



**AGRICULTURE SECTOR STRATEGY REPORT
VOLUME I**

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PREPARED FOR:

**AGRICULTURE AND RURAL DEVELOPMENT OFFICE
USAID/JAMAICA**

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*This report consists of two volumes. Volume II includes three summary background documents on Macroeconomic Situation, Agricultural Sector Overview, and Current AID and other Donor Programs.

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A. Summary Overview

Jamaica has a benign climate and a varied set of resources for agricultural production. During most of its history, agriculture has been the engine for its economic growth, providing foreign exchange, revenues, raw materials, national and personal wealth and income, employment and the nutritional sustenance of its people. As with most developing countries, the relative importance of agriculture has declined with the growth in non-agricultural pursuits--notably mining, tourism and non-agricultural industry. Although agriculture's contribution to GDP is less than six percent and declining, agricultural products account for a fifth of the country's exports, more than a fifth of its labor force is employed in agriculture, and almost forty percent of its population lives in rural areas. Furthermore, significant availability of unused or underused agricultural land, low average yields, and low rural incomes underscore the potential for larger contributions.

Jamaica's economy is highly dependent on tourism and a few exports for the foreign exchange needed to buy raw materials and other producer goods needed for growth and for the consumer goods, including food, required by a young, growing population. The consumer goods include significant imports of cereals, meat, milk and fish and their products, oils and oilseeds. The economic decline in the seventies placed in high relief the nation's dependence on a very limited number of products, principally bauxite, sugar and rum, and bananas plus modest amounts of coffee, cocoa, citrus and pimento (allspice). This narrowness was exacerbated by the precipitate decline of the banana industry and the persistent loss of market share to more efficient producers and more aggressive traders of sugar, pimento and cocoa. The high quality of Jamaican products has not prevented this deterioration.

Jamaica's bimodal farming system of primarily single commodity estates in the valleys and mixed product smallholdings primarily in the hills was established during 300 years as a colonial sugar island, almost two hundred of that under slavery. Erasing the inequalities characteristic of a colonial society and avoiding foreign cultural or economic dominance are still major concerns. The colonial period also established an economy dominated by the need to trade, and to produce for export. It created the public agricultural sector institutions that persist today: These include industrial commodity boards to control the export of sugar, coffee, bananas, cocoa, coconuts, citrus and pimento (allspice), and to perform research and provide technology and inputs to their producers. A Ministry of Agriculture enunciates sector policy, provides research, extension, regulatory, and animal and plant health services not provided by the boards, and manages land and water.

Jamaica had five years of self-government before becoming independent in 1962. During the 1970s the island economy turned sour, the result of rising oil prices, the decline in world demand for sugar and bauxite, the loss of banana production due to disease and hurricane damage, and increasing competition from other countries for markets and tourism. The GOJ attempted unsuccessfully to turn the tide by increasing government intervention and borrowing, leading by 1980 to an international debt service ratio of sixty percent of exports, a public sector debt of fifteen percent of GDP, and significant distortion of natural market forces by controls applied in discordant fashion by proliferating public institutions.

From a 1978 high, agricultural production declined to about two-thirds its 1978 value. Both total agriculture and total food production appear to have bottomed out in 1982, and are increasing slowly, approaching the 1980 level in 1985. At that time, per capita indices were still below the 1980 level, but the trend was clearly up and accelerating until the first half of this year when weather problems reduced output.

Agriculture's relative decline is primarily the result of more rapid growth of other sectors, but it also reflects neglect of the sector, both by policy makers and by a people who view farming as an unattractive occupation, with some reason: agricultural laborers and self-employed smallholders share the bottom rung of the economic ladder, one short step above domestic service, receiving about half the income of unskilled manual laborers.

The economic crisis triggered by declining exports has again focused attention on the agricultural sector. Initially directed at import substitution, policies are now more rationally concentrated on increasing agricultural exports, with selective attention to reducing imports. The major emphasis has been on establishing the macroeconomic conditions essential for investor confidence and sustainable production. Resources and associated conditions established by World Bank structural adjustment and sugar rehabilitation loans, IMF Standby Agreements, and AID's ESF and PL-480 have led to a series of significant policy changes:

- o currency devaluation to achieve and stabilize a market-oriented exchange rate;
- o fiscal and monetary measures that together have reduced inflation and now permit a reduction of interest rates;
- o orientation of public policy to encourage rational private sector leadership of production through restructuring

public sector agencies, deregulation, divestment and market pricing.

B. Conditions, Constraints and Limits

1. Macroeconomic Conditions

With strong international support, Jamaica reversed its economic course in the eighties. A tight monetary policy combined with strong fiscal measures (both income and expenditures) squeezed out inflation. Devaluation of the Jamaican dollar to an auction rate of J\$5.50:US\$1.00, which has held steady for two years, has made exports more competitive while raising the cost of imports. Public sector debt has declined from 15 percent of GDP in 1981/82 to 5.5 percent in 1986/87 and is programmed to fall to 4.5 percent in 1987/88, the result of reorganization, tax reforms and divestment. The macroeconomic stage is set but remains fragile because of an international debt of US\$3.5 billion (roughly 140 percent of the 1986 GDP) whose annual debt service takes about half of the foreign exchange earned from goods and services. The need to maintain careful control of macroeconomic policy instruments will limit growth in agriculture, as in the general economy, but is not seen as a constraint to rational decision making and sustainable development.

2. Production Potential

Jamaica has an adequate array of physical resources suitable for expanded agricultural production, including suitable and varied terrain, microclimates, soil types, and water resources that can be developed for irrigation. This variability has permitted considerable domestic regional agricultural specialization, leading to interregional differentiation and trade.

A good deal of land suitable for agriculture is unused, primarily land abandoned or withdrawn from sugarcane and banana culture. On the other hand, a significant portion of hillside agricultural land is eroding because of inept use, and much forest and grassland that was cleared for agriculture has been abandoned as its productivity diminished. Sustainable use of much of these lands will require either a return to natural cover or careful application of conservation cultivation. The habitat destruction that has occurred through deforestation and agriculture has or will diminish biological diversity, suggesting the need for a park system to provide a protective environment.

Land tenure conditions inhibit improved productivity and production primarily of hillside agriculture, limit smallholder income, and prevent adoption of tree culture and conservation

farming of hillside farms. Although freehold is the predominant form of tenancy in Jamaica, other forms are common among smallholders. Most small hillside farms consist of two or more parcels, most of which are leased or rented. Lacking titles, these provide neither collateral for credit nor security for long-term improvements such as conservation works or tree crops. In fact, they are more apt to be abused or non-used than land that is owned. Fortunately, the IDB is undertaking a major titling program.

Lack of titles, fragmentation of holdings, high interest rates, low productivity, and limited capacity to risk will all inhibit the use of long-term credit to grow the tree crops that offer the best option to increase smallholder income and sustain the use of hillside farms. Of these, the credit issue is the only intervention that can be readily altered. In this case, the externalities from conservation may be sufficient to warrant below-market interest rates or extended grace periods for tree planting.

Jamaica has a highly literate, mobile population with more personal knowledge of other countries than most developing countries. This population is not at all attracted by the low incomes available to agricultural labor or typical smallholder pursuits. However, many urban Jamaicans will readily invest in farming that promises high economic returns, e.g., Blue Mountain coffee.

3. Productivity

Jamaica has not kept pace with other developing countries in the application of technology to agriculture. Consequently, average agricultural yields of both export and domestic crops are considerably below developing country average yields, although some farmers obtain much higher yields, indicating the availability of suitable technology. Yields per hectare are associated with productive efficiency, economic yields increasing more rapidly than the costs associated with achieving them, thus lowering unit costs. These lower unit costs provide the farmer with greater income and enable him to continue to produce profitably during periods of unfavorable prices. Lower average unit costs also enable a country to maintain a comparative advantage and gain market share as less efficient producers are forced out when market price declines below unit costs of production.

Low productivity is at the root of Jamaica's loss of market share. Although some of the technology needed to increase productivity can be borrowed from other countries, or condensed from that of outstanding national producers, Jamaica must improve its indigenous technology generation and transfer capacity. This

is needed, first to collect, validate and disseminate existing technology, and second, to stay abreast of developments in the international scientific community in order to outpace the competition.

4. Market Potential

Jamaica has access to preferentially priced markets for sugar and bananas in the U.K. under Lome III at volumes it does not meet. Japan buys Jamaica Blue Mountain coffee at a premium of five times the ICO price, and other Jamaican coffees at two times ICO levels, a market that is far from saturated. Jamaican products are of high quality and tend to command premium prices, yet Jamaica has consistently lost market share to more efficient producers who can offer lower prices or who expand the market by seeking new buyers or new products. Raising productivity alone will not assure reestablishment of market share, any more than maintaining high quality held onto it. Jamaica must market as aggressively as its competitors, seeking new markets, appraising the impact of alternative pricing policies in these markets, and adjusting product through grading, processing or conversion to satisfy their needs.

There are not a great many products that offer strong, immediate potential returns in the international market. While there may be a number of non-traditional products, particularly tropical exotics, that Jamaica could produce, the market is generally undeveloped and narrow. Consequently, Jamaica must continue to exploit products for which it has assured market access at preferential prices, e.g., sugar, bananas and coffee. She should also seek to improve the productivity and quality of these crops to be able to compete in the broader marketplace when assured markets have been exploited.

Other markets for which a strong comparative advantage exists are citrus, root crops, ornamentals, ethnic and exotic fruits and vegetables, and possibly, pond fish and shrimp. Cocoa and pimento may offer better long-term possibilities with innovative and aggressive marketing. Production and marketing of winter vegetables has grown rapidly, and the market is large and growing. This market is volatile, however, and Jamaica must compete with other producers who may have comparative advantage.

Import substitution offers few opportunities, largely because Jamaica cannot produce significant quantities of the major imported products at costs below their landed price. Jamaica can, however, increase the production of traditional domestic crops in order to meet the needs of a growing and more affluent population, thus reducing some potential future import requirements. Domestic marketing appears to be inefficient, but may be more effective than it appears when its impact on income

distribution is considered. At any rate, direct action to correct its apparent inefficiencies has been unavailing.

5. Institutional Structure

The institutional structure of the public agricultural sector has been heavily reformed within the last few years. The commodity industry boards have had managerial audits leading to reorganization to segregate non-marketing activities and place them in subsidiary development corporations. Accounting has been reorganized and management improved. The boards have adopted market-oriented farmer prices that have passed on to farmers a greater share of sales proceeds, improving their incomes and incentive to produce, while also providing the boards with a greater incentive for innovative marketing. The MOA has been restructured to narrow its focus and reduce its staff, which would have materially facilitated institutional management and enabled it to fulfill its sector management role, had it not been for severe and continuing loss of key professionals through interinstitutional competition.

Like the macroeconomic setting, the institutional preconditions to development have been met by these changes, but they must be followed up and nurtured if the desired results are to be achieved. Competition within the sector for an already limited number of qualified agricultural professionals has severely weakened the MOA. As a result, the MOA is incapable of carrying out the functions of guidance, coordination and management for the sector as a whole, a role that is nonetheless vital given the fragmentation of responsibilities among MOA, AGRO 21, the boards, and other sector institutions. The simultaneous reform of the commodity industry boards and the MOA appears to have weakened a technology generation and transfer system that was already deficient, judging by the almost universally low productivity of Jamaican agriculture.

These problems are exacerbated by management styles that emphasize organizational fragmentation, rather than coordination, and limited delegation within organizations, which is both a cause and effect of personnel inadequacies. There also appears to be inadequate expression of program objectives, including political, social and personal agendas that must be brought into confluence with more formal objectives before significant progress can be made. Until recently, relationships between the GOJ and external donors seem to have been hampered by the chauvinism of the latter and the passivity of the former, leading to poorly designed activities and unrewarding policies, with resistance to their implementation.

Neither individual producers nor farmers associations exercise a dynamic, participatory role in agricultural

development. Few producers have exercised their right to export directly, instead of through the marketing boards. Indigenous agricultural entrepreneurship, which means finding a market and exploiting it, seems weak.

6. AID Resource Levels

AID has provided major support to Jamaica for a quarter century. Since 1980, AID contributions to the economy have averaged US\$135 million/year. In FY 1986 AID provided US\$124 million, made up of \$17.5 million in DA, \$58 million in ESF and \$48.6 million in PL 480 food aid. It is expected that Congressional authorization for concessional food support will continue, but both ESF and DA appropriations will decline, thus reducing the U.S. assistance package in size and flexibility.

ARDN development assistance has already declined from a \$10 million level in FY 1984 and 1985 to around half that in FY 1986 and 1987, and is estimated to continue at \$5.5 million per year thereafter. If this assumption is correct, an analysis of pipeline, mortgage and planned projects leads to a discretionary ARDN budget of around \$2.3 million through FY 1992. The Mission may wish to investigate opportunities for targeting some part of the PL 480 local currency counterpart to supplement this reduced dollar funding.

7. Other Donors

AID support is large, but other donors will provide J\$118 million (US\$ equivalent = \$21.5 million) as project assistance in 1987. These projects cover a wide variety of activities, including production (sugar, citrus, coffee, oysters, beekeeping); land management (titling, rural physical planning, resource assessment); water resources (irrigation, drainage, underground water authority); and support to MOA services (research, veterinary). The variety of multinational and bilateral donors requires careful liaison. A few of these activities (e.g., land titling, sugar rehabilitation, Blue Mountain coffee) are large enough to negate significant AID involvement. Most others may cover a significant segment of a subsector and thus reduce the importance of its inclusion in a larger AID-financed operation.

C. Proposed Strategy

1. Major Conclusions on Sector Status

- a. The macro-economic environment has stabilized and appears to be steadily improving. The devaluation has strongly helped agriculture, and there are signs that interest rates may be falling somewhat.

Free market prices dominate in both input and product markets.

- b. Productivity for most crops in Jamaica is below regional averages and Jamaica is not satisfying its guaranteed access to preferential markets or is losing market share for traditional exports.
- c. Jamaica has assured markets for coffee, bananas and sugar at prices above world levels. Jamaica can attempt to exploit these opportunities but should focus on having at least a portion of its producers become competitive at world market prices through improved productivity, since the special market conditions are temporary.
- d. Beyond the commodities noted above, strong comparative advantage is known to exist for citrus, root crops, ornamentals, ethnic and exotic fruits and vegetables, and possibly aquaculture and shrimp farming. Other such crops may yet be identified.
- e. Some potential exists to expand winter vegetable, cocoa and allspice production, but these markets are highly competitive and a long-term focus on gradual expansion is probably more realistic.
- f. Some import substitution opportunities exist for rice, beef, dairy, oilseeds and (at present) sugar, but except for sugar, Jamaica's competitive position is not strong and the macroeconomic impact of activities in these areas will be minor.
- g. Efforts to improve the incomes of small, hillside producers while improving natural resource management through low input conservation technologies and agroforestry appear to offer considerable potential for improving rural living conditions. The flexible design of these efforts will allow the programs to adjust as more is learned about the problem and to incorporate a wide variety of approaches rather than a blanket solution.
- h. The principal constraints to more rapid growth in the sector are: low productivity caused by obsolete technologies and insufficient and poorly trained labor; 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 at exploiting quality-conscious agricultural export markets; endemic praedial larceny; and absorption of labor in marijuana production (arguably the leading agricultural commodity in Jamaica), which probably contributes to higher production costs for other crops, as does emigration of labor to the United States.

- i. Major strengths of the sector include productive soils and climate; increasing investment in agriculture by middle-class urban Jamaicans; preferential access to lucrative markets for certain commodities noted earlier; improving macroeconomic conditions; and a highly literate, relatively healthy population.
- j. The current AID ARDN portfolio supports a wide range of policy and project initiatives. The assistance strongly supports diversification of Jamaican exports through research, irrigation, investor promotion, and credit. Assistance is also being targeted to improve incomes of hillside farmers through tree crops that also reduce erosion. The Mission also works closely with the GOJ to assure an adequate policy environment for the sector and is supporting improvements in the agricultural education system.
- k. Other donors are heavily involved in assisting Jamaica to overcome land tenure and inefficient financial market constraints. Other donors are also investing heavily in improving sugar, coffee and citrus productivity. Finally, IMF and IBRD programs are contributing to difficult and highly important structural reforms.

In summary, there are opportunities for steady, gradual growth in the agricultural sector, but there are no panaceas.

2. Sector Goal

The agricultural sector goal is to improve productive efficiency of the sector in order to:

- a. raise incomes of the small

- b. increase foreign exchange earnings/savings from agriculture;
- c. maintain and enhance the natural resource base.

3. Strategic Objectives for Agricultural Sector Activities

a. Increase Exports and Employment (Subgoals b and a) by

- (1) encouraging GOJ to maintain a positive macroeconomic environment;
- (2) improving productivity of traditional exports in coordination with other donor efforts;
- (3) providing long-term support for diversification of exports through improved production and marketing efficiency.

b. Raise Incomes of Poor, Principally Hillside, Rural Farmers, and Protect the Natural Resource Base (Subgoals a and c) by

- (1) encouraging GOJ to develop and maintain a policy environment that provides incentives for efficient resource utilization;
- (2) emphasizing the development and transfer of appropriate technologies to hillside producers, and providing similar support to lowland producers where justified;
- (3) removing bottlenecks to efficient utilization of debt financing, in collaboration with other donor efforts;
- (4) protecting bio-diversity in natural habitats.

4. Policy Agenda

- a. Maintain market-oriented macroeconomic and sector policies presently in effect that rely heavily on private sector initiative and a competitive exchange rate.
- b. Improve the effectiveness of the public agricultural sector institutions by focusing resources on the most essential public sector services; increasing the efficiency of public sector service delivery; developing policies that

provide incentives for personnel stability; improving the networking of public/private service agencies; and increasing GOJ resource allocation to the sector.

- c. Despite sensitivity of the issue, when feasible, facilitate the activities of other donors designed to modernize land titling and registration in order to provide greater security for rural investment.
- d. Improve the operational efficiency of the debt and equity financing institutions serving the agricultural sector and remove legal and policy constraints to the acceptance of rural collateral.

5. Project Initiatives

a. Hillside Agriculture Project Extension

This project has been authorized for seven years but the project agreement is only for three years. Assuming successful implementation of the first phase, the second phase would fit neatly into the proposed strategy.

b. Agricultural Sector Strengthening Project

The design of this FY88 project focuses on improving and institutionalizing essential pest eradication programs, quarantine systems, plant and animal protection programs, agricultural information networking, policy revision capability, and general staff training in the Ministry of Agriculture. If essential policy measures are adopted by the GOJ to increase ministry performance, this program would be very appropriate. The IBRD sector adjustment loan now under consideration could facilitate the implementation of such policy measures and strongly complement Mission efforts in this area. The Mission, like the IBRD, should also consider institutionalizing research and extension activities and incorporating into the project other entities such as the development subsidiaries of the marketing boards and private entities in the technology development and transfer system.

The Mission has launched an innovative research program, primarily through the private sector, based on funding research proposals through grants and contracts. The Mission may need to consider other approaches as well in order to stabilize support for essential research and extension activities. For example, the Mission should consider the possibility of shifting a portion of the local currency generated from the large PL 480 program away from meeting GOJ recurrent budget needs towards endowment of

entities that could provide long-term, apolitical support for technological excellence.

c. Agricultural Export Development

The Mission has provided considerable assistance to export diversification through AGRO 21, JADF, and selected cooperatives. When the Crop Diversification and Irrigation Project ends in 1990, the Mission should consider providing continuing support, both for non-traditional and traditional exports, to help Jamaica develop support services to assure production and marketing efficiency. Agricultural processing may also be an appropriate initiative to assure maximum value added and to take advantage of Jamaica's important manufacturing sector. Efforts could concentrate on technical assistance and training, particularly in the development of managerial and entrepreneurial skills and technological competence in production and marketing. Export diversification is not a short-term effort.

Resource limitations would probably prohibit further funding of irrigation projects (except perhaps to consolidate irrigation pricing/management capability--which should be a high priority) and the Mission is encouraged to promote other donor involvement in this area to build on the activities the Mission presently supports.

d. Agricultural Education

Mission support for improvement of agricultural institutions at the technical high school and trade school levels appears appropriate given the need to increase the productivity of mid-level agricultural technicians. The instability of leadership in agricultural education is of concern, and excellence in education requires stable funding. Innovative approaches to address this constraint are being undertaken in Costa Rica and Honduras, using local currency generations to endow private agricultural education institutions. The USAID/J program assists public institutions, but perhaps a variant of other efforts might be considered, such as endowing a private agricultural education trust fund, with a board of directors composed of respected citizens, to channel funds to support excellence in agricultural education.

The Mission should fund a comprehensive manpower analysis for the sector to identify priority training needs, quantities of trained technicians required, the degree to which trained technicians are absorbed by non-agricultural sectors because of inadequate incentives, and institutional and policy constraints to institutionalized excellence in technical agricultural training. Because the results of this analysis may identify

additional policy issues, as well as orient the ongoing Agricultural Education project, it should be carried out now, rather than as part of a future initiative.

e. Protection of Bio-Diversity

The environmental profile has identified a need to protect natural habitats in Jamaica in order to preserve a number of unique species and support AID bio-diversity objectives. Given limited human and financial resources, the Mission may not be able to undertake a major initiative in this area, but further analysis of opportunities is warranted. Assistance through policy dialogue, programming of local currencies, or an OPG may be all that is required.

f. Excluded Topics

Given expected limitations on funding, we do not recommend major additional investments in infrastructure construction (roads, irrigation, etc.), although improvement of institutional capabilities in such areas as water management and road maintenance could be appropriate. Further assistance in internal marketing and farmer organizations is not warranted on the basis of past experience. While credit issues are mentioned several times, it is hoped that other donors will take the lead in this area. Land ownership is highly skewed, but no significant redistribution program appears to be justified or the subject of much local interest. The land issue is more one of how to put resources into production.

6. Linkages among Objectives, Agenda, and Initiatives

The proposed agricultural sector strategy focuses on increasing exports and employment, and raising incomes of poor, principally hillside, farmers, while conserving fragile lands. It identifies several specific sub-objectives as well. Below we attempt to link the recommended policy agenda and project interventions with specific sub-objectives.

a. Encourage GOJ to Maintain a Positive Macroeconomic Environment

This sub-objective will be pursued as part of the policy agenda and conditionality requirements of ESF and PL 480 programs, in coordination with IMF and IBRD initiatives.

b. Improve Productivity of Traditional Exports in Coordination with other Donor Efforts

Other donors are making significant efforts in this area, particularly with sugar, coffee, and citrus. The IBRD

structural adjustment program has also led to substantial restructuring of the commodity marketing boards that have been key actors in this sector of the economy.

USAID initiatives in this area presently focus on hillside coffee producers as part of the Hillside Agriculture Project. As the Mission begins design of the Agricultural Sector Strengthening Project, it should examine the institutional support network for producers of traditional products. Restructuring the marketing boards reportedly has segregated the functions of technology generation and transfer from marketing, and it is unclear if these critical services will be supported adequately. In addition, a new project initiative in export development is recommended to come on stream about the time the present efforts in agricultural diversification come to an end. In developing this project the Mission should be open to looking at constraints to both traditional and non-traditional exports.

Debt financing issues are important for tree crops, which are principally export activities. The IDB and CIDA are particularly active in this area, but USAID may be able to play a supportive role for reforms required to improve efficiency. The PL 480 self-help requirement would be an appropriate mechanism, given the significant funds targeted for the Section 108 program.

c. Provide Long-Term Support for Diversification of Exports through Improved Production and Marketing Efficiency

The Mission is presently investing heavily to bring about this sub-objective, providing crop diversification and irrigation support through AGRO 21, agricultural research activities through the JADF, and support for several farmer organizations involved in non-traditional exports. Thus far results have been mixed, although non-traditional agricultural exports have grown rapidly in Jamaica.

Given the risky nature of non-traditional agricultural exports one should assume that there will be periodic failures of enterprises attempting to take advantage of opportunities in this area. Failures are part of the learning curve, and more successful market participants often are those with the resources to withstand the losses of the early stages of development. At times donor agencies become overly excited about a new initiative only to back off after the first frustration. With the rising trend in consumption of fresh fruit and vegetables in the United States and Western Europe, and the rising land and labor costs of producing these crops in these countries, the general expectation is that the Caribbean region will gradually increase export of these products, along with Mexico and Central America. The Mission should maintain realistic expectations about growth in

his sub-sector, which is likely to be gradual and uneven. By adopting a long-term approach, probably at a somewhat lower level of effort, the Mission may indeed assist Jamaicans to take advantage of this opportunity.

Market share will be determined by productivity and marketing efficiency, and support services will strongly influence both of these factors. Mission objectives for the Agricultural Sector Strengthening Project include assistance for support services that will be critical to diversification. Project assistance to achieve excellence in agricultural education is also important in the long term. The proposed strategy recommends a new project to support export efforts, about the time present support is to end.

d. Encourage the GOJ to Develop and Maintain a Policy Environment that Provides Incentives for Efficient Resource Utilization

One of the primary causes cited for the growing problem of serious erosion of the Jamaican hillsides is the persistent use of this land for annual cropping. The current AID-supported project in this area focuses on conversion to productive tree cropping, which will increase farmer incomes and also be ecologically sustainable. In order for conversion to occur, among other things, income from tree cropping must be predictably greater than for annuals. As the tree crops are produced principally for export, their profitability will depend on GOJ determination to maintain a competitive exchange rate. Given the long period between planting a tree crop and production, adoption of tree crops will be heavily influenced by the cost of financing. Overall monetary and credit policies will therefore heavily influence the success and pace of implementation. Therefore, the same comments about the importance of macroeconomic policy (6a above) apply to this objective.

In addition to macroeconomic and credit policies, land tenure may also determine a farmer's willingness to invest in long-term tree cropping. The IDB and CIDA are undertaking project initiatives to modernize land titling and registration. The Mission should closely monitor these efforts and, if appropriate, be supportive either through policy dialogue or allocation of local currency resources.

- e. Facilitate the Development and Transfer of Appropriate Technologies to Hillside Producers, and Provide Similar Support to Lowland Producers Where Justified

The Hillside Agriculture Project promoting the conversion of hillside producers to perennial tree crops is primarily an extension effort, with some adaptive research. It will rely on a wide variety of indigenous public and private organizations to design sub-projects to achieve its objectives. The project therefore directly addresses this strategic objective. Similar interventions may be justified for lowland producers not already covered under earlier objectives. In the future, under the Agricultural Sector Strengthening Project, the Mission may need to look at ways to improve the institutional capability, both public and private, to carry out this role. The agricultural education initiatives also support this long-term objective.

- f. Remove Bottlenecks to Efficient Utilization of Debt Financing, in Collaboration with other Donor Efforts

As noted above, investments in tree crops are highly sensitive to credit terms and availability. In addition to concern for the monetary/policy environment, credit policies and the operating efficiency of credit institutions will strongly influence achievement of this strategic objective. The IDB and CIDA have undertaken or proposed activities to address operational weaknesses of the Agricultural Credit Bank, the Peoples Cooperative Banks, and the Credit Union League, as well as to provide training for commercial bankers to increase their lending to the sector. Again, the Mission should closely monitor these activities and provide support as needed. The success of these efforts should also have an impact on implementation of the Section 108 program.

- g. Protect Bio-Diversity in Natural Habitats

As noted earlier, Mission support for this objective may be limited to policy dialogue, local currency programming, and perhaps minor assistance through an OPG with a private voluntary organization.

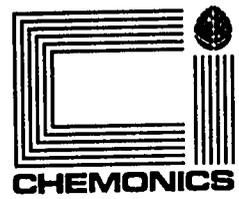
7. Lessons from the Past

The Mission has recently demonstrated the ability to design and implement projects in the agricultural sector that are more clearly focused and culturally appropriate than earlier AID efforts. In addition, significant progress has been made in creating a sector policy framework, at least in part as a result

of the Mission's willingness to engage in dialogue. As the Mission's program evolves over the next five years it will be extremely important to describe objectives for new projects clearly, to simplify implementation, and to examine the cultural implications of project and policy initiatives.

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NOTICE TO READERS

The attached material consists of three sections:

- I. Macroeconomic Setting
- II. Agricultural Sector Overview
- III. Current AID and Other Donor Programs

This material is summarized from a variety of sources, some of which are marked by their agencies as intended for internal use and not for public distribution. Therefore, the information contained in these working papers should be treated accordingly.

These papers are intended to be working papers and background documents to provide the framework for an agricultural sector strategy recommendation. As such, they are abstracts of more detailed publications to which one should refer if additional information is required. The authors also interpreted this material in light of other written material, counsel, and their own experience, so the comments highlighted herein may be at variance with the recommendations, interpretations, or intent of the authors of the source documents.

SECTION I

MACROECONOMIC SETTING

With strong international support, Jamaica reversed its economic course in the eighties. A tight monetary policy combined with strong fiscal measures (both income and expenditures) squeezed out inflation. Devaluation of the Jamaican dollar to an auction rate of J\$5.50:US\$1.00, which has held steady for two years, has made exports more competitive while raising the cost of imports. Public sector debt has declined from 15 percent of GDP in 1981/82 to 5.5 percent in 1986/87, and is programmed to fall to 4.5 percent in 1987/88, the result of reorganization, tax reforms and divestment. The macroeconomic stage is set, but remains fragile because of an international debt of US\$3.5 billion (roughly 140 percent of the 1986 GDP), whose annual debt service takes about half of the foreign exchange earned from goods and services. The need to maintain careful control of macroeconomic policy instruments will limit growth in agriculture, as in the general economy, but is not seen as a constraint to rational decision making and sustainable development.

A. Trends and Interventions

1. GDP and Agricultural GDP

Jamaica's economic growth as measured by real GDP has been somewhat erratic in the 1980s, mirroring the fluctuating fortunes of the bauxite industry. Following a 4.0 percent decline in 1985, the economy rebounded by 3.6 percent in 1986/87 and should better 3.0 percent growth in 1986/87. Production of bauxite in the first six months of 1987 increased by 16 percent over the same period in 1986.

The total value of agricultural production in 1986 was around six percent of GDP. This represents a continuing relative decline in the economic importance of agriculture, from 11.6 percent of GDP in 1962 and 8.8 percent in 1980. This relative decline reflects not only the expansion of other sectors, but also the reduced contribution of some traditional commodities (sugar, bananas, rum) due to production problems and international market conditions. Both total agriculture and total food production appear to have bottomed out in 1982, and increased slowly to approach the 1980 level in 1985. Per capita indices were still below that level.

2. Exchange Rate

The exchange rate of the Jamaican dollar relative to the U.S. dollar was tightly controlled below free market rates in the seventies, and held at a J\$1.78 = US\$1.00 in the early eighties. The Seaga government has moved by stages towards market determination of this key price, first by establishing a parallel rate in 1983, and in late 1984 by establishing twice weekly auctions. After an initial spurt to a 6 to 1 rate, enough dollars have been made available to the auctions to hold the rate at 5.5 to 1 for two years. Devaluation to a free exchange rate is normally favorable to agriculture, since it makes exports more competitive on the world market and makes agricultural imports more costly.

The continuing devaluation of the U.S. dollar over the last year against major currencies, particularly the British Pound and the Japanese Yen, should strongly improve Jamaica's balance of trade. Jamaica ships a significant quantity of agricultural commodities to the U.K., where she has access to preferentially priced markets for sugar and bananas, if she could fill them. Although sugar production declined by six percent in the 1987 crop year, export earnings increased by close to US\$10 million because of the relative decline in the dollar. Jamaica also ships most of her coffee production to Japan.

3. Monetary Policy

The Bank of Jamaica raised the levels of cash reserve and liquid asset requirements significantly during 1984 and 1985, reducing the expansion in credit to only seven and two percent, respectively, compared with an average annual increase of 24 percent from 1980 to 1983. At the same time, as noted above, the minimum interest rate was significantly increased in order to stimulate domestic savings. These measures were taken as part of a macro-economic program designed to stabilize the economy and accompanied a major devaluation. The resulting high interest rates greatly discouraged borrowing for agricultural projects, particularly for medium to long-term investments.

This medicine had the desired effect. The inflation rate dropped to eight percent by early 1987 and is running at an annual rate of 4.2 percent in the first six months of 1987, well within the seven percent target. Loan rates have begun to drop but remain highly positive, despite which bank credit to the private sector grew by 21 percent during 1986/87, indicative of growing investor confidence.

The new economic policy in 1986 significantly reduced the liquid asset requirement, and the BOJ intends to eliminate it during 1987/88 as part of a World Bank sector loan program.

agreement. The Jamaican authorities also have begun paying market interest on a portion of the cash reserve held in government paper, and the portion of the reserve that receives interest will also increase as part of the World Bank program. At the same time the minimum savings rate, which strongly influences the entire interest rate structure, was lowered.

Given the fragile balance of payments situation, it is anticipated that the government will continue to limit demand growth by maintaining relatively high positive interest rates. However, the policy changes and rate reductions underway should make some agricultural investment more attractive.

4. Fiscal Policy

The GOJ fiscal deficit has declined steadily from -15.6 percent of GDF in 1981/82 to -5.5 in 1986/87, and is targeted for -4.5 percent in 1987/88. This deficit has been brought under control by structural changes in the line ministries (see section II.5.b. on MOA restructuring); by reduction in subsidies; by tax reforms; and by divestment of publicly owned enterprises.

Performance has been good and is improving. Personal income and corporate taxes were reformed and a draft law reforming consumption taxes is pending. Several state enterprises have been divested and other divestments are pending. Market-based prices have been established by the commodity industry boards and the MOA Export Division, their marketing and service functions have been segregated, and their management and accounting has improved.

These changes have had their costs. While there is general agreement that the MOA was overstaffed at lower levels, the loss of professional staff continues because of lowered morale, competition from national and international agencies that can offer higher salaries, and because of an almost complete lack of operating funds. The tighter management structure in the commodity industry boards may be reducing their capacity to provide services that the MOA is divesting to them, e.g., cocoa research.

5. Foreign Trade

Jamaica's export trade total of \$565.8 consisted in 1986 of roughly 71 percent traditional exports (\$404 million) and 29 percent non-traditionals (\$162 million). The latter rose steadily over the last three years, pushed by agriculture and wearing apparel. The former declined by 30 percent, then recovered slightly in 1986 and strongly in the first six months of 1987 to an annual rate of US\$682 million. This export growth

was accompanied by an even stronger growth of imports in all categories.

Export crops account for about 18 percent of the value of agricultural production, and about \$115 million or 20 percent of exports. Among the traditional exports, sugar and rum combine to provide almost \$60 million, or about 11 percent of total exports. Coffee, pimento, citrus and bananas together provide less than five percent. Non-traditional agricultural exports are mostly food (yams and root crops, vegetables and fruits, in that order) and plants and ornamentals. Together, they account for something over five percent of exports, and are growing in volume and value.

The traditional export category is dominated by the export of bauxite, alumina and gypsum (73 percent in 1986). The remainder is raw and processed agricultural products. Sugar and rum are dominant, together providing almost 11 percent of total exports, followed distantly by bananas, coffee and coffee products, cocoa and cocoa products, pimento and citrus and citrus products.

Roughly twenty percent of non-traditional exports consist of a variety of food products and ornamentals. These categories have grown steadily from \$22.5 million in 1984 to \$33.1 in 1986. The most important categories are yams and tubers, followed by vegetables, ornamentals and fruits, plus a variety of other products. The value of these non-traditional export products has passed the total of unprocessed traditional agricultural commodities, but the total value of both traditional and non-traditional unprocessed agricultural products is somewhat less than sugar and rum combined.

Jamaica's food trade balance has improved from a deficit of US\$100 million in 1984 to a deficit of U.S.\$55 million in 1986.

Balance of Food Trade
(U.S. \$ millions)

<u>Category</u>	<u>1984</u>	<u>1986</u>
Food:		
Live Animals, for food	- 0.4	- 0.3
Meat and Preparations	-19.6	-28.3
Dairy Products and Eggs	-22.4	-19.7
Fish and Preparations	-25.3	-23.2
Cereals and Preparations	-94.6	-66.1
Fruit and Vegetables	+17.9	+30.0
Sugar, Honey and Preparations	+46.4	+49.6
Coffee, Cocoa, Tea and Spices	+21.3	+18.7
Animal Feeds	- 2.2	- 0.8
Miscellaneous	<u>+ 0.7</u>	<u>+ 2.9</u>
Total Food	-78.1	-37.2
<u>Crude Materials and Vegetable Oils</u>		
Oil Seeds and Oleaginous Fruits	-18.6	-10.8
Fixed Vegetable Oils and Fats	<u>- 3.7</u>	<u>- 6.7</u>
Total Balance	-100.4	-54.7

The primary loci of this shift has been the reduction in the cereals and oils deficits, and the increase in the fruits and vegetables surplus. Five classes of commodities (meat, dairy, fish, cereals, and oils) account for more than ninety percent of food imports. Over the last three years the meat deficit has increased, deficits in dairy, fish, and oils have declined modestly, while the cereals deficit has dropped by almost a third.

This economically beneficial result is largely the result of declines in international market prices of the imported cereals and oils, since their volumes have not altered appreciably. Some change is also probably attributable to the impact of devaluation, particularly in the fruits and vegetables surplus.

B. Constraints and Limits

1. Constraints

Current macroeconomic conditions do not constrain rational decision making in agriculture and should encourage investment and sustainable economic growth.

2. Limits

Jamaica's economy depends heavily on a relatively few exports and tourism to provide the foreign exchange needed to import raw materials, capital goods, and consumer goods. It has had to confront higher oil prices, a volatile market for bauxite (its principal export), and a consistent decline in sugar prices (its principal agricultural export). It met these crises in the seventies with increased government intervention in productive activities, an import substitution orientation, administered prices, and borrowing, which only exacerbated the problem.

With strong international support, Jamaica reversed its economic course in the eighties. A tight monetary policy combined with strong fiscal measures (both income and expenditure) squeezed out inflation. Devaluation of the Jamaican dollar has made exports more competitive while raising the cost of imports. The macroeconomic stage is set, but remains fragile because of an international debt equivalent to 140 percent of GDP, whose annual payments approximate 40 percent of exports.

Major restructuring of the commodity industry boards has improved their management and accounting practices, and the return to open market principles is stimulating export production. Non-traditional agricultural exports are growing, but not enough to offset the decline in traditional products. Over two decades, Jamaica has lost market share in bananas, citrus, cocoa and bananas through uncorrected natural disasters, high costs induced by low productivity, and lack of an aggressive marketing strategy with particular attention to both quality and price factors.

Because of the overhanging debt service problem, Jamaica will continue to have to walk an economic tightrope into the next decade--if not the next century. Agriculture's ability to contribute to the balance of payments through expanded exports and reduction of imports will require a favorable exchange rate, credit to finance economically productive technology that will reduce unit costs by increasing yields, and an aggressive approach to marketing based on a strategy to expand and diversify its markets through price and quality differentiation.

SECTION II

AGRICULTURAL SECTOR OVERVIEW

A. A Word about Jamaican Agricultural Statistics

The last national population census was taken in 1982, the last agricultural census in 1978/79, the last household expenditure survey in 1983/84. There is no area sampling frame. The Statistical Institute of Jamaica provides current national statistics, and the Ministry of Agriculture provides current agricultural statistics. One begins to feel some uncertainty about the interpretation of data, given the significant changes that have taken place over the last decade and the absence of a recent baseline and a sampling frame adjusted to it.

Several recent sector and subsector analyses have summarized data from a wide variety of sources, including those mentioned above as well as surveys of separate areas or populations. We have used these sources as the input to our understanding of the sector, drawing from each the information needed to describe the sector. The principal documents drawn upon are the following:

JAMAICA: Agricultural Sector Policy Review (draft). Report and Working Papers. FAO/World Bank Cooperative Programme Investment Centre. UN/FAO. September 1986.

JAMAICA: Country Environmental Profile (draft). A comprehensive environmental profile with a section on the agricultural sector, prepared by the Natural Resources Conservation Division of the MOA and Ralph M. Field Associates, Inc. on behalf of the International Institute for Environment and Development. Kingston 1987.

E. LeFranc. Small Hillside Farmers in Jamaica: A Social Analysis. A comprehensive summary and analysis of the characteristics of small farm agriculture, drawn from national statistics and several area surveys. USAID/Jamaica. 1987.

B. Agricultural Resources

1. Physical

a. Physiography

The Caribbean island of Jamaica includes 4411 square miles (10,940 sq. kms.) consisting of three major physiographic provinces: (1) interior mountain ranges rising from 3000 ft. above sea level to peaks above 7,000; (2) limestone

plateaux and rolling to steep hills between 1000 and 3000 ft.; and (3) narrow coastal plains with occasional embayments and three major interior valleys, generally below 500 ft.

b. Soils

The soils follow these general physiographic provinces. The alluvial soils of the coastal plains and inland valleys supported the plantation agriculture of sugar cane and bananas. The highland soils in the eastern mountains are porous and heavily leached by the high rainfall, resulting in high acidity and low fertility. They are highly erodible and best under permanent cover, except for the lower elevations and gentler slopes, which are used for mixed farming. The lower and more seasonal rainfall in the central mountains allows the highland soils in this area to dry periodically, so the soils are less leached and are used for mixed agriculture.

The upland plateau soils tend to be more erosion resistant, more alkaline, and in general more fertile than the highland soils, although agricultural use may be limited locally by shallow depth, stoniness, or iron or aluminum toxicity. The red soils (terra rossa or residual bauxite soils) are widespread, but low in nitrogen, phosphorus and potassium. With fertilization they are used for citrus, pimento, bananas and vegetables. The rendzina and other marl soils are scattered, but generally fertile.

c. Climate

The climate is generally benign, but the broken terrain leads to a wide variety of microclimates with precipitation and temperature both determined by topography. Temperatures are mild (80° mean, 74-79° in January and February, 82-83° in July and August) and are inversely related to altitude: 3.5 degrees decline per 1000 ft. rise. Annual precipitation ranges from 3000 mm. in the northeast to 1500 mm. on the south central coast. Rainfall is bimodally distributed with 35 percent of the annual amount falling in September-November and 20 percent in May-June. The driest months are March and July. Sixteen hurricanes have hit Jamaica in the last hundred years, six of which caused serious damage to agriculture.

d. Water

The less moist southern side of the island requires irrigation for successful commercial cultivation. Jamaica's drainage is characterized by a large number of short streams and rivers which either drain directly to the sea or flow out through ten basins. The Rio Minho and Rio Cobre basins account for eighty percent of the 42,000 currently irrigated

acres. These two basins will ultimately account for 64 percent of Jamaica's total irrigable area of 76,000 acres.

e. Infrastructure

Jamaica is well-provided with physical infrastructure. Its total road network of 9200 miles (1.6 motorable miles per square mile) consists of 2700 miles of main roads, 4500 miles of parochial roads and 2000 miles of rights-of-way and tracks. Many roads, however, are poorly maintained and require rehabilitation. Electric power grids cover the country, albeit with a disparity among urban and rural homes. Seventy-five percent of homes in the Kingston metropolitan area have electricity, compared with thirty percent of rural households. Similarly, only eight percent of rural houses have water piped in, compared with twenty-three percent country-wide.

f. Land Capability and Land Use

Land has been classified according to its ability to sustain permanent agriculture; this classification is usually based on its soil type, precipitation and drainage. Generally, class I and II lands can be used with minimal care. Classes III and IV require successively more care, including contouring or terracing, careful pasturage or permanent tree crops. Class V land is marginal for agriculture and usually limited to pasturage or tree crops, and Classes VI land should remain in natural vegetation or planted forest. Using this system, Jamaica's land has been classed as follows:

<u>Class</u>	<u>Acres</u>	<u>Percent</u>
I and II	359,000	11
III and IV	862,000	27
V	452,000	14
Agricultural	<u>1,683,000</u>	<u>52</u>
Non-Agric (VI)	<u>867,000</u>	<u>48</u>
Total	2,550,000	100

A later system (CRIES) takes into account socio-economic as well as physical factors, including labor characteristics, markets and infrastructure. This results in a much more detailed system:

Land Suitability Classes

<u>Class</u>	<u>Use</u>	<u>Percent of Total</u>
Construction		(5.52)
11,12,13,14	Resid, Institut, Commerc, Indust	5.52
Agricultural		(18.95)
21	Sugar Cane	8.11
22	Bananas	.94
23	Coconuts	1.43
23A	Mixed Bananas/Coconuts	.09
24	Orchards	.14
25	Tobacco	.06
26	Mixed Coconuts/Forest	1.99
27	Mixed Bananas/Forest	.05
28	Intensive Mixed Farming	3.77
29	Extensive Mixed Farming	2.37
Grazing		(24.63)
31	Improved Pasture	11.31
32	Unimproved Pasture	11.33
33	Unimproved Pasture/Slope Limited	1.99
Forest		(48.36)
41	Coniferous	.33
42	Deciduous	45.90
43	Brush	2.13
Wetlands		(1.82)
51,52,53,54	Lakes, Rivers, Coastal, Non-Coastal	1.82
Barren		.56)
61,72	Mining, Bare Sand or Rock	<u>.56</u>
TOTAL		100.00

This system emphasizes the percentages which should be held in forest and pasturage, presumably within classes III, IV and V, and it prescribes specific commodities or uses for different kinds of agricultural land.

Current land use, drawn from the 1978/79 Agricultural Census, is detailed on the following page.

Actual Land Use

<u>Use</u>	<u>Acres</u>	<u>%</u>
TOTAL	2, 720,000	100.0
Forestry	660,000	24.3
Other Woodland	538,000	19.8
Agriculture, including Pasture	1,258,000	46.3
Natural Range and Grassland	103,000	3.8
Other (Swamp, Mine, Urban, Barren)	161,000	5.9

More land is currently being used (or misused) for agriculture than can be so used under existing cultural methods. Consequently, a good deal of the hillsides are eroded, and a good deal of both forest and grassland is classified as "ruinate," meaning that it has deteriorated beyond economic use without restoration. Erosion of agricultural lands is primarily a problem of hillside agriculture, is closely related to land tenure conditions and will be discussed there.

Another problem related to land use is the destruction of habitat by converting land from natural cover to agricultural pursuits. Habitat destruction eventually results in the extinction of species which cannot adapt to altered habitat; hence it reduces biological diversity.

g. Conclusions

Jamaica has an adequate array of physical resources suitable for expanded agricultural production, including suitable and varied terrain, microclimates, soil types, and water resources which can be developed for irrigation. This variability has permitted considerable agricultural specialization, leading to interregional differentiation and trade.

A good deal of land suitable for agriculture is unused, primarily land abandoned or withdrawn from sugarcane and banana culture. On the other hand, a significant area of hillside agricultural land is eroding because of inept use, and much forest and grassland which was cleared for agriculture has been abandoned as its productivity diminished. Sustainable use of much of these lands will require either a return to natural cover or careful application of conservation cultivation. The habitat destruction which has occurred through deforestation and agriculture has or will diminish biological diversity, suggesting

the need for a park system which can provide the necessary protective environment.

2. The Historical Context of Jamaican Agriculture

So much which defines Jamaican agriculture, as with all things Jamaican, begins with its colonial history. Jamaica was initially colonized by Arawak Indians who were conquered by the invading Spanish, and died out from enslavement and disease. The British in turn conquered the Spanish in 1655, drove out the Spanish colonists, and introduced sugarcane. From 1660 until abolition of slavery in 1832, Jamaica became one of the most productive of the Sugar Islands whose economy was based on sugar produced on plantations by slaves brought from Africa. In addition to growing sugarcane, these slaves grew their own sustenance on assigned provision lands drawn from the sloping lands around the sugarcane plantation. The smallholder hillside mixed farming system and the higgler marketing system both are outgrowths of this earlier provision system.

Emancipation immediately led to departure of a significant number of freed slaves to the hillsides, where they took up land under the freehold system. The plantations continued to function on the basis of hired labor, and continued to dominate the commerce of the island. However, freeheld farms increased in number and acreage, leading to parallel systems which persist today of primarily single crop estates on prime agricultural lowland and mixed farming smallholdings primarily in the hills.

The introduction of adult suffrage in 1944 led to self government in 1957 and to full independence in 1962. Independence did not change these agricultural systems, but it brought with it the flowering of suppressed cultural traits as well as the responsibility and authority to pursue the development of a nation. Among the functions of national development, much sovereignty attaches to the land base. When large plantations fell on hard times, the GOJ bought them as units from their owners, rather than allowing them to be sold to outsiders. In this fashion, the government came into possession of much prime agricultural land formerly in sugar and banana production. Although some of this land has been sold or leased to smallholders for mixed farming, the majority remains in large blocks. The government prefers not to sell these properties, but to lease them selectively.

Independence also led in Jamaica to two-party democracy and the political process of managing the economy while satisfying the electorate. The PNP, headed by Mr. Manley, has tended towards policies which favor the small farmer through agricultural programs aimed at import substitution carried out with significant public sector involvement and administered

prices. The JLP, led by Mr. Seaga, has emphasized export expansion, relying on larger farms and a private sector responsive to market prices to provide the heavy investments and high technology required to satisfy the export market.

During the 1970s, the government was led by Mr. Manley and the PNP. This decade of declining demand in world markets for Jamaica's products was also the decade of oil shortages. The PNP attempted to meet these with increasing government intervention and controls and programs favoring import substitution, financed by public borrowing. These efforts failed to halt the economic deterioration and led to defeat of the PNP by the JLP, and Mr. Seaga's replacement of Mr. Manley.

The 1980s have been marked by liberation from much governmental intervention to encourage the private sector; a major structural adjustment which included devaluation of the currency and tight monetary control, tax reform and tight fiscal control, and a restructuring of the public agricultural sector; and a reversal of emphasis from import substitution to export expansion. These efforts have helped to slow and stabilize the economic decline, but have not yet overcome it. Deterioration of the aluminum market at the beginning of the eighties, a continued weak sugar market, and a large debt burden leave the economy still heavily dependent on foreign credits.

Mr. Seaga must call elections before the end of 1988. Jamaica traditionally has alternated parties; if tradition holds, the PNP will have another chance to manage the economy. Mr. Manley has indicated that if elected he would not revert to the government interventions which marked his last term. Whether he can maintain the tight fiscal and monetary controls and market-dominated approach to the exchange rate of the current administration is problematical.

3. Human Resources

Jamaica is densely populated--500 persons per square mile (200/sq km) overall, or 1150 per square mile of agricultural land. Excluding Kingston and St. Andrew with densities of 12,000 and 2900/sq mi, the population densities of the remaining parishes range from 206 to 723, with a median of 370.

Jamaica's population of 2.2 million is rising currently at 1.2 percent, and is expected to reach 2.7 to 3.0 million by the turn of the century. The age structure is skewed towards youth (38 percent below 14 years), so one might expect the population increase to accelerate somewhat. This tendency will be exacerbated by the drop off in emigration from close to 30,000/year to less than 10,000 because of tighter immigration restrictions in the U.S., U.K., and Canada.

The population has become increasingly urbanized, from 41 percent urban in 1970 through 48 percent in 1982 to 54 percent today. About half of this increase is from net rural-urban migration. The proportion of the urban population in the Kingston area has been steadily declining (from 63 percent in 1970 to 50 percent in 1982) with the growth of other urbanized areas, primarily associated with bauxite and tourism (May Pen, Montego Bay, Spanish Town and others).

The GOJ recognized this differentiation in its first National Physical Plan (1970-1990) with the selection of 215 settlements (out of 1150) for initial development emphasis. This was refined in the evolutionary National Physical Plan (1978-1998) to create a hierarchy of Kingston and six regional centres, seventeen subregional centres, and 96 district centres.

About 33 percent of the labor force is employed in agriculture. In 1982, rural unemployment was 3 percent compared with rates of 21 and 28 percent in manufacturing and construction. This classification obviously ignores seasonal unemployment, but it reflects accurately the shortage of labor in agriculture, created largely by rural-urban migration in search of opportunity.

Literacy is 90 percent, with primary and continuing education provided through a national network of primary, secondary and technical schools. Health conditions are generally very good and surprisingly uniform. There are no significant regional or urban/rural differences in mortality or morbidity patterns. The crude death rate has declined to seven per thousand, life expectancy at birth has increased to 73 years, and other health status indicators are close to industrial country standards. The calorie supply is 2500/person/day, about 111 percent of requirements.

Virtually all students of the agricultural sector point to a critical shortage of trained personnel in the sector as a factor limiting performance. The Ministry of Education in its Jamaican Education Sector Survey (1973) estimated the annual output required to be 100 post secondary and 300 graduates of agricultural high schools. Certainly there is a need and AID assistance to the College of Agriculture is warranted. However, the size and character of the need has never been adequately defined. It is easier to quantify the number of students than the number of graduates, and easier to quantify the number of graduates than the number working in the sector. There is a heavy turnover of personnel working in different sectoral institutions, but most of these are probably absorbed by other public agricultural sector institutions or by private agricultural production or agribusiness.

Jamaican agricultural professionals are considered to be among the best in the Caribbean. Many have been trained in Great Britain, Canada and the U.S. as well as in the University of the West Indies. Many emigrated during the seventies and found ready employment in foreign institutions and international agencies. Some of these have returned.

4. Income and Employment

About two-thirds of the agricultural labor force are self-employed. Small farmers and agricultural laborers are the poorest remunerated of all social classes in Jamaica, except for domestic service workers. The small farmer receives an average monthly income of J\$182, the agricultural laborer J\$168, but a higher percentage of the farmers (64 percent vs. 60 percent) have incomes of less than J\$50 per week. These figures compare with average monthly incomes of J\$310 for unskilled manual workers and J\$263 for traders and related services. [Source is LeClerc, Table B-4, quoting a 1986 publication.] Is it any wonder that farming is not a preferred occupation, or that rural-urban migration is high?

Much has been made of the fact that the age of Jamaican farmers averages 48 years, with fifty percent above 50. However, such age levels are not unusual in long established agricultural communities. There is also a direct relationship here, as elsewhere, between age, income, and size of properties. The reason for an aging rural population is not clear. It probably has to do with the lack of opportunity on the home farm or in the rural community which leads youths to the city, followed by later return of some of them when their parents age or die, or when they become disillusioned with urban life.

Food purchases account for more than half of the expenditures of small farmers with incomes below J\$600/month, about the same as that of their urban counterpart income groups. The first ten food categories bought by rural groups, ranked by descending dollar value, are: cereals, meat/fish, sugar/syrup, fats/oils, milk/milk products, vegetables, starches, condiments, non-alcoholic beverages, and alcoholic beverages. Their purchases of sugar/syrup and alcoholic beverages were ranked higher than those of their urban counterparts; fruits and eggs ranked lower. The Food Consumption Survey 1983/84 focuses on expenditure rather than consumption, so that one does not know the proportion of food purchased relative to that produced on the farm. However, the monetary value of purchased items will be higher than that of equivalent home products because it also includes collection, storage and distribution costs as well as a return to management and capital, plus profit. This difference

may account for the high imputed value of purchases relative to subsistence (4:1) cited by LeClerc.

Off-farm employment is an important source of income to small farmers. In five samples, the incidence of off-farm employment ranged from 16 to 59 percent. In one of these, 35 percent derived less than half their income from farming and less than 45 percent relied on farming for more than 90 percent of their income. In another sample, 56 percent admitted to off farm employment; in another, the figure was 36 percent.

In conclusion, the low incomes available to agricultural laborers or typical small hillside farmers are unattractive, and inadequate to develop savings with which to make the investments needed to improve their output and secure their resources. These farmers also have limited capacity for risk. Consequently, any program designed to improve hillside farming must be low cost, have a very favorable risk:reward ratio, and use appropriate agricultural credit mechanisms.

5. Institutional Resources

The Investment Centre Report Working Paper 5 (draft) is the principal source for the following institutional analysis.

a. Institutional Overview

The Jamaican public agricultural sector is formed of two basic public institutions--the Ministry of Agriculture and AGRO 21--and a group of mixed public-private commodity boards. The Ministry of Agriculture concentrates primarily on small-farm agriculture. AGRO 21 has the responsibility for promoting commercial agricultural investment on state lands released from sugar production. The MOA is also responsible for forestry, soil conservation, veterinary and mechanization services and plant and animal protection. The commodity boards deal on a commodity basis with both estate and smallholder subsectors, depending on whether the commodity is produced primarily on large farms or by smallholders, e.g., the cocoa board relates primarily to smallholders, the sugar board to estate farms. They also perform for their farmers many of the services provided on a broader basis by MOA.

The GOJ is also involved directly and through decentralized agencies, through land ownership and state interests, in the production of bananas, sugarcane, and several development enterprises. However, current policy is to make the private sector the primary force in agricultural production, and to divest government of direct ownership and management of agricultural enterprises. However, CIDCO and NIBJ both have

agricultural subsidiaries which are government-owned or are joint ventures.

Agricultural services are provided by a mixture of the three types of institutions:

Agricultural policy involves the Office of the Prime Minister, the Ministry of Agriculture's Planning and Evaluation Division, the AGRO 21 Corporation's Strategic Planning Department, and the Planning Institute of Jamaica's Agriculture and Regional Planning Division.

Development finance provided by the GOJ or international donors is channelled through the Agricultural Credit Bank to the commercial banks and Peoples Cooperative Banks. The private banking system also accumulates resources from savings and by rediscounting with the Central Bank of Jamaica.

Export marketing of traditional export crops are primarily through commodity boards, i.e., Jamaica Sugar Holdings, Coffee Industry Board, Cocoa Industry Board, Citrus Growers Association, Banana Export Company and the MOA Export Division. The Jamaica National Export Corporation and the Jamaica Export Trading Company provide export marketing intelligence services, particularly for non-traditional commodities.

Domestic marketing is private-sector-dominated, atomized among 13-20,000 higglers who buy at the farm gate, transport and distribute the products, either directly to consumers or through parochial markets managed by local authorities. Several attempts have been made to rationalize this marketing system in the interests of efficiency, but have had little success.

Agricultural research (mostly applied) and extension are carried out by MOA and the commodity boards.

Inputs are provided by the Coffee, Cocoa and Coconut Industry Boards, but most farmers obtain them from commercial importers and distributors or through farmer organizations, e.g., Jamaica Agricultural Society and All Island Jamaica Cane Farmers' Association.

Regulations on animal and plant quarantine and produce inspection are set by MOA, and either implemented by MOA or by the commodity industry boards under MOA inspection. The MOA and the boards also implement pest control programs.

Investment promotion is primarily performed by AGRO 21 and Jamaica National Investment Promotion Ltd., through public relations and advertising, the development of enterprise profiles, and facilitation of investment and implementation.

b. Ministry of Agriculture

MOA functions include the normal traditional activities:

- o Sector policy: planning, policy analysis, agricultural statistics and rural physical planning;
- o Promotion of production: research and extension, livestock improvement and veterinary services, plant protection, administration of water resources and irrigation;
- o Marketing;
- o Resource management: land administration and survey, watershed protection, forestry development, operations of public gardens and zoo.

The MOA has gone through a major restructuring in the last three years which has reduced its staff by one-third (from about 4000 positions to about 2500). Reductions included both vacancies and staffed positions throughout the ministry, but concentrated on lower levels in the extension and forestry services and public gardens. This restructuring also intends to shift MOA orientation from that of an agency responsible for everything that happens in the sector to concentration on the support of specific programs in support of private farmers. This is being accompanied by divestment of some MOA activities to the private sector, the commodity industry boards, or the NIBJ. The MOA focus on smallholder support is being strengthened with concentration on project planning, land capability studies, development and extension of technology, and provision of market intelligence. It is also being concentrated on smallholders with the growth in AGRO 21's responsibilities for production, land use planning and development of crop profiles for larger properties.

The MOA's current organization, authorized staffing and recurrent budget is shown in table II-1. As stated above, the MOA staff has been reduced by one-third, and many of these positions are vacant. The ratio of headquarters staff to field staff is virtually 1 to 1. About 25 percent of the headquarters staff are general administration. The MOA budget is 3.2 percent of the national budget for recurring costs after debt service is removed. Personnel emoluments are 57.7 percent of the MOA budget, when grants to international and regional organizations and grants to local organizations are removed.

The most critical problem facing the MOA is the continuous loss of qualified personnel to other national agencies or to the international community. This problem is generalized in all

government ministries, but appears to be particularly acute in the MOA Planning Division, which has lost all of the personnel trained under AID's agricultural planning project. Agricultural economists, statisticians and analysts find ready acceptance in JNIP and the commodity industry boards, while Jamaican agricultural professionals find ready acceptance in the international market.

The second most critical problem reported is a lack of operating funds. Operating funds were already in short supply before the restructuring of the MOA. Funds saved by the restructuring were taken from the MOA and were not available either for selective salary adjustments nor for operations. Agricultural personnel who cannot travel in the countryside to perform their functions, or who lack fuel and supplies for research are non-functional. As stated above, the budget indicates a ratio of less than 60 percent salary costs, a reasonable ratio. This problem may reflect inability to obtain budgeted funds.

TABLE II-1. MINISTRY OF AGRICULTURE

Recurrent Budget, 1987-88

A. Summary

	<u>J\$000</u>
Ministry of Agriculture	66,500
Science, Technology and Research	7,922
Registration of Titles	1,574*
Rio Cobre Irrigation Works	1,535*
Surveys Department	<u>4,653*</u>
 Total	 82,184

*These departments recover these amounts in fees and are not budgeted in detail.

(continued on next page)

TABLE II-1. MINISTRY OF AGRICULTURE

B. Detail

	<u>Positions</u>	<u>Budget</u> <u>000s</u>
<u>Ministry of Agriculture</u>	2 157	66 500
General Administration	272	5 874
Training Centers	19	489
Planning and Policy Review	32	713
Data Collection, Statistics, Eval.	59	1 756
Soil Analysis/Land Use Studies		0.2
Veterinary Services	112	3 362
Agricultural Engineering	65	1 605
Irrigation System Maintenance/Ops.		9 127
Forestry Administ./Soil Conserv.	219	3 629
Development/Conserv. of Fisheries	78	1 550
Maintenance Public Gardens/Zoo	134	1 962
Land Develop. & Utiliz. Comm.	33	568
Land Administration	33	1 409
Marketing Development		0.2
Agricultural Credit Board		0.1
Grants to Intl/Reg Institutions		11 536
Grants to Local Orgs (JAS, JSPC, UWA)		4 510
Production and Extension	33	1 170
Northern Region Offices	232	3 895
Southern Region Offices	256	4 400
Central Region Offices	281	5 027
Western Region Offices	299	3 916
 <u>Science, Technology and Research</u>	 <u>487</u>	 <u>7 922</u>
General Administration		702
Research Administration	54	984
Livestock Research/Improvement	177	2 816
Crop Research	152	1 098
Plant Protection	43	806
Gen Ad/Nat Res/Conservation Progs	35	723
Resource Management	8	107
Grant to Nat Res Authority		5
Recreation and Conservation (beaches and national parks)		236
Watershed Mgt. and Development	18	230
Aquatic Resources Management		216

c. Commodity Industry Boards

The primary function of the commodity boards is export marketing, including direct processing (fermenting, pulping, drying and grading) and quality control, although they have been (and many still are) involved through subsidiaries in production, research, extension and input supply. Their membership may be exclusively private, as in the case of the Citrus Growers Association, or more commonly, with GOJ participation. They are financed by a charge on the export value.

The current configuration of the commodity industry boards is as follows:

- o The Banana Export Company (BECO);
- o Jamaica Sugar Holdings (JSH);
- o The Coffee Industry Board (CIB) and its subsidiary, the Coffee Industry Development Company (CIDCO);
- o The Cocoa Industry Board (CaIB) and its subsidiary, the Cocoa Farms Development Company Ltd.;
- o The Coconut Industry Board (CoIB);
- o The Citrus Growers Association (CGA) and its subsidiary, Jamaica Citrus Growers Ltd. (JCG);
- o The Export Division of the Ministry of Agriculture, which is responsible for the export of pimento.

These boards were subjected to management audits under World Bank SAL I, and both their marketing and non-marketing activities were studied. Under this loan and SAL II, considerable progress was made in following up on the recommendations of these studies, termination of their monopsony powers by deregulation of marketing, and improvement of cost accounting and management. This restructuring is continuing under SAL III and successive sugar rehabilitation loans which require market-related growers prices and exclusion of research, extension and other non-marketing services. The latter have generally been placed in separate development companies, segregating clearly the costs and responsibilities for each, and facilitating management choices.

The major problems facing these boards are the following:

- o The reorganization of the boards to emphasize their marketing function also demonstrates the costs and weaknesses of the services which they formerly provided and which are now the responsibility of separate

subsidiaries. An apparent assumption that some of these services would be absorbed by MOA, or that they would continue to be provided by MOA has been denied by the MOA restructuring which left the MOA incapable of continuing existing services to the boards, much less absorbing new ones.

- o The Coffee Industry Development Company (CIDCO) still owns and operates properties which should probably be divested.
- o The cocoa industry is currently without any form of research back-up for its growers, since the MOA has divested itself of this function and Cocoa Farms Development Company Ltd. has not established the service. Jamaica's cocoa production technology (both cultural management and varietal) is far below international industry standards, and a large share of its market is concentrated through a single agent to a single user.
- o The Citrus Growers Association is unable to supply its JCG concentrate plant and another that is privately owned with sufficient product for economical operation. This is exacerbated by a heavy debt on the JCG factory and the direct marketing at favorable prices of fresh fruit.
- o The Banana Export Company does not have enough fruit of marketable quality to satisfy one-tenth of a potential preferential British market of 150,000 tons, nor even enough to take advantage of bulk freight rates, and is without a service subsidiary.
- o The Coconut Industry Board does not effectively regulate its industry, nor does it export copra. It does provide a variety of services to coconut growers, which it finances by a cess on the value of products sold by its SEDPRO subsidiary.

d. AGRO 21 and the National Investment Bank of Jamaica

AGRO 21 was created in mid-1983 as a secretariat reporting directly to the prime minister's office with the objective of rapidly expanding the agricultural sector through the injection of capital, modern technology and a commercial approach to agricultural production, marketing and distribution. In 1985 it was converted into the AGRO 21 Corporation, a wholly-owned subsidiary of the National Investment Bank of Jamaica. AGRO 21 is budgeted to receive J\$9,896,000 under the 1987-88 Ministry of Finance budget, of which 90 percent is for operating expenses and 10 percent for equipment. USAID contributed funding for six expatriate employees at initiation and has gradually

reduced that contribution. AGRO 21 has approximately 60 employees who are generally of very high calibre.

The following description of the function and goal of AGRO 21 was included in the Government of Jamaica's budget document: "Faced with the problem of 200,000 acres of non-utilized government agricultural land and past attitudes to farming in general, AGRO 21 is charged with being a facilitating agency for promoting private sector investment in commercial agricultural enterprises especially in non-traditional, export crops. Through the mother farm/satellite farm link it assists small farmers to solve some of their marketing and technology transfer problems. AGRO 21 is market-led and as such, through its Strategic Planning Department and at the request of other government agencies or the private sector, undertakes crop profiles, market searches, etc., utilizing the services of short-term consultants. AGRO 21 acts as a "quick response" consultancy to Cabinet and the prime minister, providing advice and recommendations on a wide range of agricultural issues. AGRO 21's ongoing efforts to change traditional attitudes towards farming has been so successful that investments in agriculture by Jamaican entrepreneurs have shown dramatic increases."

According to the Investment Centre report, the prime minister indicated to them that the AGRO 21 Corporation is intended to work itself out of business within four years as the under-utilized government lands are brought into production.

AGRO 21 is organized into seven departments reporting to the deputy managing director and a managing director who reports to the Board of Directors. The departments include the Strategic Planning Department, Inter-Agency Coordination Department, Export Crops and Marketing Service, Self-Sufficiency Programme Department, Land Utilization Department, Small Farmer Programme Department, and Cane Energy Feasibility Department. AGRO 21's principal functions are to prepare sub-sector analyses and commodity profiles, support investors in preparation of prefeasibility studies, promote foreign and domestic investment in modern agriculture, identify and support foreign investors and where appropriate broker joint ventures with Jamaican investors, prepare lease agreements for government land held by the National Investment Bank of Jamaica, assist with off-shore market contacts, provide advice to investors on agronomic practices and implement a major USAID-supported irrigation project.

The Investment Centre report indicates that there is a very broad consensus in Jamaica that the corporation has made a major contribution to agricultural development and that it is widely respected.

There are, however, a number of issues related to AGRO 21. It is unclear what direction it will take with a possible change of government and as external support comes to an end. The Investment Centre argues that AGRO 21 should focus more on policy constraints and urges that it not be given further project implementation responsibility, in order to keep from recreating the type of parastatal which AGRO 21 was designed to eliminate. A recent USAID audit also suggested that greater responsibility and authority for the program be delegated to the executive director, freeing the board (chaired by the prime minister, with the minister of agriculture as vice chairman) to concentrate on policy issues.

The National Investment Bank of Jamaica (NIBJ) is more fully described in section 6.c. but is mentioned here because of its integral involvement with AGRO 21. It was created in 1984 to replace the Jamaican National Investment Company. It is a wholly-owned subsidiary of the Capital Development Fund, which was the depository of the proceeds of the government levy on bauxite exports. Fiscal pressures have now caused all CDF revenues to be transferred to the national budget.

The NIBJ holds title to GOJ-owned agricultural land as well as all GOJ equity in agribusinesses. It initially took an equity position as a co-partner in some AGRO-21-promoted joint ventures, but reportedly no longer is willing or able to do so. It is the lessor for government agricultural land for AGRO-21-promoted ventures and is actively involved in divestiture activities.

e. Farmers Organizations

There is no dearth of farmers organizations in Jamaica, starting with the umbrella Jamaican Agricultural Society. Producers of export crops have their individual commodity associations. The Peoples Cooperative Banks, a long-standing Jamaican institution, are owned by local associations of small producers. Nevertheless, it is difficult to find an adequate description of the strength and influence of different kinds of farmers organizations, the extent of participation in each by different kinds of farmers, or the gaps where organizational coverage does not exist.

Neither is it easy to rationalize the status of government intervention in farmers organizations. For example, the Jamaican Agricultural Society, which serves as the overall umbrella association, receives a grant from the MOA. The Citrus Growers Association is legally authorized to regulate the citrus market, apparently without GOJ involvement, but the MOA Marketing Division, rather than the Pimento Growers Association, markets all pimento. Although AID has sponsored several cooperatives in

Jamaica, we did not find a good reference describing local organizations.

f. Institutional Constraints

The principal institutional constraints appear to be the following:

(1) Fragmentation

Others have called attention to the Jamaican penchant for creating a great number of organizations with little hierarchy among them. The public agricultural sector includes the MOA, AGRO 21 and the commodity industry boards, each of which have significant implementation responsibility and authority for similar functions in different part of the sector. Such a situation invites unproductive competition for resources and power, and makes it difficult to understand and manage these to attain sector objectives. Although the MOA is charged with responsibility for monitoring and guiding the other sector institutions, the loss of the best of its professional staff brings into question the MOA's capacity to perform this function.

(2) Professional Personnel

Judging from staff turnover, there must be a serious shortage of professional personnel in the sector. Elsewhere in this document, we have urged correction of the low productivity of Jamaican agriculture, as the only way to reduce unit costs of output and maintain comparative advantage. This is primarily a function of the adaptive testing, transfer and adoption of improved technology, which requires a research and technical transfer capability staffed by competent professionals and linked to the international science community.

(3) Operational Planning

Institutional development has been an objective of many programs sponsored by a variety of donors. In recent years, considerable attention has been directed at improving the structure, accounting and management of MOA and the marketing boards. Yet one is impressed by the lack of the type of operational planning known as management-by-objectives, which establishes a particular objective, analyzes the actions needed to attain that objective, and systematically undertakes those actions.

6. Land Tenure

a. Ownership Patterns

There were approximately 180,000 farms in 1978/79, containing 1,320,000 acres. Well over 99 percent of the farms (178,000), containing 62.5 percent of the land were in single ownership. The 1229 partnerships, 110 cooperatives and 79 corporations accounted for 0.8 percent of the farms and 25.1 percent of the land in farms. The government's 136 farms, containing 122,000 acres, accounted for 9 percent of the land area. More than 80 percent of the land in farms is freehold, followed by leasing, renting and squatting.

Land ownership is highly skewed: 80 percent of the farms are of less than 5 acres and include 16 percent of the land, while those with more than 25 acres account for 64 percent. A fair number of small farms are fragmented into smaller parcels, which reduces risk but complicates farming. One-third of the farms in the 1 to 25-acre class and 15 percent of those under an acre include 2 parcels, while a significant number are subdivided into 3 or more.

Women own about a fifth of the farms and this proportion is declining. Almost 90 percent of farms owned by women are in the 0-5 acre class, with 47 percent of less than one acre. Finally, women owners are older than men, reflecting acquisition by widowhood. Women have few opportunities for employment and upward mobility in rural areas, and they tend to lead in rural-urban migration.

b. Historic Origins

Seligson, Mitchell A., Land Tenure Security as a Constraint on Agricultural Development in Jamaica: A Preliminary Assessment, USAID/Jamaica, February 1985 provides an excellent analysis of land history, tenure forms and issues. The remainder of this section on land tenure has been drawn from this document, and from Randy Stringer's 1985 report to USAID/Jamaica on Land Fragmentation, Family Land and Soil Conservation Programs in Jamaica.

Beginning with English sovereignty in 1655, land was granted to colonists in Royal Letters of Patent which eventually covered the island. The Crown exercised control in the form of regularly payable "quit rents"; when these fell into arrears the land reverted to the Crown and became the basis of Jamaica's public domain. This public domain was diminished by planned and unplanned occupancy which conferred tenure rights to the individual, and increased by purchase or default. The GOJ currently holds as public domain approximately one million acres

of a total of 2.8 million, mostly in non agricultural land. (This presumably includes the 136 farms cited above whose total acreage of 122,000 acres represents nine percent of land in farms.)

These original grants became the basis of the freehold system which dominates current tenure patterns, initially in the form of plantations which, in order to reduce costs, allocated provision lands to slaves. Following abolition in 1834, freed slaves moved into the hills and settled, sometimes by squatting on Crown lands or private lands granted to them to provide access to a nearby labor supply, and sometimes on land purchased and donated to them by churches. By the first agricultural census in 1943, there were 116,000 smallholdings, or 77 percent of all farms.

Following independence, government settlement programs have continued to transfer land to smallholders, initially by sale but since 1973 through a land lease program. These leases were originally for 5 years, but have been extended to 49 years, materially improving land security. Included in these leases were 45,000 acres of cane transferred to 4000 workers in the Sugar Workers Cooperative program between 1974-1978. Although the Seaga government has tended to return to a smallholding sales program, larger properties have been leased, rather than sold.

c. Principal Tenancy Forms

(1) Freehold

This is the predominant form of tenancy in the island. Overall, 81 percent of the land in farms is owned outright, but ownership declines with size to less than 60 percent of the land in the under 5 acres group. Freeheld land includes "family lands," originating in the provision grounds, which are inalienable but virtually untitleable since they pass undivided to all family members. "Bought land" acquired by purchase can be sold or transferred by written or spoken will to a single individual, or can be passed on to succeeding generations as family lands, acquiring the characteristic inalienability of that category. "Settlement land" was acquired through the government's custom of systematically purchasing abandoned land and selling it to peasants in freehold over an extended period. Such land can be titled and treated as bought land. However, parish councils responsible for granting approval are also required to install infrastructure; having failed to do so, they are withholding approval for titling as many as 40,000 properties.

(2) Leasehold

Leasehold became a predominant form of granting tenure in the Manley government, initially providing 5-year renewable leases, later extending them to 49 years. Although the latter provides greater security, on the record peasants don't plant tree crops on leased land, and much leased land is abused or goes uncultivated.

(3) Captured Land

This is the term applied to land being acquired through squatters rights, which require 12 years of peaceful, undisturbed possession on private lands, 60 years on government land.

(4) Rental

This term includes free rent as well as rent paid in cash or kind. It provides use rights but protects the rightful owner from squatters rights. It has the same use problems as leased land, i.e., non-use or abusive use and little if any investment in improvements such as conservation works or tree crops.

d. Land Issues

(1) Titling

Land titles confer ownership and thus provide security to the owner, facilitate transfer, and enable the land to be mortgaged as security for credit. For these reasons, titling is a good option and should be pursued, particularly for its importance in encouraging agroforestry. However, formal titling is expensive, as is the litigation required to clear titles of family land. The Facilities for Title Act provides alternative means, albeit less known, for obtaining a title. Furthermore, lack of a land title is not as serious a restriction to a freeholder or extended leaseholder for obtaining credit as small farm size. Commercial banks will not accept untitled land as security, but they will accept alternatives (cosignors, other property) if available. Agricultural credit can be obtained without a title from public sector facilities, but even these are reluctant to lend to the owners of property under 2 acres in extent. Landholders under other forms of tenancy (renters, squatters) are without any long term security.

(2) Land Markets

Land markets are undeveloped, largely because of the lack of titles and scarcity of long term credit for land

purchase. Procedures for verifying ownership rights and transferring title are already in place and being modernized. The Agricultural Bank does not lend for land, but Stringer found a significant demand for land purchase loans at Peoples Cooperative Banks, which will lend for land purchase if they have funds.

(3) Land Fragmentation

Small farmers acquire additional parcels primarily because the home farm is too small to absorb family labor and provide an adequate income. Some parcels may be purchased, but most are rented. Rents are low, probably reflecting the weakness of the land market. As indicated above, rented land is poorly used, and seldom improved. Even when owned, land distant from the home farm receives less attention and investment.

(4) Land Utilization

The Land Development Utilization Law gives the government the right of eminent domain over properties larger than 50 acres which are not being fully utilized. Due warning having been given, non-compliance permits the government to expropriate the land. This law is seldom applied, but some 14 properties were affected under this law up to 1978, the expropriated land being used in various leasehold schemes. There appears to be no applicable provision for smaller properties.

(5) Erosion

The combination of all of these factors exacerbates the inherent soil conservation problem of hillside agriculture. Such land is unstable, and when its vegetative cover is removed, it erodes and loses its productivity while creating downstream siltation problems. Short of returning this land to its natural cover--manifestly impossible, since hillside agriculture is one of the two major agricultural systems--this land will continue to erode to ruinate, unless more suitable cultural practices are applied. Hillside land can be maintained in permanent agriculture if the agricultural system provides cover similar to the native vegetation, e.g., shade grown coffee or cacao. Alternatively, conservation tillage systems, which maintain cover on the soil surface, combined with waterholding and filtration devices such as terraces, contour or basin planting, strip cropping, and appropriate drainage can be used to produce annual crops on a sustained yield basis.

7. Agricultural Credit

Information for this section was drawn extensively from the Inter-American Development Bank's Jamaica Global Agricultural Credit Program Project Report (October 1986) and IMF Staff Reports during 1987. These documents are marked as not for public use and the information contained in this section should be treated appropriately.

a. Financial Market Policies

The Bank of Jamaica (BOJ) regulates money supply and influences interest rate structures by managing cash reserve and liquid asset ratios of commercial banks and setting a floor on savings deposit rates. It has also more recently established overall and selective credit ceilings, but the selective credit ceilings are limited to restricting consumer loans. The cash reserve requirement obliges commercial banks to maintain deposits in the Bank of Jamaica, thus influencing credit expansion. The liquid asset requirement distributes credit between the central government and the private sector by requiring banks to hold government securities.

Interest rates are market-determined except for the savings deposit rate for which, as noted above, the BOJ sets a floor. The savings deposit rate also serves as a floor for the Treasury Bill rate. Changes in the prime lending rate are influenced by changes in the Treasury Bill rate, as is the "bank rate" for BOJ loans to commercial banks. The liquidity position of the commercial banks is the other principal determinant, in addition to the savings rate, in determining the interest rate charged borrowers. Recently the commercial banks have been forced to maintain large liquid assets with little or no returns as part of the macroeconomic stabilization program, forcing them to charge very high interest rates on those funds which they have been able to loan in order to cover interest obligations on savings accounts and other resources. Except for loans made under the Agricultural Credit Bank's long-term credit program, farmers are charged the same commercial interest rates as other borrowers, i.e. the prime rate plus a risk premium and differential transaction costs.

The following table demonstrates trends in interest rates.

Interest and Inflation Rates

<u>Year</u>	<u>Minimum Deposit Rate (Savings)</u>	<u>Prime Lending Rate</u>	<u>Commercial Bank Average Weighted Deposit Rate</u>	<u>Commercial Bank Average Weighted Loan Rate</u>	<u>12 month Change in the CPI</u>
12/80	9.0	13.0	9.0	16.7	29.0
12/81	9.0	13.0	11.4	16.3	5.1
12/82	9.0	13.0	11.4	16.4	6.5
12/83	9.0	13.0	12.3	17.0	16.7
12/84	13.0	18.0	17.2	20.1	31.3
12/85	20.0	23.0	19.6	29.2	23.0
12/86	15.0	—	—	23-26 e	10.8 e

The levels of the cash reserve and liquid asset requirements were raised significantly during 1984 and 1985, reducing the increase in credit to only 7 and 2 percent, respectively, compared with an average annual increase of 24 percent from 1980 to 1983. At the same time, as noted above, the minimum interest rate was significantly increased in order to stimulate domestic savings. These measures were taken as part of a macro-economic program designed to stabilize the economy and accompanied a major devaluation. The resulting high interest rates greatly discouraged borrowing for agricultural projects, particularly for medium to long-term investments.

The new economic policy in 1986 significantly reduced the liquid asset requirement, and the GOJ intends to eliminate it during 1987/88 as part of a World Bank sector loan program. The Jamaican authorities also have begun paying market interest on a portion of the cash reserve held in government paper, and the portion of the reserve which receives interest will also increase as part of the World Bank program. At the same time the minimum savings rate (which as noted earlier strongly influences the entire interest rate structure) was lowered. The inflation rate dropped to 8 percent by early 1987. Loan rates have begun to drop but remain highly positive. Despite this fact, bank credit expansion to the private sector grew by 21 percent during 1986/87. Given the fragile balance of payments situation, it is anticipated that the government will continue to limit demand growth by maintaining relatively high positive interest rates.

b. Credit Distribution Among Sectors

The following table shows the distribution of commercial bank credit among the principle sectors of the Jamaican economy.

Commercial Banks' Loans, Advances and Others
(As of March 31, 1986, in J\$ Million)

Description	Amount	Percent
Jamaica Government		
- Treasury bills	724	16
- Other securities	407	10
Loans to Public Sector	670	15
Private Sector		
- Agriculture	461	10
- Mining	7	-
- Manufacturing	737	17
- Construction	603	14
- Others	791	18

Source: Inter-American Development Bank

The monetary measures that restricted aggregate demand and inflation (during the mid-1980s) adversely affected the flow of credit to agriculture through the ceilings on credit and through high interest rates. During 1985 and part of 1986, credit expansion virtually stopped and commercial bank loan interest rates reached nearly 30 percent, on average. The impact of these policies on agriculture was compounded by the low profitability of agricultural production in a period when prices of agricultural commodities were increasing at less than the average inflation rate. Lending to smaller farmers, which entails higher transaction costs and perceived higher risks, was affected even more strongly. Recent credit policies (May 1986) will increase the availability of credit to the private sector. The overall reduction of interest rates and of the liquid assets ratio maintained by commercial banks are key measures already taken in this direction. The increase in profitability in agricultural export activities resulting from the devaluation should also increase agriculture's profitability and share of total lending.

Most commercial bank lending for productive activities has been short-term, and involves extensive use of overdrafts and roll-overs. It has been estimated that loan rescheduling has been as high as 50 percent. Commercial banks tend to be conservative and have tended to limit lending only to large enterprises and heavily secured operations. Use of systematic rescheduling of short-term loans to meet medium to long-term needs increases transaction costs, leads to higher borrower cost due to rescheduling fees, and leads to uncertainty except for the largest, most secured borrowers. Frequent roll-overs can also hide real arrears and incorrectly portray the status of a bank's portfolio. Interestingly, a selection of commercial banks visited by a recent IDB team showed arrears on agricultural loans

to be less than half that of the overall portfolio (2.4-3 percent for agriculture versus 6-7 percent for all loans). This phenomenon was explained by the higher equity requirements on agricultural loans, and the profitable export activities of the agricultural borrowers. The highest arrears in the agricultural sector were among the Peoples Cooperative Banks (see below) which concentrate resources on the smaller farmers.

c. Structure of the Financial Sector

The financial sector in Jamaica consists of: (a) the Bank of Jamaica, (b) 10 commercial banks with 147 branches, (c) 7 merchant banks, (d) 10 trust companies, (e) 9 financial houses, (f) a mortgage bank, (g) 5 development finance institutions, and (h) 90 Peoples Cooperative Banks. In addition, Jamaica has a functioning stock market.

The banking sector in Jamaica is well diversified, given the country's size and income level. Resource mobilization has been relatively good during the 1970s and 1980s, considering the deteriorating economic conditions of inflation and recession. This performance has been attributed to: (a) the diversified and well-developed network of financial institutions; (b) a fair degree of competition among them to attract and lend resources; (c) the traditional high propensity of the Jamaican population to save through financial instruments; and (d) the flexible, mainly market-determined interest rate structure. The high educational levels of the population, the broad coverage of bank offices, and the high degree of monetization of the economy (including the predominance of cash crops in rural areas) contribute to this phenomenon.

(1) Public Sector Institutions

(a) Bank of Jamaica (BOJ)

The Bank of Jamaica performs the normal functions of a central bank including control of money and credit supply, issue of currency, control of foreign exchange, interbank account clearing, and bank regulation. It also oversees the stock exchange, regulates most other financial institutions, and manages the National Export-Import Bank of Jamaica.

(b) Agricultural Credit Bank (ACB)

This bank was created in 1981 as a successor to the Jamaican Development Bank. It functions as a second-level bank lending through the Peoples Cooperative Banks (PCBs - see below) and the commercial banks. The ACB maintains a number of branch offices throughout Jamaica. The ACB provides funding for long-term agricultural development activities, and

charges a lower rate for these funds to the PCBs than to the commercial banks.

(c) National Investment Bank of Jamaica (NIBJ)

The NIBJ was organized in 1984 in a restructuring of the Jamaican Investment Company Ltd. and is a wholly-owned subsidiary of the GOJ Capital Development Fund. It participates in new export-oriented projects by providing equity financing, centralizes GOJ holdings in new projects, and mobilizes project related and equity linked funding from international agencies. As of March 32, 1985, its total assets were J\$550.4 million.

(d) National Development Bank (NDB)

The NDB lends through commercial banks, the Credit Union League, and the National Development Foundation. It provides medium and long term loans for manufacturing, tourism and agribusiness projects.

(2) Private Sector Institutions

(a) Commercial Banks

Although other financial intermediaries have grown in recent years, the private commercial banks still dominate the Jamaican financial system. Of the 10 commercial banks, the largest, the National Commercial Bank--formerly Barclay's Bank--is partially government-owned but is included in this section because the GOJ is attempting to return it to private ownership. Of the other 9 banks, 4 are fully or partly foreign owned and the rest local.

The urban/rural branch network of the principal banks is relatively well balanced, and inter-bank competition is active. Commercial banks are the major source of credit to the agricultural sector, although this activity is dominated by 2 banks (National Commercial Bank and the Bank of Nova Scotia). These 2 banks have successfully developed agricultural project evaluation units, and other banks are either copying this structure or utilizing external consultants.

(b) Merchant Banks

The merchant banks obtain medium to long-term funds and lend for similar periods or take equity positions. However, current economic conditions have forced them to operate also in the short-term market. The merchant banks' assets have grown rapidly over the last 10 years, partly due to the recent creation of the Eagle Merchant Bank. Merchant banks

have invested heavily in lease-financed equipment and mortgages, but recently they have expanded project financing, particularly in real estate, tourism and agroindustry.

(c) Trafalgar Development Bank (TDB)

The TDB was organized with USAID and equity shareholder funds. It lends principally for manufacturing, tourism and agricultural sector projects. Loans are medium to long-term, specifically for capital asset acquisitions.

(d) Jamaica Agricultural Development Foundation (JADF)

The JADF is a private venture capital foundation which makes long-term development loans or takes equity positions in agricultural projects. It also makes grants for technical assistance and training.

(e) The National Development Foundation (NDF)

The NDF is a private sector organization designed to finance small business ventures in all sectors. It makes short, medium and long-term loans, receiving its resources from the local private sector and international agencies.

(f) Peoples Cooperative Banks (PCBs)

The PCBs are owned by associations of small farmers and have existed in Jamaica for over 75 years. They have traditionally been limited by the small amount of share capital. They receive resources from the ACB and other government entities. Many are not preparing financial statements and it is likely that some have negative paid-in capital and loan arrears above 30 percent of total portfolio.

C. Agricultural Production

1. Sectoral Importance

As indicated above, Jamaica has a benign climate and a varied set of resources for agricultural production. During most of its history, agriculture has been the engine for its economic growth, providing foreign exchange, revenues, raw materials, national and personal wealth and income, employment and the nutritional sustenance of its people. As with most developing countries, the relative importance of agriculture has declined with the growth in non-agricultural pursuits, notably mining, tourism and non-agricultural industry. Although agriculture's

contribution to GDP is only about 6 percent and declining, agricultural products account for a fifth of its exports, more than a fifth of its labor force is employed in agriculture, and almost 40 percent of its population lives in rural areas. Furthermore, significant availability of unused or underused agricultural land, low average yields and low rural incomes underscore a potential for larger contributions.

The total value of agricultural production in 1986 was around 6 percent of GDP. This represents a continuing decline of the relative economic importance of agriculture, from 11.6 percent of GDP in 1963 and 8.8 percent in 1980. This relative decline reflects not only the expansion of other sectors, but also the decreasing output of traditional commodities (sugar, bananas, rum) due to production problems and international market conditions. Both total agriculture and total food production appear to have bottomed out in 1982, and are increasing slowly, approaching the 1980 level in 1985. At that time, per capita indices were still below that level, but the trend was clearly up and accelerating, until this year, when it declined due to weather problems.

Domestic crops account for 53 percent of the value of agricultural production, export crops for 18 percent, livestock for 22 percent, fishing and forestry for slightly more than 6 and 1 percent respectively. Compared with 1980, domestic crops and livestock have declined proportionately as the others have expanded.

Raw and processed agricultural products account for 20 percent of Jamaica's exports, and this percent is growing, both from an increase in non-traditional agricultural products and because of a decline in the importance of mining owing to international market conditions.

2. Patterns of Production

In the section on Jamaica's agricultural history, we described two farming systems: primarily monoculture estates in the flat lands and mixed crop smallholdings, primarily in the uplands. The section on land tenure quantified and described these in terms of property size and ownership. It is important at this point to state that both small farmers and large produce for export, but not necessarily the same crops, and that many of the commodities which small farmers produce for domestic consumption are also exported. Similarly, some part of the commodities produced primarily for export on large farms go to satisfy the domestic market. This heavy overlap of commodity origins makes it difficult to define target groups by output categories and to limit production programs to particular target groups. Examples follow.

Sugar is produced primarily on large farms, some of which are operated by cooperatives of agricultural workers. It is Jamaica's largest agricultural export, but like its derived rum is consumed domestically as well as exported. Exports run around 200,000 T/year while domestic consumption is about half that. Almost a third of the combined total is purchased elsewhere and reexported.

Bananas, formerly heavily produced by thousands of small farmers as well as large, is now produced primarily by small farmers, some for export, much for domestic consumption. The decline of both plantation and smallholder production as a result of disease and Hurricane Allen in 1980 did not help the remaining small producers who have difficulty in producing 2 tons of marketable fruit per acre but severely harmed the Jamaican economy. Production is now shifting to larger, more modern plantations.

Coffee is usually produced on small farms, but the high quality Blue Mountain coffee is produced by affluent upland farmers, while the lower value typica coffees are produced by mixed crop smallholdings at lower elevations.

Pimento and cocoa are traditional smallholder products, and are major exports. Yams and other root crops are major smallholder food crops, but are the largest class of non-traditional exports as well. Fruits, vegetables and ornamentals, on the other hand, are primarily produced for export by affluent farmers who know the market channels and the exacting quality requirements of those markets and can meet them. The culls from this process go to the domestic market where they compete with produce of the small farmers. Some of the latter may gradually become producers for the export market through "mother farms" or other intermediaries.

Livestock may be produced on large or small farms. Dairying and goat production are common small farm occupations, beef cattle an extensive grazing operation. Swine and poultry are common on both smallholdings and in intensive feedlots, but the intensive production is declining because of high feed prices.

a. Traditional Exports

The value of Jamaican agricultural production has been heavily weighted towards export crops, particularly sugar and rum, bananas, coffee and coffee products, cocoa and cocoa products, and pimento (allspice). In the last decade there has been a dramatic decline in these export crops, caused by market conditions, by disease, and by price and quality competition which Jamaica has not met effectively.

Sugar export production declined from over 500,000 MT in 1965 to less than 200,000 MT in the 1980s, the protected export level under Lome II. Bananas declined from 200,000 MT in 1966 to around 12,000 MT in the 1980s, the result of disease and Hurricane Allen followed by plantation abandonment. The smallholders who continue production have great difficulty with disease control and meeting the exacting quality requirements of the international market, and the larger, more efficient plantations do not yet fill the demand; hence, a market of 150,000 MT protected by Lome III languishes. It is gratifying that exports rebounded from around 12,000 tons in 1985/86 to 30,000 tons this year. Jamaica once held 95 percent of the pimento market, and exported over 5000 MT in the 1930s. It now sells about half that quantity, and has lost 25 to 50 percent of its market share to Mexico, Honduras and Guatemala. Citrus exports of 1.3 million boxes in the late sixties have declined to half that quantity in the eighties. Only coffee, due to Japanese preferences and consequent high prices of Blue Mountain coffee, continues to perform well in a weak overall world coffee market.

It is essential that Jamaica retain and rehabilitate as much of this traditional export industry as possible. At the same time, it must make a realistic appraisal of the future potential of each commodity and take steps to live with the results. Living with the results means achieving efficient productivity which lowers unit costs, and a level of product quality which will enable Jamaica to compete effectively and hold or gain market share in a static market environment. It also means aggressive marketing to secure this effort.

b. Non-Traditional Exports

Jamaica's non-traditional agricultural exports include a variety of root crops, primarily for the ethnic market abroad, as well as fruits, vegetables, ornamentals and spices and flavorings. Yams and other root crops and ornamentals have been growing steadily over the past three years, the others fluctuating widely around a general upward trend. The outlook for these crops is good in the sense that the overall demand for fresh produce is expanding; it is negative in the sense that Jamaica must compete with other CBI countries in an extremely demanding and uncertain market. Again, low unit costs achieved through efficient productivity and high quality are essential factors in retaining market share.

c. Domestic Crops

"Domestic crops" are food crops primarily produced by small farmers, primarily for national consumption. From MOA figures, there appears to have been a secular uptrend in acreage

and yield by major class over the last four years. However, the measurement of acreage and production of small farm crops is exceedingly difficult because of intercropping, double planting and the irregular character of farm plots.

Domestic Crop Production

<u>Class</u>	<u>000 Acres</u>				<u>000 Short Tons</u>			
	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>
Legumes	22.1	25.6	26.9	26.7	9.8	10.6	11.4	12.0
Vegetables	22.1	25.1	27.9	25.0	107.3	123.8	151.5	128.5
Condiments	3.7	5.0	6.5	5.8	7.2	10.7	16.7	16.9
Fruit	2.3	2.1	2.6	2.3	14.0	12.6	17.2	13.2
Cereals	7.3	9.1	10.9	10.8	5.1	7.7	10.0	9.0
Plantain	6.0	5.5	6.3	6.0	31.3	27.7	32.5	33.5
Root Crops	32.9	35.9	39.8	50.5	207.4	225.4	273.3	277.5

The production of these crops will increase essentially in consonance with demand, which is a function of population increase, modified by per capita income and cultural preferences. It is probable that the upward pressures created by income will be satisfied by increasing substitution of imported cereals and by animal proteins, either domestic or imported. However, there is a solid ethnic preference supporting the majority of these products.

3. Quality and Productivity

The quality of Jamaican agricultural exports is generally high, in large part due to the centralized processing, grading and quality control fostered by the commodity industry boards. Jamaican pimento, citrus, cacao and Blue Mountain coffee receive premium prices, of which Jamaicans are rightly proud. However, quality alone is no guaranty of market share, as demonstrated by pimento, nor should it dominate rational production decisions. For example, Jamaica produces fine flavor cocoa from criollo varieties but the 8 percent premium it receives in the market does not compensate for the much higher physical yields and monetary returns which can be obtained from foresterio varieties, properly fermented.

Although many farms in Jamaica can demonstrate acceptably high yields, the average productivity--yield per hectare--for almost all crops is well below even developing country yields (table II-2). The significance of this deficiency is that low yields tend to equate to high unit costs of production. That, in turn, reduces farm income and destroys the ability to compete effectively in free markets. If the unit price received drops below the cost of production, some farmers--and countries--will cease to produce and other, more efficient producers become the

suppliers. This low productivity is the root cause of Jamaica's loss of market share, even when the quality of the Jamaican product is high.

TABLE II-2. JAMAICAN CROP YIELDS

A. Developing Country Comparison

<u>Crop</u>	<u>Yields (Kgs./Ha.)</u>		<u>Jamaica % of Dev Ctry</u>
	<u>Jamaica</u>	<u>Devel Cntry Av.</u>	
Sugar Cane	50 094	57 611	87
Coffee, Green	436	518	84
Cocoa Beans	520	337	154
Rice, Paddy	2 841	3 106	92
Maize	1 333	2 121	63
Potatoes	9 211	12 990	71
Sweet Potatoes	9 302	15 147	61
Cassava	7 619	9 117	84
Broad Beans, Dry	693	1 185	59
Ground Nuts	1 132	1 056	108
Cabbages	9 655	17 253	56
Tomatoes	9 091	16 860	54
Pumpkins, Squash	11 364	11 152	102
Cucumbers	8 060	13 447	60
Eggplant	3 700	11 934	31
Peppers	3 125	6 087	51
Onions	7 143	11 007	65
Carrots	7 190	17 213	42
Watermelons	12 000	15 006	80

B. Dominican Republic Vegetable Comparison

<u>Crop</u>	<u>Yields (Kgs./Ha.)</u>		<u>Jamaica % of Dom Rep</u>
	<u>Jamaica</u>	<u>Dominican Repub</u>	
Broad Beans	696	950	74
Cabbages	9 655	11 250	83
Tomatoes	9 091	21 073	43
Pumpkins, Squash	11 364	16 148	70
Cucumbers	8 060	45 000	18
Eggplant	3 700	16 667	22
Peppers	3 125	22 798	14
Onions	7 143	8 030	89
Carrots	7 190	13 889	52

Other relevant comparisons:

- o Sugar yields in Jamaica are 80 percent of the level in Dominican Republic.
- o Coffee Yields in Jamaica are 40 percent the level in Haiti.
- o Cocoa yields in Jamaica are 26 percent the level in Haiti.

Source: FAO Production Yearbook. Vol. 38. FAO/Rome. 1984

4. Marketing

Farm income is determined not by the quantity of a commodity which is produced but by the amount which is sold and the price at which it is sold. The "market" generally determine what these will be, but there are many markets. Among them, the adjust price to demand for different qualities and supplies. The marketplace is a dynamic and changing environment; a free market allows these factors to come into balance, automatically clearing the market of the commodity and signaling preferences. Efficient producers make money and last through periods of weak prices; inefficient producers are squeezed out by losing market share to those who last.

a. International

International marketing is the province of the commodity industry boards, commonly called "marketing boards" which receive, process and grade agricultural products, using these services to control the quality and volume of commonly exported products, and in the past to set the farmgate price. Over the last few years, these boards have adopted market-related pricing and have liberalized the direct access of larger producers to international markets. This has made farming more profitable and raised producers' incomes, encouraging further investment to raise output.

Direct access to the market, authorized only for large producers, has not been a notable success. Two or three citrus producers have marketed directly into Florida and obtained premium prices, but no cocoa or pimento farmers have taken advantage of similar opportunities, perhaps because there are few who qualify. Or perhaps Jamaican producers, like most farmers, are not highly entrepreneurial.

As stated above, Jamaica has lost market share in sugar, bananas, citrus and pimento. Part of this is the effect of non-competitive productivity--Jamaica's unit costs becoming too high to warrant pursuit of market opportunities in a weak price environment. However, some of the problem is a lack of aggressive marketing to expand opportunities. For example, Jamaican pimento is a high quality product, much preferred over the Mexican, Guatemalan and Honduran products, which consequently sell for less. These lower prices have enabled these countries to take 25 to 50 percent of the market, while Jamaica has accumulated a year's surplus in storage. Modest price concessions in carefully selected markets would probably permit Jamaica to regain market share at prices well above the competition. The bulk of Jamaica's fine cocoa is marketed through a single agent to a single user. It is hard to believe

that such a cozy and convenient relationship offers the optimum opportunity for expanding the cocoa industry.

b. Domestic

Domestic food crops are grown primarily by smallholders and collected at farm gate or road points by an estimated 12-20,000 higglers who sell through 75 parochial markets. This mini-marketing system accords well with the mini-farming system, one of the features which may account for its persistence. In fact, many higglers are farmers or farmers' wives. The system suffers from inefficiencies due to small size and shortcomings in collection, grading, packing and transportation. Nevertheless, these problems were not addressed successfully by the Agricultural Marketing Corporation, which closed, nor by the MOA's Market and Credit Division which has been supported by an AID-funded Agricultural Marketing Development Project. Given the lack of success of these direct approaches, it has been suggested that the domestic market be reformed indirectly, perhaps providing credit to higglers so that they could expand their operations and gradually establish a system with some organizational hierarchy. However, a persistent system has to be serving essential ends--if nothing more than distributing employment. It will probably persist until development absorbs enough labor to require better organization. Therefore, we would not recommend further attempts at its reform.

D. Economic Growth Opportunities

1. Agricultural Growth Models

There are 5 generalized agricultural growth models, 2 basic, and 3 that can overlay either of the basic models. Jamaica, like most countries has and needs a balance of all 5 models, some of which are more appropriate to emphasize in different situations and at different times than others. The 2 basic models are resource-based or science-based. The overlays for both basic models are export-led, import substitution, and urban consumption.

The resource-based model relies on expanding land use, supplemented by irrigation, credit, and extension of traditional or borrowed elemental technology. The basic engine of growth is land and water development. The limitation of this growth model is that both land and water are finite and growth will cease when these are fully developed. Yields from land and water are stable and will deteriorate without improved technology so that unit costs of production remain high.

Unlike many developing countries, Jamaica has avoided distributing her land resource as an interim mechanism to absorb

and obscure a rural population growth problem. Instead, she has tried to use her land base productively, albeit with less attention to its natural use limits than desirable. Over time, the GOJ has acquired a significant quantity of productive agricultural land from purchase or abandonment. Some of this has significant deteriorated or undeveloped irrigation potential.

Jamaica is approaching the end point for application of this growth model. The land referred to was classified and that deemed unfit for high-tech farming, but suited for smallholder use was sold. Unfortunately, much of this land is marginal for general agriculture without careful conservation methods, and lacking those, is deteriorating rapidly. Land which is suitable for high investment, high technology uses is being leased long-term in large blocks for private investment and development, with irrigation being developed by the state as needed for use. This land, too, should be in full use by 1990.

The science-based model substitutes indigenous technology generation and transfer for land expansion and irrigation development. The basic engine of growth is productivity (higher yields) induced by the application of science and technology to agriculture. Improved yields are the only way by which unit costs are reduced consistently, permitting sustainable competitiveness. The science-based model requires viable factor and product markets, accompanied by a growing stream of personnel trained for adaptation of science to agriculture. Technology may be borrowed but must be tested and validated by local scientists who are linked with the international scientific community which generates most new technology.

Jamaica is currently highly dependent on borrowed technology, and is relying on the technology, as well as the money and markets, brought in by foreign investors to fuel the expansion of non-traditional exports. Given the low average yields of Jamaica's traditional commodities, both export and domestic, and consistent loss of market share, it is evident that Jamaica must actively develop its capacity to upgrade the productivity of these products. Fiscal austerity has severely damaged the capacity of the MOA to fulfill this task, while the reorganization of the commodity industry boards may have downgraded this function elsewhere.

The export-led agricultural growth model may overlay either of the above bases. "Exports" refers to either international or domestic inter-regional trade. The engine of growth is specialization and comparative advantage--a region or a country specializes in those commodities which it can produce better and more cheaply than others, and trades for other products. Jamaica is well along on domestic regional specialization based on traditional agricultural patterns and an understanding of

agricultural ecology that has resulted in regional differentiation. The designation in its physical plan of regional, subregional and district centers for investment emphasis will establish over time an equivalent market town economic service structure.

Since colonial times, Jamaica has been dependent on exports in which it had a comparative advantage in order to obtain the imports of consumer and producer goods and raw materials upon which its economy depends. Dependence in this export trade on a limited number of products whose value is subject to variable international demand, and lack of attention to maintaining its comparative advantage and to expanding market share underlies its economic problems. It has become increasingly apparent that Jamaica must diversify its export base, improve its productivity, and market aggressively to achieve a sustainable international comparative advantage.

The import substitution agricultural growth model is focused on specialization to achieve real domestic unit costs equal to or less than prices of imported products. It too can be international or domestic interregional. The engine of growth is competitive productivity resulting from efficient specialization that substitutes for selected imports. Jamaica can, has, and should substitute domestic production for imports when it can do so at competitive prices. Further import substitution opportunities may come in beef and dairy products, oilseeds, fish products and rice. However, such substitution must be based on efficient production rather than subsidies or tariff protection. It can never be expected to completely substitute for imports of these same products, and becomes increasingly uneconomic with succeeding increments of substitution. At best, import substitution is inherently limited to the value of imported goods, after which it ceases to provide a rational growth strategy.

The urban growth agricultural development model is based on expanding food and raw materials production to meet demand generated by urbanization and employment with rising real incomes. It usually includes some elements of efficient import substitution and regional specialization. This self-sufficiency model is driven by industrial growth (or perhaps in Jamaica's case by expanding tourism) and may not be a promising stimulus for agricultural development until Jamaica's economy has stabilized and investment capital is available. However, as employment and incomes increase, the high income elasticities of demand for food will lead to an increasing need for food imports unless the agricultural sector is prepared to fulfill a larger share of consumption needs.

2. Priority Commodities

The following priority commodities were selected on the basis of the combination of market demand, economic returns and available technology.

a. Traditional Export Commodities

Sugar continues to be the most important crop and should have the highest development priority. It has a domestic demand for 100,000 tons and access to a market with preferential prices for perhaps 200,000 tons more, but must import approximately 100,000 tons more than it produces to meet these requirements. Yields are low relative to other sugar producers, raising unit costs and preventing access to unprotected markets. Average banana yields are uneconomically low, but some Jamaican producers obtain yields of 14 tons of marketable fruit per acre, well above the break even level. It is a tragedy not to use guaranteed access to a protected market of as much as 150,000 tons in the U.K. as a means to regain its comparative advantage as a banana producer. Citrus is another highly profitable crop for Jamaicans who can export favorably priced fresh citrus or process it into marketable frozen orange juice concentrate. Jamaican coffee enjoys an exceptionally high demand from Japan at prices ranging from double international prices for lowland grades to five times higher for Blue Mountain, yet satisfies only one percent of the Japanese market. Jamaican pimento is a preferred and profitable smallholder commodity, but Jamaica has lost market share for lack of an effective marketing strategy. Cocoa is another smallholder crop which suffers from abominably low yields which could be improved considerably by low input crop management practices and renovation with higher yielding material.

b. Non-Traditional Export Commodities

Jamaican yams and other root crops have had favorable acceptance in the ethnic markets in the U.K. This market appears close to saturation, but that in the U.S. is not. There is a profitable and growing market for plants, flowers and tropical fruit and vegetable specialties in the U.S. and Europe. Jamaica has done well with winter fruits and vegetables in some years, but faces growing competition in this volatile U.S. market from Mexico and other CBI countries.

c. Domestic Food Commodities

Jamaica satisfies a large share of its food requirements from locally grown food crops (see B.2.c.), and should continue to meet the growth in domestic demand for these products. She imports large quantities of cereals (wheat, rice,

corn) and imports significant quantities of meat, milk and fish and their products, and oilseeds. There is some room for expanding beef and milk production based on pasture and the feeding of manufacturing byproducts, while aquaculture (pond fish and possibly shrimp) appear capable of displacing some part of the fish imports. None of the cereals are sufficiently profitable at current international prices to warrant domestic production in the face of alternatives. Coconut may be a profitable crop for fresh consumption but appears to be only marginally profitable as a source of oil for domestic consumption.

3. Institutional Development Priorities

The severe shakeup which has taken place in the MOA and the commodity industry boards gives the appearance, at least, of losing the baby with the bathwater. These measures were undoubtedly needed, and have undoubtedly improved structure, management and cost effectiveness. However some careful monitoring will be required to assure that services essential to a viable, internationally competitive agriculture are preserved and improved. Of particular concern are indigenous research capacity, policy analysis, technology transfer services, and animal and plant health and quarantine services.

4. Natural Resource Priorities

The greatest immediate threat to sustainable agriculture is the erosion of hillside farms. Much of this land can continue to be farmed with effective, low cost conservation technology which retains soil and water. However, the most effective and profitable hillside agriculture uses a multistory vegetative cover of tree crops (coconut, ackee, pimento, citrus, coffee, cacao) to preserve the land.

Jamaica's extraordinary biological diversity is also threatened, both on land and in the reefs. Tourism, the number one foreign exchange earner, is enhanced by Jamaica's natural splendors.

SECTION III

CURRENT AID AND OTHER DONOR PROGRAMS

A. Government of Jamaica Sector Goals and Objectives

The Government of Jamaica considers agriculture to be a key sector to compensate for the fall in foreign exchange earnings brought about by the decline of the bauxite industry, primarily through increases in non-traditional exports as well as some import substitution. The government's policy framework calls for achieving this goal through a reduction of the size and role of the public sector and incentives for increases in both foreign and domestic private investment.

These efforts have been undertaken, as described earlier, in a macroeconomic environment which has limited growth in aggregate demand and raised real interest rates to very high levels. At the same time, reforms in exchange rate and tax policies have generally favored the sector and significantly increased incentives for non-traditional export development. Price policy has also been reformed and market prices are followed for almost all domestic crops. Price controls are maintained for selected "imported staples," i.e. dried salted fish, counter flour, bread, sardines, condensed milk, cornmeal, herrings, cooking oil and broiler meat.

The stated goal of the current Five-Year Food and Agricultural Policy and Production Plan (1983/84 - 1987/88) 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." The plan states as a concrete objective that all Jamaicans shall receive adequate and nutritious food by 1988.

The Five-Year Plan complements two other major policy initiatives of the GOJ affecting the agricultural sector. The Structural Adjustment Loan (SAL) program aims at the full development of exports and of domestic food production, while the AGRO 21 program aims at modernization of agriculture with emphasis on private sector production of selected domestic and export crops (both traditional and non-traditional). The SAL and AGRO 21 programs are seen to focus on production goals, while the MOA Five-Year Plan focuses on consumption and small-farm development objectives.

The current Government of Jamaica apparently is perceived as concentrating more on export enhancement than import substitution, in contrast to the strong import substitution focus

of the prior administration. Elections will be held within about a year in Jamaica and this causes uncertainty about the future orientation of government objectives and goals.

B. USAID Program

Although the U.S. has provided assistance to Jamaica for 30 years, the amount of assistance increased substantially beginning in FY 1977, averaging \$28 million through FY 1980. The worsening economic conditions at the end of this period led to another substantial expansion of U.S. assistance, to an average of \$135 million/year. The \$124 million provided in FY 1986 included:

Development Assistance (DA)		17.5
PL 480 Food Assistance		48.6
= Title I loan	32.6	
= Grants	16.0	
ESF BOP Support Grant		58.0

1. Program Objectives

USAID/J's program is "focused...on assisting with the adjustment and development of the Jamaican economy so that the country can pay for imports needed for sustained growth, meet responsibly its external debt service commitments, and pay for the social services which meet its citizens' basic needs. Broadly based, diversified growth which creates opportunity for all Jamaicans is critical: diversification of both the ownership base and the range of strong industrial and agricultural subsectors is crucial if sustained economic growth and social/political stability are to occur. Likewise, fostering international competitiveness in all sectors is an important...need."

The most recent statement of program objectives for support to the agricultural sector is in the FY 88/89 Action Plan. According to this document, the Mission's objectives are to assist with modernization of the sector in order to increase productivity and diversify and increase foreign exchange earning and saving potential. This is to be achieved by encouraging technological change and developing a rational policy environment. There are two foci of the Mission's stated agricultural strategy. "One part of this strategy is to encourage private investment in capital intensive and extensive production of non-traditional commodities for export and limited import substitution. The other part promotes cultivation of high value perennial and other selected crops on small and medium sized farms for possible export and for meeting domestic food supply requirements."

2. Portfolio Analysis

a. Resource Availability

AID assistance levels to Jamaica have declined as a result of reduced foreign assistance budgets. Past and planned levels are:

U.S. Economic Assistance to Jamaica
(FY 1984-89, US \$000)

	1984	1985	1986	1987	1988	1989
DA	37,600	26,400	17,500	14,500	14,500	14,500
.ARDN	(10,999)	(9,375)	(5,550)	(4,380)	(5,510)	(5,510)
ESF	52,300	80,500	58,000	24,760	25,000	25,000
PL 480	20,200	44,800	48,600	44,900	44,900	44,900
Total	110,100	151,700	124,100	84,160	84,400	84,400

There are currently eleven on-going development assistance projects being implemented by the Mission Agriculture and Rural Development Office (ARDO), as briefly described in annex 3-1. One of these projects has a major rural roads rehabilitation component which is managed as a separate project by a different Mission office. Of the 12 project initiatives, 6 will terminate by mid-1988, reducing the management units to 6 (5 in ARDO). In addition, ARDO manages the PL 480 Title I and II programs. The combination of project close-outs and reduced budget levels, as described in section a. above, is reflected in pipeline and mortgage projections for the portfolio:

ARDN Pipeline and Mortgage Analysis
(\$ 000 - excluding PD&S)

<u>Fiscal Year</u>	<u>Portfolio Life of Project</u>	<u>Pipeline End of Year</u>	<u>Mortgage End of Year</u>
86	45,224	16,209	15,100
87	51,974	10,884	18,600
88	49,174	5,360	19,050
89	43,335	1,704	14,700

Despite the significant reduction in annual ARDN levels beginning in FY 86, the total ARDN portfolio does not project a significant decline until FY 89. The reduced funding levels will be accommodated, according to these plans, by severely reduced forward funding of projects and maintaining a large mortgage. At projected funding levels, the following resources are available

beyond requirements to cover the mortgage of already obligated projects:

ARDN Resource Availability
(FY 88-92, US\$000)

<u>Fiscal Year</u>	<u>New Funds</u>	<u>Prior Projects</u>	<u>Planned Projects</u>	<u>Discretionary</u>
1988	5,510	4,510	1,000	0
1989	5,510	4,510	1,000	0
1990	5,500	1,200	2,000	2,300
1991	5,500	1,200	2,000	2,300
1992	5,500	1,200	2,000	2,300

This table assumes that ARDN budget levels will remain more or less constant. The column "prior projects" includes all projects initiated prior to FY 88 and an annual PD&S provision of \$200,000. The planned project category includes the Strengthening the Agricultural Sector Project planned for FY 88 and the anticipated seven-year extension of the three-year Hillside Agriculture Project scheduled for 1990. Obviously, at this time both the planned and discretionary amounts are in fact discretionary and reprogramming of prior year projects is an option.

USAID/Jamaica has made a major effort to integrate development assistance and PL 480 support for the agricultural sector. A major portion of PL 480 local currency generations are presently utilized to meet public sector commitments for counterpart to development projects for the sector which, because funds are fungible, represents a direct subsidy of GOJ operating costs. A significant amount of local currency is programed for new initiatives, through the programing of Section 108 resources for intermediate credit institutions and monetization of dairy commodities to capitalize the Jamaican Agricultural Development Foundation. The Mission's emphasis, however, has been to focus on the policy dialogue aspect of PL 480 negotiations and to concur with GOJ priorities for utilization of the funds. The Mission has recognized that the drastic reductions of GOJ budget levels resulting from its macroeconomic program have severely affected sector institutions, and therefore has considered the programing of resources to keep these institutions minimally viable was an appropriate use of funds.

In considering future resource availability, however, the Mission does have an option to attempt to increase the programing of local currency generations to specifically meet local currency requirements of Mission Development Assistance programs. By so doing, the limited ARDN resources could be applied to a wider range of development needs. Presently the GOJ sectoral policy

framework is considered basically sound, and less leverage may be needed in the future to maintain this condition. The Mission's decision to actively pursue Section 108 programming of PL 480 local currency resources for intermediate credit institutions is a step in this direction.

b. ARDN Program Emphasis

The following table is a summary of the USAID/J ARDO portfolio described in the annex and includes a distribution of project resources among the principal activities typically funded with ARDN resources. It should be noted that this analysis is intended to establish gross trends in program direction. It is often difficult to divide project resources among joint program objectives, so the subjective judgement of the AID project officers has been the basis for the classification. Amount of funding budgeted for a given category is not necessarily an indication of priority, as some activities cannot absorb more than a limited amount of funding although that level of effort may be of the highest priority. Despite these reservations, the analysis is informative. The following is a summary breakdown of the portfolio, and a comparison of the USAID/Jamaica portfolio with the ARDN portfolio for the LAC region as a whole. This does not imply that regional averages should be considered a norm, but using them as a basis for comparison does serve to highlight the nature of a Mission's program.

USAID/Jamaica ARDN Portfolio Analysis

<u>Development Activity</u>	<u>% of USAID/J ARDN Resources</u>	<u>% of LAC ARDN Resources</u>
Improved technologies	23	15
- agricultural research	(13)	(8)
- technology transfer	(10)	(7)
Sector management	17	15
- planning/policies	(3)	(7)
- education/training	(14)	(8)
Access to resources	22	45
- land tenure	(--)	(7)
- farmer organizations	(2)	(2)
- credit	(16)*	(26)
- rural roads	(4)	(10)
Agribusiness	16	13
- agro-industry	(8)	(12)
- marketing	(8)	(1)
Natural resources	21	13
- resource management	(6)	(5)
- irrigation	(15)	(8)
Total	99**	101**

* Includes \$7 million of PL 480 resources programed for credit activities of the Jamaican Agricultural Development Foundation.

** sums differ from 100% due to rounding.

The present Mission portfolio is fairly evenly spread among the different strategic categories included in the analysis. Compared with regional averages, USAID/J is investing significantly more resources in natural resources and technology improvement and considerably less in access issues. This tendency is further reinforced by the fact that a major portion of PL-480-generated local currency is programmed by the Mission and the GOJ for public sector recurrent costs as part of the policy dialogue strategy, whereas other missions and host governments in the region often program a greater portion of these resources to meet small farmer access requirements (credit, rural roads, etc.). The GOJ and the Mission do program a portion of PL 480 generations for credit activities under Section 108 of PL480 and target dairy commodities to capitalize a private agricultural development foundation. Other mission programs also have major credit components which benefit the sector.

Without attempting to formally classify the portfolio as it is anticipated to exist in FY 89 (according to the Action Plan) against strategic categories, several tendencies are apparent. Prior projects supporting marketing improvement and farmer organizations will drop from the portfolio, investment in agribusiness will stabilize, and new initiatives to improve sector management will expand emphasis on this issue.

Comparing the portfolio with the Mission's stated objective is also useful, although again difficult. As indicated above, the USAID/J FY 88/89 Action Plan identified a bimodal strategy for support for the sector. The first element promotes private investment in capital intensive and extensive non-traditional export and selected import substitution activities, and the second element focuses on promoting high value perennial and other crops on small and medium sized farms, both for export and domestic food needs. About half of the portfolio seems to be directed at the first of these objectives (agroindustry, irrigation, and credit). About one-sixth of the portfolio is concentrated on the second objective (resource management, marketing, farmer organization support and technology transfer). The remainder of the portfolio cannot be easily classified between these two global objectives (research, education, planning/policy).

c. Portfolio Performance

Each member of the ARDO staff was interviewed concerning the status of the present portfolio. Approximately half of the Office's projects will soon be closed out and considerable frustration was expressed throughout the office with a number of these projects. Much enthusiasm exists concerning the remaining/newer initiatives, however. Several of the older projects proved to be very slow moving, encountering many delays in procurement of goods and services, particularly where procurement depended on actions by the GOJ. Similar problems have appeared with several of the newer projects but have thus far apparently been manageable. Several of the older projects were also criticized internally for flawed designs, principally where structures of institutions had been created (with little indigenous support) which were inappropriate in the Jamaican context.

The past Mission investment in aquaculture development was commonly seen as a success story, and at least one staff member felt that the Mission should continue in this area to build on prior success. In commenting on the newer projects, several staff members expressed concern for the degree of emphasis which had been placed on non-traditional fresh fruit and vegetable export development, which they considered highly risky. There is

general enthusiasm for the new initiative to support tree crop development among small hillside farmers.

The Mission portfolio is presently spread over a wide range of activities, many of which are small but troublesome management units which will soon be terminated. This places the Mission in a position to focus initiatives on a smaller range of activities in the future, and reduced funding levels may force the Mission to adopt such a strategy.

3. Policy Dialogue

USAID/J has worked closely with the GOJ and other international agencies to encourage creation of a macroeconomic policy environment which has succeeded in stabilizing the prior decline of the economy and apparently laid the basis for growth. As noted earlier, the recent devaluation has benefited the agricultural sector by improving the competitiveness of Jamaican production. The tight credit limits which have resulted from this program have discouraged investment, but credit conditions can be expected to improve gradually.

The Government of Jamaica has also adopted sector policies which influence the success of the Mission's program. The government eliminated price controls shortly after assuming power, and although some controls have been reestablished they principally apply to "imported staples" and not to domestically produced commodities. The government also drastically reduced funding for the Ministry of Agriculture, causing a reduction of one-third in staff, as part of its efforts to reduce central government deficits. While some of this reduction undoubtedly eliminated unproductive personnel, the size of the cut and the manner in which it was carried out has apparently led to a significant reduction in the ministry's capacity to carry out essential public sector functions.

The Ministry of Agriculture's recurrent cost budget for 1987-88 is equal to only 3.2 percent of the total Government of Jamaica recurrent cost budget, after subtracting budget allowances for servicing the public debt. Considering the importance of agriculture in employment generation and the probable increasing role in export earnings, it would seem that the ministry would deserve a greater share of government resources, assuming that it could be demonstrated that these resources can be productively utilized. It is difficult to address such an issue at a time when overall budget resources are being reduced, but it should be examined as part of any future Mission effort to strengthen the public agricultural sector.

Other sector policies which may require additional attention concern operational efficiency of credit institutions, and legal

and policy level limitations on acceptability of small farmer collateral for loans. Both the IDB and IDRC are active in this area and Mission involvement may not be necessary, but the Mission may be able to play a supportive role in any required policy reforms.

C. Other Donor Activities

It was difficult to obtain a complete listing of other donor activities in the agricultural sector. The following chart lists the principal activities identified based on a review of the FY87/88 GOJ budget, and there may be other donor activities not identified in the budget. All budget figures include both donor and GOJ contributions to the projects. For the sector as a whole, donor contributions represent over four-fifths of the total cost of donor assisted projects.

Other Donor Activities
(J\$000)

Donor	Project	Budget FY 87/88	Budget LOP
IBRD	Second sugar rehabilitation proj.	15,000	290,000
IDB/UNDP	Land titling project	5,000	134,000
IDB	Jamaican agricultural research	500	22,912
EEC	Citrus development	2,894	16,830
EEC	Lowland coffee project	500	19,250
EEC	Beekeeping development project	1,291	5,100
EEC	Scientific research council	6,632	n.a.
EEC	Delivery of veterinary services	2,312	n.a.
Netherlands	Rural physical planning	2,200	12,700
Netherlands	Land resource assessment	5,967	12,630
Netherlands	Tank building project	4,200	n.a.
Netherlands	Hague/Meyersfield drainage proj.	1,000	1,000
Japan	Blue Mountain coffee project	68,000	309,985
Germany	Sugarcane energy	1,000	23,900

CIDA	Oyster culture project	778	n.a.
UNDP/WHO	Underground water authority	425	n.a.
	Total	117,699	848,307

Nearly three-fourths of other donor resources for which life-of-project funding levels could be identified were directed at developing sugar, coffee and citrus sub-sectors. Other substantial resources are directed at land titling and resource planning. The remaining activities of other donors are scattered among small, miscellaneous activities.

Potential new projects identified in discussions with a MOA official include an EEC cocoa development project, an IFAD hillside development/perennial crop activity, IDB (and possibly CIDA) assistance with agricultural credit, and FAO assistance for design of an extension project.

ANNEX

PORTFOLIO DESCRIPTION

There are currently 11 on-going development assistance projects being implemented by the USAID/J Agriculture and Rural Development Office (ARDO). One of these projects has a major rural roads rehabilitation component which is managed as a separate project by a different Mission office. Of the 12 project initiatives, 6 will terminate by mid-1988, reducing the management units to 6 (5 in ARDO). The following are brief statements of objectives for the principal ARDN projects:

- (1) Agricultural Marketing Development: \$7.8 million; 1980-87

Designed to improve agricultural marketing practices and to upgrade the marketing system, by establishing a Ministry of Agriculture market news office, constructing cooperative owned assembly and grading stations. Project has also supported dairy development and export pre-clearance and fumigation procedures.

- (2) Agricultural Marketing Development, Rural Roads Rehabilitation Component: \$3.0 million; 1986-89

Designed to finance rehabilitation of selected rural roads to improve mobility of small farmers and rural families, and lower marketing costs.

- (3) Agro Industrial Development: \$6.934 million; 1982-87

Strengthening existing agribusiness enterprises and developing new ones are the aims of this project. Foreign exchange is provided to finance existing agribusinesses, and pre-investment funds, consultant services and training are provided to promote new agro-industrial projects. The strategic planning program of Agro-21 (a GOJ parastatal investment promotion agency) is also funded.

- (4) Agricultural Education: \$9.5 million; 1984-90

Addresses the need for trained agricultural manpower by developing and expanding the Jamaica College of Agriculture and expanding and improving the Secondary Agricultural School at Knockalva.

- (5) Crop Diversification/Irrigation: \$18 million; 1985-90

(a) Strengthens the capacity of Agro 21 to promote private agricultural investment, (b) assists Agro 21 to rehabilitate and promote efficient operation of a major irrigation system

to support diversified crop production, and (c) establishes a small farmer linkage system with larger "mother" farms in order to modernize technology and market contacts.

- (6) Agricultural Research: \$7.6 million; 1986-93

Creates a mechanism to fund adaptive/applied research on priority commodities, through a private agricultural development foundation with an independent research advisory council.

- (7) Hillside Agriculture: \$3.0 million; 1987-90

Focuses on increasing rural incomes and natural resource management by inducing expansion of tree crop planting (principally coffee and cocoa) in two watersheds. Planned to become ten year \$10 million project if initial implementation is successful.

- (8) Small Farmer Production/Marketing OPG: \$0.86 million; 1983-88

Assists producer marketing organizations (cooperatives) to increase volume and quality of fruits and vegetables and facilitate penetration of the U.S. market.

- (9) Agricultural Cooperative Development OPG: \$0.5 million; 1984-88

Provides organizational development and management training for producer marketing organizations through the National Union of Cooperative Societies.

- (10) Cooperative Development Training (OPG): \$0.72 million; 1985-88

Strengthens national training capability of the National Union of Cooperative Societies and the Jamaican Cooperative Credit Union League.

- (11) Jamaican Agricultural Development Foundation: \$1.0 million grant plus PL 480 commodities worth \$7.2 million; 1983-89

Institutionalizes a private development foundation in order to provide loan and equity funding for viable agricultural sector projects, as well as grant funding for education, research, and promotion activities.

(12) Hillside Assessment: \$0.6 million; 1985-87

Identifies and analyses production and conservation technologies, and develops policies and methodologies to promote adoption of rational, long-term land use practices for hillside agricultural development.

(13) Strengthening the Agriculture Sector: \$5.0 million; 1988-92?

Improves institutional capabilities in the agriculture sector and addresses priority requirements for a sound agricultural base, such as essential pest eradication and quarantine programs, networking agricultural information, improving agricultural policy environment, and providing staff training.

(14) PL 480 Title I Program

The ARDO is responsible for management of the Mission's PL 480 program which has become a very large portion of the total development budget.