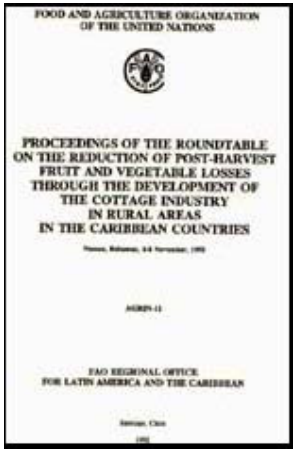

Proceedings of the roundtable on the reduction of post-harvest fruit and vegetable losses through the development of the cottage industry in rural areas in the caribbean countries

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FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

Nassau, Bahamas, 6-8 November, 1991

RLAC/92/10 AGAIN-11

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Annexes

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The FAO Regional Office for Latin America and the Caribbean expresses its warmest thanks to all those who, through their work and active cooperation, have contributed to the organization and success of this Roundtable. In particular, our thanks go to the international and national participants and to the staff of the Department of Agriculture of the Ministry of Agriculture, Trade and Industry of the Bahamas.

The reports presented and the opinions expressed during the Roundtable are exclusively those of their originators.

The data and views expressed in this document do not imply the expression of any opinion whatsoever on the part of the Food and Agriculture Organization of the United Nations, in connection with the legal status of any country, territory, city or area, or of its authorities, or concerning the delimitation of its frontiers and boundaries.

Foreword

A roundtable on the Reduction of Post-Harvest Fruits and Vegetables losses through the Development of the Cottage Industry in the CARICOM Countries, was organized by the FAO Regional Office for Latin America and the Caribbean, with the collaboration of the Department of Agriculture of the Ministry of Agriculture, Trade and Industry of the Commonwealth of the Bahamas. The Roundtable was held in Nassau, from 6 to 8 November, 1991.

The Caribbean Technical Cooperation Network on Agroindustrial Development, established by the Regional Office, was responsible for the organization and implementation of the event. One delegate from each one of the 12 Caribbean Community countries and from Suriname (observer) and 28 delegates from the governments and from private institutions from the Bahamas participated at the event.

Each delegate submitted for discussion a country technical report describing the present situation, future potential and limitations which hinder the development of the cottage industry in his/her country. Considering the importance of the subject, the reports submitted by the participants are presented in this document.

The FAO Regional Office for Latin America and the Caribbean hopes that the publication of the Proceedings will prove useful for a better understanding of the cottage industry in the CARICOM countries and will contribute toward the development of this important agricultural sector.

Rafael Moreno R.
Assistant-Director General
Regional Representative for Latin
America and the Caribbean

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1. Background information

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The main objective of the FAO Plan of Action is to promote the development of industries and services in rural areas with the purpose of improving the quality of life. To pursue the above, rural areas must be developed. The objectives of the Caribbean Community Programme for Agricultural Development go along the same lines as those for the development of the rural sector.

The creation of small commercial enterprises for processing and marketing of the agricultural produce of small peasants would help develop the rural sector. To attain the above, it is necessary to train individual farmers and/or their associations in modern artisanal processing to make them aware of the possibilities offered by this technology to augment their income. Artisanal processing permits using simple and inexpensive equipment and material to obtain products of good quality which can be sold on the local market or utilized by the family during the off-season.

The introduction of an artisanal processing technology in rural areas where it does not yet exist, presents the following advantages:

- Reduction of post-harvest losses
- Added value to fresh raw material
- Improvement of the quality of traditionally processed products
- Improvement of the nutritional level of the peasants
- Availability of products during the off-season
- Incrementation of income and improvement of the standard of living of the rural population
- Integration of the rural activity into the market economy
- Generation of employment, particularly of women

The Caribbean Technical Cooperation Network on Agroindustrial Development (CAIDEN) created by the FAO Regional Office for Latin America and the Caribbean in 1984, has been the instrument for the consolidation of the above. The Network was actively involved in the implementation of Project TCP/RLA/4405 "Initial Processing of Agricultural Products at the Family and Community Levels in the Rural Areas", funded by the FAO Technical Cooperation Programme. Through the Project, it was possible to carry out an active exchange of information and technologies implementation of audiovisual material.

The Network also participated in the implementation of Project TCPlBAR/8885 1 "Development of Pilot Cottage Industry", also funded by the FAO Technical

Cooperation Programme. Technicians from eight member countries of the Caribbean Community, financed by RLAC, visited Barbados in March 1991 to observe a training course imparted by the Project and to discuss its possible relationship programmes. The participants recommended a sub-regional activity on cottage industry development.

Although each country, despite some obvious similarities, has different training needs and different resources with respect to the type of processing demonstrated, all the participants appreciated the simple but effective equipment used and the quality of the various products. Most of them expressed the need to organize national training courses for farmers, groups and entrepreneurs in the pilot plants already operating in most of the countries, using the equipment, material and technology demonstrated, adapting the training course to the needs of each country. Several participants stressed the importance of locally manufacturing in the sub-region the equipment seen, to be distributed in the rural areas. This would permit the creation of small commercial enterprises in the rural and urban areas at a limited cost.

The activity was limited to the English-speaking countries of the Caribbean Community. The participants represented the following countries: Antigua and Barbuda, Bahamas, Belize, Barbados, Dominica, Grenada, Guyana, Jamaica, St. Kitts and Nevis, Saint Lucia, St. Vincent and the Grenadines, Trinidad and Tobago and Suriname.

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2. Objectives of the roundtable

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The main objective of the Roundtable was the exchange of information for the creation and strengthening of small commercial enterprises for processing and marketing of the agricultural produce of small peasants to help develop the rural sector.

The second objective was the reduction of post-harvest quantity and quality losses through the introduction and dissemination of modern small-scale processing technologies.

The specific objectives of the Roundtable were the following:

a)Study and evaluate all the information available with the FAO Regional Office on the

development of the cottage industry in the rural area.
b)Discuss the needs and means available for the development and strengthening of small commercial enterprises in the rural area, with special emphasis on the role of women.
c)Discuss training needs, exchange of technical cooperation and plan a subregional strategy in line with the objectives of the Network.

The Roundtable placed emphasis on the discussions of the problems affecting the cottage industry as a whole and, in particular, technological aspects, availability of equipment, marketing strategies, credit schemes, administration and book-keeping of small enterprises, integration of production and the role of women.

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3. Country presentations

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3.1 Antigua & Barbuda

The agro processing industry in Antigua & Barbuda

Mr. Leonard Grant
Chemistry & Food Technology Division
Ministry of Agriculture

3.1.1 Background

Like in all the other Caribbean islands represented here, sugar and cotton have been the main agricultural crops. Sugar was harvested, made into what is called brown sugar, and then exported to England, where it was refined. Some of this refined sugar was reimported for local consumption. Cotton was harvested ginned, bailed and exported to England and made into cloth, some of which most likely was imported into Antigua/Barbuda. Fruits and vegetables were grown but not to the extent that would have needed any great amount of agroprocessing; they were mainly for the fresh market trade.

As things progressed in Antigua/Barbuda, the Government thought it wise to diversify its economy; so, a petroleum processing plant project was embarked upon. This, along with a small but growing tourism industry, took away some of the workers from the production of sugar and cotton.

By the 1960's, the profitability was decreasing because of shortage of labour and other

factors, so the company which produced sugar wished to go out of business and sought a purchaser for its sugar lands and the sugar factory. The Government bought out the company, hoping to turn around the industry and make a profit. However, the situation was bottoming out by 1970. To take off the sugar crop was becoming more and more difficult each year. After the sugar crop of 1971 was harvested and processed, the factory was closed for modernization; later, it went back into production but not to its former heights. The workers who did not find jobs elsewhere stayed on the land and produced fruits and vegetables; but, due to the market size of the country, a glut is likely to occur.

3.1.2 Agro processing

Before dealing with agroprocessing, let me make mention that Antigua/Barbuda had a laboratory facility dated back to about 1900. The laboratory did soil, water, milk testing, etc.; so, scientific and technical work are not new. About 1972, the laboratory was upgraded and called Chemistry and Food Technology, with the purpose of assisting with the processing of the excess fruits and vegetables. The members of the staff went to work in earness and solved the immediate problem.

3.1.3 Processing unit

The Government was encouraged by what was done at the Chemistry and Food Technology, and funding was sought to build some type of processing facility. In 1978, the British Development Aid donated a pilot processing plant. This was a scaled down version of what was requested. The reason which given was that Antigua/Barbuda suffers periodically from droughts, so a huge processing plant was not required. However, very good use was made of the pilot scale processing unit. Because of the good work of the people at the processing unit, a dilemma was brought about. Every year more and more farmers sold their excess fruits and vegetables at the pilot scale processing unit.

This unit is now functioning as a factory, which it was not designed for, and is known as the Produce Chemist Laboratory (PCL) throughout the region. When the PCL started, the idea was that the chemists along with the staff would assist farmers with processing technology so that eventually entrepreneurs (farmers) would come forward and a processing factory would be built. This never happened. The farmers still carry their excess fruits and vegetables to the PCL, which cannot cope with a glut situation.

3.1.4 Cottage industry

There are other agroprocessors in Antigua/Barbuda besides the Government processing unit. However, there are some problems. The Chemistry and Food

Technology Division gives technical assistant to the cottage type agroprocessors from time to time. They are helped with their quality and formulations so that these producers may have good products. Marketing is a problem with the small producers. It is a known fact that it is very difficult to get local products on the shelves of the very large supermarkets, despite the guarantees given. Some of these scale outfit take the product on consignment (credit) so a cash flow problem develops. There are also problems with packing materials; proper packaging materials are expensive; moreover, import duties and taxes are added to these items.

3.1.5 Government policy

As already mentioned, the Chemistry and Food Technology Division of the Ministry of Agriculture give assistance in training to the small agroprocessors from time to time. The Industrial Development Board is charged with responsibility of obtaining duty free concessions for locals. At times, this is difficult to arrange, so the agroprocessors have to pay these charges and add it to the products. This makes the local products uncompetitive in the market place. The Government has a policy with regard to local business but, although the small agroprocessors have to fit themselves under the programme, it is very difficult to obtain the incentives as stipulated.

3.1.6 Institutional assistance

Assistance is available from any Government Ministry or agency which is in a position to help. The Agriculture Department assists the farmers with the growing of their crops. The Chemistry and Food Technology Division assists with the technical

aspect of the processing of the fruits and vegetables. The Industrial Development Board assists with feasibility studies and cabinet decisions. The Ministry of Trade assists with licenses, statistics, and also cabinet decisions.

3.1.7 Equipment

The purchasing of any equipment is a major decision. Most food processing equipment is expensive. It is sourced from far off countries, so freight is high. In addition, duties and taxes produce more burden on the small agro processors. It must also be remembered that at times the equipment is paid for six months to one year before the processor gets possession of it. Therefore, a great deal of capital is tied up.

3.1.8 Conclusions

The paper deals with most of the information need by FAO. There are some items which I chose not to deal with; for example finance. Financing is available. There are a quite few commercial banks on the island. There is a great future for small scale

processing in Antigua.

3.2 Bahamas

Country presentation

Department of Agriculture Ministry of Agriculture, Trade and Industry

3.2.1 Background

Cottage industries do exist in the Bahamas, but on a very limited scale. Raw materials are available, especially during the winter months when gluts of various produce occur, and also tropical fruits are produced on small mixed farms or are found in the wild. The Government has instituted various policies and programmes, and enacted legislation to encourage the expansion of the agricultural sector through the development of agroindustries. There are some weaknesses in the development of agroindustries that need to be addressed, such as the cost of production of produce, the limited knowledge of processing technologies and financing. These problems will be addressed by the various Government institutions, such as the Department of Agriculture, the Bahamas Development Bank and the Bahamas Agricultural & Industrial Corporation. The development of agroindustries will:

a)Increase the income of farmers.
b)Provide employment opportunities and reduce unemployment.
c)Reduce wastage of agricultural products.
d)Reduce reliance on imported items and increase foreign exchange savings.
e)Assist in the diversification and strengthening of the Bahamian economy.

3.2.2 Present situation

1) Availability of raw materials: the cottage industry in the Bahamas consists of a mixture of individual farmers and small scale entrepreneurs. Due to the short seasonal nature of tropical fruits and vegetables, supply is not consistent; hence, there are periods of gluts and scarcities. Crops that are adversely affected by this erratic behavior are tomato, pineapple, mango, guava, avocado, got pepper, thyme and, to a lesser extent, corn. These crops are marketed through the Government Marketing System, the Packing Houses on the Family Islands and the Produce Exchange in Nassau and Freeport.

2) Financing: the Bahamas Development Bank and other Commercial Banks support local entrepreneurs who have the necessary collateral. The two major foodstore chain have shown a willingness to purchase locally processed products as long as they meet quality specifications, such as sanitary containers, with proper capping and labelling.

3) Equipment and technology available: the only type of equipment available to the cottage industry are kitchen utensils from the hardware stores and the hotel and restaurant supply stores. Appropriate technology is available from the Food Technology Complex.

4) Packaging material: some packaging material in the form of mason jars are available from local hardware stores, but these jars are very expensive and amounts are limited. The industry is currently reusing glass containers in the case of soda bottles new caps are used. The Food Technology Complex have sold bottles from its supplies to some individuals.

Staff from the Food Processing Unit have lectured to various church groups, at senior high schools, College of the Bahamas and teachers training workshops, and have held discussions with private individuals. There have been visits to the Family Islands with farmers to discuss the potential of food processing and also to meet with persons actively engaged in processing. The information was geared towards establishing small cottage industries. Demonstrations entailed proper bottling temperature, proper sanitary procedures, packaging materials, the use of weight and measure of ingredients and quality control. The cottage industries in the Bahamas is dominated by women; about 90 per cent of the persons engaged in processing are women.

3.2.3 Government policy for the development of agroindustries

The Government has recognized that the agricultural sector provides the greatest opportunity for the diversification and strengthening of the economy. To this end, the Government has initiated policies geared to encourage the expansion of agricultural production and the development of agricultural industries. The Government has also enacted various legislation that provide incentives to investors in agroindustries:

- The Industries Encouragement Act
- The Agricultural Manufacturers Act
- The Tariff Act.

3.2.4 The free trade zone Act

This series of legislation provides relief from customs duty in each respective area of activity on raw materials, machinery and building materials. The Free Trade Zone Act goes beyond the others in that it includes relief from stamp duties and export fees.

3.2.5 Land lease and land clearing

One of the major areas of increased support and funding involves a comprehensive land clearing and land lease programme for farmers throughout the Commonwealth.

The Government of the Bahamas owns some 2.0 million acres of land. Some of these lands have been identified as good agricultural land. The Government, through the Department of Lands, has instituted a land lease programme where farmers can lease the land for agricultural purposes. Farmers are able to have their land cleared with the Government financing up to 50 per cent of the cost.

The Agricultural Credit and Guarantees Fund is a credit programme which is used to facilitate agricultural and agro related loans. The Central Bank of the Bahamas is Trustee of the Guarantee Fund. The Ministry of Agriculture, Trade and Industry, the Bahamas Development Bank and participating commercial banks are cooperating in the implementation of the Agricultural Credit Programme. All loans are guaranteed against loss to the extent of 100 per cent of the uncollected loan principle. The Department of Agriculture has instituted a Crop Diversification Programme. This programme is aimed at encouraging farmers to produce crops other than the usual winter vegetables that glut the market during the winter months. This would allow a greater variety of raw materials for processing.

3.2.6 Institutional assistance

A. The Ministry of Agriculture. Trade and Industry

The Ministry of Agriculture, Trade and Industry is the principle government institution responsible for the development of agriculture, fisheries and the rural sector in the Commonwealth of the Bahamas. Its principle functions are:

a)To ensure greater linkages between agriculture, fisheries, tourism and the remaining sectors of the economy.
b)To reduce the dependence on imported foods.
c)To expand food production for the export market.
d)To use agricultural development in the creation of employment opportunities.

Besides its operating departments, the following institutions within the Ministry are closely related to agricultural development in the country:

- The Gladstone Road Agricultural Complex (GRAC), on New Providence
- The Produce Exchange and Packing Houses
- The Fish and Farm Store

B.The Bahamas Agricultural and Industrial Corporation

To encourage investment in the country, the Bahamas Agricultural and Industrial Corporation (BAIC) was established in 1981 as a central agency to assist all potential

private investors desiring advice on investment opportunities. BAIC is responsible for industrial and agricultural development and providing infrastructural support. It utilizes the United Nations (UNIDO) investor search networks based in New York and is developing a variety of projects for manufacturing activities as well as an investment guide. The Government, through BAIC, is also promoting the development of small and mediumsized industries by developing additional factory space, intended to create a frame work of new exportoriented, labour intensive industries.

C. The Bahamas Development Bank

The Bahamas Development Bank (BDB) is the main financial funding agent for agriculture and agrorelated industry. The bank was established by an act of parliament on 18 October, 1974, with the primary purpose to assist in the economic and technical assistance to Bahamian entrepreneurs in the areas of agriculture, fishing, marine and land transportation, tourism, manufacturing, service enterprises and other commercial operations. Although the dollar value of agricultural loans is insignificant and no loan was made for the cottage industry, in the case of agricultural project the bank will finance up to 80 per cent of the total project cost, with 20 per cent equity being the necessary input on behalf of the borrower. Agriculture and agrorelated loans are funded at 2 per cent below the normal rate of 12 per cent.

The BDB is funded by both domestic and external resources. The major sources of domestic funding are paid up capital, lines of credit and deposits from domestic institutions, such as the National Insurance Board and the Central Bank of the Bahamas. External funds are obtained through loan and lines of credit from regional and international lending agencies, such the Caribbean Development Bank, the InterAmerican Development Bank and the European Development Fund. In addition, the Government passed legislation that increased the authorized capital of the BDB from 10 million to 50 million. The capital base is expected to be strengthened with the injection of $10 million in equity over the next few years. These funds are being made available through the Government of the Bahamas by a loan of $6 million from IDB, signed in May, 1989. Under the loan agreement the Bahamas Government contributed $4 million.

3.2.7 Extension services and training

The Extension Unit of the Department of Agriculture is responsible for extension services and training. However, the officers at the Research Station also make extension visits. The extension officers are stationed in the Family Islands and provide various services to farmers. In the case of processing, requests will be made by the Extension Officer to have a Food Technologist visit his island to conduct training sessions. The extension services are directed at crop production, marketing

information, technical aspects of crop production and quality assurance.

3.2.8 Assistance in research and development

In 1984, the Food Technology Complex was established. Its main objective was to seek to expand and further develop the food industries through research and development. The Unit has researched many products; however, only over the last two years have we seen a keen interest in the development of cottage industries. The Unit offers to potential processors information on processing, as well as equipment sources and other needs. The Unit has also analyzed processed products for processors and offers suggestions on improving the products, if needed.

3.2.9 Technical, economical and organizational aspects of the development of small agroindustries

A. Weakness

a)The high cost of agricultural production and the variable quantity and quality of raw materials.
b)The limited knowledge of proper processing technology together with a lack of smallscale food processing equipments.

c)The lack of proper packaging materials.
d)The availability of trained personnel to man the enterprises.
e)Financing is available, but at regular interest rates.

B. Requirements

1) Raw materials: Agricultural production in the Bahamas is characterized by gluts and shortages due to seasonality of some corps. In the development of processing industry it will be necessary to grow raw materials specifically for processing. This will be achieved by:

- Development of contractual arrangements with farmers
- Planning of agricultural production
- Improvement of post harvest handling of crops
- Encourage the development of orchards of selected crops, ea. guavas
- Monitoring the cost of agricultural production.

2)Processing and training:

a)Training programmes must be conducted to train the farmers and entrepreneurs in the proper technologies for food preparation, preservation and processing, quality

assurance, financing opportunities, requirements and procedures.
b)Examine the methods of packaging with a view to addressing the high cost of containers and the non availability of containers.

3)Marketing: In order to stimulate the development of agroindustries, it will be necessary for the Government to displace imported foods by locally processed foods when the necessary management systems are in place and the local industry can produce products of good quality at reasonable prices. Opportunities for linkages with the tourist industry should also be fully researched and developed as a matter of priority.

3.2.10 Local honey production

Honey production in the Bahamas has been steadily increasing, especially over the past three years. This increase would be more significant had it not been for the availability of large quantities of imported honey, but also because farmers are unable to compete with the relatively low price of imported honey due to the presence of import duty on materials and equipment for local honey industry. Another contributing factor in the recent past was the unattractive packaging materials of the local honey. This situation is under review and there has been a degree of improvement. It is hoped that consumers will be supportive of the local honey.

Approximately $ 70,000 was spent on imported honey in 1989. The value of local honey was approximately for the same year was $ 22,000. Islands involved in honey production are: Abaco, Andros, Eleuthera and New Providence. Eleuthera produced about 51 per cent of all local honey in 1990. There is no information on production on the islands of Andros and New Providence; two possible reasons are that the producers wanted to restock, or producers are now only involved in honey production as a hobby. The Department of Agriculture is of the view that a tariff should be in place in order to protect local producers. Presently, about 33 per cent of the local honey producers are considering exporting their product to the U.S. market.

Table 1. Local honey production by island 1990

LOCAL HONEY PRODUCTION BY ISLAND 1990		
ISLAND	**PRODUCTION(LBS)**	**CONTRIBUTION(%)**
ABACO	1.664 *	7
ANDROS	5.188	0
ELEUTHERA	13.000	51
NEW PROVIDENCE	5.500 *	22
TOTAL	25.352	100

*** FIGURES FROM 1989.**

N.B. ALL OPERATORS IN ABACO DID NOT REPORT THEIR INFORMATION.

Table 2. Consumption and value of honey 1990 1994

TOTAL CONSUMPTION (LBS) Value SB					
YEAR	TOTAL	LOCAL PRODUCTION	QUANTITY IMPORTED	TOTAL	LOCAL
1990	24728	24728	***	32944	32944
1989	95531	11750	83781	90162	21328
1988	90925	7200	83725	78331	***
1987	107361	16650	90711	118916	45788
1986	81502	***	81502	70711	***
1985	93775	***	93775	85958	***
1984	151596	***	151596	52923	***

3.2.11 List of processors and Cottage industries processed products

- **Janet De Barros:Mixed fruit jam, Mint sauce**
- **St. Augustine's Monastery: Guava jam, Bread**
- **Sidney Sands Lime juice**
- **Debbie's Delight: Tamarind and soursoup, Yogurt**
- **Agatha Bellot Pepper: Sauce, Honey**
- **Evelyn Alfred: Mango, Guava, Tamarind, Lime juice, Gooseberry jam**
- **Beth Stuart: Pepper sauce**
- **Barbara Yaralli: Chutney**
- **Charles Reid Spices**
- **Jimmy Berdanis: Mango jam, Honey**
- **Mennonites: Potato chips**

3.2.12 Summary of proposal

A. Background

The development and strengthening of the food industry has been identified as a

means of diversifying the agricultural sector and so, aid in the diversification of our tourist based economy. The Bahamas imports some $3 million dollars of sauces, including hot sauce. By processing the hot sauce locally, we can reduce the flow of foreign exchange, provide employment, increase the market and encourage the production of hot peppers.

B. Objectives

a)To increase the income of farmers.
b)To provide employment opportunities and reduce unemployment.
c)To reduce wastage of agricultural products during gluts.
d)To reduce the reliance on imported hot sauces and thus increase foreign exchange savings.

C. Programme of activities

a)Develop product.
b)Conduct marketing survey.
c)Obtain the necessary finances from the Development Bank.
d)Obtain crown lands from the Government on which to construct the plant.
e)Obtain the necessary licenses and incentives such as duty free concessions.

f)Construct plant.
g)Purchase equipment, packaging materials and ingredients.
h)Arrange contract agreements with farmers to purchase peppers.

D. Equipment requirements

1)Storage of raw materials:
-scale

2)Preparation:

- **galvanized steel tank**
- **vegetable cutlers**
- **tray table blencher**
- **brining vats**
- **mincer/grinder**

3)Formulation:

- **steam jacketed kettles**
- **polythene drums**

4)Bottling:

- **filler**
- **capper**
- **steam blencher**
- **labelling machine**

3.3 Barbados

Present status and future potential of the cottage agro industries in Barbados

Ms. Gloria Gooding Agricultural Aide Ministry of Agriculture

3.3.1 Introduction

Agriculture has declined in importance over the years as a major contributor to the country's GDP, but it continues to be an invaluable asset to the economic development of Barbados. The provision of food must continue to be one of the basic functions of the Agricultural Sector as the prevailing imbalance between food imports and exports tend to have an adverse effect on the balance of payment position. Government continues to pay particular attention to this situation and has

undertaken measures to diversify by encouraging increased domestic food production, in an effort to address this agricultural trade balance by increasing agricultural export earnings and reducing food imports to the lowest possible levels. Some other benefits to be derived from this increased production are:

- **establishing the level of employment in the agricultural sector**
- **improving farmers income so as to raise the standard of living of the agricultural community**
- **increasing domestic production of several processed foods currently being imported, ea. peanut butters, jams jellies, dried herbs, etc.**

3.3.2 Food supply

Sugar is still the most important crop accounting for about 40 per cent of commodity export and employing over 10 per cent of the total labour force. Its production has, however, declined steadily from 172,000 tones between 1950 and 1968, to about 60,000 tons today. Over this same period, fruit and vegetable production has also increased from 300 acres in 1969 to about 2,000 in 1981 and continues to increase. Some factors contributing to this increase in food production in particular are:

- **the establishment by Government of a fruit tree nursery**

- **the sale and distribution of fruit trees at reasonable prices**
- **the establishment of a national fruit orchard**
- **organizing of the Spring Hall Land Lease project**
- **a system of incentivesrebate on establishment/development of orchards by small producers**
- **-export market development.**

3.3.3 Marketing system

Due to the lack of an organized group of cottage industry owners/workers, no structured marketing systems are in place. Most of these entrepreneurs do their marketing by personal contact with business houses, small village shops, and a one to one basis. Advertising by the print and electronic media is also used by the more established individual entrepreneur.

Table 1. Some selected produce available in quantities to support cottage industry development

RAW MATERIALS AVAILABLE		
PRODUCE	**QUANTITY**	**SEASON**

Banana	Moderate	Feb.- July
Carambola	Limited	Jul.- Nov.
Cherry	Moderate	Jul.- Dec.
Coconut Dried	Moderate	All year
Dunks	High	Nov.- Feb.
Golden apple	High	Oct.- Jan.
Guava	Moderate	All year
Mango	Limited	Apr.- Aug.
Passion Fruit	Limited	Oct.- Jan.
Paw Paw	Moderate	All year
Vegetable/Roots		
Breadfruit	High.- Mar.	
Carrots	Limited	Dry Season
Cucumbers	Moderate	All year
Hot pepper	Moderate	Sep.- Jan
Onion	Limited	Feb.- Apr.

Sweet potato	Limited	All year
Cassava	Limited	Nov.- Feb.
Others		
Thyme	Moderate	All year
Marjoram	Limited	All year

3.3.4 Financing

Most of these small enterprises are normally started with personal finance. There are some who seek funding through loans from the National Development Foundation, Women In Development or the Barbados Development Bank. Each agency sets up its own loan qualifying requirements.

3.3.5 Ownership

Cottage industries in Barbados are most privately owned and operated by family members. Since most of these enterprises are operated from the family kitchen/home, equipment used falls within the category of house hold equipment, which is readily available. Some pieces of commercial equipment are available at the local agents.

When commercial equipment is used, agents or importers arrange for technicians to service and maintain this equipment.

Table 2. Products now being produced in the cottage industry in Barbados

PRODUCTS AND CATEGORIES		
PRODUCE	**PRODUCTS**	**CATEGORIES**
Banana	Chips, Jam, Wine Vinegar	Snacks
Carambola	Dried fruit, Fruit syrup	Snack, Drink
Cherry	Jam, Syrup, Wine	Sweet
Coconut Dried Dunks	Candies	Candies
Golden apple	Jam, Chutney, Fruit syrup, Wine	Sweet
Guava	Jam, Jelly, Stewed fruit Wine	Sweet
Mango	Jam, Jelly Stewed fruit, Chutney	Sweet
Passion Fruit	Fruit syrup, Canied fruit	Sweet

Paw Paw	Jam, Stewed fruit in syrup	Sweet
Breadfruit	Chips, Wine	Sweet
Carrots	Bottled pickled, Wine	Savoury
Cucumber	Pickle	Pickle
Hot pepper	Hot pepper sauce, Bajan	Condiment
	seasonings	Condiment
Onion	Bajan seasonings	Condiment
Sweet potato	Chips	Snack
Cassava	Starch, Flour	Flour

NB: Wines and liqueurs are produced using most of the above.

3.3.6 Packaging materials

The nature and categories of processed foods allow for the use of two types of packaging materials, i.e. glass bottles and poly/plastic bags.

3.3.7 Training/extension

Training needs in the area of food processing is limited to the formal education system, i.e. at an institution such as the Samuel Jackman Prescod Polytechnic, supplemented by the Young Women's Christian Association (YWCA) and the Girls Industrial Union. In addition, some training is offered occasionally by the Barbados Agricultural Development Cooperation's Processing Unit. Business training is made available by the funding agencies W.I.D. and the N.B.F.

3.3.8 Research and development

Research and development needs are currently being done by the recently established processing unit at the Barbados Agricultural Development Cooperation, whose primary function is the development of products using locally produced fruit and root crops; this technology will be passed on to processors.

3.3.9 Participation of women

A survey by this participant in a number of supermarkets reveal that most of the local food products reaching the consumer in any quantity are being produced by women. Lending agencies also confirm that most of their applicants are women. Women also

outnumber men in the business training courses being given by these agencies.

3.3.10 Government policies

The Government will seek to ensure that all those who earn their livelihood from agriculture are able to enjoy a reasonable standard of living. This will be achieved through the following:

- **introduction of measures to help stabilize farm prices**
- **promotion of contractual arrangements for the production and marketing of agricultural produce**
- **payment of remunerative price for farm produce wherever possible**
- **establishment of agro processing facilities.**

In order to better ensure transfer of technology to the small farm sub sector, the research and extension service will devise a special outreach programme. The programme will make use of modern communication techniques. The land shortage problem will be addressed through the implementation of new land settlement schemes. These schemes, however, will be carefully designed so that the experiences within Barbados or within the wider Caribbean area can be exploited. In general, the Government will strive to ensure that the most efficient production and management

technology can be brought to bear on the agricultural production process, so that the farm productivity can be maximized and farm profits optimized to the benefit of the farm population.

The Government expects that during the years ahead, the BADC will pay ever increasing attention to its developmental role. In this connection, the corporation will seek to contribute substantially towards:

- **production of export commodities**
- **increased food production**
- **establishing new agricultural enterprises, and**
- **promoting agro-industrial development.**

Emphasis will be placed on the promotion of large and medium sized agro processing operations, as well as the cottage industries.

3.3.11 Proposal for the development of a small commercial enterprise goldenapple project

a)Jam and chutney.
b)Puree to be supplied to hotels and fast food industries.

c)Nectar to be used in the drink industry.

3.3.12 Background and justification

With the diversification of agricultural production, the establishment by the Government of the fruit tree nursery, the sale of fruit trees, and the establishment of fruit orchard, fruit production has increased. Production far outstrip the local fresh consumption, whereas limited quantities of this fruit is now being exported. Harvesting and marketing is also very unorganized and much of this fruit falls to the ground, where it remains and rots.

Farmers could greatly improve their income if they had appropriate harvesting equipment, technology for storage and processing facilities at the family level to demish crop losses through spoilage during the glut season. Processing into one or more of these product would extend the shelf-life and help the farmer obtain a better price for this crop. The economic climate at present suggest that efforts be made at reducing the need to import items that can be produced locally.

3.3.13 Objectives

a)To utilize the excess produce not taken by the fresh and export markets.

b)To prepare and present fruits in other forms, during and out of season.
c)To encourage local families to develop attitudes and potential for business ventures.
d)To encourage the family to be responsible for its own economic development through pooling resources.
e)To maximize the use of the limited finance available.

3.3.14 Progranune of activities

a)Identify the family for additional training.
b)Development of skills through follow up training in product development to marketable standards.
c)Identify a source of raw materials.
d)Make financial arrangement, funding.
e)Purchasing of supplies and additional equipment.

3.3.15 Processing and preparation

a)Inspection of raw materials.
b)Weighing of standardize quantities.
c)Washing, peeling, cutting.
d)Blending.

e)Heat treatment.
f)Bottling and labelling.

3.3.16 Equipment and utensils required

Field crates: plastic Pickers and nets Weighing equipment scale Bowls: plastic/stainless steel - various sizes Knives: paring knives, utility knives Spoons: wooden and metal with heat resistant handles Funnel: wide mouth for easy filling of containers Jar lifter: for handling hot jars Cutting Board: wooden or plastic - cutting and handling food Strainers: plastic and metalholding fruit, straining, etc. Pails with covers: storage of pre-processed foods Tubs: plastic and in various sizes to hold food for different jobs Saucepans: flat bottoms well fitting covers heat resistant handles Pressure cooker, to ensure commercial sterility of acid foods Stove with several surface burners (gas or electricity) Sink: double sink and drain board stainless steel Cool Storage: refrigerator, to hold food at low temperature Thermometers, to measure temperature of product being process Heat sealer: heat seal plastic bags containing processed foods Measuring cups: heat resistant Measuring spoons, pH meters for measuring acidity in jams and jellies.

FIG.1.SUMMARY OF SUB-SECTOR PROGRAMMES

FIG.2.SUMMARY OF SUB-SECTOR PROGRAMMES

FIG.3.SUMMARY OF SUB-SECTOR PROGRAMMES

FIG.4.SUMMARY OF SUB - SECTOR PROGRAMMES

FIG.5.SUMMARY OF SUB-SECTOR PROGRAMMES

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3.4 Belize

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The cottage industry in Belize

Ms. Brenda Garbutt Women Development Officer, Department of Women's Affair Ministry of Social Development

3.4.1 Summary

The cottage industry in Belize is comprised of micro branches scattered all over the country; these are small business managed by grassroots farmers and market vendors. Belize being an agriculture country, is blessed with an abundance of raw materials (fruits, vegetables, roots and tubers). Main exports include sugar, citrus and bananas. The cottage industry is further supported and strengthened by input from local government through the village councils and Town Board, and from the central Government through the Marketing Board and finance corporations. The Government Agriculture Department provides technical assistance to the farmers, while the National Development Foundation and other agricultural federations conduct training for them in entrepreneurship development.

The majority of the cottage industries are managed by women trained by the Government department of Women's Affairs, and most of the raw materials are produced by these same women in the fields. The Government and NGO's (nongovernment organizations), through funding agencies, such as the U.S. Agency for International Development and the Inter-American Foundation, provide for training overseas and the entrepreneurs enjoy this opportunity. The cottage industry continues to grow and expand and it is hoped that soon there will be one unified private sector or small business association, complemented and supported by the government and

people of Belize.

3.4.2 Country report

Belize is one of the less developed countries of the Caribbean Community, with a multiracial population of about 200,000, in an area of about 9,000 square miles (23,326 square kilometers); it has a population density of about 20.2 per sq. mile. It is situated on the Central American mainland with big neighbors like Mexico, in the North, and Guatemala, in the West. Yet, this tiny nation, which on 21 September, 1991, marked its tenth year of independence from the British after about two centuries of colonial rule, has a crucial role to play, as an English and Spanish speaking country, with a stable Government which operates on the principles of British (Westminster system) parliamentary democracy in bridging the two sub-regions of the Caribbean and Central America.

This small country has a small productive sector, which is very limited in the development of its resources and with an economy heavily dependent on agriculture, mainly sugar; this crop is the country's most important source of foreign currency and when the price of sugar dropped, the farmers diversified, especially with citrus fruit, bananas, vegetables, roots, tubers and products from the sea. Belize is now boosting its tourism potential with a new thrust towards the promotion of ecotourism and El

Mundo Maya. El Mundo Maya is an integrated private sector achievement in the facilitation of regional cooperation with the objective of developing and promoting the archaeological, environmental and cultural attraction of the region.

The Government recognizes the important role which the private sector, led by the Belize Chamber of Commerce and Industry, has to play in the process of development and has declared that it is committed to the maintenance of an economic environment conducive to private investment. The Belize Chamber of Commerce and Industry, as a major proponent of the entrepreneurial spirit, fully endorses a new world order based on economic rather than political ties, especially for small peripheral economies such as Belize's which are forced to develop their industries and other potential with little resources.

It is a signal that despite the maxim that small is beautiful, there is less and less advantage to being small and more advantage to being big -or both- in that we must do everything within realism and common sense to strengthen the Caribbean Community, the Latin American/Central American Economic/Caribbean partnership and not fall prey to the dazzlement of foreign products.

The key to survival means that the country must become more competitive. The following are some important ingredients which should contribute to the survival of

businesses in small, fragile economies like Belize if we are to face international competition. There is need for development of product ranges in which the country has comparative advantage and a competitive edge. We must also keep abreast of technology to conditions prevailing in the country. A serious approach should also be taken towards the development of appropriate technology. It is necessary to put into higher gear the training required to boost a skilled and productive workforce, which will be appropriate to our development needs. Roads, tale-communications, drainage, irrigation, storage facilities, adequate quarantine monitoring, and support facilities and port facilities, must be put in place.

Whilst market opportunities exist, if the country cannot respond to take advantage of these markets because of lack of flexibility in production due to poor physical and institutional infrastructure, then market opportunity will pass us by. We recognize that while these developments have been taking place on a sustained basis, there is clearly a need for massive investment with assistance from international development agencies. At the same time the institutional infrastructure such as an extensive, financial system for provision of credit, government support facilities and a capital market must also be put in place.

The Agriculture Department in Belize has the mammoth task of co-ordinating and overseeing all agricultural-related activities in the country. This task goes beyond just

providing technical advice, seeds, seedlings, pesticides, fertilizers and other farming inputs. The Agriculture Department also aids by providing land clearing land preparation and harvesting equipment as well as threshers. The Ministry of this department has acquired its own road unit, which has been very busy opening new farm roads and maintaining existing ones, in collaboration with the Ministry of Works.

Until 1984, Belizean business-persons engaged in small business ventures found it virtually impossible to get credit to establish or expand their business. For one thing, the traditional credit institutions were not usually prepared to lend money without adequate an collateral and needed a high degree of certainty that the loan would be repaid. In other words, traditional credit institutions took little risks since they were in business primarily for profit. There was a need, therefore, for a non-conventional funding source for small business people who did not qualify for loans from traditional credit agencies. That longfelt need was fulfilled with the formation on 5 January, 1983, of the National Development Foundation of Belize (NDFB). The Government of Belize and the United States Agency for International Development (USAID) contributed 1.0 M for a three year project which led to NDF/B's establishment. The private sector business community provided seed funds amounting to $150,000.

NDF/B is administered by business and civic leaders to provide loans, business guidance and technical assistance to struggling small businesses and projects that

normally would not qualify for commercial borrowing. NDF/B haps the small person improve herself/himself and the family's well-being economically and socially, by improving production, productivity and management with loan funds and technical assistance.

For non-storable commodities, such as fruits and vegetables, national policy focuses on food processing to utilize produce that is surplus for fresh market use. Government policy encourages the increase in food processing where feasibility studies demonstrate potential success. The objectives are to increase income, become more selfsufficient in food supply and reduce foreign exchange expenditure on these items. Our food items include, for example, fruits such as mangoes, pineapple, etc. Mango production in Belize has been quite variable from year to year, mainly due to weather conditions during blossom time. The vast bulk of production in recent years has been from the 1,000 acre mango farm of the Tropical Produce Company. This firm has exported most of its production. Potential production from the Tropical Produce farm is estimated at up to 5 million pounds from presently bearing trees.

Belize was the third largest supplier of mangoes to the U.S. market, behind Mexico and Haiti. Mangoes entering the U.S. market must be treated for fruit fly and they fit the profile of good fresh fruit export crop for Belize, that is a relative high priced highly perishable item which must be air freighted to many parts of the U.S. market by all

competitive suppliers. Vegetable production for local markets has been characterized by numerous small scale producers providing items of quite varied quality, with periods of gluts and scarcity of supply. Farmers are cultivating over 6000 ares of vegetables for export, with a value of $12-15 million. Local markets prices for fresh vegetables have shown wide fluctuation for locally produced seasonal crops, such as tomatoes and sweet peppers, with much less variation for that mainly imported items, such as potatoes and onions.

Because of the small size of the domestic market, any large increase in vegetable production (with the exception of onions, potatoes and cabbages) would have to be exported. Attempts to export fresh winter vegetables to the U.S. have not been profitable on a sustained basis. Factors which have negatively affected the industry are transportation problems, high cost of inputs, unexpected plant disease and insect infestation, and lack of post harvest technology.

Because Belize is at a competitive disadvantage in supplying vegetables which can be trucked from Mexico or shipped from deepwater ports in Honduras, Guatemala and the Caribbean, it would seem advantageous to concentrate on high value, quickly perishable vegetables which must be airfreighted by competitors as well. Roots and tubers such as cassavas, cocoa, sweet potatoes and yams are grown through the country and are sold to the small trade persons, cottage industries and other market

vendors. There is greater demand for cassava in the southern-most parts of the country, where it is processed and converted into bread for consumers on a daily diet. Because of the perishability of these crops and the lack of appropriate technology, they are grown mainly for local consumption, with very little being exported to neighbouring border towns.

Agriculture development is an essential and high priority national goal. Success means food security for the citizens, economic expansion for farm families, improved management of our human and natural resources, and a more positive investment climate. We believe Belizean agriculture is entering a dynamic period of growth and change. It is incumbent upon Government that we seize the initiative and design national policies that maximize the opportunities before us.

3.5 Dominica

Cottage industries in Dominica

Ms. Claudia Bellot Produce Chemist Ministry of Agriculture

3.5.1 Summary

Cottage agro-industries in Dominica are based on citrus, bananas, soya beans, sorrel, spices, cocoa beans, herbs Spices and fruits. The total numbers of industries have declined over the past five years due to migration of persons involved. However, the operating industries are functioning satisfactorily. The Government supports agroindustry as a means of diversifying the island's economy and fiscal incentives are available to qualifying projects. Various institutions have been set up to assist entrepreneurs with finance and technical assistance. The constraints include availability of appropriate and constant supply of raw materials, suitable equipment for processing and quality control measurements. An extension service for small agro-processors is also required. Intra regional cooperation should include information sharing and training. Support services by the private sector would also assist industries growth. These include suppliers of packaging, ingredients and equipment.

3.5.2 Status of cottage agro industries

Cottage industries are created in different ways: private entrepreneurs with processing ideas and capital; cooperative groups initiated by governments departments, e.g Youth Development Division, Women's Bureau, private entrepreneurs with ideas supplied by R&D Institution and capital from bank or lending agency. Ownership is mainly private and 57 per cent of owners are women. Very few farmers own processing operation.

Financing for small scale agroprocessors is available from agencies such as the National Development Foundation, a private non-governmental organization which provides loans at reduced interest rates and technical assistance to small business. The agency provides business counselling through field officers on a regular basis. The agricultural industrial Development Bank also provides loans for processors, but operates along commercial bank policies.

Marketing is usually done directly by the processors to retail outlets all over the island. The products are sold in supermarkets, small shops and stores (in various parts of Dominica), and in tourist stalls and booths. Financing originates from development agencies in the form of small loans, grants and small amounts of private capital. Equipment and packaging material is not available in Dominica, except for small kitchen type balances and polyethylene bags. Most equipment and packaging is imported from the United States, Europe and the Caribbean. Equipment and packaging tends to be costly and can comprise as much as 50 per cent of the total product cost.

Table 1. Products manufacture at present

Banana chips	Bananas	Cooperative group	Female
Plantain chips	Plantains	Private individual	Male

Fruit wines	Passion fruit Ginger	Private individual Women's group	Female Female
Dried sorrel	Sorrel	Women's group	Female
Tofu	Soya beans	Cooperative	Male
Soy products Snacks, cereals	Soya beans	Cooperative	Female
Dried spices	Spices	Private company	Male
Herbal teas	Herbs		
Guava jelly	Guavas	Private individual	Female
Pineapple jam	Pineapples	Private company	Male
Orange marmalade	Oranges		
G/Fruit marmalade	G/Fruit		
Hot pepper sauce	Hot peppers	Private individuals	Female
Alcoholic punches	Limes	Private individuals	Male
	Passionfruit		
Cocoa sticks	Cocoa beans	Private individual	Female
Crystalized fruit	Pawpaw	Private individuals	Male

Training is usually accomplished on-the-job, and from participation in workshops and short courses in the region. The Caribbean Development Bank's CTCS programme organized a one week workshop for small agro-processors in January, 1990. The produce chemist laboratory of the Division of Agriculture provides an extension and advisory service for small scale processors. Research and development is also carried out by the laboratory on behalf of processors and on products regarded as having marketing potential. These processing packages are then offered to private companies/groups for full commercialization.

3.5.3 Government policies

The Government encourages agro-processing as a means of diversifying the economy away from bananas. The main thrust of the Ministry of Agriculture's policy is agricultural diversification, the objectives of which are to:

- **increase foreign exchange earnings**
- **increase productivity and profitability in agriculture**
- **promote processing, preservation and storage of agricultural produce**

- **improve food security and the nutrition status of the population.**

The Government provides budgetary allowance to the Produce Chemist Laboratory for research and development purposes in the field of food processing. Projects to further develop agro-processing are also well supported and presented to funding agencies for financial support. Through the laboratory, small processors benefit from advice, use of pilot plant equipment and lease of small equipment and instruments. The laboratory also carries out research and development activities in its pilot plant on behalf of processors.

Fiscal incentives are given to qualifying industries. The incentives includes duty free concessions on vehicles, equipments and supplies; product quality control checks is also provided for all small processors by the Produce Chemist Laboratory. The Government has also recognized the importance of allocating adequate man-power to work in the area of agro-processing. Budgetary constraints have limited the staff employed to service the processing sector. Presently, one member of the staff of the Division of Agriculture is pursuing studies in Food Technology in the United States.

3.5.4 Agro-processing is limited in dominica by several factors:

a)High cost of equipment and packaging material.

b)Lack of reasonably priced raw material.
c)Small domestic market for marketing product.
d)Lack of on-going training for workers in processing plants.
e)Lack of extension service for agro-processing.
f)Competition between fresh fruit market and processing sector for raw material supply. This often results in high cost of raw material.
g)Competition for production of raw material for processing from export crops, e.g bananas.
h)Insufficient attention given to varieties of raw material suitable for processing.
i)Lack of utilities, pipeborne water and electricity in some rural areas.

The requirements for stimulating greater development of the agro-processing sector must be included in the country's agricultural sector plan, so that it can be integrated into the development plan for agriculture. The policy on agro processing must take into account its close dependency on continuous production and availability of raw material, sound infrastructure (e.g. electricity, water) reliable markets and a well trained work force. There must be a support organization, well equipped and staffed, to provide advisory services, technical assistance and quality control services on a regular basis.

Further stregthening of all these subsectors is required. Intra-regional activities should

support the national programmes and not put added burdens on the currently over-worked national system. Intra-regional activities which help to strengthen national programmes could include:

a)Information sharing through the CAIDEN Newsletter.
b)Improving the documentation of research activities through the use of acomputerized data base.
c)Providing research and development institution with more access to literature; journals, reference books, etc.
d)FAO to make available a Caribbean Agro-industries Officer who would visit the islands and conduct training programmes for agro-processors on an annual basis.
e)Upgrading research and development organizations in areas of need, e.g equipment, instruments.

3.5.5 Summary proposal

A. Background and justification

The contribution of agro-industry to Dominica's economic growth and development is significant for several reasons:

a)The country's need to diversify the economic base away from bananas.
b)The need to increase export earnings.
c)The need to increase the income of rural population.
d)The need to reduce losses of agricultural crops.
e)The need to transform primary raw material into convenient and nutritious products for use by the population.

The agro-processing sector has been constrained by several factors. These factors must be removed or minimized if further growth is to be realized. In its efforts to diversify the economy, the Government has been placing greater emphasis on tourism. Tourist arrivals into Dominica have increased in the last five years. The Tourism Division is looking to the agricultural sector to support its emphasis on nature tourism. The Division is encouraging hotels and guest houses, and rural community to make locally produced foods available for tourists. Hence, further demands will be placed on the agricultural sector to produce these foods. Agro-processing, particularly in rural areas, will become critical. The objective of this proposal is, therefore, to provide training and infrastructure to support further development of agro-processing to meet these needs.

3.5.6 Objectives

1) To provide training to current and potential processors, particularly in the rural

areas on an annual and on-the-job basis.
2) To upgrade the equipment and instrumentation and literature at the Produce Chemist Laboratory to enable the lab to better service and advise agro-processors.
3)To investigate the market potential of new products.

3.5.7 Programme of activities

At least one national training programme will be held annually for small scale agroprocessors. The programme will be conducted in two areas of the island, the North and South. Training will be based on principles of agro processing and quality control.

3.5.8 Activity - two trueing workshops for small agro processors annually

1)Locate and purchase equipment, instruments and literature for the Produce Chemist Laboratory.
2)In collaboration with the Dominica Import Export Agency, conduct trials on potential processed products and conduct test market exercises to determine the market potential of these products.
3)Establish a system of on-the-job training for worker of agro processing operations. This activity will depend on the availability of additional trained staff at the P.C.L.

3.5.9 Equipment requirements

The Produce Chemist Laboratory requires equipment for its Pilot Plant for research and development activities. These include: Food freezers, Food choppers and slicers, Deep fat fryer, Bottle cappers, Heat sealers (vacuum), Citrus juice extractors, Bottle sterilizers, Small pasteurizer, Steam generator.

3.6 Grenada

Country presentation

Ms. Heida Rahim Food Technologist, Produce Chemist Laboratory Ministry of Agriculture

3.6.1 Summary

In spite of Grenada's comparative advantage vis-a-vis the other OECS territories in the area of agricultural raw material production, agro-processing remains relatively undeveloped, contributing very little to total industrial output (6%). The agro-processing sub-sector, which is the smallest segment of the local industrial economy, is dualistic in nature, with production and employment dominated by only a few

enterprises operating along commercial lines, while there are several individual producers operating along "home industry" or cottage lines.

Production is geared towards satisfying an internal consumer market. Although limited export opportunities exist at the moment, the potential can be tremendous, if only measures are taken to expand the current production base, and improve on product quality, packaging and presentation. The importance of the agro-industrial sector at the present time, therefore, is derived not from its ability to contribute to the GDP and the growth of a working class society, but from its ability to foster self reliance, independence and the growth of indigenous skills, through self generating income opportunities, and ultimately the creation of an agro-industrial culture in the rural communities of Grenada.

This report examines the current status of agro-industries throughout the country, and the need for a suitable climate to facilitate the proper operation and development of these industries. The roles of the Government, non-governmental organizations and the private sector are outlined.

3.6.2 Current status of agro-processing in Grenada

It is clear that there has been significant growth in the number of commercial

businesses active in the food and beverage processing sector over the past six years. A recent survey (1990) identified 83 agro-processing businesses in Grenada, as compared with 19 in 1984. As shown in Table 1, 20 were classified as factory-based, 22 as cottage industries, and 41 as home-based. Of these enterprises, 42 per cent are owned and directed by women.

Table 1. Agro processing Organizations in Grenada - 1990

NAME OF ORGANIZATION	COMMERCIAL LEVEL	PRODUCT CATEGORIES	GENDER OF PRINCIPALS
Greenfruit	Factory	Spice-, syrupa, seasoning,	Female
Women 'a Co-op		sauces chutney, candies	Male
N. Simon	Factory	Fish	Male
Barte Meats	Factory	Meat, poultry	Male
Viking	Factory	Dairy, juices	Male
Funtime	Factory	Seamoss, syrups	Hale
Minor Spices	Factory	Spices	M & F

Cooperative			
Nutmeg Coop	Factory	Nutmeg	M & F
Grenada Foods Ltd.	Factory	Syrups, jams, Jellies, sauces alcoholic bevs, pasta, ketchup, seasonings	M & F
Grenada Sugar	Factory	Alcoholic bevs.	Male
Fact.			
River Antoine	Factory	Alcoholic bevs.	Male
W. Nyack	Factory	Alcoholic bevs.	Male
Mahbobani Snack	Factory	snacks	Male
Foods			
Nick 'a	Factory	Pasta	Male
E.T. Industries	Factory	Pasta	Male
Blue Danube	Factory	Bakery goods	Male
Ideal	Factory	Bakery goods	Male

E. Thomas	Factory	Bakery goods	Male
Grenada Cassava	Factory	Dried root crops	Female
M. Regia	Home	Snacks, jams, jellies	Female
Shabazan	Cottage	Juices	Male
Island Pride	Cottage	Non-alcoholic & alcoholic bevs., snacks, seasoning	Male
Lewis, LaDigue	Cottage	Meat, poultry	Male
Sugar & Spice	Cottage	Dairy	Male
D. Moses	Cottage	Essences	Male
Richards	Cottage	Essences	Male
G. Thompson	Cottage	Spice, flour, cocoa products	Male
B. Francis	Home	Snacks	Female
Birchgrove	Cottage	Jams, jellies, syrups,	Female
Homemakers		sauces, candies	
Tivoli	Cottage	Jams, jellies, syrups,	Female
Homemakers		sauces, candies	

DLT Enterprises	Cottage	Mineral water	Male
D. Neckles	Home	Syrups, candies	Male
L. Williams	Cottage	Syrups	Female
de Lagrenade	Cottage	Syrups, jams, jellies, candies, alcoholic bevs.	Female
Grenada Wine	Cottage	Fruit wines	Male
Cooler			
Grensave	Cottage	Coconut oil	Female
Arawak Island	Cottage	Spices, herbal teas	Female
Coffee Plant	Factory	Coffee	Public
Sector			
Joydon	Home	Pepper jelly	Female
R. Carter	Cottage	Juices	Male
Imagination	Cottage	Bakery goods	Male
Spice Island	Cottage	Herbal teas	Female
Perfumes			

J. Stephens	Home	Candies	Male
R. Gahagan	Home	Cocoa products, candies	Female
Tempe Home	Home	Syrups, juices	Female
Industries			
T. Charles	Home	Seasoning, pepper sauce	Female
M. Parka	Home	Jams, jellies, candies, apices	Female
G. Rouse	Home	Syrups, juices	Male
G. James	Home	Cocoa products	Male
J. M. Yepes	Home	Honey products	Male
B. Baptiste	Home	Honey products	Male
D. Bernard	Home	Honey products	Male
B. Wilson	Home	Honey products	Male
National Tasty	Cottage	Pepper sauce	Male
Pepper Sauce			
Lonniea	Home	Jam, jellies	Female
Enterprises			

J. Grenade	Home	Jam, jellies	Female
L. Robinson	Home	Jam, jellies	Female
J. Henry	Home	Plantain chips	Male
J. Whiteman	Cottage	Juices	Male
M. Langaigne	Home	Alcoholic bevs.	Male
Caprocorn	Home	Alcoholic bevs.	Female
Enterprises			
C. Wilkinson	Home	Fruit wines	Male
V & N	Home	Alcoholic bevs.	Female
Tradition	Cottage	Alcoholic bevs.	Male
G. Romain	Home	Alcoholic bevs.	Male
C. Gulston	Home	Pepper sauce	Female
U. Gulston	Home	Seasoning, chutney	Female
Theley'a	Home	Pepper sauce	Female
L. Vibes	Home	Plantain chips	Female
Maria' a	Home	Peanuts	Female

Grace	Home	Peanuts	Female
Richie's	Home	Peanuts	Male
M. Douglas	Home	Bakery goods	Female
B. Ferguson	Home	Bakery goods	Female
Homemade	Cottage	Bakery goods	Female
Grey	Home	Bakery goods	Male
L. Scott	Home	Bakery goods	Female
P. Fullerton	Home	Bakery goods	Female
C. Edwards	Home	Bakery goods	Male
S. White	Home	Bakery goods	Male
G. Munroe	Home	Bakery goods	Male
L. Joseph	Home	Bakery goods	Male
J. de Coteau	Home	Bakery goods	Male

Table 2: Raw material available - 1990

COMMODITY	QUANTITY (000 lba)

Cocoa	600 "surplus"
Nutmeg Pods	6 000
Bananas	500
Coconut	557
Sugar Cane	37 400
Guava	85
Mango	3 200
Tamarind	386
Papaya	333
Ginger	1 320
Grapefruit	3 500
Lime	200
Hot Pepper	1.4
Breadfruit	3 000
Plantain	1 400
Minor Spices	135

Clove	
Cinnamon	
Tumeric	
Pimento	
Soursop	2 500
Sorrel	19.2
Golden Apple	175
Passion Fruit	3.2

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3.6.3 Categories and products

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Agro-processing can be grouped into eight categories, based on the type of raw materials used and the resulting end products. These are:

A.Fruit and vegetable processing

Jams & jelly and fruits preserved in sugar:

- **Guava jam and jelly**
- **Nutmeg jam and jelly, and nutmeg syrup**
- **Candied nutmeg pod**
- **Crystallised and candied ginger**
- **Orange marmalade and candied orange peel**
- **Sorrel extract**
- **Liqueur**
- **Candied Papaya**

Nectars:

- **Mango nectar**
- **Banana nectar**

- **Papaya nectar**
- **Guava nectar**
- **Tamarind nectar**

Sauces and seasonings:

- **Hot pepper sauce**
- **Spicy pepper sauce**
- **Mixed vegetable seasoning**
- **Christophene and hot pepper relish**
- **Condition and hot pepper relish**

Spice grinding/packaging:

- **Cloves**
- **Pimento**
- **Cinnamon**
- **Tumeric**

Extraction of citrus juice:

- **Lime/lemon juice**

- **Orange juice**
- **Grapefruit juice**

Snack foods:

- **Plantain chips**
- **Breadfruit chips**
- **Banana chips**

Cocoa processing:

- **Cocoa cake**
- **Cocoa butter**
- **Cocoa bars/rolls**

Herbal teas:

- **Lemon grass**
- **Black sage**

Wines & cordials:

- **Cherry wine**
- **Planter's punch**
- **Goldenapple wine**
- **Grape wine**
- **Other local wines**

Others:

- **Honey extraction**
- **Seamoss**
- **Cassava products**
- **Coconut oil**
- **Coffee**
- **Roasted nuts (cashew, peanuts)**
- **Corn meal**

3.6.4 Marketing systems

At present, agro-industrial export dependence is approximately 25 per cent as compared to 80 per cent for the industrial sector as a whole, which is an indication that agro-processing is geared primarily to satisfying domestic demand. Marketing is

done mainly by the processor himself. Since the processor has little expertise in formulating adequate marketing strategies, marketing is poorly organized. However, a few enterprises do promote their finished products on the local and regional markets.

External markets are of extreme importance for the survival and growth of the agroindustrial sector. This importance stems from the fact that the domestic market of approximately 97,000 people with an income per capita of approximately EC$ 4,000 and an agro-industrial per capita consumption of EC$ 44.00, is much too small to permit most enterprises to operate at economic levels of production. The long term development of the agro-industrial sector will, therefore, depend heavily upon local capability to penetrate and secure regional and extra-regional markets, both for current as well as potential products.

3.6.5 Financing

Traditionally agro-processors have faced tremendous difficulties in terms of sourcing financial assistance from the banking system. In the first place, financial institutions have always been reluctant to lend money to small enterprises which are considered to be high risk 2. Secondly, where there was willingness to lend, the rates of interest on capital borrowed were high and the level of collateral/security not tailored to facilitate small businesses. Recognition of the crucial role being played by

agroprocessors has led to increasing financial and other support by the following institutions.

3.6.6 Grenada Development Bank

The Grenada Development Bank (GDB) assists clients in establishing or expanding development enterprises by granting loans and other forms of financial assistance (interest rates at 8-11% p.a.). They also mobilize and coordinate available resources to be utilized in financing agricultural, industrial and tourism projects. Priority is given to projects based on the extent to which it will utilize local resources and develop depressed areas (80% of businesses are concentrated in and around St. George's, thereby depriving incomes and revenues to the rural areas).

3.6.7 Small Enterprise Development Unit (SEDU)

SEDU, of the GDB, is an ILO/UNDP funded programme which provides management training, technical, extension and ancillary services to present and future small businesses. Assistance is now being sought to provide financial assistance in the form of Soft Loan Window" to small enterprises, especially those directed by women, operating in priority areas,such as agro-processing and agri-business. Debt equity ratio is 3:1, with a ceiling of EC$ 50,000 and the rate of interest at 10 per cent p.a. over a 36

month period (6 month grace period).

3.6.8 Agency for Rural Transformation (ART)

ART is a non-governmental, non-profit, independent organization, with the overall goal to promote and assist in the development of the marginalized (women, youth, farmers, fishermen, craft producers and agricultural workers) by initiating, coordinating and supporting programmes and sustainable society. Loans are at commercial interest rates not exceeding EC$ 5,000. The client must contribute 10 per cent.

3.6.9 National Development Foundation Grenada (NDFG)

NDFG is a private, non-profit, non-political, non-governmental organization, established for the purpose of providing loans, business guidance and technical assistance to struggling small businesses and projects that normally would not qualify for commercial loans. The rate of interest is not in competition with commercial banks (14% p.a. on a declining balance, loan amount EC$ 500) EC$ 30,000 and loan repayment of 1-5 years (grace period determined by size and type of project).

3.6.10 Agriculture Venture Trust (AVT)

AVT is a financing institution funded by the United States Agency for International

Development. AVT offers technical assistance, commercialization grants and investments to individuals, companies and producer associations which meet its eligibility criteria. Commercial grants are of US$ 10,000 per project (packaging, marketing, project promotion etc.) and investments at US$ 20,000 US$ 500,000 per project. Companies/associations must contribute at least 51 per cent of total investment costs.

3.6.11 Equipment and technology available

The majority of small scale processors utilise standard kitchen utensils, e.g. strainers, hand slicers, blenders etc., which of necessity were designed to accomplish relatively simple processes. In some instances, steam generators, mills, solar dyers, etc. are used. Much of these equipment in use is obsolete; efficiency is low and down-time relatively high, due to the age of the equipment and long delays in obtaining replacement parts. While it is true to say that the skills necessary for cottage scale processing are widely available, there is a deficiency in the level of technology which is applied.

3.6.12 Packaging material

All packaging materials utilised by agro-processors are imported. Some of the home industries use recycled caps and bottles though several do purchase new caps and

bottles. Extensive use is made of cellophane in the packaging of ground spices, coffee, and plantain chips. There is an inadequate use of packaging technology, despite the dramatic increase in the production of packaging products in the region. It would, however, appear that the availability of packaging technology and products in the region have consistently lagged the demand. Specific areas of complaint are cost, large minimum order quantities leading to the higher costs of carrying large inventories, long order arrival times, availability and variety.

3.6.13 Government policy on agro-industrv

Acknowledging that the agro-industrial sector in Grenada is in its embryonic stage; the Government has enunciated a policy strategy to fully develop industries based on utilization of local/indigenous raw materials and to strengthen the backward linkages into both the traditional and non-traditional components of the agricultural sector. One aspect of the strategy is to encourage the commercialization of cottage industries.

In this regard, the Government has designated the Grenada Produce Chemist Laboratory (PCL) as the instrument to guide, encourage, and direct agro-industrial development. Accordingly, the activities of the PCL are inextricably Linked to activities taking place in programmes such as the Agricultural Rehabilitation and Crop Diversification Project, Model Farms and Government's overall prograrnme for

strengthening the Traditional Agricultural Sector.

3.6.14 Institutional assistance

A number of public sector, private sector, and regional and international institutions which lend support to agro-industrial enterprises have been identified. These are:

A. Public sector institutions

The national institutions making up the agri-business sector in Grenada are the following:

1) Grenada Produce Chemist Laboratory: Within the framework of Government policy, the PCL has been allocated the following functions:

- **product development, modification and adaptation the lab must conduct research and development on local raw materials**
- **develop technological packages for processing indigenous raw materials**
- **conduct pilot scale processing**
- **collaborate with other departments within the MOA and other Ministries and institutions, such as Grenada National College, Grenada Science and Technology Council, as well as other lab based institutions in the region**

- **provide lab services Chemical and microbiological analyses to relevant government departments and to industry**
- **provide training and technical assistance in agro-industry to the public and private sectors**

2)Marketing and National Importing Board: The MNIB is a Statutory Government

Body under the administration of the Ministry of Trade. Its primary mandate is to purchase and market locally produced agricultural commodities and products (excluding the traditional export crops).

3) Agricultural Rehabilitation and Diversification Project: This project is designed to revitalize Grenada's agricultural productive capacity through crop rehabilitation, expansion and diversification. This also involves improvement of marketing techniques, agro industrial development, infrastructural development and technical assistance.

4) Grenada Food and Nutrition Council: The GFNC promotes the use of nutritious local foods and provides dietary advice to Grenadians. It disseminates technical information on how to prepare, store and use local food products by using radio, bulletins in schools and news sheets.

5) Grenada Bureau of Standards: The GDBS is an institution established to promote higher standards in goods, services, practices and processes. High on its agenda is a plan for implementation of standardization and quality control in the food industry.

B. Private sector institutions

The principal private sector institutions are the following:

1) Grenada Chamber of Industry and Commerce: The Chamber is engaged in a number of activities to meet the needs of its members. These include:

- **training courses/seminars, especially for small business development**
- **technical assistance**
- **circulate regional and extraregional trade inquiries on imports, and exports**
- **organize participation in overseas trade missions**

2)Grenada Community Development Agency: GRENCODA is a non-profit, non governmental agency aimed at assisting (technically and financially) the development of rural communities in particular. GRENCODA focuses its attention mainly on the needs of women, small farmers, agro-processors, agricultural workers, the unemployed and other marginal groups.

C. Regional and international institutions

There are several regional and international institutions lending support to agroindustry:

1) Inter American Institute for Cooperation in Agriculture: IICA plays a major role in activities such as agricultural policy analysis and planning, technology generation and transfer, marketing and agro-industry development, organization and management for rural development. The institute es presently involved in projects for expanding our raw material base in papaya, pineapples, ginger, etc.

2) Caribbean Agricultural Extension Project: The CAEP has as its major thrust the strengthening of the national agricultural extension services and other age-business related activities through technical assistance.

3) Small Enterprise Assistance Programme: SEAP offers technical assistance and training.

4) Canadian Training Award Programme: CTAP provides training.

5) Caribbean Technological Consultancy Services: CTCS Network is operated by the Technical Cooperation Unit (TCU) of the Caribbean Development Bank, in cooperation

with regional and national institutions, laboratories and industrial enterprises. CTCS Network helps to solve planning and production problems quickly by providing Caribbean expertise at an affordable cost.

6) East Caribbean States Export Development Agency: The seven member OECS territories agreed to the establishing of ESCEDA, an Export Marketing (Development) Agency, whose primary objective is to increase exports by offering technical assistance to exporting companies and organizations in member states. Technical assistance includes: product design, label/package design, training, test marketing, trade missions, etc.

7) Caribbean Industrial Research Institute: CARIRI offers a range of services: training, advice on technology and equipment, development and adaptation of technology, and equipment fabrication, to mention a few.

D. Other laboratory-based institutions

The other PCL's in the region, as well as the IAST and University of Guyana, SRC and the Bureau of Standards of Trinidad, Barbados and Jamaica, contain a wealth of resources which can be tapped.

3.6.15 Financial incentives

The vast majority of small industrial entrepreneurs do not enjoy "approved status" as conferred under the Fiscal Incentives Act. In addition to this, the measures imposed by the Ministry of Trade to regulate the importation of agroprocessed products are deemed inadequate by local processors.

3.6.16 Ministry of Trade (MOT)

The MOT has implemented a national policy to protect its local manufacturing enterprises, in the form of a "negative list" which requires that some items must obtain a licence prior to importation. This list includes items such as grapefruit, tomatoes, carrots, ground spices, jams and jellies, processed pork products, etc. Some items are on a quota arrangement and others are simply monitored.

3.6.17 Grenada Industrial Development Corporation (GIDC)

GIDC is a Government agency established to facilitate, promote and stimulate the growth of industry in the country. Its primary task is to recommend to the

Government the incentives in the forms of fiscal concessions to be granted to enterprises that meet the prescribed criteria. Local manufacturers who have been

granted "approved status. under the Fiscal Incentive Act (1974) are exempted from payment of import duties and other levies on importation of plant, machinery and raw materials necessary for the operation of their enterprises. Enterprises that are not incorporated and as such do not qualify for duty free status can apply for exemption of payment of import duties under the Customs Ordinance.

Locally produced confectionery items (guava cheese, jam, jellies) are exempted from value added tax (VAT). However, one aspect of VAT that has not been taken into consideration and which continues to pose a problem to local manufacturers is payment of VAT on locally produced inputs. Most of the cottage type industries are not affected by the Business Levy due mainly to low rate of sales turnover.

3.6.18 Technical. economical and organizational aspects for development of small agroindustries - Overview of problems

A recent survey of agro-processing firms in Grenada provides a useful synopsis of constraints faced specifically by the agro-processors:

- **small scale of operation which result in high overheads per unit of output**
- **low volume availability of some raw material inputs and the logistics of collection, transportation and delivery to factory**

- **the relatively high cost per unit of raw material; low yield per unit area and using fresh market prices as the reference price for locally produced fruit**
- **the high cost of importing some production inputs, ea. packaging materials**
- **much of the equipment in use is obsolete, efficiency is low and down time relatively high due to the age of the equipment and long delays in obtaining replacement parts; difficulty in accessing small scale processing equipment**
- **the small scale processors are not organized on a business basis and consequently experience severe constraints whenever they seek finance to upgrade and expand their operations**
- **the physical facilities are often inadequate to allow efficient operations and to implement effective quality control and standards assurance**
- **most of the small processors, and indeed some of the larger units, lack manufacturing and financial management to identify areas of weakness and to institute measures which could increase the efficiency of their operation**
- **marketing is not organized and there are no marketing strategies or programmes to promote the finished products on the local and regional markets**
- **policies and related measures have not been implemented to promote and protect small scale food processing enterprises and so assist in developing a potentially viable sector of the economy.**

This synopsis serves to underline the point that, particularly in developing countries,

facilitating business expansion requires the removal of a complex network of impediments that combine to hinder public and private sector efforts to stimulate development.

3.6.19 Requirements for development

Cottage industries constitute an important area of pioneering activity, in as much as they represent the initiatives taken essentially by local people to begin what could be called "commercial processing" of locally available agricultural raw materials. Requirements for future development are:

A.Raw material base

1)The introduction of technological innovation that would ensure higher production and productivity, thus providing for adequate supply of raw materials for processing.

2)The organization of agricultural production to ensure that what is actually required for processing is indeed what is produced. In addition, production must be planned and organized along commercial (orchard) lines, and not in an adhoc form, as presently.

3)The supply of agricultural materials must be on a guaranteed and consistent basis.

This will necessitate the establishment of formal contracts between farmers and processing enterprises. Regular supply of raw materials may necessitate the establishment of collection depots at strategic points in the state; this will definitely serve as an incentive for farmers to produce more.

4)The agricultural sector must be planned, as the best means of knowing what raw materials will be available and in what quantity.

B. Equipment and technology

The following criteria is necessary for the selection of suitable technologies for small scale operations:

a)Equipment should be relatively low cost and compatible with the economic resources of the user.
b)Equipment should allow for proper maintenance and repair by users or at least at local level.
c)As far as possible, the equipment should utilise alternative energies.
d)Equipment should be flexible/versatile.
e)Techniques should allow for easy assimilation and mastering by user.

C. Financial incentives

There is an urgent need for a system that would confer benefits to the "neglected." producers in the form of an incentive package that would guarantee longer tax holiday periods, speedy reimbursement of duty and taxes paid on locally purchased materials, and a reduction in Government bureaucratic delays.

D. Marketing

The development of a viable export market to sustain local agroindustrial development will necessitate the fulfillment of a number of preconditions:

a)The identification of target markets preferable within close proximity to Grenada, yet having a high effective purchasing power.
b)Promotional activities in the target markets.
c)The establishment of market intelligence units to monitor the performance of local products, and the changes in consumertastes and preferences.
d)The provision of export support services to include credit, guarantees and market information.
e)The establishment of export, trade and promotion facilities locally and abroad.
f)The elimination of bureaucratic" "red tapes. which serve only to hinder exporting

activities.
g)The production in sufficient quantities and on a regular basis so as to satisfy orders and, as such, make export economical.

E. Training and technical assistance

There is a need for training and technical assistance in the following areas:

a)Equipment operators, technicians, and mechanics in the operation, maintenance and repair of specific equipment.
b)Establishment of testing facilities for adaptive research on imported and repair of specific equipment.
c)Creation of a database to accommodate an inventory of equipment park (number, type, size, age etc.) of existing equipment, and repair/fabrication shops capability.
d)Training of local personnel to undertake export marketing activities
e)Training in raw material procurement practices, quality control, packaging and presentation of products.

3.6.20 Recommendations for intraregional activities

The major institution for research and development in food processing in the region

are the faculties of agriculture and engineering of UWI, IICA, the FLIT of SRC, CARIRI, IAST, and the PCLS of the OECS countries. The need for an information support base for research, development and commercialization has been the subject of much attention. Given the structure of the sector with a multiplicity of small and micro enterprises and the physical separation of the islands, it is evident that synergy can only be achieved by communication.

Several initiatives exist in the region for information networking and dissemination. It should not be necessary to create an entirely new arrangement but only to strengthen and expand an existing information net to provide for the food processing sector. A paper entitled "Food Processing Technologies in the Commonwealth Caribbean" lists R and D priorities for the regional institutions (See Appendix 1) to avoid duplication and to maximize possible funding through the development cooperative research projects.

3.6.21 Proposal for development and strengthening of small commercial enterprises

A. Background and justification

Grenada's food import bill is in the vicinity of EC$ 60 million, which is 20 per cent of total imports and 46 per cent of imported consumer items. The primary elements of the food import bill are:

- **meat and meat products - 25 %**
- **milk and dairy products - 21 %**
- **fish and fish products - 6 %**
- **cereal and cereal products - 14 %**
- **confectionery and sugar - 8 %**
- **processed agricultural products (jambs, jellies, ground spices, fruit, wines, citrus juice and snack food) - 6 %**
- **miscellaneous - 20 %**

For a country that is predominantly agricultural, both the size and composition of the food bill is totally unacceptable. A small but significant proportion of food import (6%) is comprised of processed agricultural products, most of which can be produced locally or at least substitutes can be found. There already exists a number of food processing enterprises of which 76 per cent are of the cottage industry and home based operations, contributing approximately 6 per cent to the total industrial output of Grenada. Development and strengthening of small enterprises, especially in the rural areas (53 % of enterprises are located in rural Grenada) will therefore result in increased earnings, reduce the level of unemployment, the food import bill and post harvest losses (conservatively estimated at 9 766 ton p.a., with a value of EC$ 4 million).

B. Objectives

1)To furnish and equip existing small enterprises so that they can improve on the type and scale of operations.
2)To strengthen the ability of these small enterprises to undertake activities leading to consistent, well packaged products.
3)To utilise the excess "abandoned" fruit throughout Grenada.
4)To generate additional employment especially among women in the rural areas (the primary raw material producing areas).

C. Programme of activities

Technical visits to generate information on the specific technical requirements for each enterprise. Identification of requirements (training, equipment, products with good development potential).

D. Training requirements

A training component to develop skills in the following:

- **raw material procurement, inspection and handling**
- **processing techniques/methods; equipment operation and maintenance**

- **quality control/quality assurance**
- **packaging and labelling**
- **food plant sanitation/hygiene**
- **finished product inspection and handling**
- **marketing and small business management**

E.Equipment requirements

Much of the equipment required by the various small enterprises fall into the following categories: blenders, choppers/slicers, pulpers, citrus juicers, mills, heat sealers, scales, thermometers, pH meters, refractometers, hydrometers (alcohol), stainless steel pots and buckets, stainless steel strainers, ladles, scoops, tongs.

F. Products with good development potential

Product lines to be designed to include products with good development potential. According to a recent survey, these include: candied nutmeg pods, snack foods from plantain, breadfruit and bananas, herbal teas, pepper sauce and seamoss, fruit juices, etc..

Table 3. List of research and development priorities

CROP/PRODUCT	FOCAL POINT	POSSIBLE COLLABORATORS
Bananas	PCL St. Vincent and the Grenadines	PCL Grenada, CARIRI, Windban
Citrus Dominica	PCL Grenada	CARIRI, PCL St. Lucia,
Coconut	PCL Dominica	SRC, PCL St. Vincent
Cocoa & Coffee	CARIRI	SRC, PCL Grenada
Fruits	FTI/SRC	PCL Antigua, Grenada Montserrat, CARIRI, CARDI
Root Crops	IAST	UWI Food Tech Dept. SRC
Sea Food	To be determined	IAST, CARIRI, SRC, PCL Grenada, Jamaica, Belize
Spices	CARIRI	PCL Grenada
Vegetables	SRC	PC Antigua, CARDI

Table 4. List of food sector support priorities

PRODUCT/AREA	FOCAL POINT	POTENTIAL COLLABORATORS
Monitoring/Control	UWI Faculty	UWI Fac. of Eng., Food
Pesticides	of Agriculture	Tech Dept., PCL St. Lucia
Regional Center for Engineering Design	UWI Fac. of Eng.	CARIRI, SRC, IAST
Information Support System	CARIRI	CARIDI, UWI, SRC

Table 5. List of commercialization priorities

PRODUCT/PROCESS	HOST INSTITUTIONS
Banana figs, raisins, purees Grenada	PCL St. Vincent and the Grenadines,
Coconut dehusker	CARIRI
Composite/Wheatless Flours	IAST

Multifruit Intermediates	CARIRI
Small Scale Equipment	CARIRI
Spice Extracts	CARIRI, PCL Grenada
Aloe Vera	CARIRI, PCL Dominica

Source: Food Processing Technologies in the Commonwealth Caribbean, by Hollis Charles (May, 1991).

3.7 Guyana

The agro- based cottage industry in guyana

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3.7.1 Summary

Agro-processing in Guyana began a long, long time ago, when preservation was done mainly by sun-drying, smoking, roasting, boiling and tanning. Later into modern times, these unsophisticated technological methods evolved into slightly less unsophistication as housewives, with the help of kitchen appliances, dried toot crops and plantains to prepare cereals and flours, and processed their own cooking oil, jams, jellies, cassava products and a range of other products for use in their kitchens. In those days, processing was done primarily as a means of preserving the excess produce from their farms and kitchen gardens; providing variety in the family's diet; saving in on hard-earned cash and, in many instances, merely expressing cultural preference.

When Guyana became independent in 1966, the Government, through a commitment to promote greater consumption of indigenous foods, and in an effort to increase production and reduce the food import bill, placed import restrictions on several food commodities. Restrictions were first placed on fresh and dried fruit, salted fish, milk, cheese and margarine, and later extended to include wheat flour and nonindigenous cooking oil.

These restrictions on food imports resulted in greater use of indigenous commodities, such as rice, yams, cassava and local fruits (carambola, gooseberries, maraca, etc.) and the stimulation of an embryonic local agro-processing industry dominated by women. The farmers were also encouraged to increase the production of orchard and root

crops. Seedlings and other planting materials were distributed by the Ministry of Agriculture, either free of cost or for a minimal fee.

Several opportunities were made available to women to widen and improve their skills in food preservation, with a lot of emphasis being placed on fruit processing. Experiments were carried out with a range of fruits, vegetables and root crops; there were innovations with flavours, sauces and other products. Organizations and agencies, such as the Community Development Division, the Carnegie School of Home Economics, the Guyana School of Agriculture (GSA), the Guyana Federation of Women's Institute and the Women's Revolutionary Socialist Movement (WRSM), conducted country-wide demonstrations and promotions through newspaper publications and leaflets, in an effort to encourage women to become involved in the production of commodities to replace those that were banned, as well as in income-generating exercises.

The industry has expanded over the past twenty-five years or so, but considerably so since 1970, with the institution the "Feed, Clothe and House Yourself" programme by the Government and an intensive programme of small business development, with a lot of emphasis being placed on locally developed and adapted technology. Interestingly enough, and worthy of note, is the fact that the industry has moved from being women-dominated to include men, either as partners or as sole

managers/owners.

Several Government and non-Government organizations became involved in assisting in the establishment and development of small agri-business enterprises. Small entrepreneurs have been able to utilize the services offered by the development finance corporations, such as the Institute of Private Enterprise Development (IPED) and the Guyana Agricultural and Industrial Development Bank (GAIBANK) for financing their operations. The Institute of Applied Science and Technology (IAST) provides services in research and development in the area of agriculture engineering and food science technology.

Through international programmes, such as the Food and Agriculture Organization (FAO) and the United States Agency for International Development (USAID) PL 480 programme, the cottage industry has benefitted from technical, technological and financial assistance. The cottage industry, however, continues to be affected by several problems. Among them are:

- **lack of improved processing technology and simple equipment shortage of and/or poor quality packaging material**
- **absence of good marketing techniques, and**
- **limited availability of credit/finance.**

3.7.2 The present status of the agro-based cottage industry in Guyana

A. Overview

The 1970's marked the turning point for the cottage industry in Guyana. Government's ban on dried-fruit, for example -an essential ingredient of the traditional Guyanese "Back" cake- left many a housewife eager to find a suitable replacement. This resulted in the production of local dried-fruit prepared mainly from carambola, and, to a lesser extent, dunks, maraca, bilimbi, gooseberry, and many other fruits. It was during this time that the carambola industry developed and several large orchards were established. In the processing industry, the carambola had the highest preference, over other fruits among the housewives, because it was easier to prepare and the end product gave more returns on a weight basis.

Initially, many women began production to satisfy their needs at home, but soon many of them recognized an opportunity to earn some money, and began producing additional quantities to be sold in the rural and city markets. Today, foreign raisins, currants and prunes are a rarity in the local market-place. Apart from satisfying local needs, this particular commodity is enjoying a lively export trade, saving foreign exchange hitherto spent on importing foreign dried-fruits, and bringing in foreign currency through its exports.

The cottage industry today has come a long way amidst the problems it has continued to face. These setbacks, however, will be addressed in another section of this paper. Despite the constraints, the industry has also expanded in terms of the range of agricultural commodities currently utilized, the variety of products being made (Table I) and volume output. Today, most of the cottage operations are privately owned and operated by women, by men or jointly.

3.7.3 Raw materials. categories and products

It is estimated that less than 10 per cent the annual production of fruits, vegetables and root crops is channeled into the processing industry. Because the production of agriculture commodities in Guyana is highly seasonal (Table II), most of the processing activities are carried out during the peak season when produce is available in abundance and at reasonable costs. Table I shows the types of produce available and the quantities. However, too many of the cottage industries operate away from the production centres, thereby requiring that the raw materials be transported to the processing sites. This results in large amounts of waste due to poor packaging and handling techniques and lack of proper storage facilities.

3.7.4 Fruits

Fruits are used mainly in the production of jams, jellies, juices, nectar and dried fruit. However, among the most popular fruits used are the carambola, guava, pineapple, tamarind, cherries and passion fruit. Golden apple, bilimbi, gooseberries and unripe mango are stored in brine or blended with pepper and spices and made into pepper sauces and achars. Hot peppers are usually stored in brine or blended with fruits and vegetables or dried. Large quantities of these products are sold locally, while smaller quantities are exported.

Almost every rural household processes some of the fruits that are available for use in their homes, for relatives and friends in the city or overseas. However, it is only a fraction of the total production and invariably the rest is left unharvested.

More cottage industries need to operate within the production areas; this would assist in income generation for the off seasons and generally improving the standard of living.

1) Carambola: As stated earlier, the carambola is a very versatile crop. The dried fruit is in so much demand both on the local and export market that, apart from the hundreds of cottagelevel processors, several commercial operations have become involved in its production. The dried fruit is further chopped and processed into ready to-use cake-mixes, either plain or rum-flavoured or candied to be used as cocktails or

ice cream toppings. Barbique sauces and table sauces are by-products of the dried fruit process. The fresh fruit is used to make juices, concentrates and relishes.

Even though the carambola is so widely used in Guyana as a fresh fruit and in the processing industry, tonnes are left unharvested annually, especially in the Pomeroon, a riverian area. This commodity has great potential and a lot more needs to be done in the area of product development.

2) Guava: Another widely used commodity, the guava products -mainly jams, jellies, nectars and "cheese' (leather)- are readily accepted and sold widely on the domestic and export market. Candied guava is produced on a very small scale as it is not very popular.

3) Pineapple: As a fresh fruit, the pineapple is a major export commodity. However, pineapple jams and juices are produced in large quantities for the domestic market. Pineapple chunks are primarily an export product.

3.7.5 Plantain and root crops

Of all the root crops, the cassava is the most versatile in the processing industry. It is used in the production of cassava starch, farine, cassava bread, tapioca and casareep.

Cassava starch is utilized in the bauxite industry, cigarette production and in the manufacture of corrugated cartons. However, there is very little processing done with the other root crops, such as eddoes and yams, except for the production of flours, which are not normally utilized on a large scale.

The plantain is another widely used commodity in processing activities. It is dried and ground into a flour which is mainly used as a waning and pre-weaning food. The flour is also utilized by the snack-food manufacturers in the production of breakfast flakes and biscuits. The plantain chip, a popular salted snack, is one of the earlier products of the cottage industry and has remained popular until today. The chip is usually packaged in various sizes of plastic bags and sold in school canteens, on the streets, in confectionery shops and supermarkets.

3.7.6 Vegetables and seasoning

Very little processing is done with vegetables in Guyana. Tomatoes are utilized in large quantities in the production of ketchup and purees, while small quantities of pumpkins are used in making pickles and jams. Herbs and seasonings, such as thyme, sweet basil, celery and eschallot are dried and powdered and utilized mainly in the manufacture of table, seasoning and barbecue sauces, casareep and curry, and are also exported.

3.7.7 Packaging materials

Within the agro-industrial sector, the main types of packaging materials used are bottles, plastic bags and containers and cardboard boxes. Cardboard boxes and plastic bags are produced in Guyana. In many cases, bottles are recycled within the cottage industry but the caps usually cannot be re-used; therefore, new caps have to be imported or substitutes found. Many a micro-processor cannot afford to import the quantities required to satisfy an order and this greatly affects their business. The type of plastic bags produced in Guyana is not quite suited for the needs of the processing industry and the suitable material is sometimes imported. These setbacks severely affect the activities of the industry, resulting in reduction of output or in production being carried out on the basis of availability of packaging material or on the amount of storage space, depending upon the type of product.

3.7.8 Financing marketing systems

A. Financing

There are several development finance corporations and lending agencies in Guyana. However, because of the collateral required and the high interest rates, many of the micro-processors -particularly rural women- do not qualify for loans from these

institutions. The Institute of Private Enterprise Development (IPED) offers a soft-line loan facility to small entrepreneurs. Several persons in the industry have benefitted from such loans (Table III).

The Women's Affairs Bureau, a Government organization, operates a revolving loan fund initially financed by UNICEF. Women involved in cottage operations can borrow up to G$ 10,000. The interest rates are 6 per cent on the reducing balance.

B. Marketing systems

Most of the marketing of products from the cottage industry for the domestic market is usually done by the processor or her/his employee. There is no formalized marketing system or commercial enterprise which acts as agent for their products. The processors or assistant would make contact with the business places who would place their orders directly. The "New. Guyana Marketing Corporation, apart from facilitating the exportation of fresh fruit and vegetable, also works closely with processors, advising them on general marketing requirements and market opportunities. Just only three weeks ago, NGMC assisted a micro-entrepreneur to stage an exhibition on dried, ground, powdered, fermented and related agricultural produce that could be marketed locally and overseas.

3.7.9 Equipment and technology available

A. Equipment

The cottage industry mainly utilizes simple pieces of equipment for their processing activities. In many cases, there is need for better equipment. Through agencies such as IPED and USAID-PI 480, several processors have received equipment. Recently, through a loan from IPED, a processor was able to acquire a peanut sheller and grinder. Through WAB, several women's groups received equipment, such as mixing bowls and all purposes mills for their processing activities. However, the industry needs more simple but useful equipment such as extractor, sieves, liquefiers, dryers and refractometers.

B. Technology

The technology available today in the processing industry, especially at the cottage level, though much improved, needs more work done in the area research and product development. For example, almost all our fruits can be processed into jams, jellies, chunks, dried fruits, pulps, etc. But at present, perhaps because of ignorance of the possibilities and lack of affordable technology to advance these possibilities, tonnes of fruits go waste, unused, dumped or misused. The same could be said for vegetables.

The recent exhibition by a micro-processor (discussed above) suggested, for example, that dehydration by sunlight could save millions of dollars. Bora, boulangers, pumpkins, etc. taste good upon rehydration. The spoilage and waste in far flung highly productive areas of the country need not be.

The Institute of Applied Science and Technology (IAST) has been involved in research development within the industry, but they need to be more aggressive and relevant in what I consider to be this extremely important area of agro-processing and food preservation. And this is but the tip of the iceberg in the vast possibilities that are dormant and untapped.

Training institutions, such as the Carnegie School of Home Economics (CSHE) and Guyana School of Agriculture (GSA) and organizations, such as the WRSM and WAB have all been, in very piecemeal fashion, involved in the dissemination of new or improved processing techniques over the years, and the advancement and development of relevant, affordable technology and technology transfer possibilities. During 1990, the NGMC, in collaboration with FAO, conducted training sessions in "Small Scale Processing Techniques" using simple equipment, in three of the administrative regions of Guyana. During these sessions, the consultant sought to improve upon many of the existing processing techniques, as well as introduce new ones.

3.7.10 Participation of women

As was mentioned earlier, agro-processing, particularly at the cottage level, has been traditionally dominated by women. Unfortunately, there has been no record of the undoubtedly very significant contribution many of these women have been making to the national economy in this important area. Many of the operations run by women are small, because financial constraints do not allow them to expand. A large percentage is not eligible for loans from many of the lending agencies. A look at Table III reveals that of the 458 loans approved by IPED, 343 were given to men, while 28 or 6 per cent was for women, and only 34 were for the agro-industry. There is the need for much more soft-line credit for women to assist them in expanding their business.

Table 1. Loans approved by IPED

	1990	1989	1988	1987	1986
Total loans approved	458	303	165	102	25
Loans for agro industry	34	26	4	5	3
Classificationof recipients:					
Women	28	20	9	17	7

Men	343	199	87	73	18
Joint (women and men)	87	84	69	12	-

Source: IPED Report and Accounts 1990.

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3.7.11 Institutional assistance to the cottage industry

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There are several local institutions, Government and non-Government, that have given support and assistance to the micro-industries in Guyana. Some of the more popular ones are:

1)Institute of private enterprise development (iped): The IPED, formerly Institute of

Small Enterprise Development (ISED) was established in 1985 as an independent non-profit development organization. The Institute aims at assisting at the micro-level where persons lack finance to develop their ideas and skills. The areas of priority are industrial or manufacturing projects which include agroprocessing and small artisanal service-oriented activities. The services offered by IPED are illustrated in Table V.

The IPED provides loans up to G$ 600,000 (US$ 125) for groups and G$ 400.000 for individuals, and in foreign currency up to US$ 3,500 for the procurement of machinery, equipment and other inputs. Since 1986, the Institute has financed and harnessed the energies of 1 053 entrepreneurs, creating approximately 4 700 new jobs. However, only 72 loans were approved for the agro-industry.

2)New Guyana Marketing Corporation: NGMC is a Government corporation which facilitates the exportation of non-traditional agricultural commodities and is also involved in the promotion of processed agri-produce for domestic and export purposes. The organization was involved in co-ordination of shipments of 2.5 tonnes of commodities in bane to Holland (Table IV) in 1987. However, the shipping lines stopped coming to Guyana shortly afterwards and the market was no longer accessible. Table IV also reveals that export of primary commodities increased by approximately 100 per cent in 1988. The increase in the 1990 figures is a reflection of the improvements in sea transportation leaving Guyana. The organization has, through

the years, conducted market research and prepared crop profiles on specified crops together with addressing the issue of reliable and efficient transportation for exporters of fresh and processed commodities.

3)Guyana Manufacturing and Industrial Development Agency (GUYMIDA): GUYMIDA is a Government agency established in 1984. Its role is to take all steps necessary or desirable for the establishment, promotion and development of the manufacturing industry in Guyana. The Agency undertakes any activity that can lead to the establishment, expansion or rehabilitation of a manufacturing or industrial enterprise. However, more emphasis is placed on projects which provide high manufacturing value-added and/or foreign exchange savings or earnings.

4)Institute of Applied Science and Technology (IAST): The Institute's objectives are to assist in the improvement of life in Guyana in industry, agro-industry, medicine and food products. Within the agro-industry department, there are the agro-engineering and Food Science units. The agro engineering unit designs and develops prototype machines for farmers and food manufacturers while the food science unit provides assistance in product development, using extrusion technology. Assistance is also offered to food manufacturers in the analysis of their products (chemically and microbiologically). The IAST has designed several pieces of equipment for peanut processing and a pilot extraction plant for the extraction of essential oils from plants;

developed a refined method for the production of white cheese; and experimented with the use of several.

Table 2. Volume of primary processed export from Guyana

COMMODITY	EXPORT	VOLUME (MT)1987 - 1990			
		1987	1988	1989	1990
Cassava Bread		0.1	0.3		
Cassava Starch		0.4	6.6	2.77	
Casareep		0.7	2.5	2.17	
Dried Carambola		0.6			
Cherry (pulp)		-	-	-	113.1
Honey		0.7			
Mango Archar		0.1		0.6	0.4
Pepper Sauce		0.4			
Pine-apple Chunks		-	-	-	25.4
Pine-apple Jam		na	na	na	na

Plantain Flour		-	-	0.1	-
Tamarind (Shelled)		0.5	0.2	-	-
Thyme (Dried)					0.1
Mango (frozen)		-	-	-	67.2
Brine products					
Bilimbi		0.5			
Golden Apple		0.6			
Mango		1.2			
Papaw		0.2			
Pepper		-	0.2		

Source: "New" Guyana Marketing Corporation - Annual Reports

5) Women's Affairs Bureau (WAB) The WAB is the policy making body of the Government for all matters pertaining to women. This body provides guidelines within the national framework for planning, training, technical assistance and research on

women's affairs. It is also responsible for the general co-ordination and monitoring support for programmes which are designed to promote the integration of women. Since its establishment in 1980, the WAB has trained a number of women in various skills, with collaborating assistance from other agencies.

During 1985-1987, the Bureau, with assistance from Inter-American Institute for Cooperation in Agriculture (IICA), conducted several programmes in small business management, throughout the country. In 1989, under a USAID PL 480 programme, the Bureau financed several training programmes in food processing and preservation techniques, where 38 women benefitted. In 1990, the Bureau worked closely with the NGMC in conducting workshops/seminars in small-scale processing techniques, funded by FAO. In 1990, also, the Organization began operating a revolving loan fund financed initially by UNICEF to the amount of G$ 494,100. Women groups and individual women are able to borrow from the fund to finance their business activities. The loan ceiling is $ 10,000 per person or group, but some flexibility is allowed, depending on the nature of the project. So far, the fund has disbursed loans to 45 women, mainly for fruit processing and presentation, and fish and meat presentation.

6) Carnegie School of Home Economic (CSHE): Apart from the formal training offered in home management, catering and food-and-nutrition, the school has been active in promoting new and varied ways in which many local foods could be utilized. This has

been done through evening classes in food preparation and preservation, food demonstrations and exhibitions, production of recipe books such as What's Cooking in Guiana.'

7) Young Women's Christian Association (YWCA): This association runs an early schoolleavers programme for young women who have dropped out of the school system. It also conducts evening classes in cookery, cake decoration and preservation. The association has also, through the years, been very active in the promotion of local food utilization.

3.7.12 Government's policy

A. Policy and perspectives

In the 1970's, when the Government launched a campaign to promote national selfsufficiency, the aim was to reduce the dependence on imported food, develop the industrial sector and increase employment opportunity. The campaign was reinforced by policies and administrative measures which gave preference to locally produced commodities over imported items. The results of the campaign demonstrated the potential for the development of the agro-industries.

Several small and medium enterprises were established, producing a variety of agro-based manufactured commodities and utilizing, as far as possible, locally produced raw materials. The supportive policies for the development of agro-industries included the provision of fiscal and other incentives for the establishment of new and expansion of existing businesses and imposing import restrictions on several commodities. Duty free concessions were allowed for equipment imported for use in the agricultural sector and subsector.

There is an annual Presidential Award Programme initiated to provide incentives for the six categories within the manufacturing sector:

- **dynamic small business**
- **champion exporter**
- **champion import substitutes**
- **science and technology**
- **market penetration and market development**

3.7.13 Extension service and training

As mentioned earlier, there are several Government institutions involved in extension and training in processing and preservation techniques. The IAST, GPAC and CSHE are

Government institutions involved in research and development for the food industry.

3.7.14 The future of the small agro industries

The small industry in Guyana, without doubt, has the potential to grow and develop into one of the most viable economic entities. However, if the industry is to move forward and achieve this status, several problems have to be addressed quickly.

3.7.15 Production

One of the main problems is the industry's inability to produce in large enough volumes on a consistent basis, even to meet the domestic market needs. The export market activities are sporadic and insignificant, despite the lucrative potential on the would's market horizon. Far too many of the small industries in Guyana are established and operate in and around the city, thereby requiring that most of the raw materials to be transported over long distances and under very adverse conditions. This has resulted in a lot of spoilage, waste and, of course, inevitably high prices for the products. The rural population, therefore, needs to organize themselves more into commercial enterprises to be better able to efficiently utilize the available raw materials within their regions, and to capitalize on and maximize the multifarious and rewarding local and overseas marketing opportunities fast waiting to be grasped.

3.7.16 Resources

The industry has suffered from the lack of adequate resources, certainly financial and physical; but, most importantly, the human resource of foresight and proper planning has been terribly and sadly lacking. On the financial aspect, entrepreneurs, generally, need capital to upgrade and expand their businesses. However, many development finance institutions lend at very high interest rates which are out of the reach of many microentrepreneurs. Further, money that is made available through funding, from local and external sources, has certainly not been allotted for cottage industry development purposes. The cottage industry has developed over the years through tradition born of the initiative of many an enterprising rural housewife.

Lending institutions should be encouraged to re-think their allocation modality to include the cottage industry as a major area for funding in the advancement of agroindustrial development in the Region. Indeed, the "Women in Development" funding focus should be expanded to include the cottage industry for major consideration. Concomitantly, the governments in the Region should accept this area as being of high priority for agro-industrial development and should, therefore, restructure their programmes and policies to capture this new perspective. The physical constraints, as well as the natural propensities of the available land resources, have already been discussed. It cannot be over-emphasized, however, that exceedingly

little has been done to really tap the vast resource potentials of the land, particularly in the rural and hitherto inaccessible regions.

3.7.17 Training

Even though training is a human resource based factor and should more properly have been considered under the Resources sub-head above, I think it is so important in the total agro-industrial context that it deserves separate treatment. Mention was made earlier of the depressing lack of foresight and proper planning in our approach to agroindustrial development. Perhaps this deficiency may be an indictment on our training regimes.

Nowhere in the curricula of our training institutions has serious emphasis been given to the area of small agro-industrial business development, particularly emphasizing the advancement of the cottage industry. As a result, our planners, administrators, technicians, extension workers, even down to farm-hands have little or no background nor interest in, nor predisposition to the treatment of the cottage industry as a significant priority area. Further, it is difficult to recall any student in the region opting for the cottage industry development as a post-graduate or specialist area for advanced studies. This is, indeed, a strange reality when are considers, as has been mentioned earlier on, the serious implications the cottage industry could have for

economic development programmes in the Region.

Also, when one considers the present state of the economies of our separate countries in the Caribbean, there seems to be a crying need for intensive and extensive extension work to be organized and executed, targeting the production-rich hinterland areas for basic training in such areas as:

- **preservation for export**
- **preservation for domestic use**
- **primary processing for industrial manufacturers**
- **basic handling and storage techniques**
- **basic management techniques**
- **basic marketing principles**
- **simple accounting**
- **preparation of simple project proposals**

The possible topics are inexhaustible, and agencies such as the Adult Education Association (AEA), the Institute of Adult and Continuing Eduction (IACE), the "New" Guyana Marketing Corporation programmes -such as the Farmer's Notebook- should adjust their curricula and outreach to treat with these deficiencies. Of particular relevance in this regard must be the technology/technology transfer factor.

3.7.18 Technology

Indeed, technology, in this special context, should, for us, lead the way towards drastically transforming our eating habits, as it has been altering and influencing so many other areas of our cultural life. For the sake of our economic survival and growth as sovereign states, and as an Economic Community, perhaps, we need to see dehydrated bore and corilla on our supermarket shelves, powdered eddo, breadfruit flour, carambola-inbrine, mango chunks, etc. We still revel in the use of fresh foods, much to our economic detriment, while we import, eat and use the preserved commodities produced from cottage industries of the countries that have learnt the lessons we need now to follow quickly.

Indeed, our technology transfer methods, mechanisms and systems have been terribly irrelevant in large measure, very piecemeal and exhibitionistic in the little we have done so far in Guyana, particularly, and, I am sure, in much of the Caribbean, despite the many institutions and programmes with which we have been flattering ourselves. It seems to me a very strange phenomenon, indeed, that, despite the hugh sums of money we have been utilizing and still keep spending to set up and support massive institutions, such as the IAST, CSHE, NARI, CARDI and others, we have not yet been able to promote the development of a technological base that would cater for what I would call "professing for preservation ".

For almost all our economic and marketing related problems -inaccessibility to areas producing abundantly for waste or rot; lack of adequate storage and refrigerating facilities; unreliable shipping and airline resources to cater for the export of our agricultural produce- have been indicating that our attention, our efforts and our research development projects should be directed mainly, for the time being, towards processing for preservation. In so doing, we will be moving closer towards catching up on modem marketing strategies while, at the same time, utilising much of our hitherto unused resources, and encouraging the advancement of industry and new employment possibilities.

3.7.19 Communication network

Within the agro-industrial sector in the Region, there exists a range of technology and materials. Many countries have documented these activities. Because of the cultural and geographical similarities the technologies would be easy to adapt. Those institutions with stronger links in training, planning, financial and marketing in the sector within the Region should disseminate their experiences to others. Such Networking would help the sub-sector advance at a much greater pace; provide a practical, positive basis for research and development and engender meaningful, practical, action-oriented discussion such as this "Round-table" provides at this juncture.

The Circular Letter produced by the FAO Caribbean Technical Cooperation Network on Agro-industrial Development is, also, an excellent example of a media for the exchange of information and experiences, sharing of ongoing activities, and proposing and discussing programmes in a common industrial climate. The same principle needs urgently, as a matter of priority, to be adopted at the National level by institutions of common, mutually supportive focus.

3.7.20 Small business incentive legislation

Harris and Laurent (1989) suggested that the existing legislation within many of the CARICOM countries "...impinges on the progress and development of small enterprises and should be consolidated as an act in order to provide a special regime of incentives for small enterprise..."

Notwithstanding the positive, dynamic and progressive policy of the Guyana Government towards small business development and particularly in its incentive-based support at all levels for agro-industrial development enterprises, there has been no legislation enacted with a view towards directly establishing the special regimen of small business development and protecting, through certain legal, commercial and administrative measures made formal and incorrigible by an Act of Parliament and assented to, through CARICOM, by regional governments. This, I believe, is what the

Harris and Laurent report seems to be suggesting, and, if adopted, would certainly mark an important step forward for agro-industrial development in the advancement of small business enterprises with the Region.

The FIT report (1988) stresses that "...more governments need to formally recognize the positive economic attributed od small business and articulate the same in policy documents ...". This might already be a norm in individual countries in the Region. But surely, regional governments, as one entity, need to give formal recognition in the form of a CARICOM statement, perhaps, to the significance of micro-enterprises, and pledging their support.

3.7.21 Conclusion

As I conclude, I must say that the problems highlighted and recommendations offered throughout this presentation are only what I considered very critical. It is my hope that these areas would stimulate project-oriented ideas for discussion and adoption, during the workshop sessions. The main theme of my discourse in the previous chapter has been, I hope, our great need in the Region to produce for preservation. Therein, I strongly believe, lies the crux of the agro-industrial and economic development woes we have been and are experiencing in our separate countries in the Region.

The Government of Guyana had adopted and has been pushing the theme "produce or perish" as a rallying point for workers in the country. Well, we grasped the theme with both hands, so to speak, and produced to perish. We produced to our great peril; for tonnes of produce -fruit, vegetables and root crops- produced on a daily basis was left to rot and waste in sinful abandon, precisely because we, as a People, a Government, a Region, have not grasped the critical importance of, and developed the ethic, the culture, the policy of production for processing, and processing for preservation; in short, production for preservation.

Through stated policy and encouragement from Government, various agencies, Government and private, have been advancing and promoting small business development, including agro-processing development projects in a number of forms. Notwithstanding, we continue, to this day, our colonial culture of being primary and raw material producers. We continue to relish being the dumping ground for products (processed and manufactured) from Europe and other developed countries as V.S. Naipaul recognized and so succinctly lamented years ago in his The Mimic Men.

A sub-theme of my presentation has been that much of our agro-industrial small business and enterprise development efforts have not been focused enough. We have tended towards a piece-meal, disjointed, non-directional approach to our research and our projects in this regard. The cottage industry, the most potentially beneficial to our

economies, have suffered most from this flaw in our planning and research.

Finally, I wish to propose that we do all in our capacity, jointly and individually, to ensure that this Roundtable is not relegated to being merely another "idea Bank". Perhaps we need, at the very inception of our discussions here, to resolve that, as we examine the experiences of each of our territories, we will ADAPT and ADOPT for progress and development and advancement of the Cottage Industries in our countries and, generally, for our national and Regional agro-industrial and economic development.

3.7.22 References

CARICOM SECRETARIAT. 1982. Food Processing in Guyana. IN: Meeting of Ministers with responsibility for the integration of Women in Development, 2nd.

F.I.T. CANADA. 1989. Beyond 1988; Proposals for action by Caribbean governments in promoting Small Enterprise Development in the Region.

HARRIS, M. AND LAURENT, S. 1989. The general issues and constraints affecting the development and growth of small business with respect to the access and utilization of the technological needs and opportunities for small enterprise development in the

Caribbean.

"NEW" GUYANA MARKETING CORPORATION. 1987. The Role of the "New" Guyana Marketing Corporation.

"NEW" GUYANA MARKETING CORPORATION. 1988. Annual Report.

"NEW" GUYANA MARKETING CORPORATION. 1990 Annual Report.

3.8 Jamaica

Country presentation

Mr. Alwin Linch Director, Food Technology Institute Scientific Research Council

3.8.1 Introduction

The Jamaican situation is no different from the world picture. The economy continues to be plagued by an unfavourable imbalance between exports and imports. In response, the Government has prioritized the agriculture sector in its five year development plan and more recently adding a comprehensive food production drive. The primary concern is to provide adequate supplies of good quality food and at

reasonable prices to meet the growing population needs. In parallel with this initiative, there is the countries compelling need to develop specifically the Agro industry sub sector-food processing in particular- to develop and produce exotic, traditional and non-traditional products for export, in order to earn much needed foreign exchange to met the expenses of its societal programmes. So great is the need to earn foreign exchange that special programmes are in place to seek, develop and ensure exports to traditional, nichie and ethnic markets.

However, with all the efforts, the agricultural sector is plagued with seasonal gluts, the end result being lost to farmers as prices obtained by them are much reduced, and loosed due to post harvest problems have yet to be solved. The application of science and technology to the prevention of post-harvest losses is not an area that has received much concentrated adaptive research from any one body. Commodity groups have taken on the research, but this is in keeping with the requirements of transportation, distribution, storage and marketing as it affects them. Thus, the problem of post-harvest losses in the area of fruits, vegetables, roots and tubers is now a priority, if Jamaica is to make use of the productive efforts of the new fruit orchards being put in, new farming programmes in the drive to produce more vegetables, roots and tubers.

Therefore, there is need for active post-harvest research work both at the University

level, Ministry of Agriculture and in the Scientific Research Council, to supply information to farmers, exporters and the productive sector in general to overcome this problem of postharvest losses. Solving this problem would mean more available food to the agro-industry sector for processing and consistent prices to farmers and producers as volumes would be ensured, and economic productivity of factories assured.

3.8.2 Raw material

Jamaica produces and can grow many different varieties of fruits, vegetables tubers and roots. Today there are numerous fruit trees-orchards, citrus, papaya, mangoes, pineapples, passion fruits and many other tropical exotics. These orchards are operated by large and small farmers. These fruits are all either exported as fresh produce or consumed locally in the farmers market, super markets and in the agro-food processing industry, namely large canneries and a few cottage type industries.

The availability of root tubers, such as yams (Diascoriace) sweet potato (Ipomea batatas), coco, dasheen, cassava and others, are grown mainly by small farmers. Today much of these root and stem tubers are exported as non-traditional produce to ethnic markets, and certain niche markets.

3.8.3 Marketing

In Jamaica, the problem with agriculture is not the growing of the produce, but the distribution and marketing after harvesting. The Jamaican climate, soil and growing conditions are suitable for the cultivation of a wide variety of bleary exotic tropical fruits, vegetables roots and tubers. Land is available, as is labour, but harvesting and postharvest problems, and distribution is a major problem as much of these tropicals cannot be consumed fast enough, so much of it goes to waste. The local market consumes a lot of the exotic fruit crops harvested, but profitability is in the export market as fresh produce, and also the growing interest for exotic fruit and vegetable purees for the developed countries.

There needs to be put in place a central "terminal" market based on product intelligence from the farmer, so that the produce can be sold based on firm contracts with exporters, local supermarkets, local farmer's market, "higlers", local food processors and local and foreign commodity organizations. Farmers have no confidence in the present ad hoc system of marketing, refused to get tied down to contracts with exporters, local supermarkets, or local agro-food processors as these parties will because of economics buy outside of contracts in an effort to force farmers to sell at prices below contract. Farmers who are in coop commodities enjoy an assured market for their tropicals and citrus is one such crop that is enjoying good

growth and stability of prices as a result of the coop.

However, the effect of deregulation of the Jamaican economy to one where "free" enterprise is encouraged to develop is yet to be realized. It is hoped that there will be very positive forward movement towards a more formal marketing system based on production and market intelligence, so that sales can be made before actual production of the produce.

The "freeing up" of the agricultural sector to encourage more persons into farming, by way of the free hold system is the direct commitment of the Government. Freehold, leasehold, mother farms, feeder farms, "satellite farms", are systems that have all been practiced in Jamaica.

The Government's Rural Agricultural Development Agency (RADA) is the agency that will monitor agricultural growth in these systems from the "big" farmer to the "small" farmer, supplying information, technical advice, market intelligence. The Governmentowned facilities (farms) are mainly associated with experimental research, and also represent the reservoir for the countries genetic material and bank thereof. The island genetic diversity wilt be an important asset in the new strategy of increased production and reduction of post-harvest losses.

Jamaica has not made use of available science and technology information in preventing post-harvest losses. In fact, outside of work in the area of spices, there is no active research work or post-harvest laboratory studies carried out as a large project consistent with the country's progress in the development of orchard crops, winter vegetable production, and root and stem tubers. Such work is necessary in light of the move to remove the chemical treatment of produce to reduce spoilage during storage. The whole question of modified atmosphere, temperature and the application of these factors during produce storage is essential. In fact, we need to look at food irradiation as a quarantine and shelf life extension tool in light of the banning of Ethylene dibromide and the possibility of a ban on methylbromide. The country needs to make use of these technologies and storage strategies to reduce post-harvest losses.

In the agri-food industry sector, the Government has made this area a priority and has planned the expansion and relocation of the Food Technology Institute along modern tines. The new Institute wilt carry out adaptive research, aimed at reactivating the food processing industry. The Institute will also provide processing facilities for possible exporters of exotics where such equipment is not available anywhere else on the island. The Institute will prioritize its work in keeping with the country's needs. To this end, staff and facilities will be upgraded to carry our training at the tertiary level and the production shop floor level. Seminars and other training programmes will be put in place to improve the information system, to meet the technological needs of the

country.

The Government has made available the agricultural marketing corporations processing/grading facility to exporters of fresh and processed foods. This Exporters Centre is a "clearing house" for receiving produce/products and inspection of these, and certification for export. A fumigation facility has been established at the Airport Inspection Centre here. There is in place USDA, and local Ministry of Agriculture inspection personnel for certification purposes.

The funding for agriculture expansion comes through many different agencies, with marketing information coming through the Ministry of Agriculture Marketing and Export Division and JAMPRO. Much of the funding made to small farmers is through Agricultural Credit Bank, Jamaica Agricultural Development Foundation, Trafalgar Development Bank, all commercial banks and other Government agencies. Loans are of the standard type, ranging from crop loans to the long term loans heavily collaterized. Though, there is no shortage of loan funds; interest rates and the returns on investment have, however, prevented much of the investment activity through borrowings from these institutions.

With the growing concern about post-harvest losses much effort meeds to be put in place to reduce this type of loss. The Government has in place numerous programmes

to assist the rural communities and the rural farm families. To be launched are community organizations that would do simple processing of products when they are in glut or in season. To this end, processes which do not require the use of fossil fuel as an energy source, will be targeted. The FTI has developed solar driers that are quite efficient, to dry fruits, vegetables and tubers. This programme has the potential of generating nonfarm rural employment in Jamaica. This is very important to the whole economic development and stability of the nation. The rural labour force -mainly women- is at a surplus level; and this type of community industry could provide gainful permanent employment not only at the primary crop stage, but also at the secondary stages providing value added benefits to the farmer and the community. The products generated from this programme would be centrally collected, subject to a rigid Quality Control system, proper packaging and markets.

3.8.4 An enhanced agro-food industry

The strategy which should guide the agro-industry trust in Jamaica is that of flexible specialization. Traditional import substitution to replace products imported from industrialized countries, should no longer be the inspiration for diversification in the agroindustry. The country needs to pursue a policy of endogenous development, harnessing its varied exotic raw materials and its labour force for strategic advantage. The idea is to use local raw material and capabilities, with market niches abroad. This

type of project requires proper information from both ends of the agro-industry system. What this require is that local science and technology information network should be upgraded so as to foster rapid analysis of such information into knowledge for practical application, information on our raw materials, human resources, local/foreign markets opportunities, global trends are all part of the information package to improve the agroindustry. There must be proper planning with support systems in place. The Government and private sector must come together to support science and technology research and work in harmony for the good of the country.

3.9 St. Christopher-Nevis

Present status and future potential of the role of cottage industries in St. Chiristophor-Nevis

Mr. Charles Warrington Head, Agricultural Science Department, Cayon High School

The Government has embarked on a hot pursuit of development of the cottage industry. It is a worthwhile process which can help alleviate some of the problems we face in the island; but there are some technical problems which keep fighting down our efforts. This is mainly so in the development of fruit, vegetables, roots and tubers. Raw materials for the need of the cottage industry are available in the island, but

because of the topography of it in relation to agricultural development, sometimes the industry is there at a steady pace and then, at other time, these same material are very difficult to find.

St. Kitts-Nevis mainly works with vegetables, like sweet peppers and cucumbers, and fruits. There is a basic problem with the marketing of the completed products because, as we cannot afford to supply outside markets at the rate and time they would like us to, we have to depend most of the time on our local market. However, the local people sometimes still prefer to go into a supermarket and purchase the same stuff we produce at home, from an overseas market, even though it costs them more. To make packaging a little cheaper, jams and jellies produced are usually placed in small jars and syrup and sauces in large bottles. At the moment, equipment and technology is not too much of a problem. There are other things which could be done but, because of the lack of modern technology, we are unable to put them into practice.

Financing of the cottage industry comes through the Ministry of Women's Affairs. As a matter of fact, the greater part of the people involved in this industry is women. In terms of training and extension, this work is often done by the help of the Extension Division of the Agricultural Department, which works jointly with the Ministry of Women Affairs. In terms of industrial policy perspectives, the Government industrial policy seeks to achieve the following:

a)To strengthen the institutional capability of those organizations (both public and private) engaged in investment promotion and industrial planning and development.
b)To actively foster conditions which serve to encourage the emergence and development of local entrepreneurs.
c)To develop and expand the required technical skills in such fields as equipment maintenance and engineering, construction, food processing and other areas relevant to industrial development.
d)To encourage the continued growth of employment opportunities.
e)To stimulate investment and joint ventures in those industries having the capability to increase foreign exchange earnings and savings.

During the initial stages of the plan period, substantial attention will be directed to the development of institutional cabality in such areas as technology management and application, human resources development, taxation review and organizational coordination.

Agro-industries are vital to any CARICOM country; but, for them to survive, there need to be a co-ordinated effort amongst each island. It is necessary to get together and work out a plan to solve the inconsistencies that come up in each area. Recommendations must be outlined, so that each island will not continue to make the same mistakes again and again.

The industrial plan should seek to generate direct additional employment opportunities for quite a number of persons on a variety of industries. The plan should presume and target substantial development for indigenous manufacturing, as well as the nurturing of the small business sector and cottage industries. Of central importance is the development of activities which will be based on export-oriented production, and which will also exploit opportunities for the import substitution.

The strategic elements are long term in perspective, building on science and technology for the 1990's. However, the major short term focus will be on cultivating a favourable climate for investment by providing adequate infrastructure, encouraging further development of the work force and ensuring the fullest involvement of nationals in order to further enhance the uninterrupted growth of industrial and commercial activities.

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3.10 Saint Lucia

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Country presentation

Dr. James Fletcher Produce Chemist, Union Agricultural Station Ministry of Agriculture

3.10.1 Summary

Agriculture is a major contributor to the economy of Saint Lucia, but the island exists primarily as a primary producer. The agro-industry on the island is very poorly developed, despite tremendous pioneering work in the late 1970' and early 1980's by the Produce Chemist's Laboratory. The development of the agro-industry is a key component of the agricultural diversification programme of the Government, but many factors hinder this development.

Most of the assistance to the agro-industry is provided by the Produce Chemist's Laboratory, but there is a chronic shortage of public funding to finance the activities of this unit. There is a need for greater institutional support to be provided to the industry, both by the Ministry of Agriculture and by the Ministry of Trade and Industry. Difficulty in obtaining financial assistance has often been cited by agroprocessors as a major constraint. The absence of linkages between the agro-industry and the primary

producers, and between agroindustry and the rapidly expanding tourism and hospitality sectors, is also a drawback.

In the light of the problems currently besieging the cottage agro-industry on the island and the recognized role which the industry has to play with respect to the reduction of post-harvest losses in locally-grown fruit and vegetables, food security and import substitution, and the generation of employment particularly among the rural population, a strategy is proposed for the revitalization and strengthening of the industry.

3.10.2 Introduction

Saint Lucia is an island of 616 square kilometres, with a population of approximately 151.000, which is increasing at a rate of roughly 1.8 per cent. Agriculture is a major contributor to the economy and over one-third of the working population is engaged in it. Although most of the agricultural activity is centred around bananas and coconuts, significant quantities of plantains, mangoes, breadfruit, grapefruit, hot-pepper, sweet potatoes and cocoa beans are also grown. The island also produces a variety of other fruits and vegetables, including orange, pineapple, sour sop, avocado, yam dasheen, cashew, carambola, passion fruit, tomatoes, cabbages, sweet peppers, carrots, lettuce and cucumbers. However, with the notable exception of coconuts,

Saint Lucia functions mainly as a primary producer and the agro-industry is very poorly developed. Thus, there is a heavy wastage of fruits, particularly tree crops.

The problem is not as severe in vegetables, as farmers only produce sufficient quantities to meet market demands. Cottage agro-industrialactivity on the island is at present restricted to the production of ground spices and condiments, tomato ketchup (manufactured from tomato paste), gravy browning, table sauces, desiccated coconut, coconut milk, cocoa (chocolate) sticks and ground roasted coffee. Only three plants are operational. Up until 1990, a plant existed which manufactured fruit jams, jellies and marmalades, but financial difficulties forced its closure. A few individuals produce fruit jams and jellies using very limited home facilities, but production is sporadic and not organized.

Marketing is very poorly organized and has always been a major constraint to the development of the agro-industry. There is very little market intelligence available to agroprocessors, and they very often have to do most if not all of their' market research. Financing is another major obstacle to the development of the industry, and persons involved in agro-industry often complain of general unavailability of finance, high levels of collateral security asked for by the lending institutions, high rates of interest on loans, and difficulty in obtaining a run of credit.

All of the cottage agro-industry plants operating on the island are privately owned. In only one of the plants can the equipment available be regarded as being adequate. The procurement of packaging material is most often a costly and difficult affair for the agroprocessors, and inadequate packaging of locally produced commodities has contributed greatly to the relative lack of success of these products on the local markets. There has traditionally been heavy involvement of women in the agro-industry in the country, and in most instances women have outnumbered men. There has, however, been a disproportionately small number of women involved in the higher levels of the industry as skilled technicians and as managers.

The Produce Chemist's Laboratory (PCL), in the Ministry of Agriculture, was established in the mid 1970's with a mandate to generate and transfer technology for processing the wide variety of fruit and vegetables grown on the island. To this end, the unit developed methodologies for over 30 products ranging from fruit jams, jellies and nectars to banana flour. The unit was responsible in its early years for training individuals in agro-processing activities and for providing an extension service to the agro-industry. Many of the persons currently involved in the field of agro-processing have benefitted from the service provided by the PCL.

3.10.3 Government policy

The Government is committed to the development of the agro-industry, and has identified the industry as an integral part of its agricultural diversification programme. In addition to broadening its export base, the Government sees a vibrant agro-industry as making a significant contribution to its food security and import substitution programmes.

The Ministry of Agriculture is the Government institution with the most direct impact on the agro-industry. Most of the involvement of this Ministry is at the level of the Produce Chemist's Laboratory (PCL). The institutional assistance provided by the

PCL has taken the form of research and development activities, extension and advisory services, training, and a quality control programme. Many factors, however, have restricted the role which this unit has been able to play in the development of the agroindustry. After having fulfilled its mandate to develop processed products using simple methods and technologies so as to facilitate the transfer of the technology to interested individuals, the PCL operated in a sort of vacuum with no clear R & D directives. During the latter part of the 1980's and up until early 1991, the unit went through a period when it lost most of its professional staff due either to resignations or positions being made redundant. During this time, the unit also suffered from an acute shortage of public funding resulting in the nonmaintenance of its physical facilities and of its laboratory equipment. Hence, for an extended period the PCL was

not able to provide the badly needed leadership and guidance to the agro-industry. Although this was not the only factor which militated against the development of the industry, its significance cannot be underestimated. The PCL, without any clear Government policies and objectives at the time to guide it, functioned for the major part of the 1980's as an illequipped fire-fighting unit responding to sporadic requests for testing, information and advice. The inadequacy of the unit during this period resulted in an erosion of most of the public confidence which the unit had worked so hard to acquire during its early years.

At present, the unit consists of a Produce Chemist and a Lab Technician. There is a desperate need for the replacement of the obsolete or non-functional equipment, which comprises the vast majority of the equipment in the lab. There is also an urgent need for a chemical analyst and two trained technicians.

3.10.4 Technical. economical and organizational aspects of the development of small agro-industries

In terms of technical aspects of agro-industrial development, the most gearing weaknesses are in the support facility of the PCL. As already stated, this unit needs to be strengthened both in terms of equipment and manpower needs. There is also a deficiency in the technical knowledge of equipment availability and its cost and in the

transfer of technology to agro-processors. It is also felt that sufficient research is not being undertaken at the regional academic institutions in the area of food technology. In order to serve the technology transfer needs of the industry, a resource person could be made available regionally, who could be asked by the relevant national bodies responsible for the agroindustry to provide technical information when required. The recently-proposed Technology Extension Service to be administered by the Caribbean Council for Science and Technology and the European Commission for Latin America and the Caribbean is a step in the right direction.

As already mentioned, a deficiency exists in the area of market intelligence. This problem needs to be addressed by both the Ministry of Agriculture and the Ministry of Trade and Industry, and a marketing officer identified and put in place who could provide agro-processors with all the relevant marketing information. This brings up another point, that of the low level of liaison which has existed between the aforementioned ministries on matters relating to the agro-industry. The agro-industry, although traditionally the responsibility of the Ministry of Agriculture, should also be supported by the Ministry of Trade and Industry. Hence, there is need for greater cm operation between these ministries on the subject of agro-industrial development.

Another reason for the failure of cottage agro-industry activities on the island is the failure of linkage development between agro-industry and the primary producers. This

is important not only because agro processors usually have a preference for a particular variety of a fruit or vegetable because of factors such as colour, juice content, acidity and fibre content, but also because such a linkage assures the processor a constant supply of produce at an agreed-upon price. What currently occurs is that the agro-processor has to settle for whatever variety is available, in whatever quantity and at whatever price (usually quite high) demanded by the producer.

There is also a need for linkage development between the agro-industry and the rapidly-expanding tourism and hospitality sector. These sectors use substantial quantities of food, and it stands to reason that they would provide a ready, reliable market for agroindustrial output.

The price of packaging material is very often prohibitive for the cottage-type producer and precludes her/him from keeping a stock of such material. Bulk purchasing may be a solution to this problem. This would necessitate the formation of an agroprocessors association or co-operative. Such a co-operative would not only facilitate bulk purchasing of packaging material but also of primary produce, and at the same time it would represent a group capable of seeing after its own interests. Countries such as Barbados and Trinidad and Tobago, which manufacture packaging material, could also be involved in some form of intra-regional scheme to assist agro-processors in Saint Lucia.

A serious impediment to the development of the agro-industry in the country is the fact that many of the distributive outlets on the island are also major stockists and commission agents for imported processed agricultural commodities. Very often, the same business house earns importer's commission, a wholesale markup and a retail markup before the product reaches the consumer. Thus, the owners of these business houses tend to view local agro-processors as competitors rather than as suppliers, and their vested interest in imported products takes precedence over any thrust aimed at promoting local agro industry products.

3.10.5 Proposal for the development of the cottage agro-industry

Given the current retarded state of development of the agro-industry in Saint Lucia, it is imperative that a programme be embarked upon to breathe new life into the industry, specifically through the promotion of the cottage agro-industry. This would have the following beneficial effects:

- **it would cause a significant reduction in the wastage of fruits which currently occurs**
- **the food security and import substitution programmes of the Government would be strengthened**
- **it would underpin the Government's agricultural diversification programme**

- **it would increase employment in rural areas; this would have the added beneficial effect of slowing down the migration of people from the rural areas to the city; although it represents only 13 per cent of the area of the island, Castries is currently gone to almost 40 per cent of the island's population.**

The objective of the project is to stimulate the development of cottage-type agro industries in the rural areas of the island, and to provide all the necessary support facilities to ensure the long-term viability of the cottage agro-industry. The programme of activities suggested to achieve this objective is as follows:

a)An educational programme must be undertaken to sensitize the rural population to the benefits to be derived from agro-processing activities. This programme should seek to demonstrate how simple technologies can be used to produce a high quality product.

b)A national training centre should be established to train interested persons in agro processing techniques. This will necessitate the training of trainers (an activity which may have to be undertaken on a regional bases) and the equipping of the centre with basic, small-scale processing equipment including hand refrac tometers, a juice extractor, a food processor, a heat sealer, a pH meter, a drying oven, a refrigerator, a freezer, a stove, and assorted sizes of pots and pans.

c)The primary support facility for the agro-industry, the Produce Chemist's Laboratory, has to be strengthened by providing it with the necessary equipment and personnel.

d)The Ministry of Agriculture and the Ministry of Trade and Industry should develop a coordinated approach to agro industrial development. This is particularly needed in the area of marketing.

e)Linkages should be developed between agro-processors and primary producers, and between the agro-industry and the tourism and hospitality sectors.

f)Financial credit has to be made more accessible for small-scale agro-processors. This may require the setting up of a special fund to assist them.

g)Someone regionally-based, perhaps at the Caribbean Development Bank, should be made available so as to provide up-to date information on the technology available and on the availability, suitability and cost of agro-processing equipment.

h)It may become necessary for some form of quota system to be implemented in the short term to allow locally produced commodities to establish a niche in the market. This quota system may at least negate some of the unfair practices currently employed by some local business houses. It should be understood, however, that once they

become established on the market, the quota system will be retracted and local goods will have to compete on an even keel with imported products.

i)Given that the persons who will be doing the processing will also have to manage the business, and that such persons have probably never had any training in management, it will be necessary to conduct management skills training programmes for interested persons. The Saint Lucia Industrial and Small Business Association can be asked to assist in this regard.

I have little doubt that if the above conditions can be met, the cottage agroindustry will grow into the vibrant, successful industry that we all know it can be.

3.11 St. Vincent and the Grenadines

Problems and prospects for the development of agro processing at the cottage industry level

Mr. Andreas Wickham Industry Officer Ministry of Agriculture, Industry and Labour

3.11.1 Summary

This document represents a global view of the problems and prospects for development in the small scale cottage industry operations in St. Vincent and the Grenadines. It does not by any means encompass all the factors which influence the development of the sector, but focusses on some of the major issues and problems which impinge on its development. It also examines the present situation in the country as it relates to agro-processing. The country continues to rely on its agricultural sector for its foreign exchange earnings. Both agriculture and industry contribute a significant percentage to the Gross Domestic Product. The food processing and beverage sub-sector plays the dominant role in industry, but this is dominated by a few medium and relatively large scale enterprises whose combined output is in excess of 90 per cent of all foods and drinks processed and packages.

The agro-processing establishments which operate at the cottage industry level are either small urban-based and owner manages or slightly larger rural based community group operations. They produce for a limited market and have not yet created any significant impact on the economy in terms of employment and income generation. A wide range of products are offered by these small scales operators, but they are beset by problems of a technical nature associated with quality control, packaging and labelling, etc. In addition, the problems of access to credit, and lack of managerial and marketing skills, remain dominant features of these businesses.

Government's policy towards the development of the sector is also highlighted. This policy is based on Government's recognition of the role of agro-processing within the overall development plan. The institutions such as the Ministry of Agriculture, Industry and Labour and the Development Corporation are expected to provide support services to this sphere of the economic activity and plans are ahead to lend further assistance, by addressing the question of incentives. Government is also committed to providing technical assistance through the establishment of a facility for product development, testing, quality control and standards. The role of the National Development Foundation in promoting small business development is also highlighted.

Finally, the paper briefly describes some of the technical and economical aspects of the development of the sector, showing that problems of a technical managerial and financial nature are the major constraints to the further development of cottage industry type operations involved in agro-processing.

3.11.2 Present situation

In St. Vincent and the Grenadines, the twin productive sectors of agriculture an industry are of critical importance to the development of the country's economy. Traditionally, agriculture has been the principal foreign exchange earner, but the industrial sector, while still embryonic is playing and will continue to have a vital role

to play in accelerating economic development.

Between 1986 and 1990, the agricultural vector contributed an annual average of 18.45 per cent of Gross Domestic Product (GDP), while manufacturing industry contributed 10.43 per cent. Within the agricultural sector, banana production and export play a dominant role. In 1989, approximately 66 million kg of bananas were produced and exports totalled 89.9 million dollars up from 66.1 million in 1988, representing just about 40 per cent of total exports. The percentage contribution of food imports vis-a-vis overall imports increased gradually from 18.9 per cent in 1987 to 23.0 per cent in 1989. Food exports, on the other hand, constitute 75 per cent of all exports.

The agro-processing subsector falls within the ambit of manufacturing, but is critically linked to the agricultural sector, since the primary products used for processing must originate from this sector. Food and beverages within manufacturing occupy a pivotal position, but the operations are dominated by a few medium sized and relatively large processing concerns, whose production is approximately 90 per cent of all processed food produced in the country. These large operations by and large utilizes imported raw materials.

At the level of the cottage industry, a range of economic activities take place. These include fishing, handicrafts, garment manufacture and agro-processing. Most of the

agroprocessing activities tend to be based in close proximity to the urban market instead of the raw material source in the rural areas, this undoubtedly being a manifestation of the wider centralization of manufacturing and service industry activities in the urban area. A wide range of products, including plantain and banana chips, spices, seasoning (wet and dry) hot pepper sauce, salted nuts, jams and jellies, cakes and pastries and other snack foods, are being produced at this level, all feared towards domestic consumption.

Most of the small operations have sough to utilize surplus agricultural produce, thereby creating some backward linkages; however, a number of problems still exist, one of these being the raw material supply. This is not always readily available for processing, despite our tradition as an agricultural-based economy.

Agro processors have to compete with the fresh produce market for vital primary inputs and farmers usually elect to go for the fresh market, since prices are generally higher there. In respect of processors who utilize banana as a major input, the situation is much more acceptable since she/he is able to purchase bananas rejected for the export market at reasonable prices lower than the existing market price. The experience of most of the small operations have shown that financial, managerial and technical constraints remain the greatest obstacles to further development. Much of the management of community based groups involved in agro-processing is provided

on a voluntary basis, since available resources are insufficient to have trained management and besides volunteer staff are poorly trained.

Financial and technical assistance come in the form of grants, particularly to the rural-based community organizations, since their operations are more community spirited, funding agencies are more disposed to provide financing and free technical assistance to these than to family owned urban-based operations. Technical assistance in management, marketing, quality control, packaging, labelling and research is still very hap-hazard and needs to be upgraded. Many operators depend on their own proven experience on the technological processes involved in agro-industry or, at best, seed assistance from the larger operators in the industry who have at their disposal laboratory facilities for controlling quality and for research and development purposes. The absence of a Government research and development and standards facility has greatly hindered progress in this area.

The systems that are in place for marketing the finished products of the subsector are rudimentary. In respect of the rural based operations, products are sold directly to shops and households in the community and in other surrounding villages, by the members of the organization. Only in exceptional cases does the level of production and acceptability of product allow for incursions into the urban market. Most of the urban-based operations are owned and managed by individuals of families. Products

are supplied directly to shops and supermarkets which carry these products depending on the existing demand.

3.11.3 Government's policy and perspectives

Governments policy towards small-scale cottage industry operations is an integral part of its overall policy towards the industrial sector, a policy which is designed to further promote the development of indigenous industries based on agro-processing. At present the country's thrust in agricultural diversification to reduce the dominance of banana production and export, coupled with the land reform programme, are creating the conditions for increased production of primary agricultural produce. Tremendous scope exists for the processing of secondary and tertiary products for the local regional and even international markets.

Within this framework, the Government views the cottage industry subsector as being a vital catalyst for the expansion and development of agro-industries. The Ministry of Agriculture, Industry and Labour and the Development Corporation are the two Government institutions charged with the responsibility of guiding the country's industrial and agricultural development; hence, they are called upon to play the leading role in ensuring that the sub-sector is given the necessary support for expansion into viable small businesses, capable of generating employment and earning

foreign exchange.

The assistance presently provided is limited to small loans disbursed by the Development Corporation at lower interest rates than the commercial banks; however, no structured system is in place for the delivery of extension services and training to the small agro-processor. Non-governmental Organizations (NGO's), however, such as the

National Development Foundation (NDF) do extensive work in the sub-sector and offer technical assistance and training in specific areas. In this respect, Government has committed itself to a budgetary subvention on an annual basis to the NDF, to assist the organization in its work.

While the Fiscal Incentives Act exists as Government's premiere legal instrument for the grant of concessions to the manufacturing and agro-processing industries, it does not make allowance for small operations, since most of these establishments are not registered companies; hence, cottage industries are yet to benefit from tax and duty free concessions. Plans, however, are afoot to convert empty factory shells into smaller workable units to accommodate enterprising operators of cottage industries, as part of Governments programme of support to this sub-sector.

Government's commitment to the development of the agro-processing sub-sector is borne out by the fact that the draft of the new Five-Year Plan speaks of St. Vincent and the Grenadines commitment to ensure that in the revision of the harmonization of Fiscal Incentives at the CARICOM level, provision will be made "... for a package of special incentives to the local national investor, especially in the area of agriculturalbased manufacturing".

In respect of assistance in research and development, the Government recognizes that within the last few years a number of these small scale operators have been able to offer products for sale on supermarket shelves and shops. These products, however, lack proper techniques during the processing and packaging stages and there is a general lack of technical direction in respect of the processing and marketing aspects of the operations.

Government has plans to establish a Standards/Product Development facility to provide services needed in the area of research and development, testing, quality control and training. The cottage industries stand to benefit from the establishment of this facility, since technical assistance would be made available for improving on the packaging and labeling of products while prolonging shelf life. This facility will also provide information on market requirements. The objective of the Standards/Product Development Unit will be:

a)To encourage research and technological efforts in critical areas such as agriculture, agro-industry and small scale manufacturing.
b)To promote research and development and innovation in both the public and private sectors.
c)To conduct research and development into new formulas and new products from local agricultural produce.
d)To offer technical assistance to small producers in terms of their preparation techniques, packaging, labelling etc.
e)To conduct sanitary and other tests on local and imported food products.
f)To provide technical information on market requirements to producers.
g)To provide other services within its field of competence to producers and the general public alike. The establishment of such a facility could only augur well for the development of the cottage industry and small business sector.

In respect of intra-regional cooperation, the instruments which are in place at the regional level to regulate and programme industrial development, though well-meaning, have not reached down to the level of the cottage industries. Indeed, in most cases these do not function well at the level for which they were intended. Cooperation could be better developed in the areas of market information sharing, raw material availability, sharing of experiences in the development of small businesses, sharing of research findings and regional cooperation in quality control

and standards. Some work is now being carried out in respect of the standardization of regional products; spearheaded by the CARICOM Export Development Project (CEDP).

The region,through the Common External Tariff (CET), has also placed some protection around the manufacturing and agro-processing industries; however, the actual implementation of this trade mechanism has been delayed by some countries, thus effectively maintaining the status quo in respect of the inflow of extra-regional processed foods.

3.11.4 Technical economical and organizational aspects

Some of the major difficulties in the development of small scale agro-processing are of a technical nature. At present, most of the technologies used in cottage agroindustry are rudimentary; this, in spite of the considerable amount of research and development activities which take place in the region. The availability of those technologies, simple but effective, are absolutely necessary if the agro-processing industry is to expand. Research findings need to be filtered down to end users and in a form easily adaptable.

Since there are no Government-owned institutions which deal specifically with

research and development, St. Vincent and the Grenadines has a distinct disadvantage. It is in recognition of this limitation that the Government is seeking to establish a facility which will spearhead this type of technical work. In the meantime, there is need for greater contact between the industry, the primary producers, Government institutions and regional research and development institutions, to allow for available technology and market information reaching the end users. The question of proper packaging and labelling is of critical importance for product acceptability. The cost, however, for proper packaging materials is for most part prohibitive to the small operator, but this undoubtedly enhances the aesthetic appearance of a product and helps to open up market opportunities.

Perhaps the most acute problem associated with small business development is that of financing. Access to credit is extremely important for the development of these businesses. Credit on concessionary terms, when properly managed, could determine the economic viability of a small business. A number of national and international agencies and institutions are in the business of funding small projects, whether on soft loaner grant terms; however, one of the weaknesses associated with the use of the available resources is the inability of the recipient to efficiently manage and account for these resources. This has been the demise of a number of good initiatives engineered by rural-based community groups and farmers organizations.

The NDF is a not-for-profit organization which works closely with the sub-sector through the provision of credit and business guidance in the establishment and development of these small and micro enterprises. Funding is sought from international donor agencies and lent to these small operators at concessionary rates. The organization has in its programme a number of economically feasible small projects in the agro industrial subsector, designed for implementation in specific rural communities where raw material availability has been relatively consistent. Should those projects become a reality, economic activity in those areas will be enhanced: they will provide employment and strengthen the linkages between agriculture and industry. These objectives are in keeping with Government's perspectives for development in this area.

The economic impact of small scale agro processing is at present relatively minimal, but tremendous potential exists for the development of this sub-sector to convert it into a major employer and generator of income. There are lucid examples all over the Caribbean of small owner-managed agro processing facilities developing into mediumsized companies, not only for domestic demand, but also for export.

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3.12 Suriname

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The small scale agro-industry in Suriname

Ms. Rosemarie Defares Women in Development Officer Ministry of Agriculture

3.12.1 Introduction

The paper offers a view on the present situation, future potential and limitations which hinder the development of the cottage industry in Suriname. According to the present status of the cottage industry, it is necessary to admit that the Ministry of Agriculture has no explicit policy concerning the development of the cottage industry at this moment. So far as can be established, no concrete policy measures have yet been take to develop a structure for the development of small scale agro-enterprises in the rural areas. The Government participation in the agro-industry is mainly restricted to some big holding companies (on profit base) and some Government foundations and enterprises. On the other side, there is a flourishing of small scale

agro-enterprises and an increase of cooperations and farmers organizations in the agro-sector. Most of them are operating on an inadequate economic and financial base, what can ascribe to the many problems resulting from the social-economic structure of the Nation. Production and distribution of agricultural products are mainly carried out for the domestic market.

3.12.2 Present status of the cottage industry

The activities carried out in this sector of rural economy can be divided into the following categories of (preserving and processing) products:

- **Fish and shrimps (fishery products and by-products).**
- **Vegetable and fruits.**
- **Citrus**
- **Peanuts**
- **Tubers and plantains**
- **Banana and maniac**
- **Pulses**
- **Palm and coconut oil**

The different problems and issues which hinder the development of small commercial

enterprises for processing and marketing of the agricultural produce are:

1) Lack of raw material available: With regard to the supply of raw material we can conclude that most raw material needed have to be imported, for which foreign currency is needed. The supply of raw material for the agro-industry is inadequate to meet the needs, ascribed to the fact that we have to contend with immensely economic and financial problems. There is no policy on the national level at this moment, which aim at bringing a solution in this issue: "there are other priorities..

2) Lack of marketing systems and financing: Marketing is one of the major problem and the existing structure needs reorganization. A central marketing organization dealing with the problems and prospects of marketing and financing of fruits and vegetables does not exists yet. There is an organization which is concerned with problems and needs of poor farmers and which has recently developed a structure for processing products and for training and research programmes. One of its main objectives is the stimulation of poor farmers to enable them to integrate production and management with processing and marketing. Viewing the overall picture we have to conclude that most small scale agro-enterprises are not able to reach marketing and financial goals and that most of the time they lack credit and marketing facilities. The condition required for expansion and improvement of their enterprise is "insufficient."

3) Ownership: The Government has participation in processing plants on rice, sugar, milk, fruits and vegetables, palmoil and banana. In the private sector, some small scale enterprises exist in food processing and preserving. Processing often takes place with simple and inexpensive equipment and material, on a irregular (not structured) base. Furthermore, there are a few farmer's organizations/cooperatives which operate in the food and processing industries, but their main activities are concentrated on agricultural production in the fields.

4) Processing and storage of agriculture products are totally inadequate to meet farmers needs and plan investments.

5) Lack of packaging material: This is due to the import-aspect; foreign currency needed to produce packaging material. "The business is collapsing.

6) Lack of training/extension facilities: There is a request for organizing national training courses for farmers, groups and entrepreneurs in the plants already operating, using simple equipment material and technology, adapting the training course to the needs of the rural areas of the country. There is also a requirement for the distribution of equipment and training facilities in the areas. On the other side, the existing extension programmes are not satisfactory due to the inappropriate technology transfer which is applied. Know-how on the transfer of a new structure in the

processing of fruits and vegetables is necessary, as well as a structure for the distribution of technology and know-how on other rural areas in the hinterland of the country. The lack of extension officers to develop and transfer programmes to the farmers is a main problem in this context. At the organization side we meet the same problem in the implementation of services to farmers.

Finally, we can conclude that there is a lack of facilities in all areas of the cottage industry; there is hardly no inputs available nor practical training of technicians and people responsible for the effective management of the scarce equipment and resources available. Research is needed badly on every level in this field.

3.12.3 Participation of women

With regard to the enormous unemployment of women, a very strong movement of women is developing looking for employment opportunities in the traditional sector

(agriculture) and in the informal sector. Of the economic-active women, 26 per cent is facing unemployment and more than half of the economic-actives are earning an income that lies below poverty line and therefore cannot satisfy their needs and that of their children. Finding a job is one problem, but surviving is a second one, with limited incomes and high costs of living. Higher numbers of women are becoming

involved in small scale agriculture activities. Women in rural areas are simply not receiving their fair share of attention or available funding for develop or setting up small scale businesses in the agro-sector. Their access to land, credit, education, skill training and employment is very limited.

Nevertheless, more women are entering the cottage industry. It offers them an opportunity for incomes and better social-conomic circumstances. They are mostly found in the mod processing and preserving of products fruits and vegetables, coconut and palmoil, peanuts, banana and maniac, fish and by-products, shrimps, etc. Women' main problems are:

a)Limited access to inputs, raw material available, credit, training and technology/extension services.
b)Limited access to property rights and access to land.
c)Limited attention from the Government side on the level of policy-formulation, projects and programme development.
d)Lack of technological assistance in the transfer of new appropriate technological know-how, experience, etc.
e)Lack of experience in processing and preserving concerning the quality of agricultural products.

The most important issue in this context is the lack of a framework in which a structure for small scale commercial enterprises can be developed in the cottage industry. Special attention has to be paid to women, given their back-work social economic position in society and their responsibility to provide for the education of their family. You have to offer them possibilities and alternatives to develop themselves and become entrepreneurs, and so making them economic strong and independent.

3.12.4 Actual policy of the Government

In reference to the actual policy and perspectives on the Government level, some plans and proposals are being prepared, which on the long term must change the situation at national and rural levels. The agricultural extension section of the Department of Agriculture have two sub-sections: a sub-section Home Economics and a sub-section Women in Development, which are concerned with women issues in rural areas. The actions intended are to develop income generating activities for women in the small scale agro-industry. On non-Government level steps are already been taken for research on the reduction of post-harvest fruit and vegetable losses through the development of the cottage industry. A growing number of non-governmental organizations (NGO's) are becoming involved with this sector. Their objectives are to reach higher agriculture quality, incomes and economic growth in rural areas.

However, institutional assistance in this field is scarce and has to be promoted both from the Government side as from the side of the national industry.

Given the worse macro-economic and financial situation of the country, financial incentives are very welcome. Therefore, the need for extension service, training in handling, and technology assistance in research and development, is urgent. Intra regional cooperation and integration in this context is also urgent and will be of great help for the agro industry in Suriname.

3.12.5 Technical. economic and organizational aspects of the development of small agro industries

As stated before, the weaknesses of the small scale agro-industry in the country can ascribe to the weak social-economic infrastructure of the agro industry. The lack of raw material available, technology, know-how, efficient handling systems and foreign currency, are main limitations that hinder the development of small scale enterprises in this sector. Maintaining quality to satisfy both domestic and foreign market is of increasing importance in this matter.

3.12.6 Requirements

The small scale agro-industry in Suriname needs:

a)On the Government level, a total assistance in every stage in the development of small scale enterprises.
b)An adequate and appropriate infrastructure to improve methods for the handling of vegetables and fruits.
c)Technical, financial and marketing assistance.
d)A new structure for the transfer of technology and know-how of the processing and preserving of food-products.
e)Raw material available.
f)Packing and packaging material assistance.
g)Project assistance in the field of technical, material and financial support to maintain quality on every level.

With regard to women, special attention is needed on the level of project and programme development and implementation, just like assistance in the processing and preserving of post-harvest and vegetable losses, tubers, shrimps and fish products for the domestic market and export.

3.12.7 Recommendations for intra-regional activities

Some proposals are:

a)The institution of an Intra-Regional Board for the promotion and development of the cottage industry in the CARICOM countries.
b)The institution of an intra-technical cooperation (task force) group for the transfer of know-how, experience and assistance in the field of preserving and processing.
c)The institution of an Intra-Regional Research Board for research and actions on the different fields of development concerning the cottage industry.

3.12.8 A summary proposal for the development and strengtbening of small commercial agro-enterprises

A. Background and justification

The agricultural sector is of great importance for the economy of Suriname. A great number of the economic actives are finding a living in this sector. Besides, a growing number of women and youngsters are looking for opportunities to create self employment in the small scale agro-sector. Because of the great number of (part-time) small farmers employed, the vegetable sector is considered a very important one. In 1989, the area comprised 1 491 ha, with a production of 15 891 tons partly destined to the local market and partly to the export market. An estimated 3 000 to 4 000 (part

time) small farmers are involved in this sector.

There are plans to further develop the cottage industry, such as peanut production for local consumption and the production of several types of tropical fruit items, such as passion fruit, west-indian cherry, pine-apple, papaya, mango and carambola, destined to the local agro-industry and exports. The perspectives to develop a market for small scale agroenterprises are plenty present; however, many limitations exist which frustrate the development of this sector.

Suriname, a country of many possibilities and great potentials, is facing an enormous unemployment problem, especially among women and young people in the rural areas. The promotion of the cottage industry can be a contribution to the solution of this problem in rural areas; it can contribute to higher production and export and, most of all, it can be of great importance for the economic and social well being of the rural poor.

B.Objectives

a)Create new employment possibilities for the poor and unemployed.
b)Development a social-economic infrastructure for the development at the national and rural levels.

c)Call the attention of the Government to the potentials and perspective of this industry.
d)Reach a reduction of post-harvest fruit and vegetable losses.

C. Programme of activities

As mentioned before, the agricultural extension sector covers two sub-sections Home-economics and Women in development- which are concerned with the development and implementation of project-proposals and programmes for income generating activities in the rural areas.

1) Home-economics: the activities are aimed at promoting self-employment among women and youngsters through the development of income generating activities in the agro-sector, and spreading of information on different fields. These include:

- **dress making**
- **advice on the field of nourishment/food, hygiene and health care, and home economic**
- **transfer of knowledge in the preserving and processing of food products.**

A proposal for the development of a project in the processing of cheap and healthy

food is in preparation. Furthermore, some initiatives are being undertaken to stimulate women to set-up small scale businesses in food and fruit processing and preserving. However, the office cannot operate adequately, because of lack of equipment and expertise (cadre).

2) Women in Development: the sub-sector "Women in Development" of the Department of Extension-Services have different tasks concerning matters of social economic well-being and development of women in agriculture and in rural areas. The data resulting from research will be used for the development of projects and programmes in favour of the social-economic position of women in agriculture and rural areas. In this context, activities will be developed to involve women in economic activities with the object of generating incomes with agricultural products. The small scale agro-industries is a sector with many possibilities for women; it offers them opportunities to become economic strong and independent. Therefore, the cottage industry is of great importance for the employment of women in rural areas. At this moment two projects are in preparation:

a)A research project on the role and position of women in agriculture and rural areas.
b)A research project concerning the possibilities of the small scale agro-industry for women in rural areas, perspectives and alternatives for self-employment and self help.

3.12.9 Equipment requirements

There is a requirement for technical assistance in the field of:

a)Processing and preserving of food products (fruit and vegetables, tubers, shrimps and fish, etc.)
b)Transfer of appropriate technology equipment that is simple and cheap.
c)Socio-economic infrastructure: transport, raw material, etc.
d)Research, and project and programme planning and development.
e)Material assistance: tools and equipment for workable handling systems.

3.12.10 Agricultural extension in Suriname

A. Geographies

The Republic of Suriname lies on the north east coast of South America, between 2 and 6 northern latitude and 54 and 58 western longitude. It is bordered by Guyana to the west, by French Guyana to the east, and by the Federal Republic of Brazil to the south. The total area is 163 265 km^2. The climate is tropical, with fairly heavy rainfall and average temperatures of between 21 C (70 F) and 30 C (86 F). The climatic season is divided in:

- **a long dry season: Aug. - end of November**
- **a short rainy season: Dec. end of January**
- **a short dry season: Feb. - end of April**
- **a long rainy season: May. - end of July**

According to the climatic classification of Koppen, we mainly encounter the Wsavanna climate, the-AM-Monsoon climate (in the hinterlands) and the AFtropical rainforest climate. In the coastal area, there are predominantly clay soils and some sandy soils in a plain, fertile area. The hinterlands, which make part of the Amazonic tropical rain forest, are characterized by their low fertility acid soils and, in a lesser range, savanna soils. The majority of the country is covered with the amazonic tropical rain forest in the scarcely populated hinterlands.

Table 1. Main landscapes in Suriname

	km^2	**Per cent**	**Elevation above sea level (in m)**
Residual hills			
(Hinterlands)	135 000	82.2	50 to 1280

Savanna belt	8 750	5.3	6 to 70
Old coastal plain	4 300	2.6	2 to 12
Young coastal plain	16 200	9.9	1 to 4

The population numbered 398 998 people in 1988, of which nearly fifty per cent lived in the capital, Paramaribo, sited at the coastal area. The majority of the population lives in the coastal area, while some 50 000 people live in the hinterlands. The population consists of Creoles, East-Indiana, Javanese, Chinese, Amerindians and European descendants. The official language is Dutch. The majority of the people can speak the native language, Sranang Tongo (lingua franca); Spanish, French, Hindustani, Javanese and Chinese are also spoken. English is spoken by all the people who have attended secondary education.

The date of independence was 25 November, 1975. The flag of Suriname consists of a field in the form of a rectangle, with five horizontal bars and a yellow five-pointed star on it. The bars are, from top to bottom, green, white, red, white and green, successively, in the proportion of 2:1:4:1:2. Green symbolizes the fertility of the country, white symbolizes the justice, red expresses the love which urges on the action, the star symbolizes the unity of the nation and yellow represents sacrifice.

B. History

The name Suriname is considered to originate from an Amer-Indian tribe, which was driven away by the Caribe. The first successful settlement was founded in 1651 by an Englishman, Francis Lord Willoughby, of Parham, Suffolk. In 1667, Suriname was ceded to the Dutch in exchange for New-Amsterdam (NewYork). The colony developed a prosperous plantation economy based on slave labor imported from Attica, producing sugar, cotton, cocoa an coffee.

The following century was one of economic decline and political turmoil. Many slaves rebelled and fled into the jungle, banding together and conducted raids on the plantations. Military expeditions against the marrons resulted in repeated defeats for the army and in the exhaustion of financial resources. When the abolition of slavery in 1863 produced a critical labour shortage, the Dutch colonizers began to import contract workers from China, lava and India. While the Creoles improved their agricultural activities without many help of the colonizers, the Indians and Japanese were installed as independent small farmers after the ending of their contracting period. In 1890, 90 per cent of all agricultural products were grown on plantations and 10 percent on small farms. These figures were reversed in the subsequent half century with the plantations crops such as rice, bananas, and oil palm. There also some state plantations, which are very unprosperous due to a management problem, and there is a number of large private enterprises, especially in the rice sector.

The economy is based mainly on the Alcoa Foundation and Bilitonb Group controlled mining of bauxite, which together with its derivatives (alumina and aluminium), provides 80,0 per cent of the export earnings. The agriculture, animal husbandry, fisheries and forestry sector earns about 10,2 per cent of the GNP. The agricultural sector earns 4,9 per cent to the gross national product (GNP) which was Sf 2,504.9 (millions) in 1989 (official rate US 1.00 = Sf 1.79. Our main export product is rice, followed by fishing products, particularly shrimps and bananas. There is also an export of wood and wood products.

Table 2. Information about the three most cultivated crops

Crops	Total area (ha)	Production (tone)	Jobs offered
Rice (in 1989)	50 000	260 000	8 000
Bananas (in 1987)	2 000	54 000	1 662
Oilpalm (B. giuneensis) (in 1989)	6 128	--	636

As a result of the armed disorders in the hinterlands, which started in 1986, the

oilpalm sector suffered serious damage and the exports of palmoil -which totalled 663 ton in 1986- fully ceased in the following years. Because of the great number of (parttime) small farmers employed, the vegetable sector is considered a very important one. The 1989 area was 1 491 ha, with a production of 15 891 ton, partly destinated to the local market and partly to the export market. An estimated 3 000 to 4 000 part-time small farmers are involved in this sector. The animal husbandry sector consists of some 76 000 cattle and 20 000 ha grassland, mostly natural. The number of poultry totals 6 210 000 and the number of pigs, 21 000. The 1988 estimated milk production was 14 400.00 liters, which by large is not sufficient for the local market. The eggs production of 64 400.00 was satisfactory for the local market.

While the country is focussing on a further sustainable development of the subdescribed sectors, there are also plans to develop some other sub-sectors, such as the soy-bean production for cattle fodder and edible oils; peanut production for local consumption and agro-industrial activities; and the production of several types of tropical fruit items, such as passion fruit, west-indian cherry, pine-apple, papaya, mango and carambola, destinated to the local fruit agro-industry and exports. There also exists plans to further improve the fishery sector and develop the populational fishery, which is practiced by small fisherman both at the Atlantic coast and the inland Avers, which are some times very turbulent.

C. Institution

The Ministry of Agriculture, Animal Husbandry and Fisheries is divided into six staff divisions:

- **Agricultural Research**
- **Economical Planning and Development**
- **Juridical and International Affairs**
- **Public Relations**
- **Administrative Affairs**
- **Financial and Compatible Affairs**

Furthermore, there are three Departments: Agriculture, Animal Husbandry and Fisheries. The main task of the Department of Agriculture, which is by far the largest, is to execute the Government's agriculture policy towards the agricultural sector and to retain contacts with the agricultural population. The tasks of the agricultural extension section are the transfer of knowledge, the improvement of farm-management, the organization of agricultural producers in cooperatives, the propagation of the Government's agricultural policy, the diagnosis and solution of field problems and the improvement of the rural living conditions. The tasks of the agricultural education section are the organization of in-service training and training for the farmers and

other clientele groups. Home economics and 4-H activities are covered by the section of the same name.

The country is divided into three regions, each one with two or more districts. Each district has a local office, which acts as an overall representation of the Ministry of Agriculture. One of the most important tasks of these local offices is agricultural extension, which is fulfilled by several lower and middle level extensionists. The local office is headed by a higher educated extensionist. There are none or very few extensionists in the districts. The head of the local office, apart from leading the extension activities, has to guarantee the in-flux of agricultural inputs and implements at his district, which takes the majority of his working time.

C. Employment

The total labour force has been estimated to be 30 per cent of the population, half of which corresponds to the 15-29 age group. It is estimated that nearly 40 per cent of the economically active population (15-65 age group) is either unemployed or underemployed.

Table 3. Distribution of employment compared with the total number of employment

	1984	1985	1986	1987
Agriculture, Animal Husbandry, Fisheries and Forestry	16 700	16 260	15 884	14 360
Total number of employment	99 123	98 003	95 841	92 361

In 1985, almost 85 per cent of the 17 000 farm operators were classified as parttime, with only 15 per cent full-time. Currently, there are thought to be about 16 000 farm operators, with the majority having a second or main source of off-farm income, particularly in the Government sector or as labourers.

E. Land tenure

Table 4. Land tenure

Tenure	Area (ha)	Per cent
Private ownership	37 000	21.7
Rented for private	3 600	2.1
Long lease from Government	46 500	27.4

Rented from Government	26 200	15.4
Other forms of occupancy 1/	56 700	33.4
TOTAL	170 000	100

1/ Domain (Government) land and communal ownership.

The distribution of land corresponds to the Ministry of Natural Resources and Energy. One of the pre-requisites for the acquisition of land is a technical advice from the Ministry of Agriculture.

Table 5. Farm size distribution

Size	Number of holdings	Number (%)	Area (ha)	Area (%)
Less than 5	16 825	82.5	21 590	20.3
5 to 10	2 123	10.4	11 270	10.6
11 to 20	836	4.1	8 070	7.6
21 to 100	414	2.0	10.270	9.7
More than 100	130	0.6	55.090	51.8

TOTAL	20 328	100	106 290	100

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3.13 Trinidad and Tobago

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The current status of the cottage industry in Trinidad and Tobago

Dr. Maura Imbert Principal Researcher, Caribbean Industrial Research Institute (CARIRI) West Indies University

3.13.1 Executive summary

The Ministry of Works, Industrialization and Decentralization has established an Industrial Cottages Programme in Trinidad and Tobago. This programme covers a wide range of activities, which include agro-processing, fabric design incorporating batik, silk screening and tie dying, manufacture of furniture and toys, handicraft and musical

instruments. Appropriate lines of the cottage industry products are selected to suit the orientation, location and basic skills of the unemployed residents in a community. Emphasis is placed on the use of indigenous materials in all cottage production. A state owned private limited liability company is being established to carry out the commercial activities of the programme.

3.13.2 Introduction

The Industrial Cottages Programme arose out of the desire to introduce production activity into the community in the form of cottage industries, in a setting in which such economic activity is closely associated with social and cultural life in each particular community. In the basic system, an attractive complex of buildings has been constructed within the community, and equipped with facilities and machinery to enable a selected range of products to be manufactured. The structures also serve to accommodate some of the social and cultural needs of the neighbouring residents, so that a positive bond has developed within the community. This bond has been made even stronger by the methods of construction used, in which the very community members who are to benefit from the facilities are employed as labour intensive construction workers during the construction phase.

Community business organizations (e.g. the Community Economic Cooperatives) were

invited to send its members (youth in particular) for further orientation and extensive practical training in cottage production and business management. During and after training, occupants of the cottage are involved in actual production of goods for the marketplace. Emphasis is placed on the use of indigenous materials in all cottage production and also on achieving and maintaining high standards in goods produced

Accordingly, strict quality control is applied to qualify products for trade under the trade name of Cottage Products.

The Cottage Administration is responsible for the purchase of input materials to in-house cottage production and for the marketing of finished products. To carry out this commercial activity, a state owned private, limited, liability company is being established. The company is expected to operate as a self-supporting organization, charging appropriate fees to the community business organization utilizing the Cottage and to the Government for any training or promotion services it performs on behalf of Government.

Beyond direct production within the Cottage facilities, persons trained at the Cottage or elsewhere are expected to carry out cottage production at their own premises utilizing the equipment and other services available at the Cottage. This includes purchasing arrangements for input materials (at bulk-purchased prices), quality control

services and marketing arrangements. Thus, the community is expected to benefit from the advantages of large scale production, including Cottages, while also promoting the Cottages Programme, with the potential for expansion both in respect of production effort and output, and in respect of community linkages for domestic marketing purposes.

The Industrial Cottages Programme is expected to result in the development of expertise in particular production lines within communities, allowing each community so served to establish itself locally and abroad as being specially associated with certain chosen high quality products. This would be the basis for the emergence of economic community vitality. While the community would continue to pursue other business activities of its choice, the industrial cottages would serve as the centres of excellence and example, and as an essential link within the wider chain formed by the emerging community business sector. The industrial cottages currently operating or expected to become operational in 1991 and the cottage industry products identified at this stage for the respective cottages are listed in the following page.

The Ministry of Works, Infrastructure and Decentralization and the Industrial Cottages Company are responsible for accessing and providing support services in respect of the Cottage and Craft Industry Programme. An in-house team of research training and marketing staff has therefore been assembled for the task, supported by the

Caribbean Industrial Research Institute (CARIRI) and other consultants to the programme, and the full array of Government's support services in Small Business Development, and in the trade and transport sector, is available.

Certainly, the concept of Cottage Industry is not new to Trinidad and Tobago. However, the potential for achieving far reaching results lies in the combination of this means of labour intensive industry with large scale community training and mobilization and effective national support.

4.13.3 Government policy

As stated in the Introduction, the Ministry of Works, Industrialization and Decentralization has launched the Cottage Industry Programme in Trinidad and Tobago. It has appointed consultants to this programme drawn from the University of the West Indies, the Caribbean Industrial Research Institute and other centres of expertise. These consultants provide an ongoing training programme to the trainees of the individual Cottages. They also assist in all aspects of Research and Development. Trainees are given a stipend during their training period.

Table 1. Industrial cottages operational in 1991 and associated lines of production

INDUSTRIAL COTTAGE DESCRIPTION	ASSOCIATED LINES OF PRODUCTION
RIVER ESTATE, DIEGO MARTIN	BATIK, SILKSCREEN AND TIE-DYE FABRIC; AND PATTERN DESIGNS
SOGREN TRACE, LAVENTILLE	TERITE SCREENS, BASKETS AND HOUSEHOLD ITEMS; TERITE
	FINISHED WOODEN FURNITURE
COCONUT DRIVE, MALICK	WOODEN FURNITURE, WOODCRAFT
BOURG MULATRESSE, SANTA CRUZ	MUSICAL INSTRUMENTS, TOYS, CRAFT
MOUNT HOPE	AGRO-PROCESSING: SAUCES, SEASONINGS, WINES, PRESERVED AND PACKAGED FOOD
TUNAPUNA	AGRO-PROCESSING: SOAPS, SHAMPOOS, LOTIONS, PERFUME OILS

BONAIR	WOODCRAFT, COPPER CRAFT, FABRIC WEAVING ETC.
MAUSICA	WOODEN FURNITURE, WOODCRAFT
PIARCO	BATIK, SILKSCREEN AND TIE-DYE FABRIC; AND PATTERN DESIGNS
FYZABAD	CRAFT, GARMENTS
PALO SECO	AGRO-PROCESSING. FRUIT PRESERVES, RAISINS, CORDIALS, NECTARS ETC.
LABREA	AGRO-PROCESSING FOOD PREPARATIONS
POINT FORTIN	BATIK, SILKSCREEN AND TIE-DYE FABRIC

4.13.4 Technical. economical and organizational aspects of the programme

The Industrial Cottage Programme in its present form has certain weaknesses which are mainly due to bureaucracy, shortages of raw materials and lack of marketing

expertise. The acquisition of essential services and equipment is often delayed because of an invoicing system distrusted by some suppliers. The utilization of raw materials for agro-processing is not yet fully developed, although a programme for the rehabilitation of local estates is addressing this problem. A consideration of the import of certain fruits and vegetables in the short term may be indicated to maintain the activities of viable processing ventures. A cross fertilization process within the Caribbean region, involving an exchange of formulations and expertise and offering training where required, should greatly enhance regional cottage industry. Market expertise must also be acquired, perhaps with the assistance of external funding agencies.

3.13.5 Participation of women

The Cottage Industry Programme in Trinidad and Tobago is heavily slanted towards the participation of women, who act as cottage supervisors in most instances and are in the majority in each group of trainees graduating from the various cottage training schemes.

3.13.6 Equipment and technology available for cottage industries

Availability of appropriate equipment and technology for the cottage industries is one

of the more serious shortcomings of this type of project. This difficulty stems from the fact that a high percentage of the agro processing equipment used in the country is imported from the developed countries. Since these imports are designed for large scale production systems, they are unsuitable for use in the industrial Cottages. Some small producers have tried using domestic small appliances. However, these appliances are not designed for continuous production and thus breakdown quite frequency.

CARIRI is now engaged in a project to promote the local manufacture of suitable pieces of agricultural equipment and machinery. This project specifically targets the small to medium size producer and a number of items has already been developed for the industry. The more relevant ones -all of them available on request through CARIRI's Machinery Development Unit- are as follows:

- **Honey Extractor**
- **Semi-Solids Filler**
- **Steam Blancher**
- **Cherry Pitter**
- **Cassava Grater**
- **Mixer Stirrer**
- **Motorized Grinder**

The thrust into the area of the cottage industries has also created problems with processing parameters, such as shelf life, separation, labelling, packaging, quality control techniques, etc. The technology for solving these problems are all available through CARIRl's Food and Beverage Agri Business Unit. This Unit is staffed by trained Food Technologists and Chemical Engineers who has at their disposal a Pilot Plant for trial and contract processing. This allows for verification of a process before actual production begins.

3.13.7 Summary and conclusions

The Cottage Industry Programme initiated by the Ministry of Works, Infrastructure and Decentralization is a viable entity in Trinidad and Tobago. Three Cottages are currently actively engaged in agro processing and the quality of products produced, under the guidance of CARIRI is steadily improving to the acceptable commercialization stage. Cottage activities have spearheaded efforts to reduce the current wastage of fruits and vegetables by inexpensive but efficient post harvest treatments. The formulation of the proposed limited liability company will greatly assist in the marketing of mango products.

3.14 Project Gcp/Jam/0161Net

Status of Postharvest activities of fresh produce in Jamaica with reference to export and food losses of small farmers

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3.14.1 Introduction

Jamaica depends heavily on its agricultural sector to provide exports, thereby earning valuable foreign exchange as well as to supply food for local consumption. In 1990, Jamaica earned US$ 161.5 million in the export of traditional and non-traditional agricultural produce. The traditional produce included banana, coconut, sugar, citrus, coffee and pimento and the non-traditional produce were tubers, vegetables, fruits and ornamentals. These produce were exported to the U.S.A., Canada, the U.K., Europe and other Caribbean islands, via air and sea freight. Most of these produce are cultivated on an estimated 193 000 farms of various size. However, most of the farming is done by small scale farmers representing 87 per cent of the farming population. Of this 76 per cent of the total number of farms exist, of 25 to over 200 acres of land producing sugar, citrus, banana, coconut, mango and papaya.

Due to the abundance of small farmers and their importance to the agricultural sector of the country, the problems of the small farmers have been given priority attention. As a result, the Government has formed the Rural Agricultural Development Authority (RADA), a statutory body which is legislated to provide an efficient extension service to the small farmers, particularly, and to participate in the formulation and implementation of rural development of agriculture in Jamaica.

Distribution of the bulk of domestic food supply (80%) is in the hands of the "higglers " (traders). These are a highly organized group of individual whose members are mostly women. However, problems exist in the system resulting in gluts versus scarcity and a wide range of prices throughout the country. Therefore, the present system is inadequate. Small scale farmers in hilly sections of the country continue to experience great losses in their production, due to enormous production and handling problems resulting into 25-50 per cent post-harvest loss. These farmers use marginal land which is subject to erosion, and grow short term crop such as vegetables, in order to obtain quick financial returns.

3.14.2 Project profile

The project is sited in the uppermost part of the Rio Minho watershed area in the Parish of Clarendon, which is in the Central part of the country and the project area

encompasses five districts. The terrain is fairly rugged with steep slopes. The project has the following development and immediate objectives.

A. Development objective

The development objective of the project is to reduce vegetable, root crop and legume losses and increase the amount of food marketed by introducing improved integrated farm management production systems and postharvest techniques to thereby improve the welfare of the hillside farming community.

B.Immediate objectives

The project's immediate objectives are to:

a)Reduce product losses occurring on the farm and in the marketing system; emphasis is to be given to roots, legumes and perishable vegetables.
b)Strengthen the extension services in hillside watershed districts by integrated pre harvest practices and training into the farm management and postharvest marketing programmes in the areas through the use of contact growers and higglers.
c)Develop cost effective disease and pest control recommendations and postharvest handling and storage techniques for extension programmes that are to be adopted by

at least 25 per cent of hillside farmers in the project area by the end of the project. d)Improve the higglers market intelligence and postharvest treatment of produce and increased feed-back of market demand information to growers.

C .Staffing

The project staff consists of the FAO Chief Technical Advisor, an Associate Professional Officer (APO), a National Postharvest Specialist, who is also the National Postharvest Counterpart to the project, and two Extension Officers employed by RADA in the Ministry of Agriculture. The APO assists with the training of farmers and higglers in the area of postharvest technology and other relevant area of knowledge. The Extension Officers assist with the dissemination of information via group extension activities which involve on-the-farm discussions and implementation of relevant techniques. Follow-up visits to individual farms of contact farmers take place. Technical advice and cooperation is given through a multidisciplinary task force and core team of resource personnel.

D. Project area

There are 800-1 000 farmers in the five project districts of Macknie, Coley, Sandy River, Mason River and Douglas Castle. Roughly one third of the farmers are women. There

are also about thirty higglers. The farmers are mainly small scale vegetable growers cultivating on sloping land subject to soil erosion. The types of crops grown by all farmers are:

a) Vegetables: lettuce, cabbage, pak choy and sweet pepper.
b)Root crops: yams, irish potato and dasheen.
c) Legumes: Limited amounts of red peas and guango (pigeon) peas.

Seventy percent of the farmers grow vegetables, 20 per cent root crops and the remaining 10 per cent grow carrot and legumes. Through several visits and meetings with farmers and higglers of the area and Government officials, it was agreed that there is a grave problem of postharvest loss (loss in quantity, quality and food value) in the crops produced, which ultimately resulted in financial loss to the farmers. Causes of this loss were identified and, through a diagnostic survey, the preliminary loss figures as percentage of the total amount of food harvested were revealed as follows:

- **improper harvesting 5-8%**
- **improper packaging 25-50%**
- **lack of appropriate transport 10-14%**
- **inadequate storage facilities 8-10%**

- **lack of market 40-100%**

E. Present situation of project area causing loss

1)Cultural practice: Vegetable plots are planted by means of broadcast sowing of seeds which present problems during harvesting. For example, in lettuce and cabbage, farmers and farm workers while walking in the field to select and harvest good quality produce, trample others causing wilting and physical damage. The high cost of inputs, such as fertilizer and insecticides, result in vegetables of poor quality being produced as the correct or recommended dosage rates are not being applied and also at the right time. This problem is further compounded by the inadequate extension and advisory service which is needed to provide the farmers with relevant information and the cost effectiveness of these chemicals.

Mixed cropping of vegetables and root crops or legumes is prevalent and is seen as a means of minimizing the risk of crop failures or low prices. Inter cropping of vegetables with perennial crops (e.g. coffee, cocoa, citrus) is not widespread as in later years, the perennial crop will prevent the growth of profitable short term crops. Soil conservation practices are being used by 80 per cent of the farmers in the form of terracing and contour planting. However, crop rotation is not used on a planned basis in order to maintain or replenish soil fertility. The farmers view this method as unnecessary as

long as they use commercial fertilizer.

2) Harvesting: Harvesting is done mainly by the farmer and his family or workers but may also be done by the higgler under the supervision of the farmer. However, immature crops may be harvested in order to obtain high prices early in the season or to prevent praedial larceny. The wrong tools are being used by some farmers in harvesting vegetables and root crops, for example machette for reaping root crops and vegetables. Sticks are used to pick fruits.

3) Packaging: The fanners and higglers package the vegetables for transport to market in a variety of containers. The most common packing materials are crocus bags, wire-bound chicken boxes and plastic bags. These containers are also overfilled to the point of crushing a large portion of the perishable produce, such as lettuce and other leafy vegetables. Reasons given for this practice are:

a)The transporters of vegetables to the market charge on the basis of the number of bags-boxes and not on the basis of weight; therefore, over-packing leads to more produce per unit container.
b)The market fee is based on a unit cost, i.e. $ 10.00 per piece.
c)The handling charges in the market are also based on a unit cost.

4)Transport: Orders for produce to be taken to the market are usually given out about two weeks in advance by the higglers to a number of farmers. The farmers then harvest, pack and leave the bags by the roadsides to await the higglers transport. In view of the way in which the vegetables are packed and left uncovered in the tropical sun, some degree of postharvest loss must take place. Packing in or on top of the vehicles further add to the level of loss resulting from friction and impact damage as on reaching the market, a substantial portion of the produce must be peeled off and discarded before it is sold. In addition, the produce travels at various times of the day in uncovered vehicles.

5) Marketing: Marketing is a serious problem to the farmers in the area and farmers may lose up to 100 per cent of their produce due to lack of markets. The higglers are responsible for taking the produce from 75 per cent of the farmers out of the area to nearby rural markets or urban cities. Only 15 per cent of the farmers have contractual arrangements with wholesalers and 10 per cent of the farmers market their own produce in similar markets. With regards to the higglers, there are three types:

a) The higglers who are also farmers and sell their own produce.
b) The higglers who sell their own as well as purchase produce from farmers.
c) The higglers who only buy and sell.

A financial problem exists between the farmer and the higgler. The farmers goods are usually taken on "credit" and she/he is not paid until after the higgler returns from the market. The farmer is then paid based on the sale price of the produce and the quantity sold. This is due to the complaint by the higglers of about 50 per cent loss due to improper packing, bad road conditions, lack of transport and other problems. It should be noted that this loss is outside of that compensated by the farmers in an extra 10-20 per cent weight on sale to the higglers.

F. Activities undertaken by the project

The activities undertaken reflect recommended postharvest food loss reduction techniques agreed upon via discussions with the relevant personnel. These are being implemented on a pilot scale to assist in food loss reduction and create awareness among the target/contact farmers and higglers. For full cooperation with these persons and to carry out effective and sustainable postharvest loss reduction techniques, the farmers and higglers must be able to sell at a profit that "extra" amount of food that has been saved from spoilage. Therefore, any new postharvest technique introduced must be cost effective.

Twelve contact farmers and six contact higglers have been identified in the project area according to their geographical spread and the commodities they produce or

trade. These persons (two) are chosen every growing season within the year. They are used by the project to disseminate new ideas and knowledge to a wide section of farmers and higglers. The contact groups' farms which are being used for demonstration and training are also carefully located at strategic spots that would allow other farmers (average twelve) easy access from surrounding areas during demonstration and training sessions. In addition, one contact group is not used on a permanent basis so as not to create jealousy among other farmers.

a) Production: In this area, the project is involved in training and advising the farmers in improved cultural practices in row planting, proper spacing, optimum fertilizer use and safe use of agricultural chemicals. Training carried out by the project team takes place on demonstration plots on contact farms. The project provides all the necessary inputs such as good seeds, fertilizer and chemicals for the training sessions. Introduction of new variety of vegetables, such as celery and broccoli, are being grown to demonstrate crop diversification and production for the specialized tourist market. Also, in the area of crop diversification five farmers have been selected for production of one-acre of coffee and twenty farmers have been selected for production of one square chain of land of yarn by the mini-set technique.

Initially, one farm in each district has been selected to demonstrate good farm management practices and soil conservation methods. Leucaena and Pennisetum sp.

P.I.3 00086 (Ring grass) are being used to construct contour barriers and plans are being made for the orderly production of crops on yearly basis between the barriers. Crop rotation will be practiced. Again, these farmers are centrally located and therefore should influence other farms with similar conditions.

A detailed calendar of farm operations was prepared by the project staff for the main crops grown in the area. This calendar incorporates cropping seasons, status or each crop, nature of commodity, input requirements and any pressing concerns of farming in the area regarding the commodity. It is extensively used by the project staff in selecting relevant and seasonal extension and postharvest messages and training topics. To date, through the group extension activities a total of 233 farmers have been contacted. This corresponds to the total expected to be trained by this process by the end of the project. Of this number, 141 farmers have had follow up visits.

b) Harvesting: Appropriate tools will be implemented in the harvesting of vegetables and toot crops. Attempts made by the project to persuade the farmers to desist from the use of the machette and fork in harvesting have been discouraging. However, the project plans to purchase and distribute the recommended tools for training and demonstration purposes. These tools are basically knives for harvesting vegetables, harvesting poles for fruits (e.g. ackee) and forks for root crops. The use of forks in the area is by no means new, but they are used exclusively for land preparation.

c) Packaging: The project has purchased 150 plastic stackable crates, which have been distributed to the higglers in the various districts on a loan scheme of six for a period of 4-6 weeks, in order that they identify the effective use of the crates. Instructions on the use of the crates are given, especially that of overpacking which defeats the effect. These crates are being used alongside the traditional packaging materials to highlight the effective use. Preliminary evaluations show only a 4 per cent postharvest weight loss with the use of the plastic crates in comparison to 25 per cent for the traditional packaging materials. These results obtained will be used to create a greater awareness among the farmers and higglers. Some of the higglers to whom the crates were loaned, have profited from the use and therefore are enquiring about the purchase of the crates. Therefore, the project team is negotiating with the relevant authorities on their behalf.

A packaging and temporary storage shed has been established in one district. This shed has a two-fold function and therefore consists of two rooms. One room contains a long table on which produce can be sorted, graded, packaged and weighed. By way of a connecting door, the produce can be moved to the other room which contains wooden pallets on which the packaged produce can be placed for temporary storage while awaiting transport. In this way, the produce is protected from adverse conditions and the shed acts as a convenient central loading point. The shed is enclosed by protection. Ii is hoped that the shed will also act as a buying point

between the farmers and higglers, therefore allowing for physical inspection, grading and packaging of produce so as to eliminate the mistrust that exists between the farmers and higglers. As a result, a price could be agreed on before the produce is taken to the market. It is proposed to build similar sheds in the other districts.

G. Transport

Through the Agricultural Marketing Project funded by USAID in 1980-1987, a Peoples Marketing Organization was formed in one of the districts. This organization is similar to a cooperative, consisting of a group of farmers constituted to undertake the marketing of members' crops and to supply production inputs to its members. This organization was provided with a vehicle for transport of the farmers' produce to market sources. At present, the vehicle needs servicing and the project is assisting with its repairs. In return, it will provide transportation of the farmers' produce to the market. In addition, the project will be purchasing five canvas tarpaulins to be loaned to higglers with their own transport on a short term basis for them to see the effect of covering the produce during transport, therefore reducing the level of postharvest loss.

H. Marketing

The project is trying to reduce the market problems of gluts and low paces for the

perishable produce being experienced by the farmers and higglers by:

a)Introducing Farmers' Markets on a weekly or biweekly basis in which the farmers are encouraged to sell their produce in large urban centres where more consumers can be reached and possible higher paces received.
b)Establishing purchasing arrangements between wholesalers and the farmers/higglers. The wholesalers are encouraged to come to the project area, therefore eliminating transport problem; in addition, the packaging shed would be fully utilized.
c)Encouraging the production of crops with guaranteed export market, e.g. coffee and yam grown under the mini-set yam technique which is produced for the export trade.

3.14.3 Development of cottage industry

The project staff has investigated the possibility of introducing the concept of food processing as a means of reducing postharvest loss in the community. However, due to the type of produce grown (mainly vegetables), not much can be done. This explains the emphasis of the project to reduce damage and assist with marketing.

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4. Summary of the roundtable presented by the chairman and rapporteur

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On 8 November 1991, the participants at the Roundtable agreed to the following:

From the Roundtable discussion, it was clear that the primary concern expressed by all was to provide adequate supplies of good quality food and that produce and products be made available at reasonable prices to meet basic population needs. Programmes to increase agricultural production have been made a priority by all countries, but because of the lack of proper information, distribution, marketing, postharvest treatment and packaging, there are still considerable postharvest losses, resulting in low productivity and high prices to the consumer.

In parallel with these initiatives, most countries felt that there is a compelling need to develop the agro-food industry sector and in particular a cottage agro-food industry in the rural areas where primary production is taking place, thus reducing postharvest

losses. This type of development will also contribute to the economy of the farmers, rural communities, and ultimately, the country through the value added benefits to be derived from the successful implementation of such a project.

In spite of the above, most countries highlighted the following constraints.

1) Production

The seasonal nature of agricultural production resulting in gluts and unplanned production was found to be a major contributor to the postharvest problem. There is a high per unit cost of raw material, low productivity and the lack of an appropriate pricing policy for the agroprocessing subsector. Example includes tomatoes in The Bahamas, mangoes in Jamaica and nutmeg in Grenada.

Information from all countries on the question of contract farming got mixed reviews, as some farmers and contractors break contracts for economic gains; in general, a lack of trust exists between the farmer and food processors.

2) Dissemination of information

The inadequate dissemination of information to the agricultural sector concerning cultivation practices, land preparation, pest control, and proper land usage, all affect the primary production stage and, therefore ultimately, the productivity.

The problem of low productivity also includes inadequate distribution and marketing. Information on postharvest treatment and packaging are lacking also, and onmarket intelligence does not reach the producers in a timely manner. Consequently, there are no buyers and the farmers are forced to sell just to recover cost or lose the crop.

3) Marketing

Marketing was a primary concern of all countries, as market intelligence was missing in the sector both for fresh produce and cottage industry. There is need for improvement in the packaging material and the concept of labelling.

4) Policy and incentive

Governments need to be committed to policies which support cottage industries. This will facilitate effective projects or programmes to enhance production and efficient utilization of the primary produce.

5) Target groups

Community groups and particularly women need to be involved in all areas of the production, therefore the planning process should recognize their contribution to economic development.

6) Financing

There is a lack of adequate funds to finance agroprocessing activities.

7) Organizational structure

Most countries described a lack of an organized structure with the appropriate linkage to promote and support agrobusiness.

8) Institutions and human resources

These have been described as both weak and inadequate and need to be strengthened, both through national and international assistance.

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5. Recommendations of the roundtable

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On 8 November 1991, the participants at the Roundtable agreed to the following:

1)In the CARICOM countries, the extent of postharvest losses of fruits, vegetables, roots and tubers varies from 20 per cent to 50 per cent of the fresh produce depending on the type of raw material. The need to reduce these losses is considered as a priority, in order to increase volumes and improve the quality of the produce.

2)The development of small commercial enterprises through the introduction of small scale processing should help to reduce postharvest losses and to generate employment in rural areas.

3)The activities conducted in the CARICOM countries under the umbrella of the Caribbean Technical Cooperation Network on Agroindustrial Development are recognized. Activities should be expanded with the objective of disseminating information to existing cottage industries in the rural areas. To facilitate the process, each country will provide the names and addresses of entrepreneurs in rural areas to whom the Circular Letter will be sent. It will also be sent to the national focal point who would send the Letter to representatives of perspective cottage industries.

4)Training of farmers and agroprocessors is required in all aspects of cottage industries, i.e.: production, packaging, labelling, marketing and postharvest techniques.

5)This training would be carried out at CARIRI/Trinidad and Tobago and at the Food Technology Institute in Jamaica, as well as at other appropriate institutions. Current training courses, existing training courses canted out by UWI, CEPAT and by the CDB's, CTES programme, should be expanded to include small scale agroprocessing. Funds for training should be provided by international agencies such as FAO.

6)Cottage industries should operate along sound business principles. Relevant local agencies, such as industrial development corporations and development banks, should be encouraged to provide business counseling and extension services to cottage industries through field officers, in order to promote sustainable business operations.

7)There is a need for financial development institutions to obtain project profiles of cottage industries for financing. CARIRI can be approached for assistance in providing models of these profiles. Funds should be made available for development of cottage industry profiles for interested countries.

8)Efforts should be made to encourage special rates of interest on existing loan facilities for cottage agroindustries, i.e. low interest, little or no collateral.

9)In addition, FAO should seek to establish trust funds on cooperative agreements with specialized international agencies (UNICEF, DAF, World Bank, EEC, IDB), which

provide appropriate low interest/grant funds for cottage industries.

10)Non-governmental organizations should also be approached to access funds on behalf of cottage industries in their countries.

11)Bearing in mind that the availability of reasonably priced packaging is a constraint in many countries, there is need for central, local or regional facility for importing and selling a variety of packaging material to small agroprocessors. This would be an interim measure aimed at facilitating the availability of packaging materials in countries where no manufacturing of packaging material exists. This should stimulate entrepreneurship in packaging within the private sector in these countries.

12)Where packaging is unavailable, due to lack of appropriate technology, i.e. package molds, efforts should be made to standardize and produce packaging efficiently for the region. Since poor tabelting is common throughout the region, there is need for special attention to be paid to this aspect of agroprocessing. Cottage industries should consult the appropriate technical institutions in each country for advice before designing labels for their products. Marketing expertise for small agroprocessors is lacking throughout the region. External funding is required to provide a marketing advice for short term attachment to the countries in the region.

13)The Regional Network should be expanded, so as to provide for the proper exchange and dissemination of information on successful cottage agroindustries. The onus should be placed on the national governments to ensure the success and viability (long term) of this Network. Specific technology developed in various regional institutions should be exchanged via an identified network representative in each country. Newsletters should be exchanged on a regular basis. Exhibitions may be held annually in different countries each time, highlighting successful cottage industries.

14)The University of the West Indies (UWI) should be accessed to provide information on research which has been conducted in food technology. Other regional and extra-regional organizations should also be accessed for relevant information on food technology.

15)A regional (CARICOM) project should be embarked upon for cottage industry development in rural areas. A regional coordinator should be appointed to supervise this project. The necessary support facilities (e.g. training) for the project need to be set up. The regional coordinator, after receiving inputs from the Caribbean countries on the nature of the project will decide on the project and submit it for financing to donors.

16)Appropriate, proven and inexpensive technology should be disseminated through

all CARICOM countries via both the press and radio media. The portable processing kit demonstrated by FAO is regarded as a useful tool.

17)There is a need for an inventory of available small-scale processing equipment: where such can be purchased and other general information on technology.

18)There is a need for continuity in the transfer of technology, so that countries may be kept informed of the available technology. Teachers and the education system need to become involved in agro industry extension. Agroprocessing should be worked into the school curriculum (via the Food and Nutrition and/or Home Economics Programmes). NGOs should also be involved in this extension service.

19)There is a need to standardize quality in agroprocessing products. In this regard, Standards Bureaux should be established in countries where they do not currently exist. Where CARICOM standards exist, they should be used as guidelines and where there are no CARICOM standards, international standards such as ISO and FAD/WHO Codex Alimentarius standards, should be adopted.

20)The quality control laboratories, mandated with policy and ensuring food standards need to be strengthened to the level where they are able to adequately and competently perform their function.

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6. Follow up activities

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The following was recommended:

1)Preparation in RLAC of a subregional project proposal on the development of agroprocessing centres at the small-scale level in the CARICOM countries, to be submitted to an international institution for funding. The special role of women will be considered.

2)Preparation of a technical document on the presentations submitted to the Roundtable, provided that suitable funding is available.

3)Strengthening the Network by disseminating information to agroprocessors in the region, through the national coordinators.

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Annexes

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Annex I : List of participants

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Annex II : Agenda and time-table

Tuesday. 5 November	
	Arrival of participants.
Wednesday, 6 November	
08:30 - 09:30	Registration of participants at Queen's Room of the
	British Colonial Beach Resort
09:30 - 10 45	Opening ceremony programme
	Master of Ceremonies: Dr. Prince Bonamy, Act. Director
	of Agriculture
	National Anthem: Mr. Teleford Johnson, Computer
	Programmer Trainee
	Invocation: Mr. Chaly Swann, Senior Marketing Officer
	Remarks: Dr. Prince Bonamy, Act. Director of
	Agriculture, Dr. L. Barbara Graham, Officer in Charge,
	FAO Office, Jamaica, Dr. Gaetano Paltrinieri, FAO

	~~Regional Food Technology and Agroindustries officer,~~ RLAC, Chile
	Address: Hon. Perry G. Christie, Minister of
	Agriculture, Trade and Industry
	Vote of thanks: Ms. Patricia Minnis, Microbiologist
10:45 - 11:00	Refreshments
11:00 - 11:30	Election of Chairperson, Rapporteur and Committee
11:3- - 11:50	Presentation of the Roundtable, G. Paltrinieri, FAO
11:50 - 12:10	Introduction of participants
12:40 - 13:00	Discussions
13:00 - 13:10	General information for participants
13:10	Lunch break
15:00 - 16:00	Presentation of summary country reports (St. Vincent
	and the Grenadines, St. Kitts and Nevis and Jamaica)
16:00 - 16:30	Discussions
16:30 - 17:20	Presentation of audiovisual material "preserving

	tomatoes", G. Paltrinieri, FAO
17:20 - 18:45	Discussions
18:45 - 19:30	Cocktail party and dinner at Workers House

Thursday. 7 November

08:45 - 09:15	Presentation of working document of the development of the cottage industries in the CARICOM countries and audiovisual material, G. Paltrinieri, FAO
09:15 - 09:45	Continuation of presentation of summary country reports(Belize, Trinidad and Tobago, Guyana, Grenada and Barbados)
09:45 - 10:00	Summary of country reports (Chairman)
10:00 - 10:45	General discussions
10:45 - 11:00	Refreshments
11:00 - 12:00	Visit to P.W. Abury & Sons processing factory
12:00	Lunch break

14:00 - 14:45	Presentation of technical document and audiovisual material by Project GCP/JAMt016/NET "Training in integrated postharvest techniques and management for hillside farmers" (National Project Director)
14:45 - 15:00	Discussions
15:00 - 16:30	Continuation of the presentation of summary country papers (Dominica, St. Lucia, Suriname, Antigua and Barbuda)
16:30 - 16:45	Refreshments
16:45 - 17 :15	Discussions
17:15 - 17:30	Presentation of audiovisual material on equipment and packaging suitable for the cottage industry, G. Paltrinieri, FAO
17:30 - 20:30	Drafting of recommendations by the Committee
Friday, 8 November	

09:00 - 09:45	Adoption of the final recommendations
09:45 - 10:00	Final discussion on the Network
10:00 - 10:45	Election of the international coordinator of the Network
10:45 - 11:00	Refreshments
11:00 - 12:00	Visit to the Bahamian Cottage Industry Products Display in the Queen 'a Room
14:30	Lucheon at the British Colonial Beach Resort
16:00 - 17:00	Closing ceremony
	Invocation: Mr. Arnold Dorsett, Act. DDA.
	Remarks: Mr. Alwyn Lynch, Chairman of Roundtable,
	Mr. Gaetano Paltrinieri, FAO Regional Food Technology
	and Agroinduatries Officer, Mr. Eric Carey, Bahamas,
	Hon. Perry G. Christie, Minister of Agriculture, Trade
	and Industry
	Presentation of participants' certificates: Mr. Betty
	Strachan, Chairperson Public Services Commission

Saturday, 9 November	Vote of thanks: Ma. Brenda Garbutt, Belize
	Departure of participants

Annex III : Technical material distributed during the roundtable

- **Improvement of postharvest fresh fruit and vegetable handling. A manual prepared by FAO/RAPA-AFMA, 1986.**
- **Rural processing and preserving techniques for fruit and vegetables, FAO, AGSI, Rome.**
- **Preserving tomatoes, three home-processing and preservation techniques.**
- **Prevention of postharvest food losses: fruit, vegetables and root crops, FAO/PFL Training Series, No. 17/22.**
- **Packaging for fruit, vegetables and root crops. Field Document PFL/RLA/002/PFL.**
- **The Caribbean Technical Cooperation Network on Agroindustrial Development. AGRIN No. 9 by G. Paltrinieri (RLAC 91/93 AGAIN-09).**
- **Working document on the development of the cottage industry in the CARICOM countries, by G. Paltrinieri (RLAC).**
- **A market oriented approach to postharvest management, AGSM Occasional Paper**

No. 5 FAO, Rome, Sept. 1991.

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