IICA

IICA ACTION STRATEGY IN JAMAICA: 1990-1991

IICA OFFICE IN JAMAICA

The Jamaican Hillside Small-Farmer

In the hills of Clarendon North-East
Rides a man upon his friendly beast;
From the fields he winds his weary way
To return again at break of day.

Who is he? expatriate agents asked,
Why is he with hoe and machete masked
To pretend that he had been engaged
Where for food he chopped, dug, picked, foraged?

He is Joseph Abraham Palmer,
Jamaica typical small-farmer,
Bearing no pretence, his tools he bears,
Eking out existence through the years.

Sixty-five years old he heads for home,
Making way down tracks of slippery loam,
Thinking how from plot to plot he toils
Lands inadequate, infertile soils.

One half-acre plot he bought himself,
Quarter acre, from his father Telf,
Eight square chains in the Project Land Lease,
One acre rent-free from Aunt Vernice.

Food crops, vegetables, fruit and grain,
Plantain and bananas, food trees, cane,
These he plants in multi-cropping style,
Bit of everything, his farm's profile.

Hired labour he cannot afford,
Fertilizers, sprays are off his borad;
Conservation measures he ignores,
Rain for irrigation he implores.

Seven children have grown up and left,
Three remain, at farming none too deft;
They too seek fortune far from the land,
Where perception deems a life more grand.

yearly income, Five Thousand or less,
Struggling and concealing his distress,
Striving, never flinching, to support
Five of them, children and wife report.

Mister Palmer is the ideal type
Wearing rural hilside farmer's stripe;
Multi-parcelling, multi-cropping,
Multi-tenancy keep him hopping.

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IICA ACTION STRATEGY IN JAMAICA : 1990 -

1. EXECUTIVE SUMMARY

Jamaica constitutes an area of nearly 4.25 thousand square miles and has a population of approximately 2.25 million persons. Only 13% of the approximately 2.7 million acres that comprise the island falls within the classes I and II soil types (that is, relatively flat, fertile and arable lands of slopes less than 15 degrees). Eighty percent of the island's land can be said to be hilly or mountainous while 50% falls within the class IV and lower soil types.

The great majority of Jamaica's rural population is to be found in the hilly interior where the adults exist as small-farmers growing the staple foods, fruits and vegetables required by the rural as well as the urban population. The Agricultural Census of 1978/1979 reports the existence of approximately 184,000 individual farms ranging in size from under one acre to over 500 acres with the modal farm size (or 81.8% of the number of farms) falling within the "less than five acres" size category. Barriers to agricultural growth may be considered under four categories. The first is the historical disparity which leaves the small-farmer with inadequate plot size and location, tenure limitations, low productivity and inappropriate land use systems. The second relates to the first and includes high-expenditure low-returns risks, inaccessibility of necessary economic tools and a limited view of alternative production means and ends. The other two relate to technical and technological limitations and to a deficient or non-existent marketing intelligence system.

For Jamaica, the trade imbalance continues to be very high; import values are much greater than export values and exports lags behind desire and expectations. As national borrowing continues and as the dollar value remains low in comparison with the United States dollar, the balance of payments situation will continue to be adverse. For the 1984-85 financial year Jamaica's balance of payments stood at US$1,612.2 m. The present national debt stands at just below J$25 billion (World Bank Report, January 1989).

According to a recent USAID agricultural sector strategy document " the principal constraints to more rapid growth in the sector are: low productivity caused by obsolete technologies and insufficient and poorly trained labour, high cost of debt capital and inadequate equity financing, insecure land tenure, a banking system with limited ability/interest in dealing with small producers, a poorly funded and staffed public sector, a private sector management cadre inexperienced in exploiting quality conscious agricultural export markets, endemic praedial larceny, and absorption of labour in marijuana production (arguably the leading agricultural commodity in Jamaica) which probably contributes to higher production costs for other crops, as does emigration of labour to the United States." 1/

IICA's areas of action for 1990-1991 will focus on four major sub-areas within programmes 1, 2, 3, and 5. Under Programme 1, external financing shall be sought to assist the GOJ with a new project entitled "Strengthening the planning and administrative capabilities of the Ministry of Agriculture and the Planning Institute of Jamaica" . Under Programme 2, IICA shall continue the articulation of research and technology transfer activities with the Ministry of Agriculture, including assistance in monitoring and evaluation. Three externally-financed projects in cropping systems research and outreach (IDRC) and small farmers hillside development (USAID) are projected to continue through the biennium. Under Programme 3, the Small Business project shall be completed in 1989. It shall be replaced by the Youth Enterprise Project which will utilize the small business methodology along with the transfer of successful results from the Cropping Systems Project to involve more youth in Jamaican agriculture. The Farm Management Training and Generation of Information Project shall continue as planned. Both projects operate with quota funds, but external financing shall be sought to supplement operational costs. Under Programme 5, external funds are to be sought to cover the costs of a national professional who will be responsible for implementing the Jamaica component of the Caribbean "Animal Health and Plant Protection Information and Surveillance System".

The overall strategy for the 1990-1991 biennium is to assist the Government of Jamaica in bringing Jamaican agriculture back to it's pre-Hurricane Gilbert level of development, while at the same time developing, testing and improving certain technologies and methodologies which result in:

a. Linking the small farmers to the export market, thereby improving their chances of increasing income.

b. Assisting small farmers test and adapt appropriate technologies on their farms, thereby improving their chances of generating additional income.

c. Providing simple record-keeping information and analysis which will assist the MOA and the small farmers to monitor farm income and thereby, improve planning capability, which should lead to increased profits.

d. Encouraging youth to perceive agriculture as a serious and potentially lucrative vocation, thereby lowering the average age of the Jamaican farmer. Additionally, this methodology, once proven in Jamaican, may be reprocable in other Caribbean countries with a similar problem.

e. Providing policy-makers with projections and analyses of the impact of proposed agrarian policies.

f. Enabling the MOA to provide improved services in animal health and plant protection to the farmer and the country.

IICA's strategies and types of action in the country will include training, technical assistance, research and institutional support. The outcomes projected for IICA's action for 1990-1991 are the following for the above mentioned projects:

1. A Planning Institute of Jamaica and MINAG Planning Division with increased capability of policy analysis and project identification, preparation, appraisal and evaluation, thereby enhancing the possibility of obtaining funding from International Agencies.

2. A reorganization of the Research and Development division, as well as a definition of a national system of agricultural research and development throguh which farmers will be benefitting from improved technologies regarding farming systems including the cultivation of permanent crops and rearing of livestock on hillside levels of complementary cash crop production using selected annual crops.

3. Improved cost of production methodology and data base for crops and livestock activities. Design and implementation of a record-keeping system with selected participating farmers. Increased numbers of administrative and skilled personnel trained in farm management, management of rural small enterprises and in the formulation, evaluation and implementation of projects for small farmers. Generation of technical and economic information to analyze factors constraining small farmers' productivity and development for economic policy, extension and research recommendations.

4. Youth programmes with greater agricultural technology and small enterprise input, increased montioring and management as well as improved coordination with other national institutions.

5. Animal health and plant protection system which provides basic animal and plant health data, thereby eliminating the need for restrictions which interfere with international trade and allowing Jamaica to adopt plant health measures that would protect the country's agricultural industry without the obstruction of its international trade.

The resources required for the biennium are:

	1990	1991
Quotas (assigned)	398.363 *	399.079 *
Additional Quotas	17.049	17.765
Extraquotas		
Approved	291.466	229.489
Under Negotiation	69.835	186.130
CATI's	54.195	62.342
Total	830.908	894.805

The strategy to be used for securing external resources is to identify the appropriate funding source, prepare the project proposal and follow-up until funds are obtained.

2. AGRICULTURE IN JAMAICA

2.1. Overview of the social, economic, and political situation

2.1.1. Introduction

Jamaica constitutes an area of nearly 4.25 thousand square miles and has a population of approximately 2.25 million persons. The arithmetic mean, therefore, approximates a density of 530 persons per square mile. The Kingston metropolitan area and the parish capitals attract a much higher density, however, while the mountainous and deeply rural areas are neither conducive to residential nor agricultural usages and remain very sparsely populated for the most part.

Only 13% of the approximately 2.7 million acres that comprise the island falls within the classes I and II soil types (that is, relatively flat, fertile and arable lands of slopes less than 15 degrees). Class III soils (of slopes between 15 and 20 degrees) are suitable for intensive cultivation but economic feasibility and land conservation can be assured only with the use of major erosion control measures while classes IV and V lands (of slopes between 20 and 30 degrees) are suitable primarily for forests including fruit trees and timber. Eighty percent of the island's land can be said to be hilly or mountainous while 50% falls within the class IV and lower soil types.

2.1.2 Agriculture and the social situation

2.1.2.1 Characterization

Historically, agriculture in Jamaica has been characterized by a caste-like structure. At the lower level is a large number of small farmers (150,000 of them each with two or more small pieces of land amounting to a total of less than five acres) located mainly on the hilly, less arable and less accessible lands producing crops for the family consumption and for the domestic consumption market. At the upper level is a small number of large farm enterprises (fewer than 300 of them with 500 acres or more) comprise just 0.16% of the total number of farms but occupy just over 44% of the country's farmland (1978-1979 Census of Agriculture). The

following table shows up the disparity.

Table 1. Distribution of Farms by Size and Number

Size of Farm Categories	Total No. of Acres	Total No. of Farms
Under 1 acre	20,617	
1 - under 5 acres	187,028	150,633
5 - under 10 acres	132,701	
10 - under 25 acres	120,390	29,839
25 - under 50 acres	52,602	
50 - under 100 acres	56,372	2,400
100 - under 200 acres	63,328	
200 - under 500 acres	100,474	821
500 acres and over	585,616	295
Total	1,319,128	183,988

Source: Census of Agriculture 1978/79 (Preliminary)

The caste-like structure has been showing signs of change since the 1970s but such changes are negligible and sometimes reversal. The most significant has been the distribution of some of the flat lands to small farmers in leasehold tenancy and the shift of some of the larger enterprises from the large export crops of sugar and bananas to other crops such as vegetables, horticultural products and tubers. The policy of the present government has been to convert the leasehold system into a freehold system of settlement. The current land titling project is partly to facilitate the small-farmer's accessibility to farm development loans by providing him with the most significant collateral, the title to his land.

2.1.2.2 The Small Farmer and his role

The great majority of Jamaica's rural population is to be found in the hilly interior where the adults exist as small-farmers growing the staple foods, fruits and vegetables required by the rural as well as the urban population. The Agricultural Census of 1978/1979 reports the existence of approximately 184,000 individual farms ranging in size from under one acre to over 500 acres with the modal farm size (or 81.8% of the number of farms) falling within the "less than five acres" size category. There is no reason to believe that there has been any major change over the past decade.

The small farmer plays a very important role as the feeder of the nation. Agriculture for the small farmers, as a totality, includes the ownership of most of the goats, pigs, beef and dairy cattle and chickens although the small-farmer

families consume only a minimal amount of their production in this area; they keep the domestic market in constant supply. They also produce nearly all the vegetables, legumes, cereals, fruits, tubers, condiments and beverage sources for the nation. In contrast the larger farmers (those who concentrate on pure-stand farming or specialize in one or two agro-areas) produce primarily for the export market. Sugarcane and bananas (large-scale traditional export products) are produced by both small and large farmers who complement each other in supplying the export market. It is estimated that in 1981, 20,000 small-farmers produced 76% of the total sugarcane crop and an almost equal proportion of the bananas during the previous year.

The national economy, the domestic market and the export trade will continue to be dependent upon the efforts of the small-farmers.

2.1.2.3 Barriers to Agricultural Growth

Barriers to agricultural growth may be considered under four categories. The first is the historical disparity which leaves the small-farmer with inadequate plot size and location, tenure limitations, low productivity and inappropriate land use systems. The second relates to the first and includes high-expenditure low-returns risks, inaccessibility of necessary economic tools and a limited view of alternative production means and ends. The other two relate to technical and technological limitations and to a deficient or non-existent marketing intelligence system.

Several attempts have been made over the past forty years to address the problems and remove the barriers. These include the following:

- Farm Improvement Scheme of 1949-1955
- Farm Recovery Scheme of 1952-1955
- Farm Development Scheme of 1955-1960
- Agricultural Development Programme of 1960-1962
- Farmers' Production Programme of 1963-1968
- Farmer Development Programme of 1968-1972
- Self-supporting Farmers' Development Programme of 1969
- Emergency Production Plan of 1970
- Operation GROW of the mid 1970s
- Five-year Development Plan of 1978-1982
- Five-year Policy and Production Plan of 1983-1987

Many of the nearly one dozen programmes included soil conservation operations, loan provisions, farm development subsidies, low cost inputs and special purpose grants. It is the opinion of informed observers and investigators that many of these programmes and projects have failed to achieve their state objectives owing to political pressures and government partisan interference over the years.

2.1.3 Agriculture and the National Economy

Jamaica's economic development continues to be heavily dependent upon agriculture but with added emphasis over the past one and one-half decades. Over the same period the economy achieved a higher degree of diversification than it ever had before: this has been evidenced by such sectors as bauxite mining and refining, industry and manufacturing, and the distributive and service enterprises.

The trade imbalance continues to be very high; import values continue to be much greater than export values and exports continue to lag behind desire and expectations. As national borrowing continues and as the dollar value remains low in comparison with the United States dollar, the balance of payments situation will continue to be adverse. The international external community exerts much influence over internal affairs since that community supplies most of the local consumer goods and raw materials, provides the export market and fixes the prices, makes developmental and maintenance loans in their own favour and thus exercises a great measure of control over the national socio-political and socio-economic decisions. For the 1984-85 financial year Jamaica's balance of payments stood at US$1,612.2 m. The present national debt stands at just below J$25 billion (World Bank Report, January 1989).

The above factors have contributed to the subsidence in the delivery of social services and a stagnation of the social infrastructural activities particularly those that relate to education, health and community development on a national scale.

2.1.4 Agricultural Policy

The three major policy initiatives by the Government of Jamaica are the Strucural Adjustment Loan (SAL), AGRO-21, and the Five-Year Food and Agricultural Policy and Production Plan. With reference to agriculture, the SAL programme aims at the full development of exports and of domestic food production. The AGRO-21 programme aims at modernization of agriculture, with emphasis on non-traditional export crops, fishing and livestock, crop-zoning, optimal land use, efficient management and implementation of discrete commercially viable projects employing advanced technology wherever possible. The private sector is encouraged to spearhead these activities but the Government remains committed to providing basic infrastructure and may enter into joint-ventures with foreign and/or local entrepreneurs.

The Five-Year Food and Agricultural Policy and Production Plan aims at complementing the SAL and AGRO-21 programmes by seeking to ensure that production objectives harmonize and are always congruent with other medium-term objectives, notably, the consumption objectives

and small-farm development objectives. The central objective of the land policy is to maximize the yield and rate of return from agricultural land.

The stated goal of the current five-year Food and Agricultural Policy and Production Plan (1983/4-1987/8) is "the creation of a firm basis for ensuring sustained social and economic progress in Jamaica through . . . increasing exports, reducing imports and increasing domestic supplies of food and agricultural raw materials." 2/ The Plan states as a concrete objective that all Jamaicans shall receive adequate and nutritious food by 1988. No new five year plan has been devised, nor is there any projection for rolling the current one over. However, MinAg officers indicate that the five year plan cited above is still valid as not all projections have been achieved.

The Government distinguishes three categories of small-farmers. These are:

(1) subsistence farmers on arable holdings of 1 acre or less;
(2) the small-farm group occupying 1-5 acres of arable land;
(3) the small-medium farm group on 5-25 acres of land.

The policy proposals call for:

(a) the declaration of category (1) as a poverty group requiring special treatment and assistance from international funding agencies such as IFAD, FAO Investment Centre, selected government subsidies or grants;

(b) subsidies to category (2) to be reduced and redirected into production components in the short-to-medium-term and phased out altogether in the long-term as AGRO-21 develops;

(c) category (3) farmers to be used to spearhead technology diffusion to farmers in categories (1) and (2).

2.1.5 Agriculture and the Political Dimension

Over the last forty years Jamaica has been according agriculture the emphasis that it deserves and demands in the overall economy of the nation: successive governments, since Independence, have focussed on various aspects in varying degrees. The earlier Land Settlement Schemes, the Agricultural Cooperatives and Project Land Lease of the 1970s and the Land Titling Exercise of the 1980s have been efforts to address the imbalances and the deficiencies of tenure, credit accessibility and primary production in terms of both quantity and quality. Various foreign agencies have favoured and supported one or another development programme at various times and have sponsored and financed agricultural projects. What is needed, however, is a national plan that earns the support of the people, particularly the farmers, of international governments and donors and of the government of Jamaica. Whatever political party administers the

country at any given time, such a plan should inform and accommodate projects that will serve the enhancement and the development of the nation and its people.

The Jamaica Labour Party has formed the government of Jamaica since 1980. Parliament was prorogued on January 21, 1989, and February 9, 1989 was designated for the holding of the general elections. It is believed that whichever party forms the next government, agricultural development (including improved cropping systems, environmental control and conservation, expanded production for the local as well as the export market and the appropriate cultural practices) will continue to receive the attention of government as well as the supporting local and expatriate agencies.

2.2 Summary of agricultural sector problems

According to a recent USAID agricultural sector strategy document " the principal constraints to more rapid growth in the sector are: low productivity caused by obsolete technologies and insufficient and poorly trained labour, high cost of debt capital and inadequate equity financing, insecure land tenure, a banking system with limited ability/interest in dealing with small producers, a poorly funded and staffed public sector, a private sector management cadre inexperienced in exploiting quality conscious agricultural export markets, endemic praedial larceny, and absorption of labour in marijuana production (arguably the leading agricultural commodity in Jamaica) which probably contributes to higher production costs for other crops, as does emigration of labour to the United States." 3/

This report goes on to highlight one particular area of importance in agricultural development, by pointing out that "efforts to improve incomes of small, hillside producers while improving natural resource management through low input conservation technologies and agro-forestry appear to offer considerable potential for improving rural living conditions. The flexible design of these efforts will allow the programmes to adjust as more is learned about the problem and to incorporate a wide variety of approaches rather than a blanket solution." 4/

Recent interviews conducted by the IICA Representative with twelve key public and private sector individuals involved in Jamaican agriculture yielded consistent information regarding the most pressing problems in Jamaican agriculture which are likely to remain so through 1990-1991; these are:

A. Low productivity

This is caused by many factors, the most critical being that most Jamaican agriculture is rain-fed rather than irrigated; infrastructure, particularly road access to farms, is difficult; inputs are not easily accessible and are costly, planting material is also expensive and should be improved in quality; government

bureaucracy slows access to credit, technology, imported raw materials and inputs; low educational levels handicap the small farmer who is unable to keep records and read instructions on input labels; new technologies are not reaching farmers, particularly the small ones; and serious climatic conditions have affected Jamaica, which has had two floods, three droughts and one hurricane in the last three years.

B. Institutional

In the words of one of the interviewees. " Relatively low-productivity results in low profitability and inhibits new investment in the sector. Low productivity is due in part to environmental constraints, especially on the hillsides where soil erosion is a serious limitation and in other areas where there is insufficient drainage; but the more fundamental problem is the absence of a Research and Development programme for the sector with clearly defined goals and objectives."

Strengthening of both the Ministry of Agriculture's Research and Development and the Production, Extension and Marketing Divisions is important, as is improving the linkages between the two.

Other institutional limitations which impede the sector's development include:

- shortage of skilled technical staff
- poor inter-agency and intra-agency coordination
- ineffective management

In the words of another interviewee, "What is needed in the Ministry of Agriculture is a smaller, slimmer, more-high skilled staff; actions should be more-project-oriented with strong linkages to R&D and a more efficient marketing system."

C. Markets

Problems related to markets and marketing may be grouped in the following way:

C.1 General : Cold storage facilities are desperately needed. The PMO concept has shown some success and should be developed further.
The unavailability of an efficient market information system, both in regards to local and foreign demand supply.

C.2 Domestic : swings between glut and dearth of certain products

C.3 Export : international competition is stiff; Jamaican exporters pay a 55% on imported raw materials and inputs which makes competition difficult, when for example, the same tax in the Dominican Republic is 10% .

D. Land — Problems cited in relation to land were:
- unavailability of land highly apt for agriculture or easily accessed by roads
- land in current use, not being efficiently utilized
- poor handling of land to avoid erosion
- fragmentation and uneven distribution of land
- deforestation

E. Credit — Credit and capital-related problems were:
- Commercial banks have become less interested in providing agricultural loans
- small farmers are reluctant to borrow
- Medium and large farmers are unable to obtain credit with long grace periods necessary for the expansion of tree crops
- small farmers do not have collateral as few have titles to their land. Titling programmes will help, but this is a slow and difficult process
- Agricultural loans are often received in an untimely fashion, i.e. too late for the planting season

F. Policy — The lack of a clearly-articulated agricultural policy was cited by some interviewees as a problem, while some noted that follow-through was the main bottle-neck. At the regional level, concern was expressed that there be a harmonization of CARICOM agricultural policies.

G. Praedial larceny: This problem was mentioned by a number of interviewees who stated that no effective measures have been put in place to address it.

See Annex A for a list of those interviewed and questions asked.

According to the IDB 1988 Socio-Economic Report, "It should also be noted that the employed labor force in agriculture is estimated to be relatively old. At the end of the 1970s, for instance, census figures indicated that 70 percent of the labor force in agriculture was over 40 years of age, compared to 38 percent for the labor force as a whole. This has been regarded as a reflection of the poor opportunities offered in the sector to young people. Moreover, living conditions of most small farmers (about 80 percent of the total farming population) have always been difficult. Poor and primitive dwelling facilities, inadequate sanitation and unsatisfactory food intake are more the norm than the exception." 5/

This report goes on to say that, "In dollar terms, Jamaica has had a negative agricultural trade balance of around $100 million in recent years (measured by exports, f.o.b. minus imports, c.i.f.). A breakdown of this total for 1984 (the last year for which full

information is available) indicates that some 80 percent of this amount was for food. The most important categories of food imports were "cereals and preparations"; "fish and preparations"; and "dairy products and eggs". While these food imports were partially offset by net trade surpluses for fruit, sugar and coffee, the fact remains that in recent years, between one-quarter and one-third of Jamaica's total merchandise trade imbalance has been attributable to the deficit in trade of agricultural goods." 6/

Further information may be found in Annex B.

2.3 Outlook for the sector and investment projects

In 1987, GDP in the agricultural sector was estimated to have grown by 2.5% over the previous year. The main factors responsible for this growth were an increase in domestic food crops production as well as increased production of traditional export crops and improvements in the livestock, fish and poultry sub-sectors.

This growth trend was expected to continue based on the number of investment projects coming onstream during the medium-term 1987-1991. It was also projected that this medium-term growth in the economy would be in the region of 4.0% per annum. However, on September 12, 1988, Hurricane Gilbert struck and caused severe damage to all sectors, particularly, the agricultural. In the agricultural sector, capital loss has been estimated at over J$ 876 million (US$ 159 million) and loss of income projected for 1990 approximately J$ 249 million (US$ 45 million) in the domestic sector; 1991 export loss has been estimated at J$ 88 million (US $ 16 million) and domestic loss at J$ 21 million (US$ 4 million).

For citrus and mango, recovery is not expected until 1990-1991, while for coconuts it will take approximately seven years, for ornamental horticulture four years, and for bananas two to three years. For the domestic sub-sector, recovery is expected by the end of 1989. However, for the domestic food crops sector, additional food imports shall be required over the next nine to twelve months. Additional imports of planting material, fertilizer and farm tools will also continue during 1989.

Small farmers operate mainly on the hillsides and, as such, suffered major damages to their crops as well as serious soil erosion. However, developments in the sector are expected as stated government priorities are:

1. hillside development
2. irrigation
3. agricultural credit
4. provision of land titles to small farmers

Hillside Development

The objective of the proposed hillside development is "to develop appropriate strategies for hillside development compatible with conservation of the critical watershed areas by designing farming systems which will provide adequate returns to farmers while at the same time preserving the environment." Three major projects have been developed to address the above objective, namely:

1. Hillside Agricultural Project (funded by USAID)

2. Hope Watershed Project (funded by UNDP)

3. Hillside Farmers Support Project (funded by IFAD)

These projects will concentrate on the production of perennial crops utilizing improved production methods and practical technology. The Hillside Agricultural Project operates in the Rio Minho and Rio Cobre watershed areas of Clarendon, while the Hope River Watershed Project is operating in the Hope Watershed area. The Hillside Farmers Support Project will concentrate on watersheds surrounding Kingston and St. Andrew. This project is geared to intercrop coffee and cocoa and is essentially a credit project with support for annual crops and small-scale rural enterprises. Cash advances will be made to small farmers in order to provide additional income before the tree crops begin to produce. This is expected to reduce the necessity for farmers to take up off-farm jobs. Progress is expected in the land titling project where several small farmers will receive titles to their lands, thus making access to development credit easier for them.

2.3.1 Irrigation

Here the National Irrigation Commission (NIC), with responsibility for rehabilitation of the Rio Cobre area, plans to provide water for some 25,000 acres of land which will come into production with various crops.

2.3.2 Agricultural Credit

The main thrust in the area of agricultural credit focuses on the Jamaica Agricultural Development Foundation (JADF) for medium to large farmers. The Agricultural Credit Bank (ACB) provides loans at lower interest rates through the Peoples Cooperative Banks (PCB). The lower interest rate through the PC Banks should encourage small farmers to apply for more credit for resuscitation, rehabilitation and expansion of their farms.

2.3.3 Provision of Land Titles to Small Farmers

The objective is to provide 36,000 small farmers on Land Settlement

properties with registered titles over a phased period; 12,000 for the first phase and 24,000 for phase two.

There are a number of new and ongoing agricultural projects currently in operation. The following table shows a list of ongoing projects:

Table 2 : List of Ongoing projects

Project	Funding Agency	Cost (Million J$)
1. Jamaica Agricultural Research	IADB	22.870
2. Sugar Cane Energy Project	German Govt	37.950
3. Rural Physical Planning	USAID	----
4. Land Resources Assessment	Netherlands/ USAID	----
5. Citrus Development	EEC	16.030
6. Blue Mountain Coffee Project	Japanese Government	175.070
7. Lowland Coffee Project	EEC	17.500
8. Beekeeping Development Project	EEC	4.700
9. Tank Building Project	Netherlands Government	4.000
10. Hillside Agricultural Project	USAID	22.000
11. Hague/Meyersfield Development	Netherlands Government	ongoing GOJ
12. Oyster Culture Project	IDRC Canada	2.040
13. Agricultural Marketing Development	USAID	----

14.	Scientific Research Council	EEC	10.660
15.	Delivery of Veterinary Services	EEC	48.898
16.	Underground Water Authority	JPIP/UNDP/WMD	4.358
17.	Second Sugar Rehabilitation	IBRD	258.500
18.	Land Titling Project	UDSP/IDB	79.200
19.	United Nations Environmental Programme		----
20.	Environmental Management of the Hope River Watershed	UNDP	3.483
21.	Sheep and Goat Development	EEC	1.632
22.	Hillside Farmer Support Project	IFAD	78.100
23.	Small Farmers Credit Project	IDB/IFAD	127.700
24.	Export Crops	IBRD	162.160
25.	Jamaica Farming Systems	IICA/IDRC	4.317

Source: Data Bank and Evaluation Division, Ministry of Agriculture, December, 1988.

Expansion of bananas in the western section of the island by small-farmers is expected to produce an additional 20,000 tons for export.

The MOA-IICA Cropping Systems Research Project is expected to have an impact on farming systems which should increase production by small farmers.

In addition, there is in the USAID pipeline an Export Crop Project and this is expected to bring in more investment to the export sector.

Traditional export crop volume is expected to increase as a result of proposed new investments from new plantings and recovery from the effects of "Gilbert", as well as through rehabilitation and

resuscitation of old fields of coffee, cocoa, citrus, mango, coconut, bananas and sugarcane.

Non-traditional exports should improve owing to adoption of new farming systems, new acreages coming into production from irrigated areas, the effect of new technology (in particular mini-sett yams) as well as from the introduction of new varieties of other crops and horticulture.

There should be improvement in the livestock sub-sector and in particular poultry, through new investment to recover from hurricane "Gilbert", thus reducing the need for further imports of this commodity.

The dairy industry and inland fish farming are expected to grow owing to expansion in these areas.

The domestic food crop sector should develop and expand through self-sufficiency initiatives, new varieties and as new techniques take effect.

3. POSSIBLE AREAS FOR IICA ACTION

3.1 Review of important IICA experiences in the country

3.1.1 Programme 1 - Agrarian Policy Analysis and Planning

Programme 1 areas of concentration listed in the Medium Term Plan (MTP) are:

- to carry out analysis and exchange of experiences with tentative strategies for agricultural and rural development at the regional and sub-regional levels.

- to cooperate with the countries in strengthening analytical and advisory skills for formulation and implementation of agricultural sector plans and policies and the development of appropriate mechanisms for implementing plans and policies.

- to provide support for the countries in strengthening of the institutional systems responsible for the planning and implementation of agricultural reactivation and development policies.

Cooperation in planning started in 1984 with a conjunctural activity which provided assistance to the Government in the preparation of agricultural projects. Later project activities concentrated on the training of Ministry of Agriculture technicians in the area of design and analysis of projects and sectoral policy analysis.

3.1.2 Programme 2 - Technology Generation and Transfer

Programme 2 areas of concentration listed in the Medium Term Plan (MTP) are:

- to cooperate with the countries in strengthening their technological policy designs.

- to cooperate with countries in strengthening their organization and management of national technology generation and transfer systems and institutions.

- to assist in the development or strengthening of human resources training programmes.

- to catalyze reciprocal cooperation and international coordination of research and technology transfer.

- to provide technical support in the formulation and implementation of investment projects.

IICA's experiences in providing technical support to the Government of Jamaica (GOJ) in the generation and transfer of agricultural technology began during the first year of establishment of the IICA Office in Jamaica (1976) and has continued through to the present encompassing technical support specifically to the actions/projects iterated hereunder:

a) Preparation of project document for the Allsides Pilot Development Project (1976);

b) "Hillside Farming Study and Implementation Project in Jamaica: Allsides Pilot Development Project" (January 1977 - June 1981);

c) "Black River Upper Morass Development Company Limited (BRUMDEC): IICA Technical Assistance (April 1981 - April 1983);

d) "Cassava and Peanut Production Project" (January 1982 - December 1983);

e) Preparation of project document for the Cropping Systems Project (September 1983 - March 1984);

f) "Cropping Systems Project - Phase I" (August 1984 - October 1987);

g) "Resuscitation of Cassava: Planting material production short term action" (January 1986 - December 1987);

h) Preparation of project document for the Cropping Systems Project - Phase II (April - June 1987);

i) "Cropping Systems Project - Phase II" (November 1987 - October 1990);

j) Pipeline negotiations for Farming Systems Research and Development Sub-project of the Hillside Agricultural Project, and preparation of the FSR&D Sub-project document (July 1986 - February 1988);

k) "Farming Systems Research and Development Sub-project of the Hillside Agricultural Project (January 1989 - December 1993).

The Ministry of Agriculture has been the institution which received technical cooperation in all but one of the above-mentioned areas.

The major technical cooperation and administrative support instruments which are considered successful are those in which by Agreement:

-- the Ministry of Agriculture is identified as the agency responsible for project execution through the use of grant funds provided by an external funding agency;

-- IICA is identified as the agency responsible for providing technical support to the Ministry of Agriculture in their execution of the project;

-- IICA is identified as the agency responsible for the administration of the external grant resources;

and the following operating functions incorporated into the technical cooperation action:

-- cooperating with the national experts in analyzing specific national problems in high priority areas to identify action priorities and strategy;

-- promote, support and carry out actions which help the national institution(s) to solve problems that constrain agricultural and rural development.

The combination of these conditions apply to the completed projects listed at (b), (d), (f), and (i) above. The most significant results achieved from these technical cooperation and administrative support instruments are:

-- the identification of improved cropping systems for hillside farming on bench-terraced lands;

-- the identification of improved cassava cultivars suitable for cultivation in Jamaica, and the identification of companion crops for intercropping cassava;

-- the demonstration of the Farming Systems Applied Research approach as a valid alternative and complementary methodology for generating and transferring agricultural technology on small hillside farms.

Factors which have favoured the effectiveness of the technical cooperation provided are:

-- a high level of mutual respect and trust existing between collaborating institutions;

-- excellent working relationships between personnel of the collaborating institutions;

-- IICA provides appropriate technical support to meet the needs of the collaborating institution;

-- the availability of sufficient external resources for project execution in each case.

Factors which have hampered the effectiveness of the technical cooperation provided are:

-- the absence of long-term planning within the collaborating institution to institutionalize the methodologies/projects that are found to be successful;

-- a low level of institutional support within the collaborating institution due largely to reduced budgets.

The Jamaica Agricultural Research Programme (JARP), which was launched in 1987, is being implemented by the Jamaica Agricultural Development Foundation (JADF). The objective of the JARP is to identify measures to increase production and productivity by undertaking adaptive/applied research in priority commodity areas. An autonomous Research Advisory Council (RAC) has been established to determine agricultural research policy and identify the priority areas for research. The IICA Representative was invited to sit on this committee. Research will be weighted towards the small-farm sector and non-traditional export crops and import substitution commodities. A mechanism for generating agricultural technology and for transferring such technology to the end-users has been identified through the execution of the Cropping Systems Project but no policy decision has been made regarding whether this mechanism is to be used in agricultural research on a national scale. The actions and results envisaged in (c) above have occurred to some extent only within the Cropping Systems Project being executed by the Research and Development Division of the Ministry of Agriculture.

Technical cooperation actions have shown that a Farming Systems Research approach to the generation and transfer of agricultural technology is a mechanism acceptable to the small-scale farmers who have participated in the development of the mechanism under Jamaican conditions.

Technical cooperation actions have also resulted in the formulation of a Farming Systems Research and Development Sub-Project proposal by the Research and Development Division of the Ministry of Agriculture which has been approved for funding by Hillside Agricultural Project of the GOJ/USAID.

3.1.3 Programme 3. Organization and Management for Rural Development

Programme 3 areas of concentration listed in the Medium Term Plan (MTP) are:

- identifying the problems of the rural poor and designing and implementing policies to overcome rural poverty.
- Improving the performance of institutional systems concerned with rural development and ensure the coordinated delivery of comprehensive services to the population.
- Strengthening capabilities for the preparation and management of rural development programs and projects with the participation of the beneficiaries.
- Carrying out activities designed to promote and strengthen farmer organizations and improve business management skills.

When actions are ranked by priority, the results should be a development process that reflects the interests and concerns of the rural poor and incorporates them into the process of self-sustained development (ownership of the means of production, training, research and technical assistance, marketing, credit and basic infrastructure). Actions should also encourage the active participation of these groups, so that they can assume responsibility for their own projects, channel the support available for their technical and management training, and develop an awareness of the benefits of active participation.

Specific objectives

a. To provide technical cooperation that will enable member countries to develop suitable rural development policies, programs and projects for tackling the problems of small farmers and their organizations. Efforts will be made to set up intersectoral public administration systems and systematically disseminate the results of experiences gained in the region, in project identification, preparation and administration and in farmer training and participation.

b. To consolidate specific rural development actions through the Special Fund for Agricultural Development (FEDA), in order to mobilize national funds in support of infrastructure development and implementation of production plan operating through public and private agencies in the member countries.

c. To develop appropriate methods for transferring technical skills and practical knowledge to rural outreach workers and educators, ensuring that farmer training curricula also include literacy programs, in response to the real needs of the small farmer organizations.

d. To offer training to specialists at different levels for upgrading skills in the following areas: operating and financial management, interinstitutional coordination, organization, participation, training and follow-up and evaluation for program and project administration.

e. To keep the public sector abreast of the progress made by non-governmental organizations (NGOs) in techniques, and help the NGOs upgrade their operating capacity for implementing rural development programs and projects.

3.1.3.1 Small Business Management Support for the Rural Development Process / Youth Enterprise Project

In the course of discussions between IICA and national agencies, it was recognized that many low-income rural producers in the Caribbean experience severe constraints in managing their businesses efficiently. They use few, if any, record-keeping systems; this limits the information they possess for business analysis and the subsequent changes required to increase profitability. Therefore, many opportunities for increasing income are lost.

Concurrently, the national agencies serving the rural areas are unable to train rural small producers in the techniques required for managing their businesses more profitably. This is due to a lack a skilled human resources, as well as the tools for training micro-entrepreneurs.

In the last five years, the Institute has been concerned with strengthening Jamaican rural development programmes through human resource development, specifically to increase the capability of national institutions to advise rural micro-entrepreneurs in the management of small rural enterprises.

Working with over 20 Jamaican institutions, among them the Ministry of Agriculture, the Ministry of Youth and Community Development and the National Development Foundation, IICA has developed training materials, trained over 250 trainers and provided technical services to enhance the training of over 6,000 micro-entrepreneurs. This project has been implemented with regular and USAID resources.

This Programme 3 action represents the second major thrust of technical activities in the office and it may be divided into four phases:

A. 1980-1983
Rural Women's Project 1983 (Transition year)

B 1984-1987
Small Enterprise Development Project : Phase I

C. 1988-1989
Small Enterprise Development Project : Phase II
(1989 - transition year)

D. 1990-1992
Youth Enterprise Project (YEP)

Achievements

The following project achievements may be noted:

A. 1980-1983

1. Pilot methodology for women in agriculture
2. Cost benefit on producing salt-fish locally
3. Reaping salt from the sea

B. 1984-1987 - Phase I of the Small Enterprise Development Project has three basic components; these are identified below.

1. Publications :

"Operating a Small Business in Jamaica : A Guide"

"Starting and Financing a Small Business in Jamaica : A Guide"

"Marketing Jamaican Small Business Products: A Guide"

"Small Business Training Tools"

2. Trainers trained :

224 in Operating
226 in Starting and Financing
156 in Marketing
58 in Training tools

3. Training of producers :

At the end of 1987, over 5,000 producers had been trained by trainers.

C. 1988 - 1989

1. Publications:

"Establishing a Training Project to support Micro-Enterprise Development"

"Post-Gilbert Financing"

"4-H Yam Production"

2. Training of Trainers by 1988:

- 182 in Training Tools
- 240 in Operating
- 292 in Starting and Financing
- 179 in Marketing
- 107 in Post-Gilbert Financing

3. Training of producers :

At the end of 1988, over 6,000 producers had been trained by trainers.

4. Institutional :

By 1988, the following Jamaican agencies had benefitted by sending trainers to training sessions :

Brown's Town Women's Centre
Bureau of Women's Affairs
Children's Service Division
Clarendon Group for the Disabled
Community Revolving Loan Fund
H.E.A.R.T Trust (Solidarity)
Jamaica 4-H Clubs
Maidstone Milk Products & Processors Ltd.
Mandeville Women's Centre
Manchester Health Centre
Manchester Land Authority
Mayfield Milk Products & Processors Ltd.
MEDA - Projects for People
Mini-Enterprises Service
Ministry of Agriculture
Ministry of Construction
Ministry of Education
National Development Foundation of Jamaica
National Union of Co-op Societies
Private Sector Organization of Jamaica
Rio Grande Project
Self Start Fund
Social Development Commission
Things Jamaican Limited
Urban Development Corporation - Hellshire Bay Development
Company United Dry Cleaners
P.F.P. Leo Force Youth Club
3D Projects
3M Cheese Plant PCV/FRA/Partners
FRA/Sheffield
Muirton Boys Home

By 1988, the following Jamaican schools had benefitted by sending trainers to training sessions :

Albion All Age
Bellevue All-Age
Brown's Town Community College
Brown's Town Secondary
Coopers Hill All Age
Frome Secondary
Ginger Hill All Age
Knox Community College
Marcus Garvey Secondary
Ocho Rios Secondary
Spauldings Secondary
St. Hilda's High
Titchfield High
Vere Technical High
Westmore Business
Westwood High
York Castle High

D. 1990-1992 - Youth Enterprise Project (YEP)

Projected achievements:

1. Transfer of four new agricultural technologies to 4-H Clubbite members.
2. Preparation of technical and business training material.
3. Management and monitoring support for 4-H Clubs of Jamaica.
4. Increased participation of youth in agriculture due to perceived business potential.

3.1.3.2 Farm Management Training and Generation of Information Project

This project, initiated in March 1988, has six major components :

1. Development of farm management training material
2. Training of MOA-FMU personnel.
3. Training of extension personnel
4. Development of cost of production collection of data methodology.
5. Development of record-keeping system
6. Development of representative farm models

3.1.4. Programme 4 - Marketing and Agroindustry

No IICA action has taken place in this programme.

3.1.5 Programme 5 - Animal Health and Plant Protection

Programme 5 areas of concentration listed in the Medium Term Plan (MTP) are to cooperate with the countries in the:

- strengthening of government institutions responsible for animal health and plant protection
- assessment of economic losses due to diseases and pests
- strengthening of quarantine and emergency systems,

  and to assist in advising countries on overcoming restrictions which obstruct international trade.

Under this programme in the past:

- the Jamaican government was provided valuable support in the preparation of the project to eradicate the screw-worm.
- cooperation was provided to Jamaica in support of the government's negotiations for resources to carry out screw-worm and tick eradication projects.
- a framework for the proposals of reorganizing plant quarantine services in Jamaica was provided by the multinational project headquarters in Trinidad and Tobago (Plant Protection Program for the Caribbean area).
- a proposal was prepared for carrying out a feasibility study on tick control in Jamaica, and funding is being negotiated. A project is also under discussion for screw-worm eradication in cooperation with the Mexico-United States Commission working to control this pest.
- Jamaica was assisted in restructuring its plant quarantine system and in preparing a proposal for developing a national policy on pesticide use.
- towards more effective technological exchange in the strengthening of laboratory services, the Director of the animal health laboratory in Jamaica attended a meeting of animal health laboratory directors of Guyana, Barbados, Trinidad and Tobago held in Barbados in IICA's work to upgrade the laboratories of these countries and to explore the prospects of exchange in this field.

3.1.5.1 Blue Tongue Investigation

The project has been in operation since 1987 and consists of collecting samples once monthly at two farms, one in St. Thomas in the east at Serge Island Dairies and the other in the west central section of the island at Alcan Jamaica, Kirkvine, Mandeville. At each farm 40 animals were bled each month and the samples sent to Costa Rica for processing. In 1988, samples were sent for every month excepting the month of October due to the "Gilbert" hurricane disaster. Two strains of viruses have been identified from the samples that have been sent, numbers 12 and 3. The programme will continue to be operative until 1991.

3.1.5.2 Locust identification

IICA is collaborating with the Ministry of Agriculture Jamaica, in the dissemination of knowledge for the identification of the desert locust (SCHISTOCERCA GREGARIA).

This effort is in three areas:-

1. Contribution towards the expenses for the preparation of a poster comparing the desert locust with the local S. PALLENS.

2. The development of a desert locust leaflet.

3. The holding of three one-day seminars for training agricultural extension personnel of the public sector and Commodity Boards in identifying the desert locust.

The posters were prepared and are being distributed. The leaflet is being completed and the seminars are planned for February 1989 (the destructive abilities of the desert locusts have been well documented). It is in the present and future interest of the Agricultural sector that those who are engaged in agricultural pursuits have some degree of knowledge concerning these insects, should there be a problem.

3.2 Determination of possible areas for IICA action

3.2.1 Programme 1: Agrarian Policy Analysis and Planning

Planning forms the basis for agricultural development. In order to seek financial aid, well prepared projects are needed. The Ministry of Agriculture over the last few years lost most of their professional staff in the area of Planning and Policy.

IICA could therefore provide a professional for training in policy analysis, project identification, preparation, appraisal and evaluation. This project should be entitled "Strengthening of the Planning and Administrative Capabilities of the Ministry of Agriculture and the Planning Institute of Jamaica"

3.2.2 Program 2: Technology Generation and Transfer

The possible areas for IICA actions in Program II in Jamaica during the period 1990 -1991 will focus on three of the four points which are the bases of the strategy of the MTP 1987 - 1991 for meeting its objectives. These are:

a) Concentration of efforts and technical leadership in a small number of subject areas of high priority to the member country;

b) Setting priorities on certain of IICA's functions and forms of action in which the Institute has greater experience and, consequently, advantages over other organizations;

c) An increase in the availability and effective use of external resources.

Regarding (a) above, IICA's actions during the next biennium will concentrate on providing technical support to the Ministry of Agriculture (MOA) in the generation and transfer of agricultural technologies in Jamaica. Specifically, this will entail:

- technical support to the Cropping Systems Project;
- technical support to the Farming Systems Research and Development Sub-Project of the MOA's Hillside Agricultural Project;
- technical support to the Cropping Systems Outreach Program.

Regarding (b) above, the Institute has been providing technical support to the MOA in their programs aimed at improving the cropping systems on small farms located in the hilly terrain of the country's interior since the Office in

Jamaica was established. This program has the longest thread so to speak, and the Institute has established itself as a competent agency for providing technical support for the generation and transfer of agricultural technology. More emphasis needs to be placed on providing technical support to the MOA for the development of a mechanism that will facilitate the institutional strengthening of the MOA, particularly with regard to the institutionalization of methodologies used in successful projects which are operated with external resources. During the next biennium a basic model for institutional strengthening will be developed with the MOA.

Regarding (c) above, and as part of the concentration of efforts within the area of IICA's technical leadership, all of IICA's actions in this Program area will revolve around the theme of providing technical support to the MOA in their projects aimed at improving cropping systems for small hillside farms while at the same time conserving watershed resources. Consequently, IICA will assist the MOA in obtaining additional external resources for actions relevant to this theme.

3.2.3 Programme 3: Organization and Management for Rural Development

3.2.3.1 Small Business Management Support for the Rural Development Process / Youth Enterprise Project

This project will be phased out during 1989, as a new project, Youth Enterprise Production (YEP), is phased in. The YEP project will utilize the small business training methodology along with the transfer of successful results from the Cropping Systems Project, to support the 4-H clubs of Jamaica. The plan is to engage the project in developing a methodology which will attract youth into agriculture as a viable business and livelihood; the methodology could be applicable to other Caribbean countries.

The need for this project was identified during a meeting of the CARICOM Standing Committee of Ministers of Agriculture in 1988, where they expressed concern that young people in the Caribbean area were becoming less and less inclined to become involved in agriculture.

YEP is designed to promote and strengthen young farmer organizations (i.e. Jamaica 4-H Clubs) and improve business management skills which falls within IICA Programme III Guidelines and Technical Cooperation. Peace Corps Volunteers training in the IICA small business methodology will continue to play an important role in this project.

Objective

The specific objective of the project is to assist the 4-H Clubs of Jamaica to implement technical methodologies leading to youth enterprise development.

Strategy

Initial Activity	:	Short term activity initiated post-Gilbert with ESTA 1988 funds
Pilot Project	:	Initiated during 1989, as SEDPRO phased out, YEP methodology developed and project document written
Medium Term Project	:	1990-92

The project shall consist of 8 major steps :

Step 1: Management Support
IICA to work with the National 4-H Club officers in Kingston on a management consultancy basis. Management elements to include organizational chart, decision-making process, program systems/budgets, geographical outreach, computer usage training, and dissemination/development of an information system.

Step 2: Technology Selection
4-H and IICA organize a technical committee to analyze MOA-IICA Cropping System Project research results and to select superior technologies which may be extended to clubbites.

Step 3: Select Pilot Clubs
4-H selects twenty (20) pilot clubs for the transfer of the superior technologies identified in Step 2. 4-H will supervise approving of IDB loan funds to clubbites to undertake farming projects which will be paid back by the clubbite at time of harvesting.

Step 4: Planting Materials
IICA assists in accessing planting materials (such as sprouted yam mini-sett or rapidly multiplied Irish potato) for selected pilot clubs.

Step 5: Technical Materials Preparation
IICA prepares materials for technical training adapted to 4-H Clubbite requirements (such as 4-H

Yam mini-sett Manual).

Step 6: Technical Training
IICA conducts technical training for national 4-H officers, leaders of twenty (20) pilot clubs, and 4-H clubbites. Five pilot clubs will serve as training centers in developing and improving on technology transfers to an additional 15 clubs to be identified at a later date.

Step 7: Business Training Manuals Preparation
IICA prepares materials for business training/record-keeping adapted to 4-H clubbite requirements, based on the SEDPRO methodology (such as Post-Gilbert Financing Manual).

Step 8: Business Training
IICA conducts business training for national 4-H officers, leaders of twenty (20) clubs, and 4-H clubbites. 4-H plans to use this methodology as a possible guideline in developing an ongoing program to encourage and support clubbites in future enterprises.

Projected achievements:

1. Transfer of four new agricultural technologies to 4-H Clubbite members.
2. Preparation of technical and business training material.
3. Management and monitoring support for 4-H Clubs of Jamaica.
4. Increased participation of youth in agriculture due to perceived business potential.

3.2.3.2 Farm Management Training and Generation of Information Project

During the 1990-1991 biennium, this project shall continue to meet objectives under the six major components:

1. Development of farm management training material
2. Training of MOA-FMU personnel.
3. Training of extension personnel
4. Development of cost of production collection of data methodology.
5. Development of record-keeping system
6. Development of representative farm models

3.2.3.3 Strengthening of Farmer's Organizations

Another area in Programme 3 to be addressed is that of

farmers' organizations. Farmers' organizations form a very important link in the agricultural sector. The Jamaica Agricultural Society (JAS), the chief organization with responsibility to organize farmers, due to lack of trained personnel and other resources, cannot function effectively.

IICA could provide assistance through professionals to train existing staff and to send staff overseas to seminars or countries that have vibrant farmers' organizations, to observe and learn techniques of organization and methods to keep groups motivated and operational. This activity should link well to the project being proposed on the same subject in the "Strategy of Action for Reactivation of Agriculture in the Caribbean Countries".

3.2.4 Programme 5: Animal Health and Plant Protection

Animal health and plant protection are the responsibility of the government. The adverse effects of problems relating to these are well recognized. These problems are highlighted especially when plans are made and agricultural production projects are being carried out to meet the demands for local consumption and for export.

The surfacing of plant and animal diseases in many instances cause a strain on national institutions which are experiencing a depletion in staff and a decline in facilities due to inflation and these services receiving a smaller share of budgetary allocation. The need to get some agricultural projects going by the importation of plant material and animals have widened the risks for the introduction of new diseases and pests which in turn and in time could deny the country of anticipated gains.

The development of animal health and plant protection monitoring and surveillance systems is necessary because national institutions do not have the capability to devleop information systems or to undertake studies to analyze economic losses due to diseases and pests which affect plants and animals.

Further, since only a limited amount of information is available concerning the occurrence of plant and animal pests and diseases in many countries, the introduction of new health problems into developing countries through importation of plants and animals have increased. Excessive restrictions and lack of awareness of such restrictions have adverse effects on export trade.

Jamaica could be greatly benefited from a developed multinational plant protection and animal health monitoring and surveillance system as conceived by IICA. However, in order to implement properly the Jamaica compoent, a national professional with experience and expertise in this

national professional with experience and expertise in this field should be hired. See Annex C which contains the Caribbean Programme 5 Coordinator's recommendation regarding this matter.

3.3. Feasibility of addressing the areas identified

Considering the three conditions pertaining to feasibility (national interest, institutional structure and IICA's capability), following is a discussion by programme area:

3.3.1 Programme 1

Both the national interest and the institutional structure are strong. However, IICA/Jamaica lacks this area of expertise. It is therefore being recommended that an International Professional be hired once external financing is secured.

3.3.2 Programme 2

All three conditions are strong and IICA need only maintain the external financing now in place.

3.3.3 Programme 3

Youth:

Once the Representative is transferred, this project should be coordinated by a National Professional. Additional quota funds are being requested for this position.

Farm Management:

This project currently meets all three conditions; external financing should be sought to strengthen operating funds.

3.3.5 Programme 5

National interest is strong and institutions require strengthening. IICA/Jamaica does not have this expertise, yet an extremely competent consultant is currently assisting the office. A national professional is required to assure the effective implementation of the regional project. External funds shall be located for this purpose.

4. STRATEGY FOR THE PERIOD

4.1 Introduction

The overall strategy for the 1990-1991 biennium shall be to assist the Government of Jamaica in bringing Jamaican agriculture back to it's pre-Hurricane Gilbert level of development, while at the same time developing, testing and improving certain technologies and methodologies which will result in:

a. Linking the small farmers to the export market, thereby improving their chances of increasing income.

b. Assisting small farmers test and adapt appropriate technologies on their farms, thereby improving their chances of generating additional income.

c. Providing simple record-keeping information and analysis which will assist the MOA and the small farmers to monitor farm income and thereby, improve planning capability, which should lead to increased profits.

d. Encouraging youth to perceive agriculture as a serious and potentially lucrative vocation, thereby lowering the average age of the Jamaican farmer. Additionally, this methodology, once proven in Jamaican, may prove useful in other Caribbean countries with a similar problem.

e. Providing policy-makers with projections and analyses of the impact of proposed agrarian policies.

f. Enabling the MOA to provide improved services in animal health and plant protection to the farmer and the country.

4.2 Comments from the Jamaicans

In the words of the Jamaican agriculturalists interviewed, following are some of the areas they wished IICA to address during the biennium:

Programme 1:

a. Assist the GOJ develop the capacity to analyze the likely effects of agricultural changes being planned for introduction.

Programme 2:

b. Assist in increasing productivity of cocoa, avocado and passion fruit.

c. Re Cropping Systems Project:
Get the small farmers involved in producing high-priced crops such as asparagus, strawberries, mushrooms, and grapes and annatto.
Transfer technology proven successful in the Cropping Systems Project; spread the impact of this project; consider testing appropriate tools and assisting in disseminating information on the most useful.

d. Assist in strengthening the extension service through the Cropping Systems outreach initiative. There may be a need to re-train extensionists.

e. Assist with the creation of NARDIJ (The National Agricultural Research and Development Institute of Jamaica). IICA could enter into the area of consciousness-raising at all levels identifying actions needed to make the institution a success. IICA could join FAO and sponsor a round-table meeting to discuss these actions, bringing the Director of Programme 2.

f. Distribute information/ train on how to produce your own planting material and how to set up your own nursery.

g. Assist the Ministry in assessing the appropriate technology for long-term projects.

h. Continue the YAMEX initiative.

i. Work on a communication system for the farmer so he knows when he's planting a crop how to make it available to the exporters, processors, etc., ex. publish in the newspapers on Saturday. Computerize this information system.

Programme 3:

j. The training in small business is important.

k. Continue with the cost of production studies.

l. Initiate work with young people; train young people in simple cultural practices. The combination of youth and small business is an important approach.

m. Initiate a women's project, providing them with more income-generating training, such as in craft, etc.

n. Work more with the schools.

o. Assist in revitalizing the Jamaica Agricultural Society.

Programme 5:

p. Assist Jamaica in becoming certified as a country capable of exporting meat into the U.S.

q. Plant protection activities are important in light of pre and post harvest losses.

Other :

r. Become more involved in JAMPRO's parish investment programme.

s. Assist in improving the image of agriculture; conduct field days, write successful case studies.

t. Continue your existing programmes

u. Continue your concentration of a few areas and be sure your work is acceptable to the small farmer.

v. "Do what you're doing, and continue doing it well."

4.3 Strategy Recommendations

IICA's strategies and types of action in the country will include training, technical assistance, research and institutional support. The outcomes projected for IICA's action for 1990-1991 are the following for the above mentioned projects:

1. A Planning Institute of Jamaica and MINAG Planning Division with increased capability of policy analysis and project identification, preparation, appraisal and evaluation, thereby enhancing the possibility of obtaining funding from International Agencies.

2. A reorganization of the Research and Development division, as well as a definition of a national system of agricultural research and development throguh which farmers will be benefitting from improved technologies regarding farming systems including the cultivation of permanent crops and rearing of livestock on hillside levels of complementary cash crop production using selected annual crops.

3. Improved cost of production methodology and data base for crops and livestock activities. Design and implementation of a record-keeping system with selected participating farmers. Increased numbers of administrative and skilled personnel trained in farm management, management of rural small enterprises and in the formulation, evaluation and implementation of projects for small farmers. Generation of technical and economic information to analyze factors constraining small farmers' productivity and development for economic policy, extension and research recommendations.

4. Youth programmes with greater agricultural technology and small enterprise input, increased montioring and management as well as improved coordination with other national institutions.

5. Animal health and plant protection system which provides basic animal and plant health data, thereby eliminating the need for restrictions which interfere with international trade and allowing Jamaica to adopt plant health measures that would protect the country's agricultural industry without the obstruction of its international trade.

5. Utilization of assigned resources under negotiation

5.1 Human Resource Needs

1. Administration

One IPP Representative (Regular;Quotas)
One NPP Administrator (Quotas)

2. Technical Resources

Programme 1: Agricultural Policy Analysis and Planning
- One IPP Specialist in Agricultural Policy (External)

Programme 2: Technology Generation and Transfer
- One IPP Specialist in Technology Generation and Transfer (Temp. Quotas)
- One NPP Specialist in Agricultural Production (Temp. Quotas)
- One NPP Agricultural Economist (External)
- One NPP Agronomist/Coordinator (External)
- Five PCV Agricultural Economists
- Four Agronomists

Programme 3: Organization and Management for Rural Development
- One IPP Farm Management Specialist (Temp. Quotas)
- One NPP Youth Specialist (Temp. Quotas)
- One PCV Agricultural Economist
- Four PCV .Youth Enterprise Specialists

Programme 4: Animal Health and Plant Protection Specialist (External)
- One NPP Animal Health and Plant Protection Specialist (External)

5.2 Financial Resources

1990		1	2	3 - 9	TOTAL
General Office Cost		60,703.00	46,216.00	61,053.00	167,972.00
Additional Quotas $		0.00	0.00	2,831.00	2,831.00
Programme 1					
External		54,599.00	0.00	0.00	54,599.00
Programme 2					
Quotas		62,303.00	32,730.00	562.00	95,595.00
External	IDRC	0.00	22,879.00	87,301.00	110,180.00
	IDRC/CATI	0.00	7,055.00	9,472.00	16,527.00
	USAID		33,371.00	147,915.00	181,286.00
	USAID/CATI	0.00	15,236.00	11,957.00	27,193.00
Programme 3					
Quotas		63,385.00	26,074.00	20,292.00	109,751.00
External		0.00	0.00	0.00	
Programme 5					
Quotas		0.00	0.00	8,059.00	8,059.00
External		0.00	15,236.00	0.00	15,236.00
Reg.Proj.Unit/Caribbean		0.00	0.00	14,155.00	14,155.00
TOTAL		240,990.00	198,797.00	352,720.00	803,384.00
Quotas		186,391.00	105,020.00	106,952.00	398,363.00
External		54,599.00	71,486.00	235,216.00	361,301.00
IDRC/CATI		0.00	7,055.00	9,472.00	16,527.00
USAID/CATI		0.00	15,236.00	1,080.00	27,193.00

1991		1	2	3 - 9	TOTAL
General Office Cost		61,336.00	48,018.00	58,618.00	167,972.00
Additional Quotas $		0.00	0.00	2,973.00	2,973.00
Programme 1					
External		54,599.00	0.00	0.00	54,599.00
Programme 2					
Quotas		62,714.00	33,995.00	(1,103.00)	95,606.00
External	$$IDRC	0.00	23,672.00	92,017.00	115,689.00
	IDRC/CATI	0.00	7,336.00	10,017.00	17,353.00
	USAID		35,039.00	194,450.00	229,489.00
	USAID/CATI	0.00	15,842.00	18,581.00	34,423.00
Programme 3					
Quotas		63,481.00	27,114.00	19,719.00	110,314.00
External		0.00	0.00	0.00	
Programme 5					
Quotas		0.00	0.00	8,059.00	8,059.00
External		0.00	15,842.00	0.00	15,842.00
Reg.Proj.Unit/Caribbean		0.00	0.00	14,155.00	14,155.00
TOTAL		242,130.00	206,577.00	400,266.00	866,474.00
Quotas		187,531.00	109,127.00	102,421.00	399,079.00
External		54,599.00	74,553.00	286,467.00	415,619.00
IDRC/CATI		0.00	7,055.00	10,298.00	17,353.00
USAID/CATI		0.00	15,842.00	1,080.00	34,423.00

$ Additional Quota Funds required to operate at 1989 efficency level.
$$ Not yet approved

5.3 Plan for obtaining external resources

The strategy to be used for securing external resources is to identify the appropriate funding source, prepare the project proposal and follow-up until funds are obtained.

Programme 1 : A proposal to be submitted to Ford and/or Rockefeller Foundation

Programme 2 : Continuation of IDRC funding anticipated throughout the period. Cropping Systems Outreach should be written into the remainder of phase 2 and phase 3 when written.

A medium-term yam production project using mini-sett technology has been drafted and a brief profile circulated to GOJ and USAID for comment. USAID has shown interest but cannot fund until 1991; an interim donor is being sought as GOJ has expressed this to be high priority.

Programme 3: A five country small business project has been under negotiation with IDB since June 1986.

Programme 5: CIDA is to be approached regarding the funding of a national professional for the office.

Notes:

1. USAID/Jamaica: Jamaica Agricultural Sector Strategy, October, 1987. p. 8-9

2. GOJ-MINAG Five Year Food and Agriculture Policy and Production Plan (1983/84-1987/88)

3. USAID/Jamaica: Jamaica Agricultural Sector Strategy, October, 1987. p. 8-9

4. Ibid

5. IDB Socio-Economic Report, 1988.

6. Ibid.

Annex A :	Individuals interviewed by the Representative and Questions asked
Horace Clarke,	Shadow Minister of Agriculture
Clarence Franklin,	Permanent Secretary, MOA farmer of vegetables with him: Marie Strachan, Director for Policy and Planning, MOA
Anthony Johnson,	Minister of State for Agriculture
Errol Lewin,	Director of Agricultural Planning, Planning Institute of Jamaica
Vivienne Logan,	Agricultural Advisor, Management Support Bureau, Office of the Prime Minister
Lyndon McLaren,	Deputy Director, Jamaica Agricultural Research Project, Jamaica Agricultural Development Foundation, IICA Emeritus personnel, ex-Permanent Secretary of MOA
Keble Munn,	ex-Minister of Agriculture (PNP) farmer and processor of coffee (JABLUM)
Norman Prendergast,	General Manager, Investment Promotions Office, Jamaica Promotions, Ltd. farmer (horticulture)
Ralph Thompson,	Managing Director of AGRO-21 with him: Cecil Taaffe, Director for Strategic Planning Shariq Ghaznavi, Marketing Consultant
Ronald Thwaites,	farmer (coffee, poultry), lawyer, radio and television commentator
Colin Williamson,	farmer (coffee), exporter (yams, peppers, thyme)

Key Technical Questions

1. Which do you believe are Jamaica's most pressing agricultural problems which are likely to persist through 1990-1991?

2. How do you think IICA can be most useful, given its limited human and financial resources?

3. What innovative strategies can be designed to improve the technological base of small farmer agriculture?

4. How would you explain the findings of the Economic and Social Survey of Jamaica, PIOJ 1987, that the agricultural sector has achieved growth in monetary value but has experienced a decline in volume of production?

5. What do you consider to be an appropriate institutional model for the delivery of the following services to farmers?

(a) Extension
(b) Credit
(c) Marketing Information
(d) Planting Materials

6. How can the land constraint on agricultural development be removed?

7. One of the major problems facing agriculture is the high age of farmers and a disinterest by rural youth in choosing agriculture as a vocation. What actions can be implemented to improve the public perception of farming as a vocation?

8. There are at least 23 projects designed for the improvement of small farmer agriculture.

(a) Do you think that the current levels of manpower in public sector institutions is adequate for their implementation?

(b) If not, how can the shortage of trained personnel in public sector institutions be solved?

9. What do you feel should be the Ministry's strategy for institutionalization of existing externally financed projects?

10. Should IICA continue to focus on ongoing activities, include additional ones, or move to new areas entirely? If so which?

ANNEX B

DETAILED OVERVIEW OF JAMAICAN AGRICULTURAL SECTOR PROBLEMS
(EXTRACTED FROM 1988 IDB SOCIO-ECONOMIC REPORT)

INTER-AMERICAN DEVELOPMENT BANK

GN 1618

January 1988

SOCIOECONOMIC REPORT

JAMAICA

No. Report	Consultations to:	No. Copies
DES—13	James Dinsmoor ECC—RG III	E—350

B. Agriculture

1. Role in the Economy

3.21 Historically, the agricultural sector has played a central role in the socioeconomic development of Jamaica. Initiated with an emphasis on the production of sugar and bananas for export to markets in the United Kingdom and the United States, the sector has diversified over the years to include an important domestic subsector, which produces a wide variety of crops for local consumption and, more recently, for exports.

3.22 However, despite its significant contributions to national and, especially, rural development, the sector's overall position has been one of secular decline since the 1960's. Much of this deteriorating performance was due to the traditional exports, which fell almost steadily for a variety of reasons and despite periodic attempts at revitalization; at the same time, many of the non-traditional items, especially those whose production was initiated in more recent periods, have only a relatively small weight in total output.

3.23 Since the mid-1970's, the structure of Jamaica's agricultural sector has continued to be characterized by the coexistence of some medium- and large-sized farming enterprises that have traditionally produced for the export market (sugar, bananas, coffee, cocoa), and a large number of small family farms that produce commodities for local consumption. Technology and productivity also follow this dual pattern. Small farmers usually work intensively the land of less quality on the hillsides, while the fertile plains have been reserved for the traditional export crops.

3.24 In terms of employment, the contribution of the agricultural sector to the economy has been very significant. In 1975, the sector employed 226,000 people (75 percent male and 25 percent female) and accounted for over one-third of the total employed labor force. By 1986, employment in the sector has risen by over 46,000 to 272,200, an increase which enabled agriculture's share in the employed labor force to remain unchanged at about one-third of the total. In sharp contrast to the economy as a whole, the unemployment rate in agriculture was only about 3.4 percent in 1986. This underscores the fact that employment in agriculture has provided refuge to much displaced labor as a result of decreased opportunities in other sectors. It should also be noted that the employed labor force in agriculture is estimated to be relatively old. At the end of the 1970's, for instance, census figures indicated that 70 percent of the labor force in agriculture was over 40 years of age, compared to 38 percent for the labor force as a whole. This has been regarded as a reflection of the poor opportunities offered in the sector to young people. Moreover, living conditions of most small farmers (about 80 percent of the total farming population) have always been difficult. Poor and primitive dwelling facilities, inadequate sanitation and unsatisfactory food intake are more the norm than the exception.

3.25 The performance of agriculture in international trade can be traced both to exports and imports. During the 1980-86 period, for instance, agricultural exports have contributed from 7 to 13 percent of total export value, while the share of agricultural products in total import value has varied from between 15 to 18 percent.

3.26 In addition to sugar and bananas, Jamaica also exports small amounts of other items, notably cocoa, coffee, pimento and ginger. However, the relative importance of these categories has fluctuated a great deal over time. Moreover, in evaluating the share of agricultural products in total exports, it must be remembered that total export earnings have been volatile, due largely to the aforementioned problems in the bauxite-alumina sector (see Table No. 9).

3.27 While sugar has traditionally been Jamaica's most important agricultural crop, both the output of the industry and world market conditions deteriorated substantially in 1975-1986 period. After peaking at $153.8 million in 1975, sugar exports plummeted to a $57.4 million average in 1976-1986 (Statistical Appendix, Table No. 9). To a large extent, this drop reflected a sharp decline in export volume which, after averaging a rather stable 265,300 metric tons in 1973-75, dropped to a period low of 123,000 tons in 1981, before recovering moderately to a 151,000 metric ton average in 1984-86. At the same time, world output of sugar, especially in the 1980's has consistently exceeded consumption with the effect of increasing reserves and depressing prices well below production costs. To compound the problem, the International Sugar Organization (ISO) has failed to conclude a sugar agreement geared towards limiting sugar exports. The price of sugar was further affected by the variations in the pound sterling/US dollar exchange rate, as the price of sugar exported is quoted in pounds.

3.28 Bananas, the second most important traditional agricultural crop, have experienced an even more dramatic decline. In 1970, the quantity exported stood at 137,000 metric tons; by 1980, this amount had plummeted to 33,000 metric tons. After 1980, volume continued to drop, reaching a period low of 11,000 metric tons in 1984, equivalent to only 8 percent of 1970 level. While modest upturns in volume occurred in 1985-86, the relative importance of bananas has yet to exceed 1.5 percent of total export value in the present decade, at least through 1986: This is hope, however, that this share will increase over the near term, since ongoing rehabilitation programs are attempting to enhance earnings by improving the quality of the fruit exported.

3.29 Imports of agricultural products in Jamaica are basically foodstuffs, which, during the 1980's, have varied between 7 and 10 percent of total imports. Again, these shares must be interpreted with caution, since they reflect changes in the value of food imports as well as fluctuations in total imports resulting from adjustment policies. With respect to the types of products, food imports in

Jamaica include a small amount of high grade products (mainly beef from the United States) for the tourist trade and basic foods such as maize, wheat, rice and other basic grains, along with flour, soy beans and milk power. Among non-food items in agricultural imports, timber and wood have traditionally been the most important.

3.30 In dollar terms, Jamaica has had a negative agricultural trade balance of around $100 million in recent years (measured by exports, f.o.b. minus imports, c.i.f.). A breakdown of this total for 1984 (the last year for which full information is available) indicates that some 80 percent of this amount was for food. The most important categories of food imports were "cereals and preparations"; "fish and preparations"; and "dairy products and eggs". While these food imports were partially offset by net trade surpluses for fruit, sugar and coffee, the fact remains that in recent years, between one-quarter and one-third of Jamaica's total merchandise trade imbalance has been attributable to the deficit in trade of agricultural goods.

2. Resources and Output

3.31 Jamaica's land resources are not, in general, unfavorable to agriculture. The nation's total area of 2.7 million acres is comprised of three basic types of terrain, which are unequally distributed among: (i) coastal plains, where the best agricultural soils are found; (ii) rolling limestone plateaus and hills of varying altitudes; and (iii) high mountains, which are sharply dissected by a network of steep ravines. The topography limits cultivation practices on hill slopes and contributes to soil erosion.

3.32 Only 360,000 acres, or 13 percent of the total land area, are classified as highly fertile and qualified for agricultural use with no, or only moderate, limitations, due to drainage or erosion problems. An additional 861,600 acres, or 32 percent, are suitable for limited agricultural activities, including tree crops, improved pasture and commercial forest. The remaining 55 percent of the country is unsuitable for agricultural uses and is left in natural pastures and forests. In the past decade, the area devoted to export crops declined from 400,000 acres in 1970 to 280,000 acres in 1980, while area devoted to crops for domestic consumption increased from 108,000 to 120,000 acres. As a result of these trends, the total area under cultivation decreased by 108,000 acres.

3.33 According to the Ministry of Agriculture's inter-census estimates for 1985, Jamaica had about 157,000 farm units, of which some 65,000, or 33 percent were under 1 acre and operated either by owners or by renters. Another 90,000 farms, or 45 percent of total, were owner-operated and located on areas of between 1 and 4.9 acres. Finally, some 12,000 farms, with 10 or more acres, controlled over half the available agricultural land. The major consequence of this distribution pattern (which has been analyzed in numerous empirical

studies) is that small farms dominate the rural community in Jamaica. Such establishments rely on family labor and produce a wide range of crops, consumed mostly by the farm household, but with small surpluses that are sold in nearby markets when possible. Most small-scale farms are located on hillside land where soils of moderate fertility have been badly eroded; and, even though many small farmers have been settled on their land for many years, most do not have a clear title to it. This poses major developmental problems through curtailing access to bank credit and by discouraging investment.

3.34 The large lowland estates on the other hand, tend to be one-crop oriented, apply relatively advanced technology, and have their own marketing organizations as well as considerable supporting infrastructure. Many of these lands are grossly under-utilized, at present, especially those which were traditionally dedicated to the production of sugar cane and bananas. Consequently, between 150,000 and 200,000 acres of land are potentially available for new ventures such as fish farming, winter vegetables, tropical fruit, ornamentals and spice production. Bringing about an improvement in use of these idle land is one of the central objectives of the Agro-21 program, which is discussed below.

3.35 Jamaica's access to <u>surface and ground water</u> resources is only partially satisfactory. Rivers and streams provide highly varying quantities of surface water. Eleven rivers, located on the north coast, have a combined average flow of 1,606 million gallons per day (mgd); eight rivers, located in the south coast, have a combined average flow of 862 mgd. The major challenges to development of surface water resources are: (i) poor geographic distribution relative to areas of major demand; (ii) increasing surface water pollution; (iii) highly variable streamflow, which creates the need for large and expensive storage facilities. Ground water resources exist in a number of limestone and alluvium aquifers located throughout the island, which provide 60 to 70 percent of present water production in Jamaica. At present, there are about 1,300 wells; of these, almost 80 percent are located in the southern portion of the country. Development of ground water in Jamaica has been unplanned and uncontrolled.

3.36 In terms of <u>physical infrastructure</u>, Jamaica's best agricultural lands, located in the coastal lowlands, are relatively well served by good primary and secondary roads, and access to energy supplies and telecommunications. The same observation applies to most of the rural areas in the interior, although many of the roads are in need of improvement and maintenance. In sharp contrast, much of the nation's irrigation infrastructure appears to be in precarious conditions; this situation reflects not only inadequate resources but also long-standing institutional weaknesses, which have been aggravated in recent times by low wage levels in the public sector and exodus of many competent technicians to new programs such as

Agro-21 and to the private sector. The problems related to irrigation are important, since they constitute a major constraint to the effective utilization of some of Jamaica's best agricultural lands. Other deficiencies in existing physical infrastructure are found in the country's sugar mills 1/, the dairy processing facilities, abattoirs, banana port facilities, rural and urban markets. Substantial investments will be required for the upgrading, modernization and expansion of these installations.

3.37 The striking feature of technology in the agricultural sector is its dualistic --albeit changing-- structure. At one extreme is the type of technology traditionally used on the commercial export-oriented sugar and banana estates, located in the savannas and lowlands of southern Jamaica. Until the early 1970's, the technology employed in these areas was quite advanced, which helped keep costs down to levels competitive in international markets. During the past 10 to 15 years, however, processing and marketing technologies fell progressively behind international standards; as a result, the nation's comparative advantages, especially in sugar and banana production, were progressively eroded.

3.38 At the other extreme, the bulk of rural inhabitants use only simple technologies in pursuing their traditional subsistence farming activities in the central parts of the island. Hand tools, rather than mechanical equipment, are the norm for most farmers. The result is that yields are low. Moreover, as natural forest cover is removed, soil erosion becomes an increasingly serious problem. Among other effects, this sequence has tended to depress yields even more, while also increasing the capital costs necessary to correct the erosion problem and otherwise to make the farms more productive.

3.39 As shown in Table No 17, agriculture's contribution to GDP (including forestry and fishing) has decreased over the years, falling from 7.5 percent in 1975 to around a 6 percent annual average in 1983-85. In 1975, export agriculture contributed 1.8 percent to GDP and domestic agriculture 3.3 percent; by 1986, these shares had fallen to 1.2 and 3.2 percent, respectively. As is often the case with agriculture, these figures are believed to understate somewhat the true contribution of the sector, as they do not include production for own-consumption or informally traded produce. With respect to real growth rates, distinct subperiods and trends can be identified. The sector's poorest performance, for instance, occurred in 1979-1980, when real value added declined at 7.4 percent average annual rate, a trend that was clearly exacerbated by bad weather, including the severe damage caused by Hurricane Allen in 1980.

1/ The IBRD has had an active role in providing financial and technical assistance to the sugar industry.

Table No. 17

JAMAICA: Composition and Real Growth of the Agricultural Sector

	1975	1978	1980	1982	1983	1984	1985	1986 a/
I. Percentage of Current GDP								
Export agriculture	1.8	1.4	1.2	1.3	1.1	1.1	1.2	1.2
Sugar cane	(1.2)	(0.8)	(0.8)	(0.8)	(0.7)	(0.6)	(0.6)	(n.a.)
Other main exports	(0.6)	(0.6)	(0.4)	(0.5)	(0.4)	(0.5)	(0.6)	(n.a.)
Domestic agriculture	3.3	4.0	4.6	3.4	3.3	3.0	3.1	3.2
Root crops	(1.9)	(1.8)	(2.0)	(1.4)	(1.3)	(1.2)	(1.2)	(n.a.)
Other primary products	(1.4)	(2.2)	(2.6)	(2.2)	(2.0)	(1.8)	(1.9)	(n.a.)
Livestock	1.8	2.0	1.9	1.6	1.6	1.3	1.2	1.2
Forestry and fishing	0.5	0.5	0.5	0.5	0.5	0.4	0.5	0.5
Total	7.4	7.9	8.2	6.8	6.5	5.8	6.0	6.1

	Average 1976-78	Average 1979-80	1981	1982	1983	1984	1985	1986
II. Real Growth Rates (%)								
Export agriculture	1.1	-14.0	1.2	-2.0	-3.3	3.8	-3.3	-2.5
Sugar cane	(0.4)	(-12.0)	(-11.8)	(2.8)	(-8.2)	(4.5)	(-6.4)	(n.a.)
Other main crops	(2.1)	(-17.5)	(25.9)	(-8.4)	(4.1)	(2.9)	(1.0)	(n.a.)
Domestic agriculture	11.6	-8.2	3.6	-12.0	8.7	15.8	-1.6	-4.1
Root crops	(11.0)	(-14.2)	(2.4)	(-18.1)	(9.8)	(21.8)	(2.8)	(n.a.)
Other main crops	(12.5)	(-0.8)	(4.7)	(4.7)	(7.7)	(10.6)	(-5.8)	(n.a.)
Livestock	4.6	-1.8	1.4	-5.4	10.6	3.0	-8.8	-0.5
Forestry and fishing	-4.8	-3.7	-3.4	3.5	4.5	3.0	6.3	10.9
Total	6.6	-7.4	2.3	-7.9	7.2	9.3	-3.4	-2.0

a/ Preliminary.
n.a. Not available.

Source: Country Studies Division based on Statistical Appendix, Table No. 4 and data provided by the Statistical Institute of Jamaica.

3.40 Despite the declining share of agriculture in GDP, the fall in agricultural production as such was somewhat less. In the case of domestic food crops, for instance, Table No. 12 of the Statistical Appendix reveals that, discounting year-to-year fluctuations, production of many product groups, such as vegetables, condiments and yams, registered clear upward trends over 1975-1986 1/. To a considerable extent, the stimulus to domestic food production was provided to the restrictions on imports after the mid-1970's. Despite these encouraging trends and the availability of idle land, however, it bears repeating that Jamaica's agricultural trade balance is negative and, in recent years, has accounted for about one-quarter to one-third of the total trade deficit (paragraph 3.30).

3.41 While the diversity of Jamaica agricultural output as presented in Statistical Appendix precludes a crop by crop analysis, it is nonetheless essential to analyze in more detail, the major production trends in the sector as well as the situation of a few specific products. As indicated, the two principal changes in the structure of Jamaica's agricultural sector have been: (i) the decline of traditional export commodities; and (ii) the efforts to stimulate the non-traditional export sector.

3.42 With respect to export crops, the most important continues to be sugar, which has been a major contributor to the Jamaican economy for about 300 years. From the all-time high of 506,000 tons produced in 1965, sugar production declined to around 190,000 tons in 1984, while over the same period, the area cultivated decreased from 148,000 acres to about 100,000 acres. In addition to unfavorable world prices, sugar output in Jamaica was impaired by falling yields, deteriorating quality, serious labor unrest and declining factory efficiency. As the industry become increasingly non-viable, many estates were also nationalized, a fact which contributed to the mushrooming fiscal deficit during the 1970's. Despite this, sugarcane still accounts for 25 percent of the total area under cultivation, while sugar and rum provide well over 50 percent of the value of agricultural exports, and sugar-related activities employ about 18 percent of the nation labor force. A major restructuring of the industry has recently been initiated by the Government, with the assistance of the World Bank. In early 1985, management of the state-owned industry was handed over to a private sector group, which recommended the closing of additional refineries and a reduction in cultivated area by shifting some land to other crops. As part of this program, the National Sugar Company was liquidated, with the Government assuming the accumulated losses, and a new company, Jamaica Sugar Holding Ltd., was formed. New capital investments have improved efficiency in processing and sugar production increased by 20 percent in 1985, notwithstanding a 6 percent drop in the sugarcane harvest.

1/ Data on area cultivated and farm gate prices are also provided in Tables No. 13 and No. 14 of the Statistical Appendix.

3.45 As indicated, production and exports of bananas have experienced even more protracted decline than sugar, with exports plummeting fr 200,000 metric tons in 1966 to 13,000 metric tons in 1985. A principal reason for this decrease was the failure to invest in n production and handling technology, which Jamaica's competitors we progressively applying and thereby raising consumer quality expectations in the United Kingdom, traditionally the nation's so export market. Other reasons were the inhibiting effects government policy with respect to prices, resulting partially from the overvaluation of the currency and also from the increasing costly and ineffective operations of the Government controll marketing organizations, the Banana Board and the Banana Company (BANCO). In recent years, banana production has been largely fr small, widely scattered rainfed holdings yielding less than 1 tons/acre on average and proving very costly to service. Recent developments include the initiation of several new large scale production projects using the latest technology on high yieldi lands, including some former sugar lands. Initial results a encouraging and Jamaica's guaranteed access of 150,000 tons a year to the United Kingdom market could be satisfied by the early 1990 from a production area of around 10,000 acres.

3.46 Jamaican coffee is of high quality and achieves premium prices world markets. Blue Mountain coffee sells for 4.5 times above t nearest ICO indicator price and lowland coffee for between two and three times the indicator price. Coffee exports were around 1,0 tons in 1984-85, of which 20 percent was Blue Mountain coffee and percent was of the lowland variety. There has been little increase in the acreage of lowland coffee during the 1980's. In early 1986 there were some 18,000 acres of lowland coffee of which 15,000 we producing and a further 1,500 acres were planned under EEC financing. Since 1982, however, Blue Mountain coffee acreage has increased fro 2,300 to 4,500 acres and a further 5,000 acres are planned. Lowla coffee is mainly a small farmer crop whereas Blue Mountain coffee is mainly grown on medium to large farms.

3.47 Cocoa production and exports during the 1980's have nearly doubl to 2,500 tons, due to better prices and active promotion of better cultivation practices by the Cocoa Industry Board (CaIB). As wi coffee, Jamaican cocoa is of a premium grade. It is almo exclusively a small farmer crop, with around 25,000 growers. Citrus prospects, until recently poor, have improved with devaluatio frosts in Florida and the duty-free access to the United Stat market under the Caribbean Basin Initiative (CBI). The benefits granted under the CBI are especially helpful, since products fr Jamaica's main competitor, Brazil, have to pay import duties in t United States. Citrus deliveries to processing plants, mostly oranges, amounted to around 570,000 boxes in 1984 and resulted in exports of around 3,000 tons. There is a large domestic market f citrus, estimated at around 30,000 tons of fresh citrus a year. Mos export production comes from medium- and large-sized farms, several

of which are now investing in new acreages. Taken together, the share of coffee, cocoa and citrus, although growing, remain small as a percentage of export revenue.

3.48 With respect to non-traditional export crops, a number of initiatives have been taken in recent years, especially since 1980, that have resulted in rising shipments of winter vegetables, ornamental horticultural products and fruits. Winter vegetable exports, for instance, totaled almost 8,000 tons in 1985, an eight-fold increase in only four years. An estimated 400,000 Kg. of cut flowers and foliage were exported in 1984, with an export value of $1.2 million. Non-traditional orchard production is around 4,000 tons annually, of which 300 tons are exported; and large expansions are planned or are under development for papaya and mango, essentially for export markets. It is also important to note that production of certain traditional domestic crops, especially root crops, plantain and pumpkin, are now being exported in small --but steadily rising-- amounts to ethnic markets in the United States and Europe.

3.49 With regards to import substitution crops, the Government's present strategy is to increase self-sufficiency in rice, corn, cassava and soya; however, it is too early to see a significant impact in terms of production increases. Yearly rice consumption is around 60,000 short tons, compared with an average annual production of around 4,500 tons in 1984-86. Annual consumption of corn for animal feed is about 150,000 tons, compared with an annual production of about 5,000 tons, almost all of which was consumed as green corn. Annual production of cassava averaged 22,500 tons in 1984-86, and soya production is negligible.

3.50 As far as livestock is concerned, small farmers, who own 62 percent of the nation's beef and dairy cattle, account for 20 percent of the island's fresh milk supply. Two large dairies, Alcan and Serge Island, account for most of the remainder. The large GOJ-owned Cornwall Dairy at Montpelier, which formerly processed milk from farmers, closed in 1985 due to financial losses. Negotiations are underway for its possible reopening as a joint venture. At present, some 84 percent of nation's demand for dairy products is supplied by low cost imports. To a large extent, the low price of imported milk and butter acts as a disincentive to development of the dairy industry. With respect to beef production, Jamaica is currently 80 percent self-sufficient, and plans exist to eventually increase this coverage to almost 100 percent. Due to protection, beef production is profitable as evidenced by the recent initiation of large-scale commercial joint venture project, Lydford Farms, which has 2,500 head of cattle for breeding, 5,000 in feed lots as well as 30,000 acres of land for grazing and feed production. Jamaica was self-sufficient in pork production in 1984, but the number of breeding sows has since fallen by nearly half to 7,000. In 1984, imports accounted for 40 percent of chicken consumption, but these were mostly lower cost necks and backs. Production of pigs and poultry is falling due to high feed costs.

3.51 Fish production fell from 18,500 tons in 1980 to 6,000 tons in 1984, due partly to the increased cost of equipment for marine fishing. However, there has been much recent interest in expanding inland fisheries. Around 300 tons were produced from fish farms in 1984, and pond acreages increased by 55 percent in the preceding two years. Present plans are for pond acreage to increase to 3,500 acres for fish and 1,000 acres for shrimp by 1989, resulting in a projected production of 10,000 tons of fresh water fish and 1,500 tons of shrimp.

3.52 . In the preceding analysis of trends in agricultural output, it has been stressed that the efficiency of the sector in general, and of various subsectors in particular, has been and continues to be a problem. Thus, to conclude the output analysis, and as a transition to the outlook section below, some observations on the efficiency problem are presented below, especially in terms of the needs to increase productivity and to achieve cost competitiveness. With respect to the productivity issue, paragraph 2.21 and Table No. 6 revealed that agriculture has absorbed large amounts of redundant manpower since the mid-1970's. As a consequence, output per employed worker declined throughout 1975-1986 and in the last year of the period was equivalent to only one-quarter of the average for all sectors. It is difficult to see how this situation will improve fundamentally unless overall economic growth can be sustained so as generate more jobs elsewhere, and unless emphasis within the sector is placed on those activities where Jamaica has a clear comparative advantage.

3.53 In evaluating the best opportunities within the sector, it should be noted that Jamaica's agriculture, as has been the case in other countries, has operated under a changing framework of subsidies, incentives, taxes, transfers, special programs, and other modes of intervention, generally designed to stimulate or compensate agricultural producers and assist urban consumers. These measures generate a gap between market prices and the actual cost of resources, which are allocated to the different activities. Therefore, it is important to quantify the real cost of agricultural products in order to establish priorities for allocation of resources in terms of economic efficiency.

3.54 In this regard, it is again useful to classify Jamaica's agricultural output in terms of: (i) exports, (ii) import substitutes, and (iii) domestic crops. With respect to traditional exports, particularly coffee, sugar, bananas and pimento, recent research indicates that current export prices exceed average costs of production. This would support the notion that these items still constitute economically efficient sources of foreign exchange earnings for Jamaica. However, a number of important qualifications to this assertion must be made. The viability of sugar, for instance, depends on the expectation that protected markets will be maintained, which guarantee both the quantity and price of exports;

it also assumes that no retrogression will occur in the on-going efforts to rationalize and modernize the industry, including a reduction in the area cultivated. To some extent, this also applies to bananas, although available evidence reveals that the introduction of new technology has already substantially reduced costs.

3.55 The situation of non-traditional agricultural exports merit special comment, since their projected growth is viewed as a major response to the drastic changes in the structure of export demand, which have been precipitated by the decline of bauxite alumina earnings. In this connection, special programs have been established to promote new exports. Initially, high costs are expected, and incentives will be required. It will be necessary, however, to carefully assess the real long-run costs of this strategy and its prospects for efficiently generating foreign exchange resources. Thus far, results are encouraging. Under the Agro-21 program, for instance, several ventures have already provided evidence of viable opportunities in external markets as well as the technical viability of producing high quality output. One of the questions here, is to determine to what extent these results will be sensitive to changes in the exchange rate (or the lack of them).

3.56 The two main commodities in the group of import substitutes are rice and corn. Although the Jamaican Government, under the Food Sufficiency Program, has stimulated the production of these commodities, a large fraction of their total consumption continues to be imported. Since large scale production of these commodities is relatively new for Jamaica's agriculture and their prices in international markets are currently low, there will be considerable difficulties in achieving efficient production. At present, the production costs of rice and corn are slightly higher than the prices (c.i.f.) at which they can be imported. Consequently, a substantial increase in yields will be required if efficient import substitution of these two products is to be achieved.

3.57 In the case of domestic crops, most of Jamaica's output is accounted by small farms, who, as shown previously, have had very low productivity levels over a long time period. Any increases in productivity will have to be consistent with the continued decline in the number of workers, such as occurred in 1986 (Table No. 6); and, thus, with the growth of opportunities in other sectors.

3. Outlook and Policy Issues

3.58 In 1981, Jamaica embarked on a major structural adjustment and stabilization program in which agriculture played a key role. At the macro-level, the program involved the introduction of restrictive fiscal and monetary measures and an exchange rate regime geared to the distribution of foreign exchange on a competitive basis. A comprehensive effort to foster the rapid expansion of agricultural output with the aim of increasing export earnings and

of meeting domestic requirements, including substitution of essential imports, were also integral parts of the program. The strategy to achieve these objectives was to employ direct economic measures that would lead to the provision of new agricultural technologies; and the greater use of improved inputs such as high yield seed varieties and fertilizers; and concomitant reorganization of the institutional structure.

3.59 Towards achieving these goals, two interrelated policy orientations emerged. The first was concerned with improving the standard of living of small farmers through measures to increase their income, output and productivity. The second policy orientation sought to expand the size of the sector dramatically. This was to be achieved primarily through a large injection of capital and technology, and the application of fundamentally new approaches aimed at developing "modern" agriculture in Jamaica. The objective was, in short, to create a technologically advanced and highly productive farming sector that would cater entirely to the commercial or export market.

3.60 Since the authorities wanted to achieve this transformation as rapidly as possible, they focused their attention on the exploitation of available under-utilized or idle farm land that had been previously utilized for sugar and banana production. The intention was that, after an inevitable period of trial and error, the experience gained from the modernization effort would be transferred as expeditiously as possible to smaller farmers. This transfer of knowledge, and research and development was to be accomplished in two basic ways. First, a network of "mother-farms" was established. These large, centralized establishments, which were to be the focal points of the initial investments; however, they were to progressively diffuse their technologies and accumulated knowledge to the small farmers, and also provide them with shared (i.e., lower cost) access to modern inputs as well as to markets and other economic opportunities that would enable them to expand output and raise productivity. In this context, Agro-21 was created to be the primary catalyst for developing the "commercial" agricultural sector through the implementation of strategies for expanding exports and substituting imports on 200,000 acres of land owned by the Government. At the same time, to enhance the receptiveness of the small farmers to these initiatives, the Ministry of Agriculture began to develop a number of appropriate outreach programs.

3.61 The recurrent theme of agricultural policy in the early 1980's was the concentration of energies, in the first instance, on removing those constraints for expanding production which could be most easily removed. This involved the selection of crops for cultivation for which markets existed but were not adequately supplied (as with sugar and bananas) and for which production know-how, technology and capital could be readily obtained and applied. Similarly, the selection of regions for embarking upon "commercial agriculture" ventures was to emphasize those areas in which the physical limitations and other infrastructural constraints were the least severe.

3.62 Given the catalytic role that was attributed to Agro-21, some additional comments on this initiative are justified. In particular, the program is predicated on the assumption that, by introducing modern technology, Jamaica could take advantage of potential export opportunities for a number of non-traditional agricultural products, especially in the United States and Europe. It could also improve the degree of self-sufficiency especially in production of grains, as well as the efficiency of some traditional exports such as bananas and sugar. To implement this strategy, the Government has promoted specific projects by providing capital and incentives to foreign entrepreneurs for the production and marketing of commodities like cucumbers, peppers, flowers, rice, bananas, etc. At the same time, the Government is also carrying out a "divestment" program by which it provides long-term leases of government-owned agricultural lands to private entrepreneurs.

3.63 In order for this strategy to reach the small farmer, the "mother farms" were to develop the technology for farming, processing and packing, and marketing specific products. Then, the "mother-farm" subcontract with small farmers (satellite farms) for much of the supply of these products. The mother farms also provide extension services, seeds and other inputs as well as temporary employment in processing and packing.

3.64 Thus far, the results from these initiatives appear to be encouraging. After some difficult start-up problems, for example, Agro-21 has shown some solid progress in the production and external marketing of high quality goods. However, costs have been high. Moreover, the local private sector has been somewhat unenthusiastic, while foreign entrepreneurs have shown a propensity to minimize their investments and risk by working mostly on the basis of management contracts. With respect to the "mother-satellite" scheme, experience to date has been limited. The idea seems to be technically sound, however, and hopefully the number of satellite farms will begin to grow rapidly as experience is acquired by producers. It should also be noted that USAID is following the development of Agro-21 closely and is providing substantial amounts of technical cooperation, including a staff of over 40 agronomists, agroindustrial engineers, and marketing and financial specialists. Moreover, the Agricultural Credit Bank has relent USAID funds for various Agro-21 type projects in the areas of production and processing.

3.65 The government's policy for agriculture is ambitious, as it seeks to tackle many of the sector's problem areas and bottlenecks at the same time. There can be no doubt that the potential of Jamaica's agriculture is considerable. This does not mean, however, that a number of constraints which exist, both at a general and at a product level, can be disregarded. Limited domestic and export market potential, for instance, is an unavoidable constraint for

some crops. Other constraints exist, which, although amenable to Government corrective action in varying degrees, are likely to remain as important bottlenecks, since they can be corrected only gradually. These include the limited institutional and absorptive capacity of the sector; the uncertain investment climate as perceived by investors, both foreign and local; and the difficulties of obtaining high cost imported technology, due to the chronic shortages of foreign exchange and the high level of external indebtedness. Links with the market place and export marketing expertise are also lacking for some crops. Praedal larceny and the availability of low cost imports constitute serious constraints on expanding domestic food and animal feed production. Rural infrastructure and the internal marketing system need upgrading. At the same time, a squeeze on public expenditure is reducing the effectiveness of research, extension, plant quarantine operations and other essential services, while the absence of land titles and a poor credit delivery system continue to limit access to credit for many small farmers.

3.66 Notwithstanding these problems, the Government's priority to the agricultural sector is fully justified. There is no doubt that the island's endowments of land, water and human resources can contribute measurably to the economy's growth and development through increased exports, reduction of food imports, employment generation and the placing of idle lands into productive activities. Moreover, the outlook for key specific crops --subject to the important qualifications noted in the previous section-- is favorable for sugar, bananas, coffee, citrus, among others. The same is true for the initiatives being developed under the aegis of Agro-21 to expand production of winter vegetables and fruit for export, mainly to the United States. While many of these projects are in the early stages of implementation, they have the potential to make an important contribution to export earnings over the medium term. In contrast, the prospects for most of the priority import substitution crops (especially rice and corn) is more problematic, due to their low profitability at current world market prices.

3.67 Taken together, then, the continuation of the Government's current agricultural policies is fully justified. Given the experience of the past several years, however, several issues should be taken into account in future adjustments of the present policy-mix. Of particular importance, a more generous attitude of the policies in terms of foreign exchange allocation and credit availability could enhance the production response of the small producers; in turn, this would help to ensure that domestic demand for agricultural products could be met with local production, rather than imports.

3.68 With respect to new investment, priority should be given to upgrading and expanding the nation's irrigation infrastructure. An efficient expansion of the water supply and drainage infrastructure would warrant the creation of an integrated irrigation authority. Ideally, one authority should be established for water resource planning and the allocation of both surface and ground water.

3.69 The nation's continuing foreign exchange constraint affects the agricultural sector in two specific ways that merit modifications to future policy. First, the present system of foreign exchange allocation does not appear to accommodate occasional emergency requirements for foreign currency, such as the purchase of pesticides to deal with an outbreak of pests or importation of essential spare parts at a critical stage of the productive cycle. Second, the substantial amounts of foreign exchange that have already been absorbed by the Government's non-traditional export programs have intensified pressures for quick pay-backs in these areas. Again, the lack of foreign exchange at critical moments could be very harmful, especially since the time periods from planting to marketing for initiatives such as the Winter Vegetables Program are very limited. Consequently, any unusual delay --however short-- would not only result in large financial losses but would also, if repeated over time, jeopardize the entire success of the venture, since confidence in the importing nation would rapidly wane.

3.70 Finally, recent government policy has been directed towards a maintenance of a fixed exchange rate and the reduction of inflation (including a continuation of price controls). The authorities would be well advised, therefore, to watch the future evolution of the price incentive structure and the profitability of the agricultural activities with great vigilance. After all, the implied disincentives that existed in these areas in the 1970's contributed significantly to the sector's decline during that period.

C. Manufacturing

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1. Role in the Economy

3.71 Jamaica's manufacturing sector had its genesis in the import-substitution-industrialization (ISI) policies adopted during the 1950's. After more than a decade of rapid growth behind the protective barriers of the domestic and CARICOM markets, however, the sector had developed a number of deeply-rooted structural and financial problems. These problems not only resulted in a deceleration of growth but also made it increasingly difficult to respond in a positive way to the deteriorating economic environment that emerged in the early 1970's.

3.72 One of the key obstacles was the sector's heavy dependence on the use of quantitative restrictions. While reliance upon such restrictions initially did much to encourage production for the limited domestic (and regional) market, their continued use became progressively inimical to sustaining the sector's growth; especially due to the difficulties encountered in penetrating extra-regional markets. During the second half of the 1970's, the sector's performance also inhibited by a number of other increasingly severe constraints, including, inter alia, an overvalued exchange rate; the

recurrent scarcity of foreign exchange, with attendant shortages of raw materials and capital equipment; widespread industrial unrest; and mechanical breakdowns, particularly with respect to electricity generators. In addition, during the late 1970's, the general economic climate became less and less conducive to attracting new investment.

3.73 Beginning in 1980, however, the present Government reversed the traditional ISI orientation by initiating an export oriented industrial policy aimed at developing a dynamic export manufacturing sector. An active exchange rate policy and a structural adjustment program funded by the World Bank constituted the cornerstones of this effort. Although some important improvements exist, not enough time has elapsed for the sector to overcome the difficult transition from being a highly sheltered producer to the status of world market competitor.

3.74 The contribution of the manufacturing sector to GDP has throughout the 1975-1986 period been significant and rather stable. In 1975 manufacturing accounted for 17 percent of GDP, and in 1985 its share was 20 percent of GDP; the lowest contribution occurred in 1979-1981 with an average of some 16 percent. This performance implied that manufacturing was throughout the period either first or second among the economic sectors in terms of their contribution to GDP; in particular, manufacturing alternated with distributive trade (which at present contributes some 22 percent to GDP) as the main economic sector (Table No. 4). Manufacturing has also had an important impact on employment, with its share in the employed labor force rising from 11 percent of the total in 1975 (71,000) to almost 14 percent by 1986 (110,000). At present, about two-thirds of the labor force in the manufacturing is male. In 1986, the unemployment rate in the sector was about 19 percent, substantially lower than the 23.7 percent average for all sectors.

3.75 The role of manufacturing in Jamaica's international trade is significant. Sales of manufactured goods (SITC 6 and 8), for instance, have represented a rising share in export revenue, up from $37 million (less than 4 percent of the total) in 1981 to $55 million in 1985 (almost 10 percent of the total). Over the same period, imports of manufactured goods registered a very different trend: while their share in total imports increased only slightly, from 18.2 percent in 1981 to 19.2 percent in 1985; in dollar terms, this corresponded to a drop from $235.8 million to $192 million. The net result of these trends was a fall in the merchandise trade deficit for manufactured goods (f.o.b.), from about $199 million in 1981 to $132 million in 1985. Preliminary data suggests that a further decrease occurred in 1986.

2. Resources and Output

3.76 In analyzing the evolution of manufacturing output over the 1975-1986 period, as well as the problems and issues that will confront the sector over the medium term, it is essential to

ANNEX C

CARIBBEAN PROGRAMME 5 COORDINATOR

TRIP REPORT

I. GENERAL INFORMATION

1.1 Name of staff member:	Barry Stemshorn
1.2 Duty station:	Trinidad and Tobago
1.3 Operations centre visited:	-Ministry of Agriculture -Serge Island Dairy -Jamaica Hope Breeders Assn -Jamaica Livestock Assn -IICA Office
1.4 Locations visited:	Jamaica
1.5 Dates and duration of trip:	December 5-8, 1988 (3 days)
1.6 Date of Report:	18th December, 1988

II. PURPOSE OF THE TRIP

2.1 Specific purpose of the trip:

1. To consult national officials on our plans for implementation of the regional animal and plant health monitoring project

2.2 Code and title of trip activities:

A2886D1E03203 - Surveillance and Monitoring of Plant and Animal Pests and Diseases - Training

III. ACTIVITIES AND RESULTS

3.1 Summary of Work:

December 5th:

Travel to Jamaica; briefing on activities of IICA Office in Jamaica with Vivian Chin, A/Representative, and A.C. MacDonald.

December 6th:

Meeting with Mr. Clarence Franklin, Permanent Secretary. Present were: Lyndon Bryan, Director, Veterinary Services
George Grant, Senior Veterinary Officer
Paul Jennings, Director, Livestock Development
Walter van Whervin, Director, R & D
Vivian Chin, IICA
A.C. MacDonald, IICA

Mr. Franklin made the following remarks in response to my overview of the new regional disease and pest monitoring project:

1. Jamaica supports the initiative, and is willing to commit resources from current budgets, provided that no new allocation is required.

2. His disease and pest control officials operate with a high degree of professionalism, as reflected by recent decisions on a variety of agro-sanitary issues on which he has supported their recommendations. They have not relaxed their standards even for post-Gilbert aid.

3. While understanding the rationale for locating the regional centre in Trinidad, he noted that Jamaica has more agricultural activity than the "Lessor Antilles" and expressed concern at the domination of regional decision making by these countries. He is strongly of the view that a Program V specialist should be stationed in Jamaica.

4. If only one micro-computer can be provided for the project, this should be located in the Veterinary Division where there is a great need for improved data management. Mr. Franklin argued for a second computer for plant protection work; Mr. Chin pointed out that the research group under Dr. van Whervin would be obtaining a computer from another IICA project and that this machine that could be used.

Dr. van Whervin indicated his strong concern that we should take care to coordinate our initiative with FAO's current plant protection reporting activities. I assured him of our intentions in this regard (a meeting on this topic is scheduled for mid-January with Mr. C. Schotman, FAO's regional plant specialist).

Visit to Serge Island Dairy

This is a privately (Jamaican) controlled company with shares held by the Commonwealth Development Corporation and the Government of Jamaica. It operates several (5?) herds of over 200 head each. The herds graze a former cane plantation. The dairy produces, collects, processes, packages and conducts QC testing on its own milk. The farm is managed by Mrs. Fiona Black, supported by Dr. Lynette Peters, staff veterinarian.

A second concern of the breeders was the low number of registered animals, which results in a risk of inbreeding. There are many non-registered progeny and farmers were encouraged to register their stock.

Dr. Jennings introduced me to the coordinator of a Peace Corps Project on dairy cooperatives which he felt might serve as a base for a dairy production and health pilot, along with the Serge Island Dairy. The Peace Corps project has recently installed a bulk tank collection point for one of its cooperatives. Milk is sold for processing.

Meeting with Dr. Lyndon Bryan, Director, Veterinary Services, and Dr. Keith Amiel, President, Jamaica Livestock Association:

1. Dr. Bryan requested training for his staff in the diagnosis of Hog Cholera. While Jamaica claims to be free of HC on the basis of lack of clinical disease, USDA will not accept this argument in the absence of lab-based surveillance. I indicated that we could add this to the support to be requested from Agriculture Canada. The training could be provided by Dr. Gilles Dulac of the Virology Section, Animal Diseases Research Institute, (ADRI), Nepean, Ontario. For security and logistic reasons, it would best be conducted in Canada at the high security lab in Hull, Quebec. Funds might be sought from CIDA or CUSO for a period of 2-4 weeks of training, and for the materials and supplies required for the testing. Dr. Bryan indicated that equipment required for FA Microscopy is available in Jamaica.

2. Dr. Bryan requested help in the laboratory diagnosis of pseudorabies, and specifically for the serological testing required to monitor pigs in the Kingston area following the depopulation of infected animals from a region of the city. It would also seem important to confirm the diagnosis (currently based on serological evidence) through isolation of the virus. This is an area in which we would welcome the support of Dr. Ahmed Afshar of Agriculture Canada's Virology Section, ADRI, Nepean. This would provide Dr. Afshar with an opportunity to make use of a new "dot-blot" immunoassay which he has developed for use in laboratories lacking the equipment required for more complicated tests. He should be consulted regarding the feasibility of this approach and the availability of antigen, which can at times be in demand for Canadian survey work. Funds for travel, accommodation and laboratory supplies would need to be sought, again possibly from CIDA or CUSO.

3. Training was also requested in the diagnosis of exotic newcastle disease. This could also be sought from Agriculture Canada, but might best be obtained from USDA whose staff had more direct experience with this in recent years.

During the past year, the company's Chairman has introduced the "Small Dairy Farmer's Scheme" to assist small neighbouring farms (average 2-3 head) whose income was reduced by termination of the sugar cane operations. Serge Island purchases their surplus milk for J$3.40 to J$3.60 and sells its processed milk for J$4.00. Serge Island also provides AI and veterinary services (including herd health and production records) to these farmers, essentially at cost. About 24-26 small farms currently participate in this scheme; none have dropped-out. According to one farm supervisor, the small producers welcome the income for milk which was previously discarded, and are now beginning to work on milk production as a revenue generating activity.

Difficulties currently being addressed through extension activities of Serge Island's veterinarian and herd manager include milk handling and storage practices which need improvement to protect milk quality.

Serge Island has an IBM compatible microcomputer and maintains its herd records using Dairy Track software (U.S.A).

I was quite impressed with this operation which seems to represent a model for a private sector dairy development scheme. It may offer an excellent opportunity for the development of an industry-funded herd health and productivity monitoring system, and one which serves small farms.

Dr. Peters identified a need for a consultant in theriogenology for a term of 2-4 weeks to review the status and management of their breeding program. Issues to be reviewed include heat detection, incidence of cystic ovaries, inapparent breeding season, drug use and possible causes of abortions. I undertook to enquire of Agriculture Canada through the IICA Office in Canada, whether Dr. Bob Eaglesome, who has worked previously in Jamaica (and successfully according to Dr. Jerry Alexander), might be made available. Funds for travel and accommodation might be sought from CUSO, CIDA or the Canadian High Commission in Jamaica ("Canada Development" - formerly "Mission administered" funds).

December 7th:

Meeting of the Jamaica Hope Cattle Breeders Society at the Alcan Dairy Farm. This provided and opportunity to listen to the concerns of several breeders regarding difficulties with the dairy production recording system (DHIA). Staff shortages in the Ministry of Agriculture are leading to inaccurate and outdated records. The Ministry's position is that the breed associations who want to have these records will need to pay the costs, however, it was not clear that there is any administrative mechanism in place or planned which would serve as a vehicle for private funding of this system.

4. In response to my overview of the disease monitoring project, Dr. Amiel indicated his strong view that we should place most emphasis on the productivity impact studies and less on regional surveillance and reporting work.

December 8th:

Meeting with Dr. Walter van Whervin: Building on the theme introduced by the PS on December 6th, Dr. van Whervin made it clear that he prefers to work directly with the Jamaica office rather than through a Program V Coordinator located in Trinidad. He feels strongly that Jamaica's interests are too often neglected by regional agencies that are heavily influenced by the Lessor Antilles, and repeated the arguments for locating a Program V specialist in Jamaica.

Studies on fruit flies are an area in which he would like to see Jamaica play a leading role in the region. There is a need for studies of population dynamics with a view to establishing a strategy for eradication using the sterile male release method. A feasibility study on this approach was conducted by FAO or IICA in the past. The person to be contacted for more information on Jamaica's fruit fly activities is Mr. Murray at the Bowdles laboratory (plan to visit in January).

Citrus virus indexing needs strengthening, along with other aspects of plant disease virology which are weak across the region. A Mr. Edmund has been studying biochemical and other methods of virus classification in the USA. The Ministry in Jamaica will be identifying the lab support required; this is expected to cost about $US100K. Need is to know the disease status of budwood before it is used for propagation. Would like to have a general virologist on staff with support from a short term consultant for a survey of viral diseases.

We discussed support for locust surveillance, and I identified that the IICA emergency funds could be used to pay for the production of posters comparing the desert locust with native S. pallens. Dr. van Whervin pointed out that it would be desirable to prepare a supplement to the "Locust Handbook", to cover the locusts of the Caribbean region, including occasional outbreaks of S. gregaria.

Meeting with Jan Hurwich-MacDonald: The Representative was briefed on the meetings of December 6-8th, including commitments to seek support from Agriculture Canada for the requests from Serge Island and Dr. Bryan. She shared our impression that the managers of Serge Island are very capable. A point of concern regarding the new Program V project on disease and pest monitoring is that the IICA Office in Jamaica lacks an officer to manage their component. This may limit our ability to establish one of the model sub-projects in Jamaica. This would be unfortunate given the importance of Agriculture in Jamaica, and

the interesting prospects for work in both the dairy and fruit fly areas. The representative shared the views of Mr. Franklin and Dr. van Whervin regarding the need for a Program V specialist in Jamaica.

3.2 Future action and follow-up required:

- proceed with implementation of regional reporting system and projects

- draft satellite projects to seek supplemental support from CIDA and Agriculture Canada

- write to E. Fiori requesting specific support from Agriculture Canada

Annex D - List of documents used

1. Economic and Social Survey of Jamaica 1987. Planning Institute of Jamaica, Kingston.

2. Census of Agriculture 1978/79 (Preliminary), The Statistical Institute of Jamaica, Kingston.

3. Quarterly Economic Report, April-June 1988, Planning Institute of Jamaica, Kingston.

4. P.A. Broderick, Jr., Minister of Agriculture, Parliamentary Budget Speech, 1988.

5. Second Draft: "Assessment of Damage to the Agricultural Sector by Hurricane Gilbert", Planning Institute of Jamaica, 1988.

6. List of Projects, Data Bank, Ministry of Agriculture, Hope Gardens, Kingston.

7. GOJ-MINAG Five Year Food and Agriculture Policy and Production Plan (1983/84-1987/88)

8. USAID/Jamica: Jamaica Agricultural Sector Strategy, October 1987

9. IDB Socio-Economic Report, 1988.

10. Strategy of Action for Reactivation of Agriculture in the Caribbean Countries, IICA, December 1988

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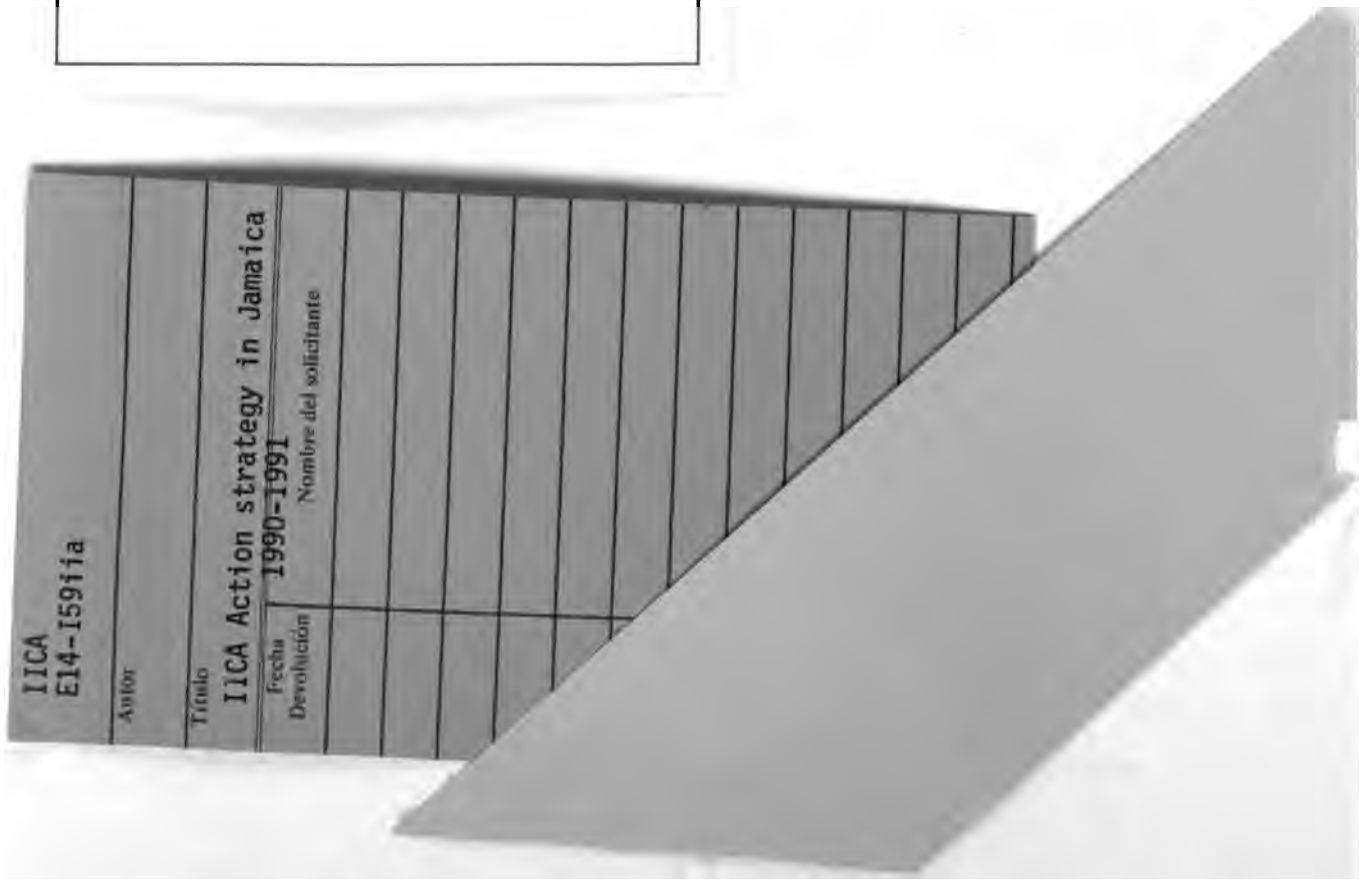

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