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**THE AGRICULTURAL SECTOR PERFORMANCE:  
1989 - 1993**

**MAY 1995**

IICA OFFICE IN JAMAICA

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IICA was founded as an institution for agricultural research and graduate training in tropical agriculture. In response to changing needs in the Americas, the Institute gradually evolved into an agency for technical cooperation in the field of agriculture. These changes were officially recognized through the ratification of a new Convention on December 8, 1980. The Institute's purposes under the new Convention are to encourage, facilitate and support cooperation among its Member States so as to promote agricultural development and rural well-being.

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## **PREFACE**

An ongoing concern about the IICA Office in Jamaica has been to document persistently the changes and performance of the Agricultural Sector. With this in mind, we are pleased to present "The Agricultural Sector Performance: 1989 - 1993" as an overview to illustrate some of the transformations occurring in Jamaica.

It is our hope that the information presented will contribute to strengthen the public and private sectors involved in rural and agricultural development to enhance a vision to modernize agriculture.

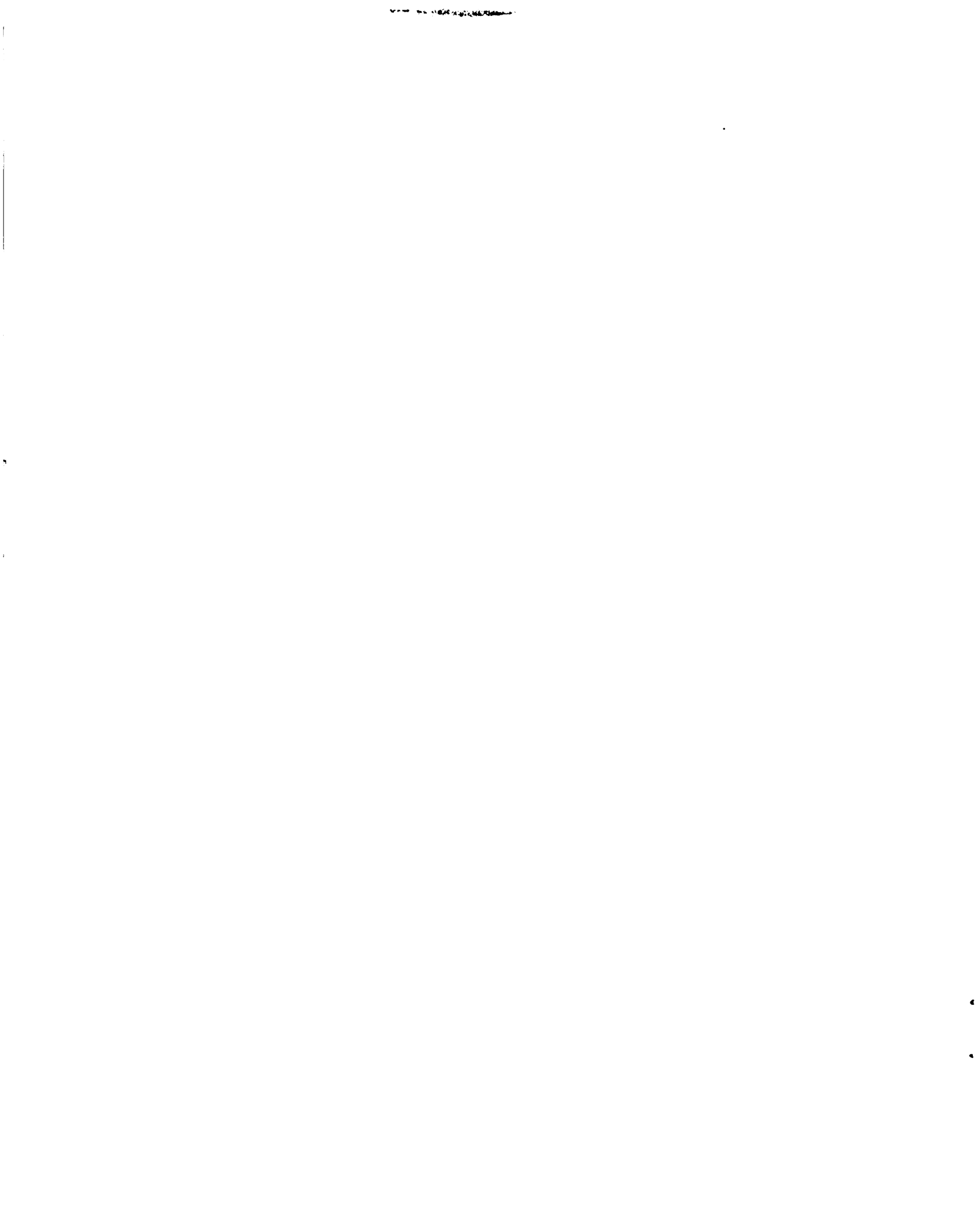
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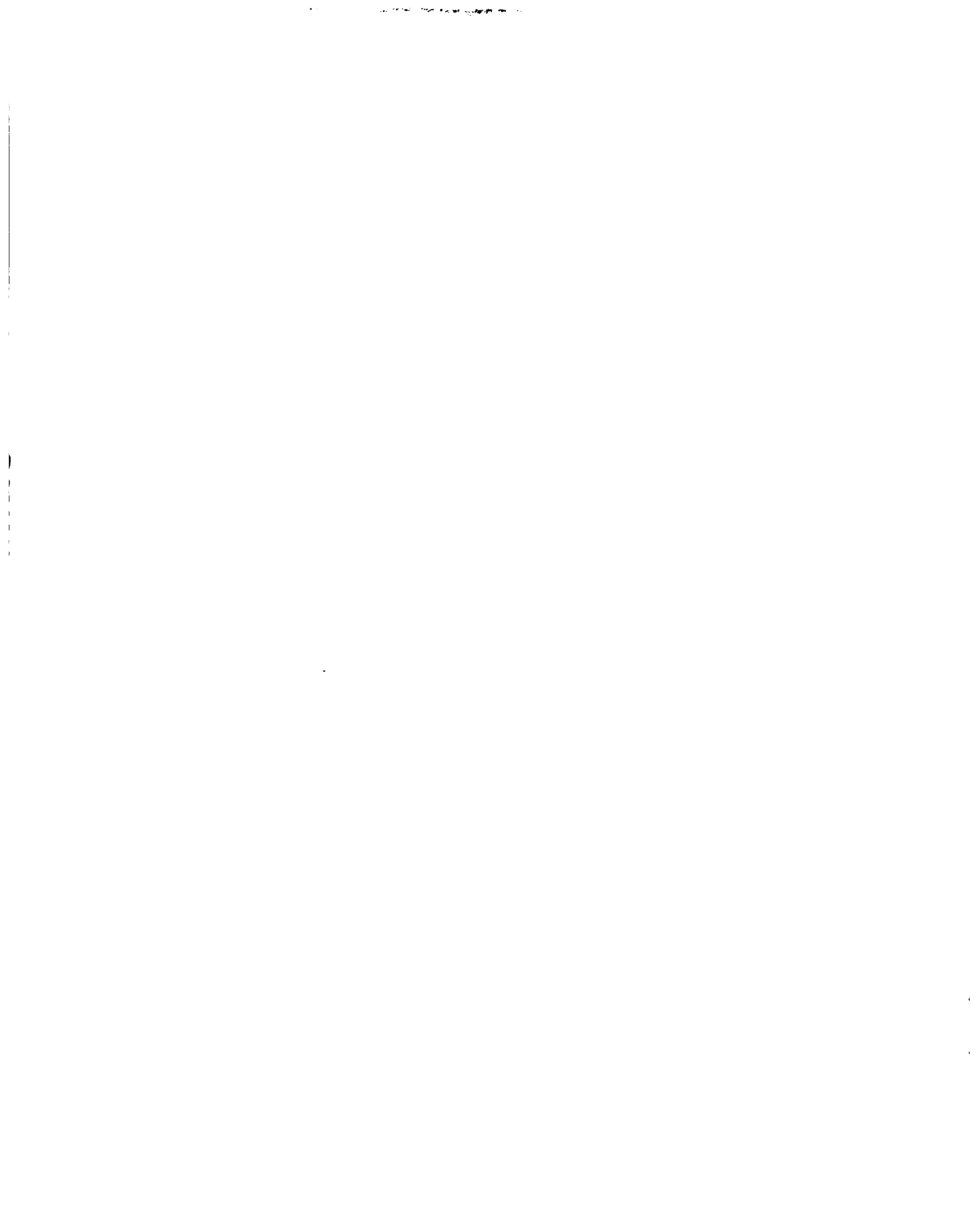
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## **I INTRODUCTION**

The Agricultural Sector is vital to the Jamaican economy. It is the major employer of labour and accounts for roughly 26% of the labour force. It sustains and stabilizes rural life, directly supporting an estimated 150,000 farm families. The sector is also a major earner and saver of foreign exchange, sugar and bananas being the third and fourth largest earners in the economy.

One of the first acts of the Government which took office in 1989 was the preparation of a National Five Year Plan. The Plan assesses that Jamaica's agricultural sector should be able to make "a significant contribution to the country's domestic food requirements and to generate increased foreign exchange earnings through exports."

The Plan was therefore designed to accelerate development and six main objectives were identified. These were as follows:

- (i) increase and sustain agricultural contribution to the general economic growth of the economy;
- (ii) increase production and productivity in order to make a substantial contribution to meeting the food and nutritional requirements of the population in order to:
  - reduce reliance on food imports through greater domestic food production;
  - expand exports of agricultural commodities to maximize foreign exchange earnings;
  - encourage agro-industrial development;
- (iii) improve the quality of rural life by means of higher farm incomes and by expanding rural infrastructure and services;
- (iv) reduce unemployment and minimize rural/urban migration by creating increased opportunities in agriculture and related activities;
- (v) foster the development of appropriate technology through research and development and ensure the transfer of this technology to farmers;

- (vi) stem environmental degradation in general and in particular the critical watershed areas by pursuing development strategies, aimed at achieving long term conservation objectives as well as the promotion of the effective use of natural resources.

This paper attempts to assess the agricultural sector's performance in relation to each specific objective in the Five Year Plan.

## II THE AGRICULTURAL SECTOR AND THE FIVE YEAR PLAN

### OBJECTIVE 1 - To Achieve and Sustain Agricultural Contribution to GDP

The first objective of the Plan was to achieve and sustain agricultural contribution to GDP. In general, it can be said that the sector performed creditably, since over the period 1989-1993 it grew by an average rate of 5% per year, compared with an annual average real growth of 0.9% per year for the period 1980-1989.

It should be pointed out that during 1992 and 1993 the sector grew by 12.9% and 8.8% respectively. The growth rate for 1993 is of greater significance, however, since that of 1992 followed a decline of 0.2% in 1991. In comparison, the growth rate for 1993 followed on positive growth the previous year.

During the past five years, agricultural contribution to GDP in constant prices grew from J\$968 million in 1989 to J\$1,323 million in 1993 - an increase of 36.6%. At the same time the sector's percentage contribution to GDP averaged 6.5%. This can be compared to an average percentage contribution of approximately 8% for the five years preceding 1989.

It can therefore be observed that although the sector itself has experienced growth in the period under review, its share of GDP has declined. In this regard, the contribution of 7.4% for 1993 is most encouraging. In fact, during 1993 the sector which grew by 8.8% over the previous year, was the major area of growth in the economy and significantly helped to avert an overall decline in the economy (Table A.1). Consequently, there are high expectations in relation to the future performance of the sector, particularly in light of reduced levels of visitor arrivals in the tourist industry and the problems being faced by the manufacturing sector. Therefore, it is anticipated that the sector in 1994 will maintain the level of growth of the previous two years and perhaps surpass it.

## **OBJECTIVE II - Increased Production and productivity**

### **2.1 Production**

The sector achieved an average rate of growth of 5% over the past five years. While the Agricultural Plan is an indicative one, which means that it makes projections based on what is technically feasible, and does not take into account the financing of the projected output or anticipate losses due to pests and diseases or natural disasters, it is useful to see how actual production compares to the projections made in the Plan. This information is set out in Table A.2.

#### **i Sugar**

The Sugar Industry presently produces around 224,000 tonnes. Nine Sugar factories are operated by the private sector, the last four remaining Government operated factories having been divested in December, 1993. The Industry is the third largest earner of foreign exchange averaging annual earnings of US\$84.8 millions over the past five years. In absolute terms earnings grew from US\$69.8 millions in 1989 to US\$98.6 in 1993 - an increase of 41% (Table A.3).

The production level of 224,015 tones for 1993, is only marginally higher than the volume of 215,000 tones, for 1989, indicating that the industry still has serious problems such as high cost of production, excess milling capacity and low levels of capital replacement. It is anticipated that this scenario will change significantly with the injection of capital and the restructuring of field and factory operations by the new owners of the factories divested in 1993. The industry is also expected to benefit from the reform of the institutional framework, the principal feature of which is divestment of the commercial functions of the Sugar Industry Authority (SIA) which will now become a purely regulatory body. The commercial function is to be assumed by Jamaican Cane Products Sales Limited.

During the period 1989 - 1993 the industry continued to be a significant employer of labour, with an estimated 40,000 persons, inclusive of small farmers, involved. With continued rationalization taking place in the industry, particularly under private management, it is expected that these numbers will be gradually reduced.



Over the past five years the European Economic Community (EEC) continued to be the major purchaser of exported sugar, purchasing 126,599 tonnes or 84% exports in 1993.

Sugar is sold to the EEC (UK) under the European Sugar Protocol. This Protocol which is of indefinite duration, offers preferential prices for specific quantities of raw or white cane sugar originating in African, Caribbean and Pacific (ACP) states. However, in recent years, Jamaica and other ACP States have become concerned about a number of issues. These include price, transportation costs, the review of the Sugar Regime and increased access to European Markets. The most critical issue, however, is that related to price. According to the Protocol the ACP guaranteed price should be determined, within the price range obtaining in the community, taking into account all relevant economic factors. However, the level of the ACP guaranteed price is limited by the prevailing restrictive European intervention price.

ACP sugar exporting countries are concerned with the fact that the guaranteed price of raw sugar offered by the EEC for the 1993/94 period is lower than the price prevailing at the time when the current regime was established in 1985.

The ACP has expressed concern to the Commissioner responsible for the protocol, and has asked that new measures be considered to offset the reduced prices principally related to transport costs.

## ii Banana

The production of export bananas continues to be one of the most important productive activities in Jamaica, and is the fourth largest earner of foreign exchange in the economy. Over the period 1989 to 1993, foreign exchange earnings grew from US\$19.3 millions in 1989 to US\$35.9 millions in 1993 an increase of 86% (Table A.3).

During the 1980's production had declined to an annual average of about 11,000 tonnes, although there was an export quota of 150,000 tonnes. As a consequence of the recovery efforts initiated in the 1980's, production became concentrated in the hands of three commercial estates, with field operations totalling 2,800 hectares. Small farmers were largely excluded from the industry, even though historically, they had been important producers. They were

excluded on the basis that the cost of production for the high quality banana required on the export market was too high for them. During 1989 - 1993, this situation changed with small and medium sized farmers re-entering the industry. In 1993, there were about 1,500 registered small and medium sized growers who supplied 20.7% of the bananas exported, total volume of bananas exported being 76,777 tonnes. Over the period 1989 - 1993, the average annual export of bananas was 66,078 tonnes and average earnings were US\$35.5 millions.

The Banana Industry has been at a crossroads in recent years, pending finalization of market agreements under a united Europe. The industry developed on the basis of preferential trading arrangements with UK, and this status was seriously challenged by a number of Latin American countries; supported by some European nations, proposing that there should be a Free Market access for suppliers of the fruit to Europe. Notwithstanding this, the European Community continues to provide tariff-free entry to all ACP banana producers.

This position was challenged by five Latin American banana producers under GATT. GATT supported this position and consequently, the European Community increased the Global Basic Tariff Quota made available to some Latin American Producers from 2 million tonnes to 2.1 million tonnes in 1994 and 2.2 million tonnes in 1995 and following years, subject to any increase resulting from the enlargement of the European Community. Secondly, the European Community has also divided the quota into country-specific quotas, allocated to the following countries:

<u>Country</u>	<u>Percentage of Global Quota</u>
Costa Rica	23.4
Colombia	21.0
Nicaragua	3.0
Venezuela	2.0
Dominican Republic and Other Non-Traditional	4.3
Others	46.32

Thirdly, the Community has reduced the tariff from 100 ECU to 75 ECU per tonne.

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This offer represents a settlement of the dispute between Colombia, Costa Rica, Venezuela, Nicaragua and the European Community on the community's banana regime. A fifth country Guatemala, has refused to be a party to this agreement. The outlook for ACP countries is optimistic however, since the European Prosecutor who presided over the dispute has recommended that the Community's banana regime be upheld.

### iii Coffee

The Coffee Industry currently produces around 12,000 tonnes of coffee. This is broken down between Blue Mountain (6,532 tonnes) and lowland coffee (5,797 tonnes). Production was seriously affected by hurricane damage in 1988, up to which time production had been increasing at the rate of about 3% per year to reach some 12,329 tonnes in 1988. This was reduced to 5,443 tonnes in 1989. By 1991 production had recovered to 9,173 tonnes and to 13,499 tonnes in 1992. The 1993 volume of 12,000 tonnes, therefore represents a decline of 8.7% over the previous year (Table A.2). The decline was, however, confined to lowland coffee which was badly affected by the unusually long period of rains which caused inadequate flowering and consequently a low crop.

The Coffee Industry Board, with the assistance of the Ministry of Agriculture, is currently developing a programme to obtain funds to assist the growers to combat pests and diseases and implement fertilizer programmes in order to encourage a good crop this year.

There is a strong demand for Jamaican Coffee, Blue Mountain fetching a premium 4.5 times the International Coffee Organization (ICO) indicator price and Lowland Coffee a premium of 2. During the period under review, Japan continued to be the major market.

#### iv Citrus

In 1993 the Citrus industry produced around 27,000 tonnes of fruit. This was sold to processing plants for both the local and export markets (Table A.2). In addition, there was an export trade of citrus fruits (volume data unavailable) which in 1993 was valued at US\$3.5 million (Table A.4). In recent years, there has been a vibrant development of the citrus industry with production increasing from 23,448 tonnes in 1989 to 47,609 tonnes in 1992 - an increase of 103%. This growth was fueled by the devaluation of the Jamaican dollar and the fall in production in Florida, California (USA) and Brazil.

The decline in production in 1993 was mainly as a result of adverse weather conditions which affected flowering and fruiting of the crop. There was also a fall out in value of fruit exported in 1993 which declined from US\$4.7 million in 1992 to US\$3.5 million in 1993 a decline of 25.5%. The reduction was due to lower volumes exported and a substantial reduction in export prices. Over the past three years Jamaican citrus received approximately US\$1.40 per pound solid, while in 1993 the price ranged between US\$0.70 - US\$0.80 per pound solid. The low prices are a result of recovery in citrus production in the United States and Brazil.

The Jamaica Citrus Industry, having experienced significant growth over the past five years, can now be regarded as going through a difficult period as the large reduction in prices is almost certain to impact negatively on expansion.

#### v Cocoa

The cocoa industry currently produces around 2,574 tonnes. Between 1989 to 1993, exports increased from 1,104 tonnes to 1,580 tonnes - an increase of 43%. The industry also earned average annual earnings of US\$2.4 million over the same period (Tables A.5 and A.3). Growth in the industry can largely be attributed to the support provided principally by the Hillside Agriculture Project (HAP) in the main cocoa growing areas in the Rio Cobre and Rio Minho Watersheds. The areas of Troja, Brainerd, Facey and Berry Hill for example, all reported increased output levels for 1992-1993 over 1989-92, ranging from 50% to 94%. This project has demonstrated that output of cocoa by smaller farmers (who dominate the

industry) is very responsive to a free supply of inputs.

Despite the success of the industry in recent years, it is now experiencing serious difficulties. Prices on the London Terminal market (where Jamaican cocoa is sold) fell from £1,050 in 1989/90 to 772 pounds sterling in 1993/93 - a decline of 26%. Although there have been some signs of recovery during 1992/93 - with prices going up to 14 pounds sterling per tonne - projections are that prices will not go past 820 pounds sterling.

Although the Cocoa Board has previously secured markets for its "fine flavour" beans, with a negotiated premium above the London Terminal price, the base price payable is dictated by the market for bulk cocoas and current market conditions are prejudicial to the continued receipt of this premium.

#### vi Domestic Agriculture

The Domestic Food Crop sub-sector has experienced steady growth in the last few years. After a decline of 9.4 percent in 1989, (when only 387,652 short tonnes were produced due to the impact of hurricane Gilbert in 1988) the sub-sector has been recording record levels of production.<sup>1</sup> In 1993 production reached an all time high of approximately 583,000 tonnes - an increase of 16% over the previous year's record high of approximately 506,000 tonnes. This trend has continued into the first quarter of 1994 with an increase of 14% over the first quarter of 1993. In the last two years, the growth of this sub-sector has been responsible for the overall growth of the agricultural sector (Table A.6).

The sub-sector includes legumes, vegetables, fruits, condiments, cereals, plantains, potatoes, yams and other tubers, totalling in excess of 50 different commodities. It is largely dominated by small farmers (70 - 80%) but in recent years there has been a significant involvement by medium sized and a few large scale commercial entities as a result of a growing export market for some of the commodities.

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<sup>1</sup>With the exception of 1991 when sever weather conditions again caused a decline.

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### vii Non-Traditional Exports

There has been a growing market for some domestic commodities commonly referred to as non-traditional exports. During the period under review, export of non-traditional crops has remained an important growth area in agriculture. Principal commodities exported under this category include yams (negro, sweet, yellow and lucea), other tubers such as dasheens and sweet potatoes, breadfruit, vegetables (including callaloo, cucumbers, egg-plant, hot peppers, scotch bonnet peppers, pumpkin, squash), condiments (including escallion, and thyme), plantains, mangoes, papayas, cut flowers and ornamentals. Tubers including yams, have experienced the highest level of growth from 8,931 tonnes exported in 1989 to 14,930 tonnes in 1993 - an increase of 67%. This is followed by the fruit category which increased from 1,114 tonnes in 1990 to 4,246 tonnes in 1993 an increase of 28%; while the ornamental horticulture category increased from 326 tonnes in 1989 to 478 tonnes in 1993 - an increase of 46.6% (Table A.7).

During 1989 - 1993 the export volume of non-traditional exports averaged 18,310 tonnes annually while export value averaged US\$23.5 millions (Table A.8).

### vii Livestock

The livestock industry over the period 1989 to 1993, reveals that its performance has been less than satisfactory. In 1988, production of beef stood at 15,024 tonnes. By 1992, this had increased by 21%, to reach a total of 18,208 tonnes. However, one year later, production had dropped to 15,639 tonnes - a decline of 15%, possibly due to the price elasticity of the product as consumers switched to cheaper products (Table A.6).

Production of goats' flesh except for an increase of 166.4% in 1992, remained stagnant at around 600 tonnes. Pork known for its cyclical pattern of gluts and shortages recorded a production level of 7,394 tonnes in 1990, approximately the same level produced in 1993. However, in both 1991 and 1992, it declined significantly below this level, with an output of 4,740 tonnes and 5,926 tonnes respectively (Table A.6).

Production of poultry which had grown significantly in the preceding years, remained fairly constant between 1990 and 1992 at an approximate level of between 52 - 53,000 tonnes. However, production fell to 44,469 tonnes in 1993, a decline of 16.4 percent, largely as a result of competition from imported leg quarters Table A.6).

Production of milk, while showing some growth over the period 1989 - 1993, is also experiencing serious problems. The Jamaica Livestock Association (JLA) report of 1989 stated that "foreseeing the possibility of consumer resistance to increased prices, agreement was reached with Jamaica Milk Products Limited to accept any Grade "A" milk which processors might be forced to divert because of market conditions." At that time it was stated that the Dairy Committee of the JLA was considering a proposal to set up a Milk Development Authority to regulate and monitor all aspects of the industry. It was also recommended that the level of the existing subsidy on "A" grade milk be increased to the level of the subsidy on imported skimmed milk so as to assist the local industry. By 1990 it was reported that the production level of 23.84 million imperial quarts had surpassed all production level for the previous decade. As a consequence of these developments, initiatives were to be taken to involve a larger number of small farmers in the industry. By the following year, however, it was being reported that increasing competition from skimmed milk powder had resulted in a decline in production.

The industry lobbied government to retain the Parity Mechanism on pricing of milk powder which had been implemented since 1986. The objective of the parity mechanism was to equate the cost of farmgate milk to reconstituted powder by applying a tariff on milk powder which would be transferable to the farmer to reduce the cost of fresh milk to the consumer. The recommendation was not accepted by Government.

Despite this, an increase in production was reported in 1992. It was also reported that additional small farmers had entered the industry largely through the small farm programmes implemented by Alcan and Serge Island. Since that time, the industry has been facing serious competition, not so much from the traditional milk powder but from whole milk powder which is sold at between J\$8-10 per quart (equivalent) compared to J\$38 a quart for fresh milk.

Responding to sustained lobbying from milk producers, the Ministry of Agriculture outlined a seven-point plan to aid the industry. Under the Plan, liquid milk sold in sizes of one pint and under should contain a minimum of 40% of fresh cow's milk, up from the previous 20%. The one-quart container will continue to comprise 100% fresh cow's milk. The Bureau of Standards was mandated to 'constantly and closely' monitor the industry to ensure that the reconstitution of milk was strictly adhered to. Another key part of the Plan, was that while skimmed milk powder used in the sachets programme would remain free of duty, whole milk powder in sachets would be dutiable. Government would be prepared to examine the existing rate of duty of 30% to ensure that no injury was caused to the local dairy industry. The impact of these measures will have to be monitored closely to assess the type of impact they will have on the industry.

## **2.2 Productivity Increase Recorded Between 1989 and 1993**

The Five Year Agricultural Plan, reported that 'low productivity has been a chronic problem of Jamaica's agriculture'. Jamaica's topography is a serious limiting factor to agricultural production and productivity. Only 20% of the land is flat or gently rolling and 58% of the land has slopes over 20°. Although half of the land area (600,000 hectares) is used for agricultural production and roughly a quarter of the labour force is engaged in agricultural activities, contribution to GDP over the past five years has averaged only around 6.5%.

In addition to the topography constraints there are historic factors which have contributed to low productivity. These include a land ownership structure which has confined the majority of the farmers to micro-plots in the island's numerous watersheds. Other factors include inadequate equipment and poor agricultural practices; and widespread dependence on rainfall. Of the 600,000 hectares in agricultural production only 25,700 ha hectares are reported to be irrigated (largely for sugar and banana cultivation on the plains).

The sector might also have been negatively affected by its dependence on guaranteed markets and price preferential quality premiums. As for sugar, bananas, coffee, cocoa and pimento it is doubtful if any would prove competitive if these commodities were sold on the world market. It might well be



that protectionism at the international level has acted as a disincentive to improving efficiency. It is against this background and in light of the impending trade regime reform, that the Five Year Plan identified the need to increase agricultural efficiency and productivity.

A review of crop yields for the period under review (Tables A.9 and A.10) reveals only modest improvements, which are much lower than optimal yields based on local conditions. This is particularly so in the case of the traditional export crops.

In light of the increased competition which will prevail in a more liberalized global economy, the performance outlined above is far from satisfactory. It should be noted, however, that the domestic crops are performing better in terms of productivity, compared to traditional export crops. One could speculate that the high cost of inputs has forced farmers to improve cultural practices, a simple example of which is the preparation of seedlings in a seed bed, rather than broadcasting seeds.

In general, improving yields to more acceptable levels will undoubtedly require much greater investments in research and extension, irrigation facilities, development of more modern equipment and increased use of farm inputs such as fertilizers, pesticides and other chemicals.

### **2.3 Reduced Reliance on Food Imports**

The Agricultural Plan outlined three reasons for increasing production and productivity, the first one being to reduce reliance on food imports. Since 1990, there has been a trend of an improved agricultural trade balance as the value of exports of agricultural products have been exceeding the value of the most important basic foods imports which include all the basic foods such as rice, maize, wheat, flour, soya beans, vegetables and a wide selection of fresh and processed meats including beef, chicken, mutton, fish, corned beef, sardines, herrings, cod fish, mackerel etc. The basic food items also include dairy products, skimmed and whole milk, butter fat and cheese. The list of basic food does not include food which can loosely be described as the more exotic items,

When the total agricultural exports of approximately US\$195 million (including non-trationals) for 1993 are compared with the value of food imports of US\$178 million for the same year, there is a trade surplus of US\$15 million. In 1992 there was a surplus of US\$4.3 million, while in 1991 and 1990 there was a surplus of US\$32.8 million and US\$7.4 million respectively (Table A.11). While it is still too early to determine whether the positive trade balance will become a permanent feature of agricultural performance, it has been both significant and encouraging up to now.

In published agricultural data there is no foreign exchange value assigned to domestic crops (except for those exported as non-trationals). This ignores the maxim that foreign exchange saved is foreign exchange earned and also downplays the role that domestic crop production is having in improving national food security. During 1993, a gross farm gate value in current prices of J\$8 billion was attributed to domestic food crops. If that food had been imported its value could have been between US\$200-400 million (using New York Bronx Terminal prices as an indicator). The figure, while crude, might be useful for imputing a value to the food producing sector which may be greater than that of the traditional export sub-sector.

In conclusion, the agricultural sector through its domestic crop sub-sector has been making a substantial contribution to food security and reducing food imports.

#### **2.4 Expanded Exports of Agricultural Commodities**

The second reason given in the Plan for increasing production and productivity was the expansion of exports of agricultural commodities.

In terms of foreign exchange earnings, the sector recorded an increase from US\$120 million in 1989 to US\$195 million in 1993 - an increase of 63%. This included earnings from the traditional export crops (sugar, bananas, citrus, cocoa and coffee) which grew from US\$102.4 million in 1989 to US\$163.1 million in 1993 - an increase of 59%. In comparison, earnings from non-traditional crops grew from US\$17.4 million in 1989 to US\$31.9 million in 1993 - an increase of 80.4%.

Sugar remained the number one agricultural export (and third highest in the economy) increasing from US\$64.8 million in 1989 to US\$82.5 million in 1992 and US\$98.5 million in 1993 respectively. Tables A.4 and A.5 set out the projections for volume export and earnings vis-a-vis actual achievements over the Plan period.

## **2.5 Agro-Industry**

The Plans' third reason for increasing production and productivity was the need to develop Agro-Industry. The Plan states that linkages between agriculture and the manufacturing and processing sectors have been slow to materialize, although there was considerable potential for expansion.

A review of agro-industrial development during the Plan implementation period under review shows that the situation remains largely unchanged. There is still insufficient backward linkages between agro-processors and producers of agricultural raw material required to provide the needs of the industry. In addition, the cost of producing what is available is not cost competitive with imported raw material. Not only are most agro-processors not involved in primary production but also there are few contractual arrangements with producers. Consequently, farmers usually sell to processors as a last resort. Two notable exceptions are sugar and broiler producers, where backward and forward linkages are facilitated by contractual arrangements. In each case the provision of inputs and technical assistance to farmers supplying raw materials have served to increase production and productivity among farmers.

It is well recognized in the sector that in the long run the greatest potential for expansion of agriculture will be in the area of agro-industry. This is because projected market share and quotas for traditional exports will soon be filled (5-7 years). In addition, the domestic market is limited due to increased liberalization and non-traditional export expansion will not be sufficient to maintain the momentum of agricultural expansion. The Green Paper on Industrial Policy makes recommendations for the development of this vital area.

**OBJECTIVE III - Increased Farmgate Prices and Improved Quality of Rural Life**

The third objective of the Plan was to increase farmgate prices and improve the quality of rural life. In relation to the domestic crop sub-sector, there has been consistent increases in farmgate prices over the period 1989 to 1993 as shown by the Planning Institute's Index of domestic farmgate prices set out below:

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<b>Years</b>	<b>Farmgate index</b>
1989	251.28
1990	460.99
1991	718.89
1992	1162.2
1993	1471.66

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Given the high rate of inflation in recent years, have these increases been real or nominal? Taking 1993 as an example, there was an increase of 30.1% in the farmgate index, which compares with the average percentage change in the Consumer Price Index of 22.1%, thus the increases in the farmgate prices were positive. This is particularly significant since most producers of domestic crops use a low-technology low-cost production model.

The price of domestic food has been a major contributory factor to the increases in the Consumer Price Index for food. However, as there are serious constraints to increasing the efficiency of the food-producing sector in the short run, and because productivity increases recorded are insufficient to offset increased prices in other areas of the economy, the expectations are that food prices will continue to increase.

In relation to the traditional export crop sub-sector, significant increases were also recorded in the farmgate prices. This might be of less significance, however, than in the case of the domestic crop sub-sector, since its primary cause was the devaluation of the Jamaica's dollar vis-a-vis the United States dollar and the Pound Sterling, particularly between 1991 and 1993. Since this sub-sector is heavily dependent on imported inputs, the prices of which have increased significantly in Jamaican dollars, as a result of the devaluation, export farmers claim not to have benefitted from increases in farm gate prices.

Has the quality of rural life improved as a result of increased farm incomes? "Jamaica: A Strategic Proposal For Rural Development" by IFAD/IICA, and The Draft World Bank Report for Jamaica (January 1994), states that one third of Jamaicans in 1989-90 were below the poverty line, a socially unacceptable portion of the population. Although the proportion of the population below the poverty line rose sharply in 1991, it declined in 1992 "as the positive effects of stabilization and other improved economic policies became evident".

Inflation has caused the cost of housing, public utilities, education, health care and food to move further from the reach of the poor. However, a mitigating factor in the case of the small farming community, is that to a large extent they can supplement and substitute purchased food with home grown food. This is important since the weekly food basket to feed a family of five was recently estimated to cost over J\$1,000 while the new minimum wage which became effective July 1994 was J\$500.

#### **OBJECTIVE IV - Reduced Unemployment and Minimizing Rural-Urban Migration**

There is no empirical evidence to support the view that there has been a reduction in the rural-urban drift, since the implementation of the Five Year Plan. Despite the increased production, particularly in the domestic crop sub-sector, it cannot be claimed that there are more people in agriculture. Productivity increases in the sub-sector indicate that there is only a marginal change in the area of land in use so it could be assumed that there is only a marginal change in the number of persons involved.

There is a hypotheses that the high cost of living has forced some urban residents to move back to the rural areas and become involved in agricultural production. This is not supported by the data on employment. In fact there has been a substantial decline in the number of persons employed by the sector from 29% in 1988 to 24.3% in 1993. The decline was sharpest between 1992 and 1993 when the contribution to employment fell from 27.3% in 1992 to 24.4 percent in 1993. The Economic and Social Survey of Jamaica (1993) indicates that for the first time, agriculture has lost its place as the major employer of labour.

This decline is certainly in keeping with classical agricultural development theory that as the sector becomes more productive, it can free surplus labour for other economic activities. However, more data ought to be collected and analyzed before any firm conclusions can be made about urban-rural drift.

**OBJECTIVE V - Foster the Development and Transfer of Appropriate Technology**

There is consensus that one of the major requirements for improving the performance of the Agricultural Sector is the improvement of research capabilities. The Research Division of the Ministry of Agriculture has suffered both from a loss of trained staff and inadequate funding to undertake effective research work. Agricultural research is said not to have the benefit of clear policy directives and clearly defined lines of responsibility among support agencies. It is also said that although the Rural Agricultural Development Authority (RADA) was established to address the developmental aspect of research it has been seriously under-funded and therefore not as effective as expected.

The Government has been cognizant of the defect in the research system for a long time and has undertaken several studies. These studies have all made recommendations for the reform of the system but few, if any of these have yet been implemented.

The Government has recently, restated its commitment to improving the research system, and as evidence of this has increased its budgetary provisions by 62% in 1994/95 financial year (J\$34. million) over the provision of J\$13 million in 1993/94. Although this is a significant increase in absolute terms, as a percentage of the budget of the Ministry of Agriculture it is still minimal.

In 1989/90 the research budget (J\$14.84 million) was 5.3% of the total agricultural budget, compared to only 5% of the 1994/95 budget. So there has been a slight decline. While there has been a significant nominal increase in the budget for 1994/95, as a percentage of the total agricultural budget it is still too small at 5%, a more realistic provision being anywhere between 10% and 15%. In conclusion, research remains one of the most underdeveloped areas in agriculture, and is certainly inadequate to provide the sector with the technology

base, to achieve rapid increases in production and productivity. This becomes more relevant as the sector seeks to become more competitive to confront a liberalized global economy.

An effective extension link is also required to transfer relevant technology to the farmer. RADA was established in 1990 as a statutory body amidst great expectations to provide such a function. After its establishment, approximately 50% of the extension officers were made redundant in the 1992 "Public Sector Downsizing". RADA has thus had to change its approach from an individual to a group focus transfer of technology methodology, in order to be cost effective. As a percentage of the total agriculture budget, the Rural Development provision in 1989 (prior to the establishment of RADA in 1990) was 8.2% compared with 9.7% in 1994/95.

The effectiveness of RADA seems seriously constrained by budgetary and staff shortages, compounded by the absence of adequate technology generation.

#### **OBJECTIVE VI - Improved Watershed Management**

Jamaica's topography poses a serious constraint to agricultural development. Approximately 80% of the land has slopes between 15°-30°. These slopes make the production of annual crops difficult and make soil conservation imperative if soil erosion is to be prevented. On the steeper slopes, only fruit trees, food forest or forest should be produced. Notwithstanding this constraint to agriculture, approximately 600,000 hectares of the island's 1.1 million hectares of land are used for agriculture with far less than satisfactory results. This could lead to serious soil erosion which causes sedimentation of rivers and severe flooding and loss of lives, houses, crops and livestock. Consequently, the quantity and quality of arable land is to be managed rationally to avoid limiting future productivity and farm incomes.

The Government has constantly reiterated its commitment to improving watershed management and has backed this up with the implementation of several projects, the most recent one being the USAID supported Agricultural Hillside Project (HAP). This project provides grants for planting material and technical advice for the expansion and rehabilitation of perennial crops suitable for watersheds; soil conservation works and the promotion of agro-processing. The participation

of the local community to select beneficiaries, to monitor the performance of individual participants as well as the overall project is important. This project has had significant impact, particularly, in the Rio Cobre Watershed, and is responsible to a great extent for the rehabilitation of the cocoa industry. The project has now been extended from the Rio Cobre Watershed to include all watersheds in the Eastern end of the island.

Despite its proclaimed success, some doubts still linger about its sustainability and replicability of the project given its reliance on free inputs given to the farmers. In short, the economic sustainability of the project is questionable. Efforts are being made to ensure at least the maintenance of the trees established or rehabilitated under the project, by involving RADA and the relevant Commodity Boards in the supervision of the project.

Underpinning all of Government's activities in the area of improved Watershed Management has been the establishment of the Natural Resources Conservation Authority (NRCA) in 1991, with responsibility for the management, conservation and protection of the national resources of Jamaica. The NRCA has identified watershed management as the most critical environmental problem in the country and has begun to take action in coordination with the Forestry and Soil Conservation Department of the Ministry of Agriculture.

The Forestry and Conservation Division has recently initiated (1993) a project with the Canadian International Development Agency (CIDA) to redefine forestry management policy and legislation and rebuild the Forestry Department to better manage the forests of the country.

Despite commendable efforts being made by the Government and donor agencies for economic investments in crop and livestock development, watershed's environmental impact assessments are still pending. Given the unstable physical environment in which investments are taking place, these reports are of utmost importance.

The uneven performance of the agricultural sector (negative growth has been recorded three times since 1988 in 1989, 1990 and 1991) is invariably blamed on so-called 'Acts of God', without sufficient regard to how man-made efforts could significantly reduce their impact. While significant assistance is available for tree cropping, soil conservation

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and afforestation under various projects, the effect is somewhat dissipated because of piece-meal efforts. Should all the resources available be pooled together and planned and managed, in a coordinated, prioritized way, the effects would be more visible. A bolder concept would be to launch after the necessary public awareness programme, a "Conservation Fund", under proper management into which groups of farmers, both large and small could make voluntary contributions based on the scale of conservation to be undertaken and which could be backed by contributions from Government and Donor Agencies. This fund could be used to carry out necessary conservation activities in a given area. The purpose of this would be distinctly different from that of an Insurance Fund for which there are very limited reinsurers' support, because of the large risks involved. The intention here would be to reduce the need for insurance through prevention rather than cure.

### III FACTORS EFFECTING THE PERFORMANCE OF THE AGRICULTURAL SECTOR

To assess what factors contributed to the performance of the agricultural sector, it is necessary to review the general policy framework over the period 1989-1993. The Agricultural Five Year Plan (1990-1995) emphasized policies designed to increase its vibrancy, address the constraints and take into account the move towards liberalization. With this in mind, the Government accelerated the structural adjustment of the sector, a process which had begun the 1980's.

#### 3.1 Structural Reform of the Sector

In accelerating the reform of the sector, the Government stated its commitment to the free-market economy, reduced control from the Government and greater involvement of the private sector. Policy measures adopted included the liberalization of the foreign exchange regime; reform of the agricultural trade regime; abolition of the Generalized Food Subsidy Programme administered by the Jamaica Commodity Trading Corporation (JCTC); deregulation of the cocoa, citrus and sugar industries; divestment of publicly owned assets; and the reduction of the interest rate differential on loans to the sector vis-a-vis other sectors of the economy.

Of all these policy measures, the liberalization of the Foreign Exchange Regime can definitely be regarded as a revolutionary development for the agricultural sector. By allowing at least part of the proceeds of export sales to be paid to the farmer in foreign exchange, the agricultural sector was placed on par with other earners of foreign exchange, e.g. the tourist industry. This has had a far-reaching impact on the development of the sector which had suffered from a 'cinderella' image. With one policy initiative, the status of the sector was significantly changed as new investment in export crops was the immediate response. Bananas, citrus, coffee and non-traditional crops such as yams and papayas from which foreign exchange could be earned were all beneficiaries. Investors who would normally not have had any interest in agriculture, now became involved in order to earn foreign exchange. Often times the foreign exchange earned is used to finance inputs for other sectors of the economy, consequently forging linkages, previously non-existent.

### **3.2 Reform of the Agricultural Tariff Regime**

Tariff reform related to the agricultural sector began in 1990 as a conditionality under the Agricultural Sector Adjustment Loan (ASAL) and is now being concluded under the Private Sector Development Adjustment Loan (PSDAL) also funded by the World Bank. Under the ASAL, all reference prices and quantitative import restrictions, which had existed to protect small farmers from competition from cheaper imported food items, were abolished. Concomitant with this, however, additional stamp duties were approved to provide a nominal level of protection equal to that provided by the previous non-tariff measures. These duties which in most instances were as high as 100% were to be reduced over a period of five to seven years to the level of the Common External Tariff (CET) 40% in most instances. This process of phasing down was accelerated under the PSDAL; 1995 being the year in which the protective tariff on the final group of most 'sensitive items' is to be reduced to the level of the CET.

The protection provided by increasing the rate of tariff was intended to provide a 'breathing space' to allow the sector to improve its efficiency so that when the tariffs were reduced to the level of the CET, the sector would be more competitive. Whilst there has been some increases in productivity, it is doubtful that these are sufficient to allow for effective competition. Much concern is therefore being expressed about the serious impact which removal of protective tariffs could have and consequently Government is being lobbied to retain these for a longer period. If the process of reform continues as scheduled it will require another year or two to determine the full impact. What is more important however, is that greater efforts will have to be made to improve research, extension and irrigation facilities in order to increase efficiency.

### **3.3 Abolition of the Generalized Food Subsidy Programme**

The abolition of the Generalized Food Subsidy Programme has had a major impact on the growth of the domestic crop sub sector. Under the Generalized Food Subsidy Programme, there was a system of cross subsidization, through which basic foods were sold by the JCTC to consumers at subsidized prices and price controls enforced. The Government took a decision to rationalize food pricing by removing distortions in the price of imports resulting in the elimination of food subsidies in

1991. The immediate effect of this was an increase in the price of imported rice, cornmeal, wheat flour, skimmed milk, cooking oil, sardines and salted fish. As a consequence of this, the price of domestic food substitutes became more attractive, paving the way for increased demand for these commodities. It is noteworthy that in the two years immediately following the elimination of the subsidy, domestic crops grew by 19.5% and 16%. The trend has continued into 1994 with production for the first quarter recorded at 13.8%.

### 3.4 Agricultural Credit

Up to December 1990, the interest rates on agriculture loans were 12% for small farms (those with less than 25 acres) and 15% for medium and large farmers (more than 25 acres). These rates were low relative to the average weighted rates of 31.6% for non-agricultural loans. After December 1990, the rates for medium and large farmers were adjusted to equal market lending rates of commercial banks, while that for small farmers was equal to the 90-day Treasury Bill yield. There were a number of further adjustments, until finally a policy which linked the interest rates on local currency loans to the yield of the Treasury Bill. Under this regime interest rates to small farmers has gone as high as 49%.

This interest rate policy for agriculture has had a negative impact on new investment in the sector. When interest rates rose in 1992, credit which was allocated by the AC Bank via the PC Banks and other approved financial institutions declined by 4.2% compared with 1991 allocations. Some J\$121 million in commitments were made in 1992 compared to J\$126 million in 1991. When interest rates declined in 1993, the demand for loans increased significantly during fiscal year 1993/94. The total approvals amounted to J\$243.7 million, an increase of 189%, compared to the same period of the 1992/93 fiscal year. It is most likely that the export crop, sub-sector, which is dominated by medium and large farmers (about 70%) suffered most from this policy, as small farmers who borrow relatively small amounts are less responsive to interest rate, than more commercial farmers who borrow much larger sums. This could therefore be a contributing factor, to the poorer performance of the export sub-sector during the 1990's.

In recognition of the negative impact of the credit policy, earlier this year Government announced two initiatives which are intended to increase the demand for credit and consequently investment in the sector. These were the reduction in the rate at which AC Bank onlends loans denominated in foreign currency (down by 2.5%) and the second was a scheme which provides farmers of up to 25 acres with a rebate equal to the difference between normal market rate and the average annual inflation rate over the past 12 months. At the present time this rebate is equal to about 25% (down from 55% to 30%). The impact of these measures will have to be carefully monitored.

### 3.5 Deregulation

Jamaica has been implementing a programme of deregulation of the institutional framework in which a number of important export commodities are produced and exported since the early 1980's. The stated objective of the deregulation was the need to reduce the strangle-hold which quasi-government Commodity Boards or External Market Organizations had on their respective industries. Deregulation is intended to provide an incentive for greater participation as well as to allow for increased efficiencies.

The first industries to be deregulated in the 1980's were banana, coffee and pimento followed by the cocoa, citrus and sugar in the late 1980's and early 1990's. Under this programme of deregulation, marketing of bananas was taken over by a private export company - BECO - a development which is believed to have contributed significantly to the rehabilitation and revitalization of the industry. The deregulation of the export of coffee, subject to compliance with certain quality requirements has triggered new commercial expansion in the industry, although concern is still being expressed about the need to be vigilant with respect to quality control.

With respect to citrus deregulation, the removal of the need to obtain a license from the Citrus Grower's Association to export fresh fruit, has resulted in significant expansion in production. In the case of both pimento and cocoa, the deregulation of export sales have not been taken advantage of to any noticeable degree. Consequently deregulation has had little if any impact on production.

The last industry to be deregulated was the sugar industry. During 1993, Government agreed with the industry on the need to develop a new regulatory framework which is currently being implemented. The major components of this framework is the deregulation of refined sugar imports, subject to a special tariff regime to protect both producers and consumers; and the deregulation of domestic marketing to allow both cane farmers and manufacturers to be more flexible in marketing arrangements. In addition, the Sugar Industry Association (SIA) will cease to carry out commercial activities such as external marketing; importation of sugar and distribution of revenue. The SIA will be restructured to become a strong regulatory body to oversee the successful development of the industry. The commercial functions undertaken by SIA will now be carried out by the Jamaica Cane Products Sales Limited (JCPS). This measure, together with the divestment of the publicly owned sugar factories is expected to result in significant new investment and ultimately efficiency and expansion of the industry.

### **3.6 Divestment of Government Owned Assets**

Divestment of Government assets as related to agriculture has principally involved the divestment of Government lands to existing and prospective farmers. In general, land is sold outright in relatively small plots to small farmers, while it is leased to large farmers. An exception to this is the sale of approximately 3,000 acres of land to citrus investors in the Western part of the country. In the past five years it is estimated that around 15,000 plots have been divested to small farmers, contributing to the increases recorded in domestic agriculture. In relation to some of the larger farmers, divestment has not yet had the desired impact, particularly in relation to banana lands in St. Catherine. It is anticipated that the sale of lands in Montpelier for citrus will have a significant positive impact .

A major departure from the divestment of land, has been the divestment of the four publicly owned sugar factories. These are Frome, Monymusk, Bernard Lodge, and Long Pond which were sold to private sector interests at the end of 1993. As a concomitant to this, sugar cane lands are now being leased to farmers; and is expected to result in substantial benefits to the Sugar Industry.

#### IV CONCLUSION

The Agricultural Sector can be regarded to have performed creditably over the period under review. This paper has overviewed the performance of the sector and the policies and factors which have impacted on its development. The agricultural sector can be regarded as being at a crossroad, since sustainability of growth will depend on how well it faces the challenges and adjusts to the demands of a more competitive world economy.

As a liberalized market economy becomes more of a reality, the sector will face one of the greatest challenges to date. Can the sector be expeditiously made more efficient through technological innovation? While many admit that this is an uphill task, it should be underscored that the sector has already undergone a significant transformation since the 1950's to 1970's when the sector, particularly the small farming sector, had a strong welfare function.

In light of the developments taking place externally, the extent to which the sector can be manipulated is restricted. Where there may be some scope in relation to the domestic food producing sub-sector where tariffs can be imposed the export market definitely cannot be manipulated in terms of tariff. While it will be necessary to continue to provide some level of protection to the domestic market, because of the damage which would be caused by the unrestricted entry of lower priced food, the return to the days of full protection must be strongly resisted.

Another determinant is that as long as the country remains dependent on external funding for its development, it will remain a policy taker. External agencies are not generally interested in the fact that the country has limited resources, inadequate technology and is heavily dependent on rainfall. Therefore it is critical that the mobilization of domestic savings to finance the development of the agricultural sector under appropriate terms and conditions becomes a priority.

## ANNEX

Table A.1  
Gross Domestic Product: 1989 - 1993  
(Constant Prices in millions J\$)

	1989	1990	1991	1992	1993
<b>I GOODS</b>					
<b>AGRICULTURE, FORESTRY AND FISHING</b>	968.50	1,080.20	1,078.30	1,217.00	1,323.80
Export Agriculture	149.50	159.40	158.50	158.80	165.90
Sugar Cane	92.70	103.90	110.30	103.30	109.70
Other Main Export	56.80	55.50	48.20	55.50	56.20
Domestic Agriculture	572.90	647.40	651.90	796.30	895.50
Root Crops	255.50	303.70	310.00	359.90	392.00
Other Primary Products	317.40	343.70	341.90	436.40	503.50
Livestock and Hunting	170.30	205.50	200.80	195.00	196.20
Forestry and Lodging	25.70	14.00	15.20	15.20	15.30
Fishing	50.00	53.90	51.90	51.70	50.80
<b>MINING AND QUARRYING</b>	1,238.10	1,520.50	1,606.70	1,566.00	1,575.20
Bauxite and Alumina	1,221.70	1,503.30	1,587.30	1,544.20	1,551.90
Other Mining	16.40	17.20	19.40	21.80	23.30
<b>MANUFACTURING</b>	3,537.50	3,668.30	3,378.20	3,410.20	3,312.60
<b>CONSTRUCTION AND INSTALLATION</b>	1,680.50	1,707.20	1,718.20	1,725.50	1,716.90
<b>II SERVICES</b>	10,223.70	10,743.40	11,222.70	11,714.30	12,085.80
<b>BASIC SERVICES</b>	2,277.90	2,379.80	2,464.20	2,581.10	2,748.40
Electricity and Water	685.40	732.60	745.50	778.20	809.30
Transport, Storage and Communication	1,592.50	1,647.20	1,718.70	1,802.90	1,931.10
<b>OTHER SERVICES</b>	7,945.70	8,363.70	8,758.50	9,133.30	9,337.40
Distribute Trade	3,237.10	3,387.30	3,462.10	3,645.30	3,791.20
Financial Institutions	1,456.60	1,614.90	1,927.10	2,026.80	2,045.30
Real Estate Services	1,192.20	1,274.70	1,331.50	1,422.70	1,448.60
Producers of Government Services	1,270.40	1,243.70	1,222.30	1,226.70	1,217.30
Miscellaneous Services	675.80	721.50	701.20	709.10	746.70
Households and Private Non-Profit	113.60	121.40	114.30	102.80	88.30
<b>III LESS IMPUTED SERVICES CHARGES</b>	1,197.50	1,371.00	1,565.90	1,954.00	2,123.60
<b>TOTAL GROSS DOMESTIC CHARGES</b>	16,450.70	17,348.60	17,438.20	17,697.00	17,890.60
<b>PER CAPITA GDP (CONSTANT PRICES)</b>	6,926.31	7,219.56	7,189.53	7,221.22	7,237.87

Source: Statistical Institute of Jamaica



## ANNEX

Table A.6  
Domestic Food and Livestock Production 1990 - 1993

Particular	Unit of Measurement	1990	1991	1992f	1993p
<b>LIVESTOCK</b>	<b>Heads</b>				
Cattle		68,461	75,652	80,007	84,248
Hogs		128,010	78,745	93,002	112,422
Goats		57,560	49,930	47,589	49,121
Sheep		376	610	273	307
<b>MEAT, FISH AND DAIRY</b>					
Beef and Veal	000 kgs	15,024	16,053	18,208	15,639
Goats Flesh	"	652	613	1,633	616
Pork	"	7,394	4,740	5,926	7,074
Mutton	"	6	10	5	4
Poultry	"	51,946	53,436	52,469	44,469
Fish (Inland)	"	3,364	3,000	3,000	3,000
Eggs	Millions	125	110	114	99
Milk (Grade A)	Millions Liters	27	27		
<b>DOMESTIC FOOD CROPS</b>	<b>Tonnes</b>	<b>411,150</b>	<b>415,446</b>	<b>506,899</b>	<b>583,717</b>
Legumes		7,905	8,422	11,278	11,144
Gungo Peas		1,534	1,623	1,959	1,654
Red Peas		3,624	3,538	4,171	4,206
Peanuts		1,860	2,386	4,109	4,381
Other Legumes		886	875	1,039	903
<b>VEGETABLES</b>	<b>Tonnes</b>	<b>108,106</b>	<b>101,226</b>	<b>124,180</b>	<b>147,418</b>
Cabbage		17,333	14,999	14,886	21,647
Callaloo		11,391	10,744	14,335	16,682
Carrot		15,527	15,155	18,819	22,770
Cho-Cho		4,725	3,493	3,565	4,534
Cucumber		8,115	6,885	9,137	12,539
Lettuce		2,355	3,379	3,873	3,830
Okra		1,254	1,177	1,855	2,053
Pumpkin		26,243	26,237	34,187	34,708
Tomato		14,258	10,936	14,068	17,398
Other Vegetables		6,906	8,121	9,455	11,257
<b>CONDIMENTS</b>	<b>Tonnes</b>	<b>13,155</b>	<b>10,224</b>	<b>21,274</b>	<b>26,442</b>
Escallion		4,210	2,645	6,981	9,567
Onion		3,177	1,210	4,496	3,877
Hot Pepper		2,137	2,595	4,534	5,875
Sweet Pepper		2,414	2,551	3,663	5,512
Other Condiments		1,217	1,223	1,600	1,511

Source: Based on data supplied by the Ministry of Agriculture.

## ANNEX

Table A.6 (continued)  
Domestic Food and Livestock Production 1990 - 1993

Particulars	Unit of Measurement	1990	1991	1992f	1993p
<b>FRUITS</b>	<b>Tonnes</b>	<b>19,269</b>	<b>19,320</b>	<b>29,360</b>	<b>45,178</b>
Papaya		3,860	4,769	9,773	14,532
Pineapple		9,330	9,764	11,484	21,062
Watermelon		6,079	4,787	8,103	9,584
<b>CEREALS</b>	<b>Tonnes</b>	<b>2,386</b>	<b>3,491</b>	<b>4,357</b>	<b>3,568</b>
Corn		2,167	2,929	3,850	3,299
Rice		219	562	507	269
<b>PLANTAINS</b>	<b>Tonnes</b>	<b>27,562</b>	<b>26,692</b>	<b>28,469</b>	<b>35,811</b>
Horse		22,108	21,223	22,514	29,835
Other		5,454	5,469	5,955	5,976
<b>YAMS</b>	<b>Tonnes</b>	<b>161,428</b>	<b>186,104</b>	<b>214,387</b>	<b>221,928</b>
Lucea		13,230	12,962	17,369	16,896
Negro		16,839	19,476	24,799	28,850
Renta		17,826	19,356	20,897	19,201
St. Vincent		7,426	7,001	7,593	7,411
Tau		8,446	9,599	8,848	7,933
Yellow		84,589	102,113	114,320	122,418
Other		13,072	15,597	20,561	19,219
<b>OTHER TUBERS</b>	<b>Tonnes</b>	<b>35,049</b>	<b>34,336</b>	<b>42,029</b>	<b>55,353</b>
Bitter Cassava		6,704	6,448	8,163	11,265
Sweet Cassava		5,096	5,663	7,137	9,789
Coco		10,246	10,320	10,250	13,378
Dasheen		13,003	11,905	16,479	20,921
<b>SORREL</b>	<b>Tonnes</b>	<b>540</b>	<b>624</b>	<b>838</b>	<b>978</b>
<b>POTATOES</b>	<b>Tonnes</b>	<b>35,750</b>	<b>25,007</b>	<b>30,727</b>	<b>35,897</b>
Irish		14,293	7,548	6,936	9,134
Sweet		21,458	17,459	23,791	26,763

Source: Based on data supplied by the Ministry of Agriculture.

ANNEX

Table A.2  
Targeted Production and Actual Achievement For 1993  
Under Five Year Agricultural Development Plan

Commodity	Target M.T.	Actual M.T.	% of Target
Sugar	252,146	224,015	88.8
Banana	150,000	76,777	51.2
Coffee	16,253	12,329	86.5
Cocoa	2,961	2,574	86.9
Citrus	45,636	27,963	60.7
Pimento	2,437	1,300	53.3
Coconut	15,552	17,907	115.1

Source: PIOJ and Ministry of Agriculture, 1994

Table A.3  
Value of Selected Agricultural Exports: 1989 - 1993  
(US\$'000)

Commodities	1989	1990	1991	1992	1993
Sugar	69,839	85,767	87,440	82,535	98,578
Banana	19,260	37,591	45,100	39,560	35,887
Citrus (Fresh fruit)	2,495	4,674	3,304	4,651	3,492
Pimento	4,590	5,660	3,543	4,479	3,805
Cocoa	1,822	3,348	2,234	2,506	1,849
Coffee	9,478	8,651	11,817	16,201	19,494
Sub-total	102,484	145,691	154,438	149,932	163,105
Non-traditional	17,496	18,300	23,605	26,211	31,950
Total	119,980	163,991	177,043	176,143	195,055

Source: Economic and Social Survey of Jamaica, 1993

## ANNEX

**Table A.4**  
**Targeted Foreign Exchange Earnings and Volume and Actual Achievement for 1993**  
**Under Five Year Agricultural Development Plan**

Commodity	Target		Actual		% of Target	
	US\$'000	MT	US\$'000	MT	VALUE	VOLUME
Sugar	61,599	124,296	98,578	149,519	160.03	120.3
Banana	67,363	150,000	35,887	76,777	53.27	51.2
Coffee	16,950	1,662	19,494	1,402	115.00	84.4
Cocoa	4,163	2,961	1,561	1,580	37.50	53.4
Citrus	8,868	14,656	3,472	11,673	398.15	79.6
Pimento	7,500	2,339	3,805	1,700	50.73	72.7
Non-traditional	38,009	29,913	31,400	22,000	82.61	73.5

Source: PIOJ and Ministry of Agriculture, 1994

**Table A.5**  
**Volume of Major Agricultural Exports: 1989 -1993**  
**(M.T.)**

Commodity	1989	1990	1991	1992	1993
Sugar	132,232	146,369	151,181	139,362	149,519
Banana	41,628	61,066	75,290	76,723	76,777
Citrus	5,676	11,918	9,985	12,515	11,675
Pimento	1,932	2,518	1,752	2,280	2,187
Cocoa	1,104	1,900	1,490	1,791	1,580
Coffee	827	771	912	1,325	1,402
Non-traditional	12,242	15,549	18,015	21,233	24,513

Source: Economic and Social Survey of Jamaica, 1993

Table A.10  
Comparison of Yields for 1988/89 and 1992/93 with  
Optimal Yields for Domestic Crops

Community	Optimal Yield	1989	1993	% Change
Legumes	1.5	0.96	1.18	22.92
Vegetables	16	11.44	14.22	24.30
Condiments	10	5.50	8.33	51.45
Fruits	30	15.53	22.17	42.76
Cereals	2	1.29	1.57	21.71
Plantains	20	12.76	17.12	34.17
Potatoes	16	11.31	14.30	26.44
Yams	18	12.43	16.06	22.60
Other Tubers	30	11.75	25.48	116.85

Source: Data Bank, Ministry of Agriculture

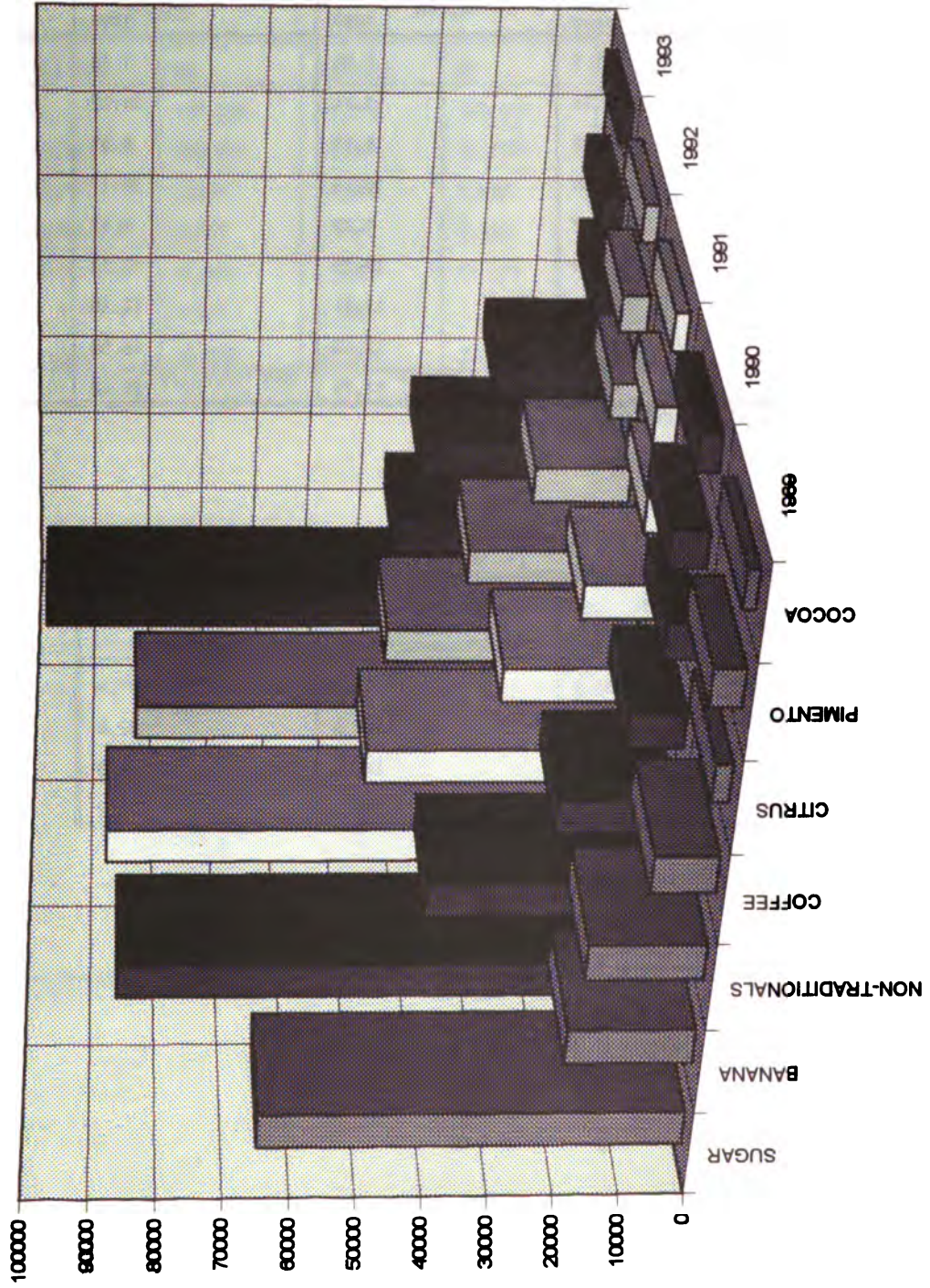
Table A.11  
Agricultural Trade Balances  
(in US\$ millions)

Year	Value of Agricultural Export	Value of Selected Food Imports	Trade Balance
1990	161.3	153.9	7.4
1991	177.6	144.8	32.8
1992	165.7	146.4	4.3
1993	195.0	179.9	15.2

Source: PIOJ 1993

Figure 1

**VALUE OF MAJOR AGRICULTURAL EXPORTS  
(1989 - 1993)**



## ANNEX

Table A.7  
Volume of Selected Non-Traditional Agricultural Export: 1989 - 1993  
'000 KG

Commodity	1989	1990	1991	1992	1993
<b>TUBERS</b>	8,931	11,236	11,520	13,282	14,930
Yams	6,207	8,286	9,130	10,330	11,352
Sweet Potato	878	758	709	1,079	1,282
Cassava	4	1	-	-	-
Dasheens & Eddoes	1,618	2,191	1,681	1,873	2,296
Other Tubers	224	5	-	-	-
<b>VEGETABLES</b>	1,592	1,781	2,052	2,653	2,301
Pumpkins	1,130	1,155	1,442	2,010	1,485
Sweet Pepper	-	-	-	-	-
Cucumber	90	120	102	160	217
Tomato	-	2	1	12	-
Okra	2	-	5	1	3
Other Vegetables	370	504	502	470	597
<b>FRUITS</b>	1,114	1,320	2,689	3,327	4,246
Avocados	16	50	73	128	166
Mangoes	416	599	1,382	1,031	679
Melon	-	30	47	52	7
Papeyas	-	-	-	2,007	3,276
Other fruits	792	641	1,187	109	118
<b>ORNAMENTAL HORTICULTURE</b>	326	396	365	251	478
Cut Flowers	295	359	270	194	202
Foliage	31	37	95	57	276
Fish/Lobster/Crustacean	279	816	1,389	1,720	2,558
<b>TOTAL</b>	<b>12,242</b>	<b>15,549</b>	<b>18,015</b>	<b>21,233</b>	<b>24,513</b>

Source: P10J 1993

## ANNEX

Table A.8  
Value of Non-traditional Export Crops: 1989 - 1993  
(US\$ '000)

Commodity	1989r	1990	1991	1992r	1993p
<b>VEGETABLES</b>	1,179	1,122	1,239	1,228	1,448
Tomato	-	3	1	13	-
Sweet Pepper	-	-	-	-	-
Okra	1	4	2	1	3
Pumpkin	578	598	708	772	709
Cucumbers	72	96	73	128	138
Other Vegetables	528	421	455	314	599
<b>TUBERS</b>	11,195	10,581	11,754	9,850	12,174
Yams	8,834	8,023	9,914	8,113	9,553
Sweet Potatoes	744	677	618	759	955
Cassava	3	1	-	-	-
Dasheen & Eddoes	1,614	1,880	1,222	978	1,666
<b>FRUITS</b>	895	1,046	2,367	3,553	4,141
Avocados	14	46	47	107	135
Mangoes	-	5	42	17	2
Melon	382	582	1,202	957	527
Papayas	-	-	-	2,320	3,426
Other Fruits	499	413	1,076	152	122
<b>ORNAMENTALS HORTICULTURE</b>	2,479	2,891	2,427	2,498	1,973
Cut Flowers	1,900	2,249	1,878	1,704	1,400
Foliage & Live Plants	579	642	549	794	573
Fish/Lobster/Crustacean	1,748	2,660	5,818	9,082	12,214
<b>TOTAL</b>	<b>17,496</b>	<b>18,300</b>	<b>23,605</b>	<b>26,211</b>	<b>31,950</b>

Source: PIOJ 1993

Table A.9  
Comparison of Yields for 1988/89 and 1992/93 with  
Optimal Yields for Traditional Export Crops

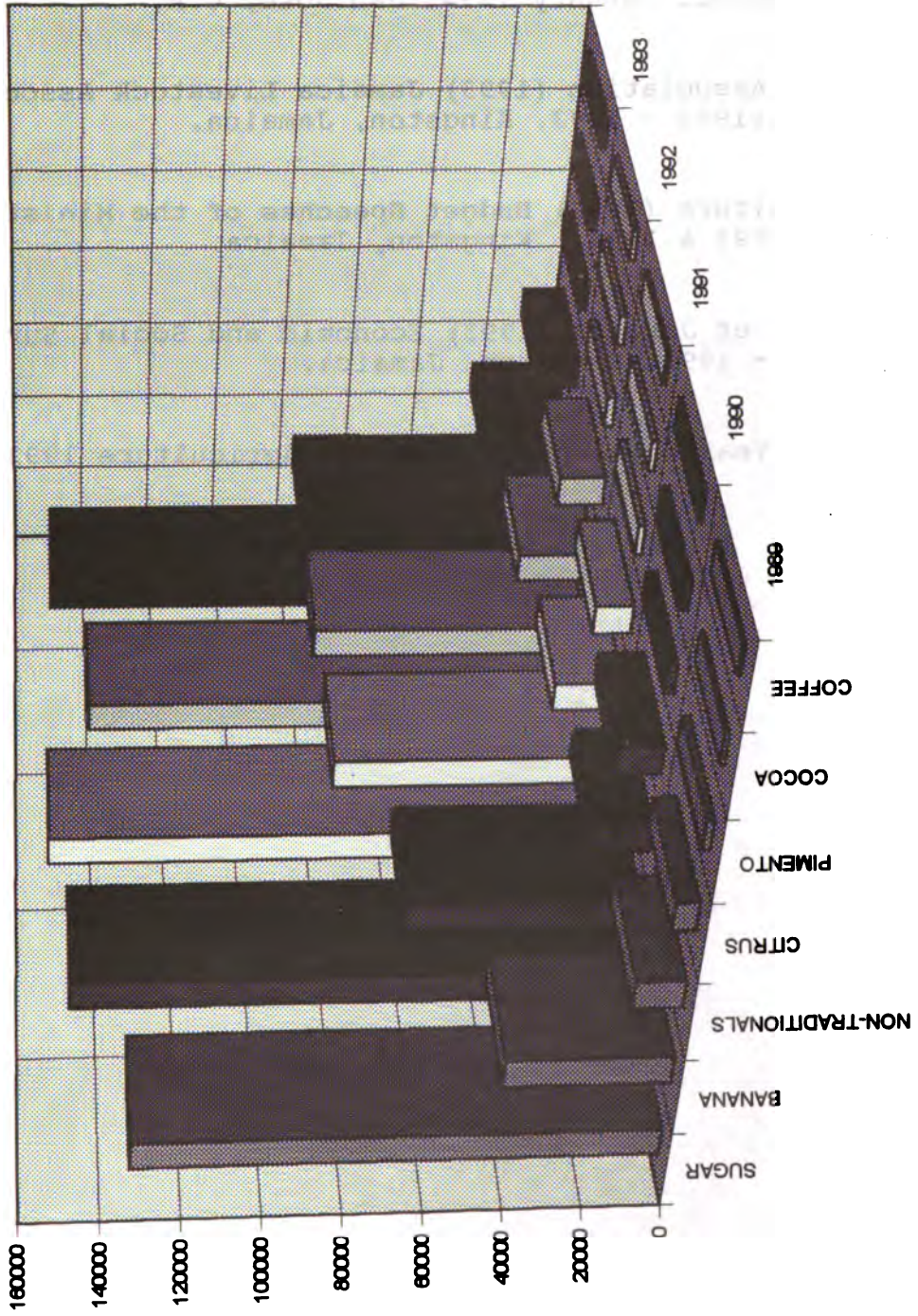
Commodity	Optimal Yield	1988/89 Yield	1992/93 Yield	% Increase
Coffee (Blue Mountain)	120 boxes per acre	9.79	18.13	85.19
Coffee (Lowland)	80 boxes per acre	8.79	21.71	146.98
Sugar	70 boxes per acre	59.80	67.10	12.21
Bananas	30 boxes per acre	19.37	18.76	(-3.15)
Cocoa	60 boxes per acre	19.00	25.00	31.58

Source: Commodity Boards 1994.



Figure 2

**VOLUME OF MAJOR AGRICULTURAL EXPORTS  
(1989 - 1993)**



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