem abattoir is not up to international standards and would, in its present state, preclude exports to most hard-currency markets, should such exports prove to be possible.

Meat Marketing Limited is prepared to undertake vitally needed improvements to the Lethem Abattoir on its own account. The investment would be recovered in reduced rental fees over a 15-year period. As part of the agreement, MML would contract with the Regional Council to manage the abattoir.

Improvement would include purchase of sterilization unit and knives, reactivation of cold storage facilities, renovation of power plant, expansion of beef hanging facilities, purchase of dicer and mincer, improvement of sanitary facilities, and purchase of hygenic clothing. Retail sale of beef at Lethem is planned, as is sale of offal and hides. Deboning of meat at Lethem is also a possibility which would help out air transport costs.

Air Transport

Despite GAC's announced intention to guarantee regular air service for meat shipments from Lethem, it seems likely that growth in passenger traffic and problems in scheduling both freight and passenger flights will make it increasingly difficult to meet those commitments. This is even more true if increased shipments are to be realized as outlined below. One solution would be to allow an experienced private air carrier to operate an

all-cargo aircraft between Lethem and other interior points and Georgetown. Preferably this would be done as a private venture between MML and a foreign partner. If this is considered unacceptable, it could be operated as a share company owned jointly by Meat Marketing Ltd., LIDCO, and GAC. A third alternative would be to operate it under charter to GAC. It is recommended that the government again consider some arrangements of this type to improve air service to Lethem, especially as possibilities exist to do it with minimal government investments.

One experienced local carrier, Guyana Aviation Group, has made proposals to purchase a DC-3 aircraft for cargo service to the hinterlands of Guyana. Used but entirely serviceable aircraft of this type can be purchased for roughly US$ 300,000. (Foreign exchange in this amount would have to be made available). Not only is this a fraction of the cost of a new aircraft, but the DC-3 is well suited for this type of service. (GAC in fact formerly operated a few DC-3's). It can, for example, operate out of Lethem on the present air strip carrying 6,000 lbs. of beef. With 3 flights/week it could carry the 875,000 lbs. projected above as the potential output of the Rupununi. The chief need is for an air service geared to the meat business and able to guarantee service. Otherwise it seems likely that producers will not have sufficient confidence in deliveries to want to expand production.

Investigation of potential export markets in the Caribbean for Guyana beef (see below) should take into account flying beef directly from Lethem. Two alternatives are: a DC-3 aircraft operating with 6,000 lbs. loads from the present airstrip, and larger aircraft with heavier loads operating from the new runway, if paving were completed. Should exports in this manner prove feasible after analysis of costs and prices, the proposed cargo airline could be allowed to retain some portion of foreign exchange earnings to recover the cost of aircraft purchase. (See policy recommendations).

Export

Guyana formerly exported meat to the French Antilles and other Caribbean points. MML has received enquiries from Caracao and Brazil in 1981 regarding purchases.

Study of available cost and price data raises questions about the feasibility of beef exporting by air. It is recommended that further study be undertaken by MML to establish feasibility of meat exports to the Netherlands and French Antilles, and that such study include analysis of the need of larger aircraft flying directly from Lethem. Export of coastal beef should also be considered.

Coastal and Intermediate Savannah Areas

As noted, the great bulk of the beef consumed in the country comes from small farmers in the coastal areas, where cattle compete with rice for scarce land. There is no easy solution to this problem. Farmers will not readily give up the insurance of having a reserve of animals for milk and cash sale when needed.

The plan mentioned by LIDCO officials of gradually relocating some farmers from riceland project areas to the Intermediate Savannah would seem to be very difficult to implement. However, as perhaps the only logical approach to the problem of crowded coastal areas and virtually empty interior grasslands, it certainly has merit and should be tried. Optimum farm size and crop mix need to be determined, and the technology and the resources for stock raising and crop cultivation would have to be made available to settlers.

It is obvious that considerably more work is needed here to derive a suitable scheme for relocation.

4. The Climate for Private Investment

Investments by the private sector in the economy of Guyana have been declining relative to the public sector. In 1970 private investment was 51 percent of the total; in 1981 it was 12 percent, reflecting the dominant position of the state.

It would be fair to say that the entrepreneurial sector of Guyana is badly demoralized at present. Many businessmen have emigrated and those that remain often lack sufficient confidence in government policies to carry out projects even where they have the means to do so. Yet businessmen with energy and vision are still present and constitute a resource the government can ill-afford to neglect.

The central issue, of course, is the current and future availability of foreign exchange. Our principal recommendation regarding encouragement of private investment is to directly link export performance and access to foreign exchange, a policy which would obviously give top priority to export industries. Industries which substitute for presently imported goods would have second priority.

This policy would be implemented by making foreign exchange available to local enterprises in direct proportion to the export earnings these enterprises generate. Specifically, it is proposed that:

(1) Exporters have access to 50 percent of foreign currency earnings for imports of machinery, parts, raw materials and services directly employed in the business;

(2) Foreign exchange should also be made available in advance against firm export orders when it can be demonstrated that the imports contemplated are necessary to fulfillment of the orders; and

(3) Imports should be allowed on a "no questions asked" basis when the importer utilizes his own sources of foreign currency.

We believe that announcement of such a policy and the procedures to implement it would provide an immediate stimulus to new investments and new exports. (In our view, state enterprises who export should also be granted foreign exchange in proportion to export performance). Such a radical departure from past policies would have a galvanizing effect on Guyanese entrepreneurs. However, it would have to be backed up as soon as possible by a demonstration of the policy in action. We suggest that the announcement be coupled with a call for proposals to be submitted to the Committee for Incentives and Tax Concessions with a promise of rapid action. Review of the proposals for economic soundness could be conducted by a panel of retired businessmen, for example. They should not be forced to pass lengthy reviews by numerous government agencies.

In the realm of agricultural processing, we believe that a citrus juice facility could be economically viable. A citrus oil plant, either in conjunction with a juice project or separately, is also a possibility. These projects are discussed in Part V.

Later, poultry breeding and hatching would be undertaken when animal feed becomes available (see Part V). In agriculture-related fields, projects to make paper and wall board from rice straw, bagasse and waste paper should get serious consideration as import substitution industries.

We understand too that the Investment Code of Guyana is being reviewed with an eye to clarifying some statements therein. We agree that this is desirable particularly in matters relating to repatriation of earnings by foreign investors. This matter has not been touched on above. It could however, be extremely important where a Guyanese businessman seeks a foreign partner with technology, capital and market outlets. Considerable benefits would accrue to the people of Guyana from such investments. We would include not only markets, capital, and manufacturing technology, but physical infrastructure like roads, andsocial infrastructures such as skills training. In agriculture, the "nucleus farm concept" which is already known in Guyana, would be greatly expanded if investors could be attracted in crop or livestock production.

One source of financial aid fo he foreign exchange component of an investment is the "Industrial Line o edit" provided by IDB through GAIBANK. No agriculture-based industries have yet been approved under this facility and funds still remain uncommitted.

C. THE COOPERATIVES SECTOR

There are few farmer association or co-operatives engaged in agricultural marketing or processing in Guyana.

We have described in Part II C sugar marketing co-operatives formed by cane farmers, and have noted that these were in fact imposed on farmers by the method used to bulk cane for delivery to the mills.

From time to time, co-operatives have been formed as part of land settlement schemes or as a channel for credit or supplies, but these groups have not generally been successful.

Region VI (East Berbice) is the site of two recently formed vegetable production and marketing co-operatives. As of September 1982, one group was farming 80 acres, the other plans to cultivate 500 acres.

Northwest area appears to boast more co-operatives than any other region, possibly because of Amerindian traditions. Peanut growers in the Wauna area, for example, have for several years operated a marketing co-operative consisting of 20 members growing about 70 acres of peanuts.

The future of the six market centers constructed under the Food Crop Production and Marketing Program may lie with co-operatives. It is planned that Regional authorities in each region will turn over the centers to existing farmer groups or groups formed for the purpose. It is too early to say how successful this will be. Another possible future role for co-operatives is to take over rice processing facilities from the GRB and to operate them with hired experienced managers. (Almost all rice processing in California is by large co-operatives who are grouped into a single rice co-operative union).

Our assessment of co-operatives, then, is that they have not yet played a significant role in agricultural marketing. The "from the top down" method used frequently in the past has not proved successful. The initiative for a truly successful association or co-operative has to come from its members. We would hope that this will be the pattern in the future.

D. THE STATE OR PUBLIC SECTOR

1. The Guyana Rice Board

Rice marketing and the operations of the Guyana Rice Board are very controversial subjects in Guyana at present. That problems exist is attested to by the fact that an International Research Institute (IRI) team is assisting GRB in management and in rice agronomy, and that an Inter-American Development Bank (IDB) consultant is advising on rice pricing matters. Given this ongoing work and limitation on the consultant's time, it seems advisable to approach the subject from a different angle --that of export marketing.

As the only export product Guyana can offer which has an assured market at renumerative prices, rice obviously merits the highest possible priority the Government can give it. Yet we find that there are serious problems with both the quantity and quality of Guyana rice, and that the problems are getting worse, not better. Given the difficulty in finding markets for

new export products, it is difficult to understand why Guyana does not benefit fully from a market she already has (but could lose).

As to quantity, we have noted in Part II of this report that Guyana has been unable to satisfy requirements of its existing customers. And we have listed some of the reasons for decreased paddy production, including shortages of imports, high production costs, and insufficient price incentives. These factors all have to do with costs and returns from rice production; they are to a large degree short-term problems (as opposed to water problems, for example) and within the GRB's control. It seems clear from the analysis of production costs being done by the Ministry of Agriculture and others that incentives are inadequate to encourage the farmer to plant more rice, given the other risks and uncertainties he faces.

A more profound problem, and one more difficult of solution, is that of rice quality. GRB currently mills 60 to 70 percent all rice produced; the balance is processed by private millers. Attention has therefore been focused on GRB operations.

How can the quality of rice from GRB's milling be improved while reducing costs, so as to produce a better export rice with a higher return to farmers and processors? First, GRB has an inherent problem in that it must accept all rice offered to it, resulting in a natural bias toward quantity rather than quality. Second, observers have noted that GRB does not have incentives to encourage managers of drying, storage and milling facilities to improve quality. Performance of mills has been judged on the basis of percent of targeted total production of rice, rather than on milling yields and amounts of various grades of rice produced. Only now is GRB beginning to show milling results by grade and yield.

Before any incentive program could be implemented, however, IRI consultants have pointed out that three key elements are missing:

- an accounting system to show how much of what grade of rice is actually being produced at any time, and from what amounts and grades of paddy delivered;

- a grading standard for its rice which is related to accepted world grading standards such as those for Thai or U.S. rice; and

- marketing expertise which would link current market demand for various qualities of rice to GRB production planning, and would insist on proper quality control procedures on all exported rice.

IRI consultants are assisting GRB to deal with some of these problems. One example is a "Qualtity Assurance Manual" being developed. Recommendations on record keeping have also been made. IRI agronomists are advising on practices to increase rice yields and are proposing several new varieties of rice. IRI points out the direct relationship between rice varieties and rice milling. Certain varieties are attractive to the farmer because farm yields are high but milling characteristics may be poor, resulting for example in a

high percentage of brokens. This would suggest a policy of structuring prices to allow for milling performance of different varieties, which is not now the case.

The proposals mentioned above may appear to be administrative or procedural in nature. Yet, to implement them in any meaningful way requires a degree of commitment and motivation not heretofor demonstrated in the operation of state enterprises. We therefore endorse proposals put forward by others for a complete re-organization of rice marketing. The regionalization of GRB, currently in progress, would have to be taken into account. That such changes would involve a reduced role for GRB is, we believe, inescapable. This consultant can testify that rice marketing is Topic Number One in most rural areas of Guyana and that dissatisfaction is widespread. These proposals include:

(1) Allow private millers to purchase paddy freely from farmers, to sell milled rice on the domestic market at un-regulated prices, and to offer rice to GRB for export sale;

(2) GRB, as the largest operator of rice processing facilities, will continue its current operations, but should seek technical assistance at both managerial and operating levels to assure improved drying and milling performance, better record-keeping and reporting systems, and strict financial accounting;

(3) Based on costs and returns from milling various varieties of rice, GRB should devise a new schedule of paddy purchase prices which encourages production of the better milling types, as well as those types in demand in the export market;

(4) GRB's continuance in its present form should be contingent upon performance. Results after one year of operation, with technical assistance as recommended, should be thoroughly examined to see if this structure best serves Guyana's interests, in terms of its ability to produce and export quality rice and remain financially viable;

(5) Should it be determined that the present structure is unsuitable, or that any facilities are underutilized, drying, storage and milling facilities should be transferred to rice farmer groups or, if that is not feasible, sold to private rice millers;

(6) GRB would continue to be responsible for negotiating export contracts, establishing standards, and packaging and exporting of rice. Rice for export would be obtained from millers through submission of sealed bids to an impartially authority, contract amounts to be based on price and quality;

(7) An export board or panel should be created with representation from private millers, managers of GRB faciltiies and qualified GRB marketing experts, to deal with quality control problems at an operating level and to oversee grading of export rice; and

(8) A revolving fund should be established under the control of the Central Bank, which would retain a portion of foreign exchange earning from rice and make it available to rice millers for import of essential parts and equipment. The amount made available to millers, whether GRB or private, should be in proportion to actual amounts delivered for export.

It is the opinion of those who have studied Guyana rice that these measures, or similar ones, would revive the rice industry by introducing incentives to produce more and better rice geared to demands of the export market.

Private millers who have the necessary expertise and equipment will buy and sell their rice at prices which return a profit to them. Many such mills are no longer operable, and a majority have single-stage rice mills and limited storage capacity. Nevertheless, we believe that a substantial number of privately-owned mills could be operating soon, that they will be able to offer higher prices for paddy than will GRB, and that they will produce a better quality rice.

GRB's continued operations - under conditions noted above - will assure that farmers have an option. Through flow of information from the export panel all millers, private or GRB, will know what grades are in demand add will work toward producing them. If new varieties are indicated, programs will be needed to multiply the seed and make it available to farmers.

GRB will be competing with private millers for paddy, and against them to deliver export quality rice and make domestic sales. In the final analysis, GRB operations will be judged on the basis of financial performance. Those operations that cost the country money - which can be better used elsewhere - should be closed and the assets disposed of.

As a result of these changes, domestic rice prices would in the future be more directly related to export market prices and would naturally be higher than they are now. One effect of this change would be to stop "leakage" of rice to neighbouring countries with higher rice prices. Another effect would be to shift some consumption away from rice - Guyana has one of the highest per capita rates or rice consumption in the world - and toward other food crops, thus freeing more rice for export. These effects are all desirable if one adopts, as proposed here, a basic policy or increasing rice exports as the most readily available way to boost foreign exchange receipts.

The possible use of some of this increase to import wheat flour should also be examined. Dr. Robert Reeser of Checchi and Company has recently prepared a paper which indicated that on a protein basis alone, Guyana should export rice and import wheat when price relationships are such that exporting 1.78 units of rice is needed to pay for one unit of wheat flour. This report is included in the Appendix.

2. Guyana Sugar Corporation (GUYSUCO)

The precipitous decline in world sugar market prices from £ 292 pounds per ton in 1980 to less than a third of that in two years is resulting in a worrisome reduction in foreign exchange earnings from sugar.

GUYSUCO lost G$ 80 million in 1981 and losses will be higher this year. The loss in 1981 can be accounted for by the domestic price subsidy, exchange rate losses, interest payments, and additional personnel benefits, so that operationally GUYSUCO could be said to have broken even. But GUYSUCO management is greatly concerned that funds are not available for replanting of cane (now at 10 to 15 percent per year vs. a desirable 20 percent rate) or for renewing of aging sugar mill equipment and field machinery. The latter requires foreign exchange, of which an insufficient amount has been made available out of GUYSUCO export earnings.

One outcome of this crisis is that GUYSUCO is embarking on a diversification program to cut its losses from sugar. Its Other Crops Division has experimented in the past with numerous crops but with mixed results and frequent changes of direction. Currently it is engaged in fish farming, and in cultivation of rice, black-eye peas, corn, and onions. Additionally, it has inherited from the old GAPC two cassava mills and a 200-acre cassava plantation, as well as two oil palm plantations with associated small palm oil mills.

We understand that GUYSUCO management is now focusing its attention on crop diversification as a matter of policy. We recommend that serious consideration be given to including sorghum as one of the crops. Varieties have already been developed for tropical conditions such as those prevailing on the coast. Water control on GUYSUCO plantations is probably the best in the country, giving hope that this perennial problem would not be a deterrant. Moreover, private cane farmers should be included in any such diversification program, as they too face serious problems from dependence on sugar. Sorghum, as noted elsewhere in this report, could become a major animal feed component, replacing broken rice as and when rice milling is improved and more becomes available for export.

It is recommended --as a means of restoring income levels of cane sugar farmers suffering from low current world prices-- that domestic retail sugar prices be raised to at least GUYSUCO's production cost of 57¢ per pound and that a portion of the increased revenue of roughly G$ 35 million be used to increase sugar payments to farmers. The current retail price of 12½¢ per pound, less than 1/6 the price in some neighboring countries, encourages waste and unhealthy over-consumption and at the same time promotes smuggling. The remaining portion (perhaps half) of the revenue could go toward renewing sugar mill equipment.

Soybeans have been successfully grown on an experimental basis on sugar estates, but problems - mainly excess water - were encountered when larger plantings were attempted. In our view, results were inconclusive; in view of the great need for soybeans further work is needed.

3. Guyana Marketing Corporation

Current Operations of GMC

This report does not trace the history of GMC and of the various operations it has acquired and lost over the years. Nor is a detailed analysis of its operations attempted. Suffice to say that GMC is a much-maligned and much-analysed institution which has managed to satisfy almost nobody while costing the government a good deal of money. As is now widely recognized, there was an inherent conflict in creating what was supposed to be a self-supporting corporation and charging it with the task of operating a price support program for every crop in Guyana except sugar and rice.

GMC's General Manager, Mr. Tommy Rhodes, takes his management task seriously and endeavors to minimize losses of the corporation while still providing a service to as many farmers as possible. He has considerable latitide in this regard because, though the minimum purchase price for each crop is established by the Ministry of Agriculture, it is set low enough so that it comes into play only in times of severe glut (with oranges, for example). For the rest, GMC purchases at a "current price" which is established monthly and is typically some 20 percent below market price.

In 1981, GMC purchased 48 different products with a total value exceeding G$ 2.2 million. Purchases in the first half of 1982 were at rouglly the same rate. About 90 percent of purchases in 1982 were accounted for by 7 crops:

- Sweet Potatoes - 120,000 lbs
- Oranges - 27,000 lbs
- Carambola - 470,000 lbs
- Pumpkins - 789,000 lbs
- Coffee Beans - 185,000 lbs
- Corn - 233,000 lbs

GMC has guaranteed markets for four of these crops: Quality Foods purchased all the carambola; corn was sold to Guyana Stockfeeds and to GPC's cereal plant; copra went to GPC's National Edible Oil Company, and coffee is marketed by GMC after processing. The other three volume purchases were of the less perishable type of produce --pumpkin, sweet potatoes, and oranges. While some pumpkins were exported, most of this produce was disposed of locally, either given to government institutions or sold at retail, which together with spoilage resulted in considerable losses. Such a purchasing policy is understandable since GMC is obliged to transport produce from everywhere in the country, including boat transport from remote riverain areas, with attendant losses from spoilage. For this reason GMC has not purchased anything but coffee beans and peanuts this year in the remote northwest area of the country.

In summary, GMC appears to have acted rationally from a financial point of view in its crop purchasing activities. Even so, losses in 1981 were some half million dollars over and above the annual government subvention of a like amount.

A 1980 study diagnosed other problem areas in GMC as lack of current financial and marketing information, absense of a management team trained in planning and marketing substandard office facilities, and low pay scales. As of January 1981, a new management team was in place, consisting of a General Manager (Mr. Rhodes), a Marketing Manager, and an Accounting Manager. The office facilities and payscale problems remain.

Proposed Changes to GMC

It has been proposed that GMC's role be radically altered, that it cease purchasing all crops offered to it and instead purchase a selected group of products which are processed by other state corporations and/or directly exported. We support this proposal. Furthermore, the six rural Marketing Centers being established through the Food Crop Production and Marketing Program (discussed below) would not be operated by GMC as originally planned, but would be turned over to the Regions who in turn would endeavour to get farmer groups or cooperatives to operate them. This latter step is in fact already being implemented.

Withdrawal of GMC from its comprehensive market intervention role is politically more sensitive, and until now no action has been taken. Yet the government cannot afford these financial losses; subsidies to farmers are simply no longer possible.

At a time of current high market prices for most crops, this would seem an appropriate time for changes to be made. It is accordingly recommended that GMC cease purchasing crops other than those it processes in quantity, namely coffee and carambola. At the same time, to avoid hardship to farmers in remote areas such as the Northwest and in certain riverain areas, reliable boat transport facilities need to be provided so that farmers can get their produce into established coastal marketing channels at minimum cost. As discussed elsewhere in the report, it is proposed that a way be found to tap IDB funds under the FCP&M program to make loans to farmer groups for purchase --and maintenance-- of river launches. It should be possible to link these loans directly to the FCP&M through farmer groups.

In our opinion, GMC crop purchasing in other areas is not necessary and has minimal impact on farm income. It can, and in fact has, worked against the farmer's interests by encouraging planting of crops for which there is no market.

It is further recommended that GMC and the fruit processing unit of Quality Foods be merged. The two organizations are already linked by common management and the fact that GMC is the supplier of raw materials to Quality Foods' facility. The merger, together with removal of costly price support functions, should make it possible for management to concentrate its attention

on making its receiving operations profitable. In keeping with another policy recommendation in this report, the corporation should be allowed access to foreign exchange against firm export orders to enable it to purchase badly needed equipment for the food processing plant --which in turn will permit future increases in exports.

It is suggested that the merged corporation be re-named so as to remove the "marketing board" image. "Quality Foods Corporation" would be a possibility, since the name is already known to foreign buyers of its products.

Should these recommendations be implemented, it will be necessary for GMC management to undertake a thorough financial analysis of the new operation. Initial capitalization should be adequate to permit such improvements as new quarters for the company's offices and warehouse, improvements at the processing facility, and transport equipment. The coffee and carambola operations should be analyzed separately to insure that costs and returns are in balance. No new operations should be attempted in the meantime.

The analysis should also include the desirability of continuing to purchase peanuts and pineapple for processing. Production trends and prices in relation to farm production costs on the one hand, and production costs and sale prices vs. market demand on the other, need thorough analysis.

4. Food Crop Production and Marketing Program

The six market centers being built under this program are in the process of being transferred to the Regions, with the intention that co-operatives will assume responsibility for their operation. It now appears that GMC will not operate them initially as was planned.

Arrangements to supply agricultural inputs and to provide credit facilities to finance their purchase through these centers have not yet been completed.

Given this fluid state of affairs, it seems premature to comment on the program or attempt to evaluate it.

5. State Farms

State farms include beef and dairy farms of LIDCO at Pirara, Ebini, Kabawer, Mara, and Moblissa; GNS farms at Kimbia, Koriri and Papaya (Mathews Ridge), and special operations like Matarkai in the North West. GUYSUCO also has cassava and oil palm plantations in addition to its sugar estates. Experiment stations of the Ministry of Agriculture are in a separate category.

We visited several of these farms and found that they are reasonably well supplied with resources. The Checchi Tropical Food Crops Specialist conducted interviews at four of these farms and noted that "They command the scarce and vital production factors and services to a greater degree" than small farmers he interviewed, and he recommends that the relative economic efficiency of state and private farms be studied.

There is no question that scarce resources are being expended on these operations. It is less clear that they are producing a fair return on this investment. They certainly face problems such as logistics, lack of timely delivery of inputs and personnel transfers, as do other organizations. But in many cases we feel there is insufficient planning and establishment of clear objectives, nor accountability for performance.

The GNS Station at Kimbia is perhaps the most "tightly run" and orderly farm we visited, with 1,000 acres of cotton, peanuts and black-eye peas planted and well tended. An Agronomist from the Ministry of Agriculture, Cde. Bullin, is assigned to the station. This seems a good location for soybean growing, as has been proposed by the GNS.

Yet it is interesting to note that in a meeting at GNS headquarters, the able GNS Director General, Colonel Singh, remarked on the need for better planning of their operations. He saw the need to more clearly define the mission of the Kimbia and Koriri stations. He also felt strongly that priorities as far as crop production should be determined first, then inputs delivered to match these objectives.

Our observation is that due to the size and number of state farms, relatively large amounts of scarce resources such as agricultural equipment and chemicals can be wasted if planning and monitoring is lacking, and if accountability for results is not insisted upon. We recommend that such measures be instituted within the framework of an agricultural sector plan. No new state farms should be started until results from present operations are examined.

PART IV

EXPORT POTENTIAL

As the consultant's terms of reference limited field work to Guyana proper, it was not possible to conduct any on-the-spot investigations of export markets. This section of the report is therefore based on available CARICOM trade data, discussions with CARICOM officials and Guyanese businessmen (in both public and private sectors), information contained in other reports, and the consultant's own knowledge. No analysis is attempted for markets other than CARICOM.

Purpose of this section, then, it to provide an overview of current Guyana exports, and to extract relevant information from a gross analysis of CARICOM trade and use it to indicate market categories which might be filled by new or increased Guyana exports. Part V of this report examines specific processing industries, some of which could take advantage of these markets.

A. GUYANA EXPORTS

Exhibit 17 gives an overview of Guyana's export performance in recent years. Sugar is the leading performer, followed by rice, alcoholic beverages, and shrimp. In the minor category, curry powder and other condiments are fairly large but are based partly on imported ingredients. Coffee is a special case since it is in fact re-imported after processing in Jamaica.

Fresh produce exports consist mainly of pineapples, oranges and pumpkins. These products are purchased and exported by GMC. Volumes are small, the combined exports in 1980 totaling only $82,000.

B. THE CARICOM MARKET

Trade information available through the CARICOM Secretariat in Georgetown is lamentably incomplete as concerns intra-regional or extra-regional trade since 1978, chiefly because several member countries do not regularly supply the necessary data. CARICOM is currently engaged in a mission to gather the missing data by visiting each country and physically collecting it. Thus the trade picture should be clearer by early 1983. Moreover, CARICOM reports that an "Export Promotion Project" has just been started, another promising development.

A World Bank study* on Caricom estimated the commodity composition or regional food imports in 1972 in terms of million EC$ as follows:

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* Chernick, Sidney E:
"The Commonwealth Caribbean: The Integration Experience," John Hopkins Press, 1978.

EXHIBIT 17

EXPORT OF FOOD PRODUCTS, 1980-1982

Major Exports	1980		1981		1982 (1st Qtr.)	
	Tons	000G$	Tons	000G$	Tons	000G$
Shrimp	61,805	16,284	2,669	8,524	1,171	2,461
Rice	80,852	87,491	78,010	110,009	5,943	8,984
Sugar	252,135	311,370	268,809	305,914	43,999	46,734
Molasses (000 liters)	39,783	9,231	58,774	12,461	15,394	2,760
Alcoholic Beverages	-	19,371	-	24,915	-	686
Other Selected Exports						
Coffee	400	1,198	232	526	46	144
Pumpkin and Ground Provision	15	14	61	21	2	7
Citrus fruit	69	46	12	7	3	7
Pineapples	19	22	18	28	7	9
Curry Powder, pepper, condiments	555	1,984	107	297	141	312
Jam, jellies, fruit purees	11	44	21	81	1	6

Source: Statistical Bureau

	Amount	Percentage
Meat	82.6	13.6
Dairy Products	85.2	14.0
Cereals	158.6	26.0
Fish	36.3	6.0
Animal Feed	30.5	5.0
Sub Total	393.2	64.6
Fruits and Vegetables	56.8	9.3
Oils and Fats	24.9	4.1
Others	134.2	22.0
Total	609.1	100.0

There has been little change in this mix of imports since then. A CARICOM official listed the following categories of food items as being the most important currently:

- Meat, meat products and dairy
- Cereals (wheat, corn, rice)
- Grain legumes (peas, beans)
- Fruit (especially citrus products and dried fruit); and
- Fish

The same World Bank Study referenced above estimates the degree of CARICOM self-sufficiency in some selected product groups in 1972 this way:

Meat		Dairy Products	
Beef	56.8%	Milk	27.7%
Mutton	61.3	Butter	4.6
Pork	2.7	Cheese	0
Poultry	85.4	Eggs	85.7
Processed	76.6		
Fish	57.7	Cereals	
		Rice	86.3
		Corn	12.9
		Wheat	0

Since it seems safe to assume that no wholesale changes in the economies of CARICOM countries have occurred since 1972, there are some very large short-falls in supply within CARICOM.

Among products which Guyana produces, beef and especially pork are notable. Dairy products are very important among the imported goods. Regional deficiencies in meat supplies, milk, grains (mainly corn and soya) and fruits and vegetables were recognized in The Regional Food Plan of CARICOM. The Caribbean Food Corporation, with shares held by all CARICOM member governments, was established in 1976 to foster projects in these areas. Guyana was identified as having potential for development of beef, dairy, corn and soya feedstuffs. (As noted elsewhere, the Corn/Soya project in Guyana has been closed down after 5 years with inconclusive results).

Some characteristics of markets for specific commodities are described in the following paragraphs.

Rice

CARICOM is a net importer of rice since the two main producers, Guyana and Belize, are unable to supply its needs. The market is reported to be becoming more "structured" in that with increasing urbanization and affluence there is a greater demand for higher quality rice, attractively packaged, to be sold in supermarkets. Lower-quality rice sold in bulk in rural areas is gradually diminishing in importance. As part of this trend, demand for parboiled rice is increasing relative to white rice.

Beef

Beef is imported by all CARICOM countries, Guyana at 93 percent and Trinidad (72 percent) being the only countries meeting more than two-thirds of their needs (based on 1972 data). Prices in CARICOM countires are known to be lower than Guyana prices by $2 to $3 per pound. Australia is a large supplier of beef to the Caribbean.

Pork

Pork prices in Guyana are $1 to $2 per pound higher than in CARICOM countries, which import heavily from the U.S. Also only cooked pork can be imported due to Food and Mouth Desease regulations.

Citrus Juices

There is reported to be an increasing demand for citrus juice concentrates packaged in bulk. Here, as with rice, the trend is toward local packaging to meet consumer preferences and allow brand identification. Sterilized full-strength juice packaged in cardboard containers (such as Tetra-Pak) is becoming very popular.

Two companies in Belize are making orange juice and successfully marketing it in the Caribbean in large containers for local packaging. Current prices would have to be investigated in determining feasibility of citrus juice production here, but this is a promising export industry for Guyana.

Spices and Essential Oils

These products are the subject of a consultant's report done for the Caribbean Development Bank but not yet released. A seminar was recently held in Grenada on the same subject. These are small-volume but high-value items which Guyana can produce and export. Examples would be ginger and citrus oils.

Fresh Fruits and Vegetables

Export of fresh fruits and vegetables has not been touched on in this discussion, as it does not appear to be significant in dollar terms. Sales are often of the "spot" variety due to seasonable and unreliable supplies. Guyana has, however, exported such products, as the trade data above indicates. CARICOM's Agricultural Marketing Protocol and the Guaranteed Market Scheme are intended to promote trade in fresh produce. In practice, few countries have surpluses and trade has been minimal.

Pineapple is frequently mentioned as a product bringing good prices in non-producing Caribbean countries like Barbados.

Fish

Fish is not covered in this report. Though the shrimp industry is flourishing in Guyana, there has been little investment in fishing per se. As the Guyana "banks" are one of only three productive fishing grounds in the Caribbean, it would seem that more could be done in this area.

C. CONCLUSION

In summary, this brief analysis has identified export markets in CARICOM for the following products (other than rice) now being produced or formerly produced in Guyana:

- Beef
- Pork
- Fish
- Ginger
- Citrus Juice
- Citrus Oils
- Dried Fruit

Food snortages in Guyana are distorting prices so that, for example, beef and pork prices are far out of line with those of other CARICOM countries. Fish is treated only indirectly in this study. Three products remain:

Citrus Juice is a potential export but requires study of production costs in Guyana to determine export feasibility.

Ginger and citrus oils appear promising and should be examined in the light of the CDB study.

Dried fruit (dry carambola) for use in confections is a promising export already being exploited by Quality Foods.

There are other obvious supply gaps in the CARICOM trade picture, which have not been mentioned sunce Guyana is very far from self-sufficiency in these items. Among these are:

- Edible oils
- Animal feed
- Milk
- Grain legumes

Certainly all these products represent long-term export prospects for Guyana.

PART V

AGRICULTURAL PROCESSING INDUSTRIES FOR GUYANA

A. RECOMMENDED INDUSTRIES

Determining what kinds of food processing industries to promote in Guyana at present involves --as does virtually every other economic issue-- the optimum allocation of scarce resources: manpower, both labor and managerial, and capital, domestic and foreign. It seems clear that in the short run only a few new ventures can be successfully launched. For the immediate furture, then, planning becomes a process of identifying a limited number of existing of new enterprices which should be promoted now on such grounds as:

- Export potential - the ability to contribute urgently needed foreign exchange;
- Contribution to domestic food supplies through replacement of essential products now or formerly imported;
- High proportion of locally available raw material, which means benefits to farmer/producers; and
- Contribution to diversifying agricultural production (away from rice and sugar).

In the longer run, one should assume that external resources of one kind or another can be counted on. On the assumption that the government will in fact adopt measures leading to increased in-flows of soft loans, grant aid and private capital, recommendations are included for more ambitious undertakings.

Analysis and findings in preceding sections of this report point toward the desirability of promoting the following industries:

Animal Feeds
Edible oils
Citrus juices
Citrus oils
Carambola products
Beef processing for export (contingent on market study)

Of these only carambola is presently exported, but all have export potential. High domestic prices at present probably preclude export of all but citrus products.

Our study of the animal feed industry reveals that it is inter-related to a surprising degree with other food industries. This is discussed in the following section.

B. AN INTEGRATED FOOD INDUSTRIES PLAN

The schematic diagram in Exhibit 18 shows how the animal feed industry is tied by numerous backward and forward linkages to agriculture and food. Thus paddy, coconuts, palm oil, soy beans, cassava and fish are all seen to be inputs into a process which through the use of by-products indirectly yields poultry, eggs, pork products and milk. While the basic intent is to show what is required to develop an indigenous animal feed industry, it is instructive to note that in so doing production of many essential food items would be stimulated.

There is nothing new in this but it may prove useful in development planning to view these industries in an integrated fashion. Hopefully this will emphasize to government agencies engaged in agriculture the importance of a coordinated --and cooperative-- approach. Moreover, an integrated program of this type might serve as the basis for attractive external assistance in developing Guyana's agriculture.

Features of this integrated approach to developing an indigenous animal feed industry are that it:

- Builds in part on industries already existing in Guyana (feed mills, oil mills, rice milling) and thus calls for minimum new investment;
- Meshes the resources of both the entrepreneurial sector (edible oil processing, rice milling, cassava chip manufacture, pork processing, poultry processing) and the public sector (rice milling, animal feed manufacturing, edible oil, and milk);
- Involves industries supplying basic food needs (rice, meat, cooking oil, eggs, ard milk); and
- Stimulates new industries (cassava chips, poultry breeding).

To give an idea of the scope such a program could have, Exhibit 19 lists a series of projects and sub-projects which would be undertaken. The animal feed industry is discussed in detail in the following section. There is no quick route to producing an indigenous-material based animal feed. Only the hard work of all concerned over the coming years can achieve that goal. As none of the sources mentioned can be developed in the short term, it is recommended that all be developed simultaneously. This should be done within the context of an overall development plan such as that outlined here.

The output side of the "food equation" has also been discussed in sections of this report devoted to pork, poultry and eggs, milk, edible oil, rice and beef.

Formulation of a nutritious flour based on rice, and possibly cassava and soybean (when available), plus imported vitamins and minerals, is a subject deserving further study.

It is to be hoped that multi- and bi-lateral donor agencies will contribute to such a plan once details have been worked out.

EXHIBIT 18

INTEGRATED FOOD INDUSTRIES PLAN

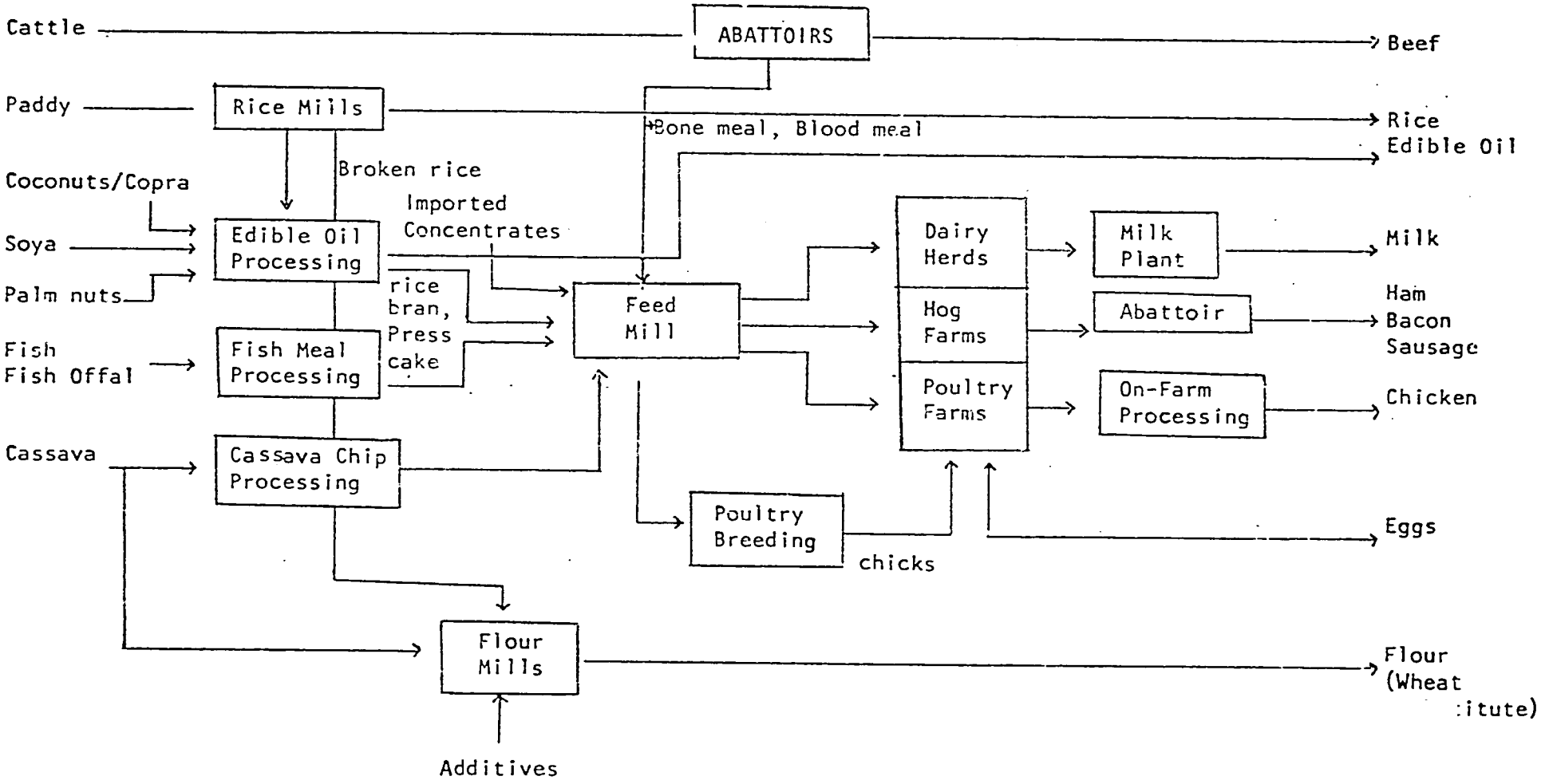

EXHIBIT 19

ACTION PLAN FOR INTEGRATED FOOD INDUSTRIES

PROJECT/ACTIONS	Action by Government	Action by Entrepreneurial Sector	Timing
I COCONUT/COPRA INDUSTRY			
A. Decontrol copra and oil prices	Issue regulation	-	Immediate
B. Rehabilitate plantations, replant trees	-	Farmers	1982-85
C. Import soybeans	Provide FX facilities import license (NEOCOL) (GPC) to import when plant complete)	Import Soybeans	1982
II SOYBEAN GROWING			
A. Prepare development plan	Prepare plan (Min. of Agri., Planning Dpt.)	-	1982
B. Seed multiplication	CAS to multiply on State farms	-	1982-84
C. Import seed (if appropriate)	Import under CAS supervision	-	1983
D. Growing Soybeans	Grow on State farms. Offer incentives to private farmers.	Grow soybeans on Int. Savannah areas using mechanization	1983-
III PALM OIL INDUSTRY			
A. Increase supply of palm seedlings	Import from Nigeria	-	1982-
B. Expand existing plantations, encourage private farmers to grow	GUYSUCO to expand Wauna and San Jan.	Farmers to plant Seedlings with GUYSUCO help	1983
C. Provide better palm oil milling equipment	Allow GUYSUCO required FX	-	1983
IV CASSAVA CHIP MANUFACTURE			
A. Obtain high-yielding varieties	Facilitate imports as necessary	Private farmers	1982-

Cont.

EXHIBIT 19 CONT.

PROJECT/ACTIONS	Action by Government	Action by Entrepreneurial Sector	Timing
B. Grow crop extensively with machinery in Interior Savannah	State farms to grow Offer incentives to private farmers.	Private farmers (following Dubalay example)	1982
C. Install chipping and drying machinery	Provide FX to growers	Import and operate	1982
V FISH MEAL PROCESSING			
A. Assemble and operate existing or re-replacement fish meal plant	Guyana Fisheries (GF) to assemble and operate	-	1982
B. Operate "collector boats"	Depending on pilot scheme, GF to expand operations. Open to private fishing cos.	Local or local/foreign joint ventures to operate	1982
C. Expand private fishing fleet	Provide FX to allow import of equipment	Purchase boats, increase catch	1983
VI SORGHUM GROWING			
A. Review work done in Guyana to date, prepare plan	CAS, PD/MOA to prepare plan	-	1982
B. Import Seed	CAS to import seed	-	1983
C. Plant on Guysuco sugar lands on or State and private farms in Intermediate Savannah	CAS to direct experimental planting	-	1983
D. If successful, expand plantings	Plant on State Farm	Private farmers to plant	1984
VII ANIMAL FEED PRODUCTION			
A. Implement Recom. I through VI	As above	As above	begin 1982
B. Temporily import Soybeans (see Rec I)	As above	As above	1983
C. As local raw materials increase, make new formulations	Guyana Stockfeeds	-	1983
D. Import necessary concentrates	Guyana Stockfeeds	-	1983

C. ANIMAL FEEDS

A crisis is facing Guyana's pig and poultry industries. Guyana Stockfeeds (GS) is badly in need of indigenous sources of raw materials if it is to be able to conti.ue any kind of normal operation.

Energy source macerials now grown in Guyana have been identified as rice and cassava, though cassava has never been available in commercial quantities. A private farmer at Dubalay, on the Berbice River, has begun plantings of a high-yielding variety of cassava which is to be processed into chips and soid to Guyana Stockfeeds. Several hundred tons could be available as early as next year and perpaps 1,000 or 2,000 tons in five years. Only extensive cultivation of special varieties using machinery as in this case is likely to produce cassava at low enough prices to use in stockfeeds. If successful, this kind of operation may be the model for other such farms.

Current efforts by GRB to produce rice flour from stock of broken rice as a substitute for wheat flour will in time, reduce the amount of such rice available for stockfeeds. Should programs to improve rice milling be successful, this too would reduce availability of rice for stockfeed over the long term. Hopefully increased rice planting or increased yields will make up for this shortfall. Other than rice bran (which is high in fat content) and the small amounts of copra meal made, no usable quantities of protein materials exist in Guyana at present.

Soybeans, corn, and sorghum have all been grown on a trial basis with mixed results, as noted in Part II of this report. In the case of soybeans, despite this lack of positive results, the government appears determined to restart cultivation on state farms beginning with a small amount of seed left over from previous programs. Corn seems to have been abandoned as a commercial crop due to its high fertilizer requirements. There is no discernible policy with regard to sorghum. However the limited tests to date do not rule out sorghum as a potential commercial-scale crop. A better quality of rice bran (lower fat) should be available in 1983 when NEOCOL's solvent extraction plant starts up.

Fish is an obvious source of protein for a coastal country, albeit one specializing in shrimp. Guyana Fisheries is aware of this need and is beginning in September 1982 a four-month trial operation of a "collector boat" which will rendezvous with shrimp trawlers at sea to load their "by-catch." While the emphasis will be on commercially salable varieties, a certain amount of "trash fish" should become available. The intent of the collector boat idea is to bring back to shore larger quantities of such fish than under the present system where shrimp trawlers bring no more than the required 4,000 pounds per vessel, and discard the rest. Capacity of the craft is 60 tons per weekly voyage.

An unused 25 ton per day input (8 hours per day basis) fish meal plant is stored at Guyana Fisheries. It has never been used since it was realized only after purchase that its capacity was far too great for Guyana. Initiatives have been taken to sell this plant and to replace it with one of 5 tons per day capacity. If this happens, Fisheries could produce 1 ton of fish meal per day (single shift), amounting to about 300 tons yearly on a 6 day per week basis, if the fish input were available. It is doubtful that even 5 tons per day of fish would be returned by the single collector boat, since this would inply 50 percent trash, which the operators of this commercial venture will certainly try to reduce. However, the 1 to 2 tons per day of offal presently produced by Guyana Fisheries' fish processing line (and currently sold to pig farms) is also potentially available.

Other sources of protein and minerals are bone meal, blood meal, feather meal and offal meal, all by-products of the meat industry but not available now in Guyana.

To summarize, present and potential future ingredients for animal feed are:

Presently Available	Potential Future Availability
Rice	Soybean meal
Rice meal (high in fat)	Sorghum
Copra meal (small amount, high fat)	Cassava
Molasses	Fish meal
	Meat processing by-products.
	Defatted rice bran.

Other materials may be mentioned as potential ingredients --such as plantains, ground provisions, various legumes, garbage, brewers' yeast, distillers grains-- but they don't appear to hold as much promise as the above-listed in terms of quantities and cost.

If the stockfeed industry is to survive on any basis other than on inferior local mixes by farmers based on whatever happens to be available, a concerted development program is needed now.

Based on the above analysis, there are not likely to be large quantities of any one of these materials becoming available in the near future. It is therefore recommended that a broad-scale approach be adopted which would foster development of all these materials. A suggested appproach, based on the "Action Plan" outlined in Exhibit 19, is outlined below in tabular form. Further study and preparation of a detailed plan is required. It will take time to produce these materials, so a start has to be made now.

Feed Ingredient	Suggested Approach
Soybean meal	Increase soybean growing, on state farms, sugar estates, and private farms under a 5-year plan of development, drawing on work done to date and compiling and reporting on results. Soybean meal to be produced by existing oil mills along with soybean oil. (See further recommendations below).
Sorghum	Introduce as a diversification crop on GUYSUCO sugar estates and on state and private farms. If results are good, encourage private cane farmers to grow.
Cassava	Based on results of private cassava chip venture at Dubalay, encourage other such ventures. Consider introduction on state farm.
Fish meal	Expand concept of "collector boats" bringing in by-catch. Encourage private fishing ventures, providing finance as necessary and on condition that minimum quantities of by-catch be brought in. Start up fish meal plant.
Meat Processing By-products	As part of improvements needed in the meat industry, add by-products processing to abattoir facilities.
Defatted rice bran	Complete NEOCOL solvent extraction plant.

Guyana stockfeeds will be called upon to formulate acceptable feeds depending on availability of these materials, as well as imported concentrates and minerals. Their supplier, Agro-Tech International of Miami, is prepared to assist in this regard.

It may be argued that crops such as soybean and sorghum are not commercially viably in Guyana, or that the result of a program such as that proposed here will be a high-cost animal feed, and high meat costs. We contend that this development plan takes into account current economic conditions in Guyana and the lack of alternatives.

Conventional economic analysis would dictate that Guyana should not grow soybeans if production costs are higher than in, say, Brazil or the U.S. Some local product where the country has an economic advantage over others should instead be exported, to pay for the cheaper imported soybeans. Other

than some possible increases in rice exports, Guyana has no immediate prospects of finding such a new export crop. It seems that countries like Guyana must work toward self-sufficiency even at high economic cost, and should request aid on concessionary terms to help them acheive it.

The recommended development plan for soybeans should include the following:

(1) Review and compilation fo all available data on research and experimentation in Guyana to date.

(2) Specification of varitiess adapted to local conditions, such as "Jupiter" and "Hardee."

(3) Delineation of suitable growing areas in the Intermediate Savannah and coastal areas.

(4) A plan of increasing acreages covering a ten-year period.

(5) Listing of input requirements, including seed, fertilizer, chemicals, farm machinery, drying and storing equipment, with annual quantities specified over 10 years.

(6) Cost and return data.

The development plan should be sufficiently comprehensive to serve as a basis for possible external funding.

D. CITRUS JUICE

Canned citrus juice has been produced in Guyana on a small scale as recently as 1978 by the Guyana Canning and Packing Company Ltd. GMC also at one time operated a small facility and sold orange juice in waxed cartons. Two small orange juice plants were set up by the Special Projects Unit of the Ministry of Agriculture, one at Charity and the other at Mabaruma, but we understand neither plant ever operated.

Lime juice was also canned at one time by a private farmer near Mabaruma but the plant burned down a few years ago.

At the present time, we know of no operating orange juice facility in Guyana, though some machinery exists. Two unused Italian-made juice extractors intended for Mabaruma are being stored by Quality Foods.

Between 1978 and 1981, several proposals and studies have been prepared for multi-product food processing plants which included citrus canning. Pineapple and orange juice processing in two large separate plants near producing areas was examined in one report, but the report favored a small fruit juice and jam plant with Dutch-made equipment. It would utilize 15 million oranges

yearly. Another study for GPC proposed a multi-purpose plant for pineapple and orange juice, fruit jams and jellies, and other products be set up which would incorporate the existing carambola operations of Quality Foods. This proposal is currently under study.

It was not possible in the time available to examine the feasibility of any of these proposed plants. We do not detect any strong impetus to promote such a project within the GPC structure. One hindrance is doubt about future availability of imported cans.

From our discussion in Guyana, we believe there is potential for producing citrus juice concentrates and exporting them in bulk. Shipment would be in drums which could be returned for re-filling, thus avoiding importing of cans and reducing packaging costs.

Two such plants are operating successfully in Belize. They ship concentrates to Caribbean countries where the juice is diluted, sterilized by the UHT process and filled into consumer packs such as Tetra-Pack. Further study is needed to determine local production costs, and export prices in the Caribbean, taking into account U.S. juice exports.

We believe that to "get something moving" here, private investors should be encouraged to pursue the project. The government could do this by announcing that it will consider proposals under the Investment Code for orange juice processing. Applicants should also be made aware of the Industrial Lending Program at GAIBANK.

APPENDIX

1982-08-20

M E M O R A N D U M

TO: MR. TERRENCE GLAVIN, IDB REPRESENTATIVE

FROM: RICHARD ABBOTT, PLANNING DEPARTMENT, MINISTRY OF AGRICULTURE

SUBJECT: AVAILABILITY OF AGRICULTURAL INPUTS

As you know I am preparing a report for the Ministry of Agriculture on agricultural marketing. In the course of my field survey work over the past month, I have noted a severe shortage of agricultural inputs in the areas I visited. I believe that in fact this shortage is general throughout the country and is restricting the output of food crops as well as that of rice. I would like to suggest some steps to remedy this serious situation.

Our surveys were conducted mainly at market centers and various collection points for produce in the Corentyne River area, Black Bush Polder, New Amsterdam, Mahaica, Parika, Wakenaam Island, Essequibo Coast, Charity, and the Pomeroon River. Among the 48 persons interviewed were 21 farmers - growing fruit, vegetables, ground provisions, legumes and rice. Officials of Regions II and VI were also interviewed, including Agricultural Officers.

Farmers with whom we talked were vociferous as to their needs for certain types of inputs which they feel were either directly affecting crop production or were raising their costs to levels at which they were forced to restrict output. I would summarize these needs as follows, in rough order of importance:

Sprayers (mainly knapsack type) - farmers everywhere we went mentioned this need. While agricultural chemicals were available in many areas; the sprayers to apply them were not.

Outboard Motors and parts for same-- on the Corentyne Coast, on the Essequibo River and Parika, and on the Pomeroon River we heard repeatedly of this need. Virtually all produce in these areas is moved by boat.

Irrigation Pumps and parts for same-- on the Corentyne Coast almost every farmer we talked to voiced the need for pumps to control water on vegetable plots in the backlands. Loss of crops due to flooding was frequently mentioned. Some pumps already supplied under the FCP & M Project need replacement seals.

Agricultural Chemicals: All farmers we talked with on the Corentyne Coast spoke of the need for more herbicides and insecticides.

Tractor Parts: Mentioned frequently in the labor-short Pomeroon River area. Batteries were stated to be unavailable in Guyana currently.

Due to relatively high prices for agricultural produce at present, many farmers are able and willing to pay cash for these inputs. Loans were most often mentioned in connection with land clearing expenses, though several farmers would borrow to buy boats and outboard motors.

I believe that steps should be taken immediately to increase the supply of these inputs in Guyana, and to make them available to farmers on either a loan or cash sale basis. The effect in terms of increased output of food crops would be felt in a matter of months, and it should also tend to hold down food price increases.

I hope that a way can be found to do this utilizing IDB funds available to the Food crop Production and Marketing Programme. It should be possible to quantify the needs with the aid of farmer survey data available of the Ministry of Agriculture and other sources

c.c: Cde Prabhu Sookraj, CAP., MOA
Dr. Robert M. Reeser, APA., MOA
Dr. Norman Ulsaker, RDO., USAID

June 1982

CASHFLOW AND NUTRITIONAL ASPECTS OF SUBSTITUTION OF WHEAT FLOUR FOR RICE

Dr. Robert M. Reeser
Agri. Planning Adviser, MOA

There is currently a scarcity of wheat flour in Guyana and particularly in Georgetown. Rationalization of the situation offered by and to those waiting in lines at the markets suggest that a country short of foreign exchange must minimize its imports and subsist on the basis of home-grown commodities. In other words, Guyana, being a rice producer, should eat rice which costs nothing in foreign exchange, and forego the accustomed bread and roti, because purchase of the flour from which they are made requires foreign exchange.

These notions are only partly correct. In the paragraphs that follow, the substitution of rice for flour is analyzed from the standpoints of price, nutrition and a combination of both.

COMPARISONS BASED ON PRICE ALONE: Table 1 presents comparisons of prices of wheat flour as imports and rice for exports, over the last five years. Assuming that the prices cited do in fact show the gross cost of imported flour and the net price received for exported rice, and disregarding any consideration other than price, it can be seen that in some years exchanging locally produced rice for imported wheat would have left a substantial margin, while in other years such exchange would have been rather costly. On balance, over the five years shown, the margin was positive, but not strikingly so. However the principle and the basis are clear: Considering price alone, when wheat flour can be imported at lower cost than the export value of rice, importation of flour and exporting of rice should be encouraged. When flour is higher priced than rice, national self-sufficiency should be encouraged unless there are other considerations, which will be examined below.

COMPARISONS BASED ON NUTRITION ALONE: While wheat flour and rice are both cereal products and have certain similarities from the standpoint of nutrition, there are also important differences, just as their roughly comparable prices reveal important differences on detailed analysis.

Table 2 shows the nutrition content of imported wheat flour and domestic white rice. For simplicity, the analysis in this paper will consider only calories and protein among the nutrients provided by these commodities.

In respect of both calories and protein (as well as every other measure except fiber and carbohydrates), wheat flour is superior to rice. While rice has 97 percent of the calories of the same weight of flour, it has only 56 percent as much protein. To express the same relationship using rice as the base, wheat flour has three percent more calories and 78 percent more protein than rice. There can be no doubt that wheat flour is a better food than rice, and that

TABLE 1

WHEAT FLOUR IMPORT/RICE EXPORT PRICE COMPARISONS
(Prices in cents per pound)

YEAR	PRICE PER POUND		RICE/WHEAT FLOUR COMPARISONS	
	WHEAT FLOUR	RICE	VALUE RATIO*	MARGIN*
				G$
1977	33	45	1.36	268.80
1978	31	41	1.32	224.00
1979	48	43	.90	(112.00)
1980	43	49	1.14	134.40
1981	81	64	79	(380.80)
Average	47.2	48.4	1.025	26.88

* Value Rotio is the price of rice divided by wheat flour (all prices per pound). That is, the value per pound of rice is this multiple of the value of wheat flour.

* Margin is the difference in value between a long ton (2240 lb) of rice and a ton of wheat flour. When rice is less valuable than flour, the margin is negative.

Source: Prices from Stat. Bureau, MEP & F.

TABLE 2

NUTRIENT CONTENT OF WHEAT FLOUR AND RICE
(per 100g. edible portion)

	IMPORTED WHEAT FLOUR			DOMESTIC RICE			RICE/FLOUR COMPARISONS
	Weetabix	Robinhood	Average	White A	White B	Average	(Rice as % of Flour)*
Fiber g	0.2	0.3	0.2	0.2	0.2	0.2	100
Water g	13.1	12.7	12.9	10.2	11.3	10.8	84
Calories	379	390	384	373	372	372	97
Protein (g)	9.8	14.8	12.3	6.8	7.0	6.9	56
Fat (g)	0.4	1.1	0.8	0.3	0.4	0.4	50
Carbohydrate (g)	70.4	66.2	68 3	78.4	76.9	77.6	114
Calcium(mg)	31.5	13.6	31.6	2.8	3.8	3.3	10
Iron (mg)	1.8	37.4	19.6	2.5	1.8	2.2	11
Ash %	2.3	1.0	1.6	0.4	0.3	0.4	25

* Percentages calculated from rounded averages

Source: Government Analyst, Georgetown
Cited in report of Julia Chryst Nutritionist Consultant,
Planning Department, MOA, June 1982.

consuming a given quantity of flour contributes more to good health through adequate nutrition than does consuming a like quantity of rice.

VALUE, NUTRITION CONSIDERED: That wheat flour is nutritionally better and therefore worth more than rice has been established. The problem is to determine how much more it is worth. The additional calories and protein and their value provide an approach to that problem. Wheat flour, having three percent more calories than rice, is worth three percent more than rice as a source of energy. As a source of protein, it is worth 78 percent more than rice, because it supplies 78 percent more protein. The calculated values of flour, based on its nutritional superiority to rice, are shown for 1977 - 1981 in Table 3. These values are the upper limits at which wheat flour should be purchased; whether the energy or protein limit as used, or an intermediate figure representing a blend, should depend on rather complex nutritional considerations.

The relative inportance of calories and protein depends on the needs and the overall dietary situation of each individual. However, in considering their relative importance for the nutrition of all Guyanese, it is relevant to note that energy foods such as sugar, rice, cassava, plantains, yams, eddoes, etc. are both abundant and cheap in Guyana, relative to protein foods such as legumes (peas and beans), meat, fish, milk and cheese.

TABLE 3

Calculated Value of Wheat Flour, 1977-1981
(cents per pound)

YEAR	ACTUAL PRICE OF RICE	VALUE OF WHEAT FLOUR		ACTUAL PRICE OF WHEAT FLOUR
		FOR ENERGY (103% of rice)	FOR PROTEIN (178% of rice)	
1977	45	46	80.1	33
1978	41	42	73	31
1979	43	44	77	48
1980	49	50	87	43
1981	64	66	114	81
Average	48.4	49.9	68.2	47.2

Source: Tables 1 & 2 and calculations

Had the exchange suggested in Section I taken place, exporting a unit (pound, ton, etc.)of rice would have made available, through importing, between 0.79 and 1.36 units of wheat flour. The relative calorie and protein content of this flour would have been as shown in Table 4. On the average, and in 3 of 5 years shown, more calories would have been available from the wheat flour whose import was made possible by export of rice. However, the protein available would have been increased every year by the exchange.

RECOMMENDATIONS: The foregoing analysis leads to the following general recommendations:

Rice should be exported and wheat flour to replace it should be imported when the prices on the two commodities are equal or substantially so.

In view of the calorie superiority of wheat flour, it should be imported and rice exported as long as the price received for exporting a unit of rice will pay for about 0.97 unit of wheat flour.

If alternative sources of protein are scarce or unavailable, making wheat flour's superiority in protein content more relevant, this exchange (exporting rice to pay for importing of wheat flour) can be justified up to the point where exporting 1.78 units of rice is needed to pay for importing one unit of wheat flour.

TABLE 4

NUTRITIONAL CONSEQUENCES OF RICE/WHEAT FLOUR EXCHANGE

(1977-1981)

YEAR	EXCHANGE RATIO#	AVAILABLE CALORIES* RICE	FLOUR	AVERAGE	AVAILABLE PROTEIN* RICE	FLOUR	INCREASE
1977	1.36	372	522	150	6.9	16.7	9.8
1978	1.32	372	507	135	6.9	16.2	9.3
1979	.90	372	346	(26)	6.9	11.1	7.2
1980	1.14	372	438	66	6.9	14.01	7.1
1981	.79	372	303	(69)	6.9	9.7	2.8
Average	1.025	372	394	22	6.9	12.6	5.7

Units of wheat flour imported per unit of rice exported, based on value ratio in Table 1.
* Content as in Table 2, with flour adjusted by exchange ratio.

Source: Tables 1 and 2 and calculations.

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