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ASSESSMENT OF THE COFFEE INDUSTRY IN JAMAICA

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EXECUTIVE SUMMARY

Coffee, and especially non-Blue Mountain coffee, was identified as a traditional export crop with potential for expansion. The purpose of this assessment is to provide USAID/Jamaica with sufficient current information on the industry to determine where its assistance under the Agricultural Export Services Project will be most effective.

Jamaica's coffee industry is composed of some 30,000 small farms of less than one acre of land, around 3,000 farms with one to ten acres, and only 148 farms of over ten acres. It has undergone significant structural changes in the past decade. Whereas 93 percent of coffee production used to come from small cooperative farmers, the "commercial farmer" who emerged in the 1980's now produces almost half Jamaica's coffee. In a sense, the industry is now bifurcated into the small traditional farmers on the one side and the commercially oriented farmers on the other.

The industry has also seen deregulation in the 1980's. Ten years ago, the Coffee Industry Board (CIB) and its wholly owned subsidiary, the Coffee Industry Development Corporation (CIDCO), controlled virtually all phases of the industry. In 1983, the Jamaican Government issued regulations allowing growers who produced at least 100,000 pounds of coffee to become "Approved Growers" or "Approved Processors". This status permits a grower or enterprise to market its coffee locally and abroad, and either establish and operate its own pulper or contract for processing services. Although the industry is still highly regulated, the CIB has recently begun to deregulate extension services and seedling production.

Jamaican coffee commands the highest prices in the world. Because the mild tasting, large bean coffee is a highly prized luxury good in Japan, demand is price inelastic and consistently exceeds available supply by a large margin. The CIB sets the minimum export price for all grades of Jamaican coffee. Current prices are US\$7.50 for a pound of number one Blue Mountain coffee, US\$5.20 for a pound of High Mountain Supreme, and US\$3.90 for a pound of Prime Washed. Brazilian coffee, as a comparison, sells for around US\$.80 per pound. However, as Jamaican yields are low and production and processing costs are high, the coffee grower's average expected return is in the region of 22-23 percent. With the cost of commercial borrowing at over 35 percent, coffee is not a

good investment at present unless the farmer can obtain below-market interest rates on his loans.

Japan, which purchases around 80 percent of coffee exports, is Jamaica's major market. The Japanese have also invested in the industry, and are providing long term low interest financing to encourage greater production. The Commonwealth Development Corporation and the European Communities, as well as AID, have also given assistance to Jamaica's coffee industry.

Major constraints to expansion and growth of the coffee industry identified in this paper are the following:

- Shortage of long term financing at reasonable interest rates;
- High fixed processing costs spread over a low volume of coffee;
- Inadequate road infrastructure in coffee producing areas;
- Shortage of nursery seedlings;
- Shortage of labor in coffee producing areas; and
- Lack of management capability and leadership in the non-Blue Mountain cooperatives.

AID has assisted the coffee industry with financing, technical assistance, and research funds over the past five years. There is a role for additional AID assistance in several areas, such as rejuvenating cooperatives, finding ways to reduce processing costs, improving road transport in coffee areas, and providing subloans through financial institutions.

1. INTRODUCTION

1.1 Purpose of this study

As part of USAID/Jamaica's efforts to assist in the development of Jamaica's agricultural exports, the mission authorized and obligated the Agricultural Export Services Project in September 1989. Coffee, and especially non-Blue Mountain coffee, was identified as a traditional export crop with potential for expansion. This study is intended to provide current information on the status of Jamaica's coffee industry to enable USAID/Jamaica to determine where its assistance will be most effective. The study will therefore highlight both constraints to development of the coffee industry and opportunities for expansion.

1.2 History of Jamaica's coffee industry

The ARABICA Typica coffee plant was first brought to Jamaica from Martinique by the British Governor Sir Nicholas Lawes in 1728. Cultivation began in the foothills near Kingston. Because the beans produced in Jamaica were of high quality, coffee plantations soon appeared in the Blue Mountains and the uplands of Manchester, St. Ann and St. Elizabeth. In the 1780's, when England reduced its tax on coffee by 75 percent, Jamaica's production soared. By 1800, Jamaica had 700 plantations and exported over 13 million pounds of coffee. Exports peaked in 1811-1814 at around 34 million pounds annually.

The industry declined almost as fast as it had grown. Emancipation of Jamaica's slaves in 1838 drained labor from the plantations. At the same time, depletion of nutrients from the soils, erosion, and the spread of pests and diseases caused declining yields. Jamaica also lost its preferential market when England reduced the tax on coffee from non-colonial producers. Increased competition brought lower prices. By 1860, only 186 plantations were still operating and exports had dropped to 5 million pounds.

The structure of Jamaica's coffee industry was also changing. By the end of the nineteenth century, large plantations were being subdivided. Coffee was increasingly grown by individual farmers on small plots of land, often mixed with food crops. A new type of huller and pulper which permitted small producers to compete with large processing plants further encouraged the trend towards small farmer coffee production. Some efforts were made to set up farmers' cooperatives.

In the 1930's and 1940's, the effects of the depression and the Second World War devastated the coffee industry. Prices dropped and shipping was unreliable. Jamaican farmers were encouraged by markets to use their land for food crops and bananas rather than coffee. What coffee remained was neglected, causing yields and quality to deteriorate even further.

The lack of effective control over quality standards allowed traders to mix coffee of all grades and quality. Some even mixed sticks and stones with coffee exports to increase the weight. By 1943, the quality of Jamaican coffee was no longer acceptable to Canada, Jamaica's largest market. With the exception of Blue Mountain coffee which had maintained standards, Jamaican coffee exports ceased. At the same time, other coffee exporters in Central America, Brazil, Colombia and Kenya, who were improving both quality and quantity, were able to take over Jamaica's markets.

To protect and revive the Jamaican industry, the Colonial Government set up a Coffee Clearing House in 1944. The Clearing House purchased coffee from dealers for cleaning, grading and export. Although exports resumed as the quality of Jamaican coffee improved, standards were still not high enough. In 1948, the first Coffee Industry Regulation Law was enacted. This law established the legal authority for a Coffee Industry Board (CIB) and gave it wide ranging powers to control the growing, processing, grading and marketing of coffee. Under this law, the CIB is also responsible for developing the coffee industry and promoting the welfare of the people engaged in it.

The Coffee Industry Board itself was established in 1950. By 1958 it had set up six pulperies throughout the lowland areas. Concurrently, the Jamaica Agricultural Society organized small coffee farmers into co-operatives in areas around the factories. This was the beginning of the CIB/cooperative coffee collection system which still exists. The CIB's central grading and finishing plant was constructed in Kingston. It handles most of the drying, grading, packing, and shipping of Jamaica's coffee.

In 1981, the CIB set up the Coffee Industry Development Company (CIDCO) as a subsidiary to take over the production side of the industry. In addition to providing extension services, operating seedling nurseries, and managing its own estates, CIDCO administers donor-financed projects to expand coffee acreage. The Commonwealth Development Corporation (CDC) program to develop Blue Mountain coffee, in 1981, was the first. Then came a Japanese OECF project for Blue Mountain coffee and a European Communities (EC) project for non-Blue Mountain coffee.

In its forty years of existence, the CIB has been very successful in improving and maintaining the quality--and the price--of Jamaican coffee. It has been less successful, however, in bringing about sustained production increases. In the 1954/55 crop year, five years after the CIB was established, production reached a high of 4.7 million pounds. Since then it has fluctuated widely from a low of 1.7 million pounds in 1968/69 to a high of 4.5 million pounds in 1987/88. With the CDC, Japanese and EC financed projects beginning to show results, the CIB expected a forty year record yield of 4.8 million pounds of coffee in the 1988/89 growing year. But hurricane Gilbert struck on September 12, 1988, causing extensive damage to over 60 percent of Jamaica's coffee acreage and setting the industry's ten year expansion plan back by at least two years. Instead of 4.8 million pounds, production was just under 2 million pounds.

1.3 Current status of Jamaica's coffee industry

Jamaica produces two types of coffee, Blue Mountain and non-Blue Mountain. Blue Mountain coffee is defined by law as coffee that is grown in a prescribed area of the Blue Mountains, and is processed at specified factories. All other Jamaican coffee is non-Blue Mountain. For marketing purposes, non-Blue Mountain coffee is divided into various grades by bean size and quality determined by the CIB's "cup test". Two of the premium exportable grades are "High Mountain Supreme" and "Prime Washed". The latter is also known as lowland coffee.

Jamaican coffee is an ideal export product in that Jamaica can export all the coffee she produces at more than five times the world market price (see Table 4). Because the mild Blue Mountain coffee is a highly prized luxury good in Japan, demand is price inelastic and consistently exceeds available supply by a large margin. The 1989/90 minimum export price for the highest grade Blue Mountain coffee is US\$7.50 per pound (the lowest exportable grade receives a minimum of US\$7.00). Export grades of non-Blue Mountain coffee, which is grown from the same tree but at lower elevations and in somewhat different soil, also command premium prices for their high quality. The current price for High Mountain Supreme is US\$5.20 per pound, and for Prime Washed (the lowest grade of exportable Jamaican coffee) US\$3.90 per pound. While Jamaican prices continue to rise, world market prices have dropped to a fourteen year low. The average price for Arabica coffee in 1989 was US\$1.10 per pound. A recent 1990 quote for Colombian coffee was US\$1.00 per pound, while Brazilian coffee currently sells for US\$.80 a pound. The main problem is neither price nor market but production.

Until the 1980's, Jamaica's coffee industry was dominated by small farmers who had less than two acres of coffee land and sold their production through cooperatives. The industry has undergone significant structural changes in the past decade. First came the CDC, Japanese and EC projects to expand coffee acreage. At the same time, many Jamaican companies, businessmen and professionals, recognizing the unique nature of this product and its long-term potential, began to invest in coffee. The new breed of coffee farmer has at least ten acres of full-stand coffee, uses modern methods and technology to maximize yields and quality, and is either already an approved exporter or aspires to be. Some have even entered joint venture arrangements with roasters and retailers. The most rapid expansion has been in the Blue Mountain areas, which yield the highest prices. In the lowland areas, although the new larger farms are increasing their production, output from co-operatives has stagnated or declined. According to the General Manager of CIDCO, the coffee industry has become bifurcated, with the traditional sector dominated by small farmer cooperatives on one side and the commercial sector dominated by large growers and exporters on the other. There are an estimated 30,000 coffee growers with less than one acre, and another 3,000 with one to nine acres. Although farms over ten acres number only 148, they probably account for 30 to 40 percent of total production.

The 1980's were also marked by steady progress towards economic liberalization. Structural adjustment programs supported by bilateral and multilateral donors emphasized export-led growth and an increased role for the private sector. In the spirit of deregulation, the Coffee Industry Board relinquished its monopoly position as Jamaica's sole coffee exporter in 1983. Now any farmer or coffee enterprise who produces over 10,000 boxes of cherry coffee (100,000 pounds of dry coffee beans) may apply for "Approved Grower" status. This permits the enterprise to establish and operate its own pulper, contract processing services, and market its coffee locally and abroad.

2. LEGAL AND INSTITUTIONAL FRAMEWORK

2.1 Laws governing the coffee industry

The December 9, 1948 law No. 42 "To Regulate the Growing, Processing, Purchase and Sale of Coffee in Jamaica and the Export of Coffee from Jamaica and to Encourage the Development of the Coffee Industry for purposes incidental to or connected with any of the foregoing purposes" is still the foundation of the industry's institutional and legal framework.

The CIB's powers of control over the coffee industry were strengthened by subsequent amendments and regulations:

Law No. 64 of 1958 (permitting CIB to impose a cess on all coffee sales and have an annual audited budget);

Regulation No. 34 of 1953 (the Coffee (Cess) Order imposing the cess);

Regulation No. 35 of 1953 (Coffee Industry Regulations imposing licensing requirements for coffee processors, coffee dealers, and coffee exporters);

Regulation No. 307 of 1973 (Coffee Industry (Amendment) Regulations defining Blue Mountain coffee and Blue Mountain blend, and requiring records to be kept on all processing and sales of Blue mountain coffee);

Regulation No. 379 of 1966 (The Import Prohibition (Coffee) Order prohibits imports of coffee except by the CIB);

Coffee Industry Board Order on Deregulation of the Coffee Industry, February 1983 (Sets out procedures for approved growers to export);

Regulation No. 134A of 1983, (The Coffee Industry (Amendment) Regulations, 1983, amends the boundaries of the defined region for Blue Mountain coffee and lists coffee works situated at Moy Hall, Silver Hill, Mavis Bank, Langley and Wallenford as those in which Blue Mountain coffee must be processed).

2.2 Institutional framework of the industry

The Coffee Industry Board (CIB), set up in 1950, is the most important institution in Jamaica's coffee industry. Composed of growers, dealers and government officials, it regulates the entire industry, including growing, processing, grading, and export. CIDCO, created in 1981, is a wholly owned subsidiary of the CIB, incorporated as a private limited company under the Companies Act. It has responsibility for extension services (training, spraying, advising on growing techniques, etc.), the coffee berry borer control program, seedling nurseries, financial services to farmers, and development of coffee estates. CIDCO is the single largest coffee grower in Jamaica, operating twenty-five farms with a total of 2,003 acres.

The CIB owns six coffee pulperies (wet processing plants) in the lowland areas (Dover Point, Aenon Town, Trout Hill, Bog Walk,

Clarendon Park, and Maggotty) and one in the Blue Mountains (Wallenford). Of the other three Blue Mountain factories, two (Silver Hill and Moy Hall) are owned and operated by cooperatives and one (Mavis Bank) is privately owned. The CIB has a central grading and finishing plant in Kingston, where most of Jamaica's coffee is dried and packed.

The CIB Quality Control Office inspects and grades all coffee produced at the central processing plant; inspects and approves privately owned processing facilities; and inspects and certifies the quality of all coffee exported from Jamaica. The CIB is the largest exporter of Jamaican coffee, most of which goes to Japan.

The Jamaica Coffee Council is a private sector industry organization of growers, processors, roasters and exporters. Since the 1983 deregulation, nine private growers or firms have gained Approved Grower/Exporter status. One of these, Jablum, deserves special mention. Jablum is a cooperative marketing organization for Blue Mountain coffee composed of five shareholders. Its members are growers Keble Munn (Chairman of the CIB and owner of Mavis Bank), Ronald Thwaites, Cecil Langford, and "Jackie" L. Minott, and shareholder R. Chinloy. Jablum, as an Approved Exporter, markets coffee processed by Mavis Bank. It has also entered into joint ventures in Japan (with Rin Rin Trading Company) and the US (with Fairwinds Corporation) to roast and retail coffee in these markets. It is the first private organization to be an administering agency for a coffee development loan. In 1989 the CDC and the Netherlands co-financed US\$3.0 million in loans to the coffee industry through Jablum.

Cooperatives are important primarily in their role as collectors of small farmer production for processing by the CIB. There are a total of nineteen coffee cooperatives, three in the Blue Mountains and sixteen in the lowlands. The Blue Mountain co-operatives also operate pulperies and are authorized exporters. The small coffee farmers were originally organized into cooperatives by the Jamaica Agricultural Society. The Coffee Growers' Cooperative Federation is the umbrella organization which links the coffee cooperatives. Their total membership is estimated at between 30,000-45,000.

3. STRUCTURE OF THE COFFEE INDUSTRY

3.1 Numbers of producers

In a 1989 survey of the numbers and sizes of coffee farms, the Ministry of Agriculture found the following:

	Non-CIDCO		CIDCO	
	No. of farms	Acreage	No. of farms	Acreage
Less than 1 acre	30,000	11,000	--	--
1 - 2 acres	2,126	2,743	1	2
2 - 9 acres	874	2,571	3	16
10 - 20 acres	50	649	4	65
20 - 50 acres	62	1,846	3	96
50 - 100 acres	8	559	5	315
Over 100 acres	7	1,260	9	1,511
	-----	-----	--	-----
Total	33,127	20,628	25	2,004

Whereas only a few years ago the approximately 30,000 cooperative members produced 93 percent of Jamaica's coffee, the CIB now estimates that close to 50 percent of production comes from larger farms (over five acres).

3.2 Acreage

The coffee industry's recent dynamism has clearly been concentrated in the Blue Mountain region. In 1982, Jamaica had an estimated 14,400 acres of coffee, of which 2,400 acres were Blue Mountain and 12,000 acres were non-Blue Mountain. In 1989, planted areas had grown to almost 23,000 acres, of which 7,390 acres were Blue Mountain and 15,420 acres were non-Blue Mountain (see Table 11). Blue Mountain coffee acreage had grown by over 200 percent in just six years, while non-Blue Mountain planting was less than 30 percent higher. Production figures, however, are even more revealing. Before the hurricane, 1988/89 Blue Mountain production was expected to reach 2 million pounds, four times the level only five years earlier. Non-Blue Mountain production, despite the increased acreage, was projected at only 2.8 million pounds, slightly less than in 1987/88. Although the hurricane dashed hopes for any production gains in 1988/89 and 1989/90, the 1990/91 crop year is expected to be the highest in forty years, with the Blue Mountain crop leading the way. In the non-Blue Mountain areas, only the recent intrusion of larger, more productive farms has kept output stable. Production from cooperatives, which control over 75 percent of non-Blue Mountain acreage, is on the decline.

3.3 Yields

Coffee yields in Jamaica have traditionally been low in comparison with other producers in Central and South America. Table 5 shows average yields in Jamaica from 1983/84 through 1989/90. (It should be remembered that these are national averages, and include the least productive small multicrop farms as well as large full-stand estates using modern technology.) Depending on the year, the average yield varied from a high of 25 boxes per acre in 1983/84 to a low of 17 boxes per acre in drought-affected 1984/85. (A box is sixty pounds of cherry coffee and produces around ten pounds of dry coffee beans.) Over this seven year period, Jamaica's average yield was 21 boxes per acre. As can be seen in Table 6, Costa Rica's average yield in the same period was 142 boxes per acre, over six times higher. Colombia averaged 67 boxes per acre, Guatemala 59 boxes per acre and Kenya 68 boxes per acre (see Tables 7-9). All three countries' yields, although not as impressive as Costa Rica's, are over twice Jamaica's.

Multicropping is one reason for the low yields. Many small farmers mix coffee with other cash crops to even out their cash flow during the year. Where several crops are mixed, the farmer is also less likely to tend the trees properly, i.e. pruning and fertilizing, cutting back when necessary, spraying for disease, etc. The CIB chairman noted that the one benefit brought by hurricane Gilbert was islandwide pruning of coffee trees, which will be reflected in 1990/91 production.

The widespread use of the Arabica Typica variety is another reason. The Arabica Typica--the original coffee plant brought to Jamaica in the sixteenth century--produces a large bean with a mild flavor, has good longevity (some plants live to 100 years or more), but has lower yields and is more susceptible to plant disease than some other varieties. Most major producing countries now use higher yielding varieties with smaller beans, such as the Bourbon, Mundo Novo, Cutuzza, Catimor, and Catuai. Because the large bean of the Typica plant is a hallmark of Jamaican Blue Mountain coffee and is highly prized by the Japanese consumer, Blue Mountain estates will probably continue to use this variety for fear that any change would destroy the "Blue Mountain mystique" and cause prices to drop. In the lowlands, however, Jamaica may wish to experiment with other varieties, not only for higher yields but because they are resistant to coffee rust, a plant disease that afflicts estates on the North Coast.

A third reason for traditionally low yields is Jamaica's recommended plant density. In a full-stand coffee estate (i.e. where coffee is the main crop), Jamaicans plant an average of 900 seedlings per acre. Many coffee producing countries today use intensive planting of from 2,000 to 4,000 seedlings per acre, which results in much higher per acre yields. Some Jamaican farmers are now planting up to 2,000 seedlings per acre in Blue Mountain areas with gentler slopes. Per acre yields are reportedly much higher than average with no negative effects.

Finally, coffee grown in the Blue Mountains will always have lower yields than estates in the lower, warmer climates, because the coffee bean ripens more slowly on the cool, mist-covered mountain peaks. However, slow ripening reportedly helps create the flavor which commands such high prices.

Expected yields in well tended full-stand coffee estates are, of course, much higher than the national average. Table 10 presents Jamaica Agricultural Development Foundation (JADF) estimates of production costs, revenues and per acre yields for Blue Mountain, high mountain and lowland coffee. They show average per acre yields of 90 to 100 boxes for Blue Mountain coffee and 150 boxes for non-Blue Mountain coffee in full production years (year six through ten). More productive Blue Mountain farmers can realize yields of 150 or more boxes per acre, according to one grower. The CIB estimates that new and resuscitated coffee land can produce average yields of 50 to 70 boxes per acre in the Blue Mountains and from 60 to 100 boxes per acre in other areas.

3.4 Expected returns to farmers

According to financial analysts who have dealt with coffee projects in Jamaica, financial rates of return for Blue Mountain coffee can vary from a low of 15 percent to a high of over 30 percent, depending on yields and required capital investment. The average is probably in the range of 22-24 percent. With this return, Blue Mountain coffee is clearly among the most lucrative of Jamaican agricultural investments. Given the enormous export prices per pound of Jamaican coffee, however, the rate of return is surprisingly low. The other side of the coin is that Jamaica has very high production costs. Although part of this is a result of the more difficult growing and reaping conditions in the Blue Mountains, it is also borne of low volumes and high fixed costs, particularly in the processing end of the business. The CIB price to farmers, for example, averages only around 50 percent of the minimum export price.

Jamaican bankers are less familiar with rates of return to non-Blue Mountain coffee, since commercial investment in the coffee industry in the last six to eight years has been concentrated in the Blue Mountain areas. However, those investors in non-Blue Mountain areas who treat coffee as a business and concentrate on yields, quality and efficiency say they can realize the same rates of return as Blue Mountain producers. As noted above, the lower areas can produce considerably more per acre than the steep slopes of the Blue Mountains, and a good quality High Mountain Supreme can command negotiated prices at or above the minimum CIB price for Blue Mountain coffee.

One drawback to investment in coffee is the large initial expenditure for land, land preparation and maintenance in the first years. Returns begin only in the third year and are not maximized until year six. Thus an investment in coffee should be viewed over the long term, i.e. ten years or over. Table 10 shows ten year cash flow estimates, including production costs and revenues but not capital investment, for Blue Mountain, High Mountain and Lowland coffee. Capital costs are primarily for land. However, this is not an insignificant expenditure for Jamaican farmers. Land prices in the Blue Mountains have escalated sharply in recent years, and are now estimated at J\$10,000 (US\$1,428) or more per acre.

Because capital and production costs are heavily skewed towards the early years of a project, most farmers find it necessary to borrow at least a portion of their initial costs. Interest rates on the borrowed capital can easily make the difference between a profitable and an unprofitable investment. Commercial bank rates in Jamaica are usually variable, and move in accordance with financial markets. Unfortunately, in the past six months, Jamaica's tight monetary policy has driven commercial interest rates above 30 percent, exceeding the rate of return for the most profitable coffee ventures. In Jamaica's current macro-economic environment, even coffee--a relatively lucrative agricultural investment--needs below market interest rates to make the investment attractive.

4. CURRENT ROLE OF CIB AND CIDCO

Ten years ago, the CIB and CIDCO controlled virtually all phases of the coffee industry. Concurrently with the changes in the industry described above, they have permitted a degree of deregulation in exports, marketing, and extension services. The CIB's most important role--that of quality control--has not changed, and is widely considered critical to the health of the industry. Because the CIB has built an international reputation for dependable quality control, Jamaica is the only coffee

producer in the world that ships without samples and sets its own price. If quality standards were to deteriorate and importers' confidence to erode, Jamaica would lose this unique position.

4.1 CIB and CIDCO Board of Directors

The Jamaican Government recently agreed to merge the CIDCO Board of Directors into the CIB Board to simplify decision making for the industry. In 1986 the CIB Board was expanded from seven to nine members. The Minister of Agriculture appoints the Chairman and three other representatives. The Jamaica Agricultural Society nominates a slate from which the Minister appoints three. The Jamaica Coffee Council, a private sector organization of growers, processors, roasters, and exporters, appoints two representatives. In addition, the General Managers of the CIB and CIDCO, a representative of the Ministry of Agriculture, and the Financial Controller of the CIB are ex officio members.

The members of the current CIB Board are as follows:

Keble Munn, C.D.	Chairman
Ronald Thwaites	Jamaica Coffee Council representative
Jackie Minott	Jamaica Coffee Council representative
Sen. C. Fletcher	President, JAS Coffee Growers Federation
N. Walker	JAS Coffee Growers Federation
A. Stewart	JAS Coffee Growers Federation
D. Menzies	Board Member
Douglas Graham	Board Member (New Castle Co-operative)
C. Nelson	Board Member
Ex Officio members:	
Mrs. M. John	Ministry of Agriculture representative
J. Pickersgill	General Manager, CIB
G. McPherson	General Manager, CIDCO
R. Edwards	Financial Controller, CIB

Keble Munn is an experienced coffee grower and processor. He is a member of Jablum and owns Mavis Bank, a Blue Mountain coffee processing plant. In a former PHP government he served as Minister of Agriculture and Minister of National Security. Ronald Thwaites owns coffee estates and is a member of Jablum. He is also a lawyer and hosts a popular radio talk show. Jackie Minott owns Jamaica Standard Products Company Limited, a packaging and roasting company which recently bought Agri-Products Jamaica Ltd., a 400 acre coffee estate. Senator Courtney Fletcher is the President of the Jamaica Agricultural Society and the Coffee Growers' Cooperative Federation Ltd. Douglas Graham is the Chairman of the New Castle Blue Mountain

Coffee Growers Cooperative Society Ltd., one of the more dynamic cooperatives which is also an Approved Grower/Exporter.

4.2 CIDCO coffee estates

CIDCO is still the single largest coffee producer in Jamaica. The 1989 Ministry of Agriculture survey noted above (see Section 3.1) shows that CIDCO has twenty-five farms comprising a total of 2,004 acres. Of these, nine are over 100 acres, five are between 50 and 100 acres, three are between 20 and 50 acres, four are between 10 and 20 acres, and four are less than ten acres. CIDCO established a 400 acre mother farm in the Blue Mountains under the Claverty Cottage/Shirley Castle Coffee Development Program financed by Japan. Another approximately 1,300 acres of CIDCO's Blue Mountain coffee estates was financed by the Commonwealth Development Corporation.

4.3 CIDCO seedling nurseries

CIDCO has five nurseries which produce around 1.5 million seedlings annually. The trees are sold at J\$1.60 per bag (two seedlings), and cost approximately J\$2.00 to produce. The cost of subsidizing seedlings is thus not insignificant. CIDCO is the largest producer and the largest individual user of nursery trees. Because CIDCO does not produce enough seedlings to meet national demand, it sells primarily to small farmers. Larger growers complain that they are often forced to buy from one of four independent nurseries at almost double CIDCO's price. Another frequent complaint is that CIDCO does not deliver seedlings on time, even when they are ordered six months in advance to assure that they are available when the ground has been prepared. Given the planned expansion of coffee acreage over the next seven years (see Table 11), a sufficient and timely supply of seedlings will be critical.

4.4 Pricing Jamaica's coffee for export

After consulting with growers' representatives each year, the CIB sets minimum export prices for all exportable grades at its July annual meeting. The prices are valid from August 1 through July 31. Although Japan purchases the bulk of Jamaican coffee, coffee prices are set in US dollars because the US dollar is the usual currency of trade for Jamaica. In the past, prices were established in pounds sterling for the same reason. Prices for the 1989/90 year are as follows:

No. 1 Blue Mountain coffee:	US\$7.50 per pound
(prices for No. 2, No. 3 and Peabody are within US\$.50)	
High Mountain Supreme:	US\$5.20 per pound
Prime Washed (lowland):	US\$3.90 per pound

As noted above, Jamaica's export prices for coffee are the highest in the world. Even the price for Prime Washed, the lowest grade of Jamaican coffee, is almost four times the current price for Colombian coffee, which is also a mild Arabica. Jamaican prices are particularly high compared with world market prices for other types of coffee at the moment because the International Coffee Organization was not able to agree on export quotas. Nevertheless, Jamaican prices have consistently exceeded world prices for Arabica coffee by at least 100 percent (see Table 4). Japanese importers believe that the price of Jamaican coffee will continue to rise because supplies are restricted and demand is growing.

4.5 Pricing Jamaica's coffee to the farmer

The CIB sets the price to the farmer for coffee delivered to CIB processing plants. A sample of the coffee is put in water to test for quality, and the CIB deducts a percentage for the amount of coffee that floats. Payment is in two parts. The first payment is : at the beginning of the harvest season, and paid to the farmer about two weeks following delivery. (The harvest season for Blue Mountain coffee usually runs from November through May and for non-Blue Mountain coffee from June through November.) The second payment is determined after the crop is harvested and sold. In crop year 1988/89, the CIB price to Blue Mountain growers, net of cess, was J\$208 (US\$38 at the prevailing exchange rate) per box, and J\$80 (US\$15) per box of non-Blue Mountain coffee (see Table 4). The price to Blue Mountain growers was around 50 percent of the export price, while the price to non-Blue Mountain farmers was considerably less. Costs of processing, crop insurance, extension services, CIB administration and cooperative expenses are deducted from the export proceeds before the grower receives his final payment.

Much of the coffee which now reaches the CIB comes from cooperatives and tends to be of very mixed quality, including non-exportable grades. Private exporters, on the other hand, will pay higher prices but expect uniformly good quality coffee which can be exported. The growing role of Approved Growers/Processors/Exporters is introducing a premium on quality coffee into the market, further differentiating the commercial growers from the small cooperative farmers. Private exporters negotiate prices with growers who sell them coffee. According to CIB regulations, prices must be at least 20 percent more than the CIB price. They are usually higher.

5. DEREGULATION

5.1 Deregulation of exports: The "Approved Grower" program

The first move towards deregulation came in 1983, when the Jamaican Government decided to allow a grower or group of growers with a minimum annual production level of 10,000 boxes to export their own production. The CIB issued regulations for "Approved Growers" and "Approved Processors" in February 1983.

To become an "Approved Grower", a coffee producer must submit an application to the CIB. Representatives of CIB and CIDCO inspect the grower's fields to certify that he has a minimum production of 10,000 boxes of cherry coffee. (Since hurricane Gilbert wreaked havoc with the coffee estates, this requirement has been softened to include both those who have traditionally produced 10,000 boxes or who have the potential to produce 10,000 boxes, even if they are not currently producing at that level.) The CIB must also certify the grower's ability to produce coffee of exportable quality. An "Approved Grower" who wishes to purchase and export cherry coffee from other growers must request permission from the CIB, stating the exact area and farms from which he will be buying, and how the coffee will be processed. The "Approved Grower" must pay a significantly higher price than the CIB for his coffee purchases from other farmers (defined as at least 20 percent above the CIB price). Since Jamaican coffee has a seller's market, and the CIB only pays farmers about half the minimum export price for their coffee, private exporters are quite willing to pay higher prices to attract the best quality coffee.

To become an "Approved Processor", an "Approved Grower" must submit a plan of proposed processing facilities to the CIB for approval.

Although the "Approved Grower" markets his coffee abroad, the CIB still plays an important role in the actual export process. Every export shipment must be certified by the CIB's quality control inspectors as being of exportable quality. The CIB must also approve the country to which the coffee is sold, the quantity, and the price. "Approved Growers" and "Approved Processors" must assure that their prices to the domestic and export markets are not less than the prices set by the CIB. For unroasted green coffee, the CIB is technically the sole exporter. As such it arranges shipment and collects payment for these coffee exports. Exporters complain that they must wait several weeks for payment from the CIB, which becomes expensive when interest rates on overdrafts are over 35 percent.

Approved private exporters are subject to Bank of Jamaica exchange control regulations which require that all foreign exchange proceeds from exports must be remitted to Jamaica through the central bank. Exporters of roasted coffee may be eligible to participate in the new Exporter Retained Account program, which will give them access to a portion of the foreign exchange they earn. Unroasted coffee is considered a traditional export product and is therefore excluded.

There are now six "Approved Growers", one processor, and two roasters who are authorized Jamaican coffee exporters. They are the following:

Blue Mountain Coffee Growers Cooperative Society Limited (growers)
Coffee Industries Limited (roaster)
Farms (Consolidated) Limited (grower)
Jamaica Standard Products Company Limited (grower and roaster)
Mavis Bank Central Factory Limited (processor)
New Castle Blue Mountain Coffee Growers Cooperative Society Limited (growers)
Portland Blue Mountain Coffee Growers Cooperative Society Limited (growers)
Salada Foods Jamaica Limited (roaster)

The CIB estimates that coffee exports controlled by the "Approved Growers/Processors/Exporters" are now almost equivalent to coffee exports by the CIB. The private companies have been successful in diversifying Jamaica's coffee exports to new markets, such as Switzerland, Australia and Italy. However, the three most important markets remain Japan, the United States, and the United Kingdom. In 1989, around 80 percent of Jamaica's coffee went to Japan, 11 percent to the US, and 7 percent to the UK. Only 2 percent was sold in other markets (see Table 1). Many of the larger growers who do not yet have 10,000 boxes of production plan to request "Approved Grower" status as soon as they reach this level. It is quite likely that private exporters, who currently deal mainly in Blue Mountain coffee, will continue to increase their share of total exports in the future. The CIB's share could easily decline since it receives much of its coffee from the less dynamic lowland cooperatives, where production increases are lagging.

5.2 Deregulation of processing

At present, the CIB owns most of Jamaica's processing facilities outside the Blue Mountain region (see above). The Japanese aid agency OECF has provided a long term concessional loan to CIB to finance another lowland finishing/drying facility in Clarendon,

which will have a capacity of 16 million pounds annually. When this plant is completed, Jamaica will be using only an estimated 15 to 20 percent of its processing capacity at current production levels. This large unutilized capacity is apparently an important element in the industry's high fixed costs. Since "Approved Growers" may also become "Approved Processors", it is likely that the CIB will increasingly be leasing processing time at existing facilities to forestall the installation of additional underutilized capacity.

5.3 Deregulation of extension services

Many larger growers used to complain that, although they were required to pay a cess on their coffee sales to support CIDCO's extension services, the services were inadequate and would be available more effectively from the private sector. The CIB has now taken the first steps to deal with this problem. From July 1990, Blue Mountain growers will contract for extension services, including disease control measures for leaf rust and the berry borer, on a "pay as you go" basis. The farmers or cooperatives will be responsible for arranging their own extension services, either from CIDCO or the private sector. The non-Blue Mountain farmers will continue to pay the cess for CIDCO's extension services because their co-operatives are not in a position to take over this responsibility. If the cooperatives are strengthened in the future, CIDCO may also deregulate the non-Blue Mountain extension services.

5.4 Potential areas for future deregulation

An obvious area for divestment is the CIDCO owned coffee estates. If coffee growers or enterprises are willing to purchase these estates there is no reason CIDCO should continue to hold them. Another is the CIB owned processing plants. The CIB could either sell or contract the management of the processing plants to private firms. On the other side, the CIB's role in certifying quality and grade of exported coffee is critical to maintaining the high prices for Jamaican coffee and should be preserved at all costs.

6. COFFEE COOPERATIVES

6.1 Role and current status

The number of cooperative members has been estimated at anywhere between 30,000 and 60,000, although it is most likely in the lower end of this range. Blue Mountain cooperatives provide extension, collection, processing and export services to their members. Non-Blue Mountain cooperatives provide mainly

collection services. The Jamaica Agricultural Society assigns a field officer to each cooperative. This officer acts as an organizer for collection services, training programs from CIDCO, disease control programs, etc. In the past, JAS also provided accounting services but this has been discontinued. Since cooperatives' only sources of income are members' share capital (approximately J\$2 per member) and a cess of around J\$3.00 per box of coffee collected, which is paid by the CIB at the end of the growing season, the cooperatives generally cannot afford to hire even a secretary. The JAS field officer undertakes some of the tasks that a cooperative employee would otherwise do. Some of the cooperatives own land which was purchased in the past with share capital. All purchase inputs such as fertilizer and weedicides for their members, using CIDCO credit.

Because of the large numbers of small coffee farmers, the collection function of the cooperatives is still very important for mobilizing production. There are over 500 collection points to which the farmers bring their coffee once a week during the harvesting season. The collectors (usually women) weigh the cherry coffee and give the farmer a receipt. The CIB truck comes at the end of the day to pick up the coffee and transport it to processing plants. The CIB floats the coffee at the plant and gives the cooperative a check for the initial payment minus the float percentage. The cooperative cashes the check and gives the farmer his initial payment in cash approximately two weeks after he has delivered his coffee. The CIB gives the cooperative the second payment (called the 'bonus') minus the cess and other deductions at the end of the growing season, when it knows how much it will receive from that season's coffee sales.

6.2 Blue Mountain cooperatives

The cooperatives in the Blue Mountains are by far the most dynamic. All three--Blue Mountain Coffee Growers Cooperative Society, New Castle Blue Mountain Coffee Growers Cooperative Society, and Portland Blue Mountain Coffee Growers Cooperative Society--are Approved Growers/Exporters. Two--Portland/Silver Hill and Blue Mountain/Moy Hall--have wet processing plants. The Blue Mountain cooperatives went into processing in the 1940's, when the cooperative movement was organized, because they were wealthier (Blue Mountain coffee has always commanded a higher price) and were able to buy existing plants. In contrast, there were no processing plants in the non-Blue Mountain areas prior to the CIB plants built in the early 1950's. Both the Blue Mountain Coffee Growers Cooperative and the Portland Blue Mountain Coffee Growers Association own coffee estates.

The New Castle Blue Mountain Cooperative (NCBMC) is unique in its organization and financial viability, and deserves special mention. Although 80 percent of its 200-odd members are small farmers, 80 percent of its coffee is produced by commercial farmers. Its membership includes farmers with both medium (10 to 50 acres) and large (over 50 acres) farms. These are the more productive growers who have pulled out of other cooperatives. In addition, the chairman of the New Castle cooperative, a Kingston businessman, runs the cooperative from his business premises. He donates part of his own time, and provides secretarial services, a driver and a truck to do cooperative work at no cost to the membership.

NCBMC is an Approved Exporter. It requires members to sell their coffee to the cooperative. The cooperative in turn contracts with the CIB to process, package and ship its coffee. NCBMC negotiates sales contracts and prices, and returns a higher profit to the grower. NCBMC, like other Approved Exporters, has a long term trading relationship with a Japanese importer, Kawa Trading Company. Kawa has provided low interest long term loans to the cooperative, first to build decent roads in newly developed Blue Mountain areas, and then to rehabilitate coffee acreage after the hurricane. Kawa was the first to negotiate repayment in Blue Mountain coffee beans, a practice which most other Japanese companies are now following.

Unlike most other cooperatives, NCBMC has a strong financial position. Having invested past surpluses wisely, the cooperative now has sufficient investment income to finance its own full time extension officer who provides services without charge to cooperative members. As the cooperative owns no warehouse or office building, it is not able to provide bulk purchasing services for members at present.

6.3 Non-Blue Mountain cooperatives

In general, the non-Blue Mountain cooperatives are not financially viable entities and do little except collect cherry coffee, as described above. They have no premises, no staff, only a small cess for income, and provide virtually no services. The organization of CIDCO extension services is arranged by the JAS field officer assigned to each cooperative. One problem with non-Blue Mountain cooperatives is that their memberships and boards have not changed for many years. These people view the coffee industry as it was in the past, a conglomerate of thousands of small farmers, most of whom made little more than a subsistence living. They see the cooperatives as a union which obtains subsidies from the CIB, not as commercially oriented business organizations.

As noted above, production from cooperatives in the non-Blue Mountain regions has declined. Were it not for increases in output from large commercial farms in these areas, total coffee production would have dropped considerably. But these farmers are not staying in the cooperatives. As soon as they have sufficient production to sell to a private exporter, they leave the cooperatives, thereby depriving them of more dynamic membership. This is of great concern to the CIB and others in the industry. To take advantage of the favorable export prices and demand, Jamaica must increase its production of quality coffee. Moreover, a greater volume of coffee production would help to bring down unit costs in the industry, which are high by world standards. Since cooperatives control over 75 percent of non-Blue Mountain acreage, or half the total coffee land in Jamaica, these organizations must either be rejuvenated or replaced if Jamaica's production and export goals are to be realized.

6.4 CIB assistance to cooperatives

In the past, the CIB has given grants to non-viable cooperatives to assist them while they try to resolve financial difficulties with increased production and income. CIB also conducts training programs for cooperatives' secretaries and coffee collectors. CIDCO often uses cooperatives' facilities for its extension service training programs, which give farmers advice on inputs to coffee growing, care and pruning of coffee plants, and disease and pest control.

The CIB has channeled some of its development assistance loans, such as the CDC and Japanese OECF programs, through cooperatives. To encourage greater use of full stand coffee, the CIB now requires a grower to have a minimum of 450 trees, approximately half an acre, to access the loans. The farmer repays the loans to the CIB with beans delivered to the cooperatives. Unfortunately, the CIB has been very disappointed in cooperatives' performance in administering the loans. If the disposition and use of these funds are not closely monitored, they are more often than not misused. CIB strongly advises AID against loaning or granting funds directly to cooperatives.

6.5 What role should cooperatives play?

If properly organized and managed, cooperatives could provide many services to their members, who are mainly small farmers with less than five acres of coffee. According to Ronald Thwaites of Jablum, Jamaica could learn from Costa Rica, which has a strong cooperative system.

In the first place, there is general agreement that cooperatives should be more commercially oriented, with the goal of becoming Approved Growers on the NCBMC model. Instead of looking for government subsidies, they should be seeking ways in which their members can improve output and returns for their coffee. At the same time, they would improve their financial position. This implies, of course, that the cooperatives should have professional management. As many do not even have full time employees, there is obviously a long way to go. To help the cooperatives move in this direction, the CIB recently decided that each Director and member of senior CIB staff will be assigned to a cooperative as an informal advisor. These officials will attend cooperatives' meetings and advise them on how to improve their services. Without income, however, the cooperatives will not be able to set up even a rudimentary management structure.

The following are several suggestions on services cooperatives could usefully provide their members, if they had the management capability:

Maintain a service center where farmers can purchase fertilizer, herbicides, pesticides and other supplies, benefitting from the cooperative's ability to make bulk purchases.

Provide spraying services for the coffee berry borer and leaf rust more economically than CIDCO, on a contract basis.

Train and advise farmers how to improve production through pruning, use of fertilizer, more intensive planting, etc.

Train and advise farmers how to improve quality through better production and harvesting techniques.

Become an Approved Grower/Exporter, which would permit the cooperative to contract with the CIB for processing services and then market its own coffee. Sort by quality at the collection stage, paying higher prices for better cherry coffee.

Assist farmers in learning better management techniques, such as financial accounting and budgeting.

Improve the cooperatives' own financial and accounting capabilities so that they can be effective administrators of the cooperatives' income as well as external loan facilities.

Access loans from Japanese importers or other sources to help farmers improve the road infrastructure in the coffee areas.

Purchase trucks or other transport vehicles which can be leased to members for short periods as needed.

7. FOREIGN INVOLVEMENT IN THE COFFEE INDUSTRY

7.1 Japan

The Japanese are the largest importers of Jamaican coffee. Coffee houses in Japan have become important centers of social gathering, and a fine coffee carries the price and prestige of a vintage wine or liquor in most Western countries. Jamaican Blue Mountain coffee, because of its large bean and mild flavor, is considered the finest. Over the past six years, Japan has accounted for an average of 80 percent of coffee exports by volume and 77 percent by value. Japan buys primarily unroasted green coffee beans, because roasted coffee carries a 30 percent ad valorem duty (see Tables 1-3). There are at least eight Japanese trading and coffee processing companies which have established long term relationships with the CIB and Jamaican private exporters. Several of these companies have provided long term low interest loans to the coffee industry repayable in coffee beans. The Japanese' main interest is to secure adequate supplies of good quality beans over the long term.

Ueshima Coffee Co. Ltd. (UCC) is one of Japan's major coffee processors. In 1979, UCC purchased Craighton Hall, an eighty acre estate in the Blue Mountains, of which forty-two acres is in coffee. It also bought Skibo, a 148 acre estate in the Buff Bay area, in a joint venture with the Jamaican company Appliance Traders Ltd. (ATL). ATL has reportedly sold its interest in the company to UCC. As both estates suffered considerable damage during hurricane Gilbert, UCC has produced no export coffee since 1988. Although UCC is Japan's largest coffee company--it buys, roasts, blends, and packages beans, wholesales and retails several lines of coffee and coffee beverages, and operates its own coffee shops--its direct investment in a coffee plantation abroad is exceptional. According to UCC personnel, owning a Jamaican coffee estate allows UCC to depict Craighton House as a trademark for its Blue Mountain line, assuring the Japanese consumer that UCC's brand is the coveted, limited-supply, genuine Jamaican coffee.

Although UCC handles only 15 percent of Jamaica's coffee exports, it probably processes over 50 percent. When Blue Mountain supplies were sufficient, UCC sold pure Blue Mountain coffee for Y5,000 (US\$33). After the hurricane, however, only Blue Mountain blends, containing 20 percent Blue Mountain coffee, have been available. Last February, UCC signed a loan agreement with the CIB for US\$4.8 million at 5.4 percent interest over fourteen years with a two year grace period on repayment to assist in hurricane rehabilitation of coffee estates. CIDCO will receive US\$3.2 million to rehabilitate 1,400 acres of Blue Mountain coffee cultivation. The rest, administered by CIDCO, will help restore 800 acres of coffee land held by small farmers in both Blue Mountain and non-Blue Mountain areas. However, principal and interest repayment will be in Blue Mountain coffee beans at the annual CIB price. On-lending by CIDCO will be at rates in the neighborhood of 12 1/2 percent.

Most of the other Japanese trading companies involved in Jamaica have made similar loan facilities available. After the hurricane, a consortium of Japanese companies reportedly granted a long term low interest loan of US\$14 million through CIDCO to assist both government and private coffee estates recover from hurricane damage. Again, repayment was denominated in beans. Toyota recently provided a US\$2 million loan through a private company to assist both Blue Mountain and non-Blue Mountain farmers. All Approved Growers/Exporters have close connections with one or another Japanese company, and receive assistance either in forward sales or long term loans.

Two other Jamaican companies have gone into joint ventures with Japanese firms. Dyoll Insurance Company has a 51/49 percent joint venture with the Japanese coffee wholesaler Waturu and Company to develop 250 acres of Blue Mountain coffee. Because hurricane Gilbert destroyed 125 acres in 1988, only 80 acres is currently planted; another 100 acres should be planted within a year. Jablum has a joint venture with the Japanese company Rin Rin in Tokyo, which allows it to participate in profits from roasting and marketing.

Jamaica's coffee industry has also benefitted from Japanese official development assistance. The first OECF (Japanese aid agency) loan was US\$500,000 in the period 1959-61. In the 1980's, the Japanese Government has provided loan funds for both a non-Blue Mountain coffee finishing factory (hulling, drying, grading and packaging) in Clarendon and for development of around 3,000 acres of Blue Mountain coffee in the Claverty Cottage/Shirley Castle area (CC/SC). The CC/SC loan agreement for Y5.9 billion (US\$24.7 million) was signed in 1984. However,

it has moved very slowly, partly because of financial constraints on the Jamaican Government. Under this agreement, CIDCO was to establish a mother farm of 400 acres and the remaining acreage would be privately developed with OECF loan assistance. To date, only 700 acres has been planted. The CIB expects the project to accelerate in coming years because the project area has been expanded, adequate funds are now available, and participating farmers will receive land along with loans. The program is due to be completed by 1995/96, with a total of 2,800 acres (see Table 11).

7.2 Commonwealth Development Corporation

The first CDC loan to the coffee sector was signed in 1981. It provided L3.6 million for ten years at 9 percent interest with five years grace. The loan was intended to finance the development of 3,000 acres of Blue Mountain coffee by 1986, half owned by CIDCO and half by small farmers (2-15 acres). Because disbursement was slow, and prices for land and other inputs rose rapidly in the mid-1980's, CDC approved a supplemental loan of L200,000 in 1986. Both loans have now been fully disbursed and around 2,500 acres have been established. CIDCO has developed all its farms, but some small farmers have withdrawn from the scheme because the amounts available from the project--J\$5,000 per acre--are inadequate for Blue Mountain coffee at today's prices. The CIB projects that only 2,700 acres will finally be established under this project, a shortfall of around 300 acres (see Table 11).

CDC signed another loan in June 1989 with Jablum for L1.5 million on similar repayment terms. The loan will be co-financed by FMO, the Netherlands' foreign assistance agency, with an equivalent amount in Dutch guilders. Jablum will develop 600 acres of Blue Mountain coffee itself, and on-lend the rest of the funds to ten private companies: Eight Blue Mountain growers for additional acreage; the Blue Mountain processing company Mavis Bank, to expand its processing facilities; and a new subsidiary of Jablum, Bristol, which plans to develop 150 acres of high mountain coffee and set up a small processing and roasting facility. According to a CDC representative, the funds are almost fully disbursed. The project's main problem is the shortage of seedlings, which has delayed planting in some of the farms. All beneficiaries of this loan must sell their coffee to Mavis Bank, which processes the coffee and markets it through Jablum. Jablum has proposed that CDC consider a second loan to assist the Portland Blue Mountain Cooperative, which markets through Jablum, and additional Blue Mountain coffee farmers.

7.3 EC small farmer assistance program

As part of its assistance under Lome II, the European Communities (EC) granted Jamaica, through the CIB, a long term concessional loan of ECU3.3 million for development of the coffee industry. The terms of the loan, signed in 1984, were 40 years repayment, 10 years grace, and .75 percent interest. The loan funds were to provide low interest credits to small coffee farmers (2-7.5 acres). The EC also provided ECU200,000 in grant technical assistance and a number of trucks, pickups and motorcycles for CIDCO.

To date, approximately 130 farmers have received loans, and around 400 acres of non-Blue Mountain coffee have been developed (see Table 11). CIDCO, the administering agency, makes subloans to small farmers for eight years with four years grace at 9 1/2 percent interest. Farmers benefitting from these loans are required to sell their coffee to the CIB until the funds are repaid.

The project has unfortunately been at a standstill for over a year due to accounting problems (the CIB's latest published annual report is for the year ending July 31, 1985). The CIB has asked the EC for grant technical assistance to straighten out the CIB's and CIDCO's accounts, which have been in disarray since the hurricane. When most of the 1988/89 coffee crop was destroyed, these two agencies lost their main source of funding, the cess on coffee purchases. To date, ECU819,000 of the loan funds and ECU 107,700 of the grant funds have been disbursed. The EC and CIB hope that disbursements can resume shortly, after the technical assistance mission has completed its work. The CIB anticipates that another 1,100 acres will be financed under this program by 1992/93.

8. DEVELOPMENT OF THE COFFEE INDUSTRY IN THE NEXT FIVE YEARS

8.1 CIB development program

The CIB's development projections through 1997/98 for both Blue Mountain and non-Blue Mountain coffee are set out in Table 11. In the Blue Mountains, the CIB expects an additional 4,570 acres to be planted through 1996/97, bringing total Blue Mountain acreage to 11,570. Of these, 100 acres will be financed under the CDC program, 2,800 under the OECF CC/SC program, and 770 acres under the International Fund for Agricultural Development program. The private sector is expected to establish another 1,000 acres. Financing will come from various sources, including Japanese trading company loans, the CDC loan to Jablum, and the Jamaican banking sector (Agricultural Credit

Bank, JADF, Trafalgar Development Bank, and commercial banks.) In addition, the IFAD program will finance resuscitation (cutting back existing trees to the stump) of 700 acres of existing farms each year, beginning in 1989/90. Around 500 acres will go out of production between 1990/91 and 1995/96 due to neglect and mortality.

Table 11 also shows projected production in the Blue Mountain areas from 1991/92 through 1997/98. By the year 2000, Blue Mountain farms are expected to produce 597,500 boxes (or almost six million pounds), an increase of approximately 12 percent annually. This assumes average production of 50 boxes per acre from existing farms, 50 boxes per acre from IFAD financed planting by the fourth year, and 70 boxes per acre from CDC, OECF and privately financed estates by the fifth year of planting.

In non-Blue Mountain areas, the CIB projects an increase of only 500 acres by 1995/96. The EC and IFAD programs will finance 1,100 and 800 acres, respectively, of new planting by small farmers. The CIB expects another 2,000 acres of full-stand coffee to be established on farms ranging from 10 to 100 acres, financed by private capital, joint ventures with foreign firms, and/or CIB/CIDCO negotiated funds. The IFAD program will also finance resuscitation of 700 acres of existing farms. However, neglect and mortality of non-resuscitated areas will reduce non-Blue Mountain coffee by around 5 percent annually, which amounts to 3,400 acres between 1990/91 and 1995/96. Thus by 1995/96, the CIB estimates there will be a total of 15,500 acres in non-Blue Mountain coffee, compared with 15,000 acres today.

Yields from non-Blue Mountain areas are expected to improve considerably, due to fallout of the least productive areas and resuscitation of 4,000 existing acres. Non-resuscitated land is estimated to produce less than 20 boxes per acre. Average yields on resuscitated farms are projected at 80 boxes per acre by the fourth year. New planting in farms under ten acres is expected to yield from 60 to 80 boxes per acre by the fourth year. Production on farms over ten acres is estimated at 100 boxes in the same time period. By the year 2000, the CIB projects non-Blue Mountain production at 753,000 boxes, or 7.5 million pounds. Thus total Jamaican coffee production is expected to reach 13.5 million pounds by the end of the decade, compared with maximum production over the past forty years of less than 5 million pounds.

8.2 Private sector investment

The principal private sector financial institutions which lend to agriculture are the Jamaica Agricultural Development Foundation, the National Commercial Bank (NCB), Jamaica Citizens Bank (JCB), Mutual Security Bank (MSB), the Bank of Nova Scotia (BNS), and to a very limited extent, Trafalgar Development Bank (TDB). Bankers consider coffee, and especially Blue Mountain coffee, a prime agricultural investment because it has a higher rate of return than most agricultural projects. Until recently, loans to the coffee sector made up 30 percent of JADF's portfolio. NCB has 20 percent of its agricultural loans in coffee, while JCB has 10 percent.

The main source of funds for agricultural lending is the Agricultural Development Bank (ACB), a government development bank which taps funds from international lending agencies such as the Inter-American Development Bank (IDB), World Bank (IBRD) and Caribbean Development Bank (CDB). The ACB borrows from the IBRD, for example, at around 8 3/4 percent, and lends the funds to commercial and development banks at 12 percent. Until February 1990, banks loaned this money to agricultural enterprises at a fixed rate of 15 percent, taking all the commercial risk. The maximum term of the loans is 12 years. At the end of February, at the urging of the IDB and IBRD, the ACB informed banks that all loans would henceforth carry variable interest rates. Bankers widely agree this portends substantial increases in the ACB lending rate. The actual level is not yet known, but at a minimum it should rise to 22-23 percent, which is the average rate of return for Blue Mountain coffee ventures. At these rates, it will not be profitable to invest in coffee. ACB lending has other drawbacks, too. It requires a 60/40 debt/equity ratio. Land is not considered equity for this purpose, nor will the ACB finance land purchases.

In general, commercial banks would like to have more coffee projects in their agricultural portfolios. When possible, however, coffee growers utilize loan facilities from CIDCO because the rates are considerably lower. The EC loan, for example, carries a 9 1/2 percent interest rate to the farmer. CIDCO lends funds from Japanese trading companies at between 9 1/2 percent and 12 1/2 percent. One larger farmer was able to negotiate his own loan from a Japanese buyer at 8 percent for 12 years. These loans carry no exchange risk because they are repayable in coffee beans, although growers who plan to move into the more lucrative marketing side of the industry consider a long term commitment of future production to one buyer a drawback.

Very few coffee farmers can afford non-ACB commercial bank financing at prevailing interest rates of over 30 percent. After the hurricane, however, a number of growers were forced into using commercial lending to supplement other types of financing after the hurricane. The ACB had no facility to reschedule loans, yet many coffee farmers had at least two years in production setbacks. They needed additional financing for working capital to rehabilitate and maintain their farms until a crop could be harvested. So commercial banks used their own funds to reschedule and augment the loans, effectively turning ACB loans into commercial bank loans. Other farmers have resorted to commercial bank loans for land purchases, since the ACB does not finance land.

According to the bankers, much of the growth in private investment in the coffee sector comes from "commercial farmers". They tend to be professionals with other sources of income who purchase from ten to fifty acres of coffee land and hire a professional manager to tend it. These are people who view coffee as a long term investment that can help them hedge against inflation, but which may not bring immediate returns. The small farmer, on the other hand, is increasingly squeezed from the market as land prices escalate and lending rates rise. In general, bankers expect private investment in coffee to grow, as long as financing at reasonable interest rates is available.

9. MAJOR CONSTRAINTS TO EXPANSION AND GROWTH OF THE COFFEE INDUSTRY

Because Jamaica can export all the coffee it can produce at very favorable prices, the major constraints are on the production side. This section will focus on production constraints and costs.

9.1 Financing

There is general consensus in the coffee industry that one of the major constraints to expansion is the shortage of long term loans at a reasonable cost of borrowing. Commercial bank rates are now above the break even point for even the most profitable ventures, and the Agricultural Credit Bank will soon raise its rates to the average rate of return. The financing problem was exacerbated by hurricane Gilbert, which left the industry saddled with a heavy debt burden. Low interest loans from Japanese trading companies have provided some relief, but they come with the quid pro quo of a long term trading relationship. The financing problem is particularly acute for small farmers who can rarely meet collateral requirements.

9.2 High cost of production

Rates of return for Jamaican coffee should be higher, considering that export prices are currently over six times the world market price. Jamaica not only has lower per acre yields than most other coffee producing countries, for reasons explained above, but also has high costs of production. One grower noted that it costs US\$1.75 per pound to process Jamaican coffee, more than the current export price for Colombian and Brazilian coffee. One reason is Jamaica's high fixed costs and low production volume. Others are labor productivity, the high cost of imported inputs, and production techniques. According to a coffee exporter who had recently visited Costa Rica, Costa Rican labor costs less than Jamaican labor and is more productive. He also noted that Costa Rica uses no weedicides, one of Jamaica's highest cost inputs, and plants a much higher yielding coffee plant, the Cuturra.

9.3 Road infrastructure

Many of those interviewed mentioned the inadequate roads, particularly in mountainous areas, as a major constraint to increased production. Transport of coffee beans from the growing areas to processing plants and then to Kingston for finishing and shipping adds considerably to the cost of production. If the road network were improved, the cost of transport would be considerably less. Development costs in some of the new Blue Mountain areas include road construction.

9.4 Shortage of seedlings

Approximately four million seedlings are needed to supply the demand created by hurricane replanting programs and development of new areas. CIDCO is the largest producer of seedlings, but is not able to meet the demand. Since seedlings take about six months to germinate, they must be ordered in advance. When CIDCO accepts an order and is then unable to deliver, development of coffee acreage is delayed and costs are increased. Either CIDCO should increase its capacity to produce seedlings or more private growers should go into the business.

9.5 Labor shortages

The Blue Mountain areas are sparsely populated. With the rapid growth in coffee acreage in this region, growers are experiencing labor shortages during the picking season, which runs from around November to May. Coffee must be picked when it is ripe, or the quality will decline making it unfit for export. Large estates are now trucking in laborers from other

areas of Jamaica to pick the coffee, which raises other problems, such as accommodations for the workers. In addition, most of the pickers are women and children, and the Blue Mountain harvesting season coincides with the school year.

9.6 Decline of cooperatives

As noted above, cooperatives and their members own 75 percent of non-Blue Mountain coffee acreage. Since non-Blue Mountain regions have the potential for higher yields, greater productivity, and more extensive coffee acreage, a significant increase in Jamaican coffee production depends on revitalizing these areas. It is unlikely that this will happen unless the cooperatives or some other entity provide leadership and organization to the small farmers in the region. Thus the cooperatives' state of disarray is another constraint to expansion and growth of the industry.

10. IS THERE A ROLE FOR AID IN THE COFFEE INDUSTRY?

Coffee is among the most lucrative of Jamaica's agricultural exports, with an assured market and rising prices. As such, it should be developed, even though in the short term local financial market conditions are affecting its attractiveness as an investment. Over the longer term, Jamaica's coffee industry has the potential to contribute to the country's development by expanding foreign exchange earnings and providing jobs to large numbers of unskilled workers. There should therefore be a role for AID in developing the industry.

In fact, AID has provided assistance to the coffee industry through several projects over the past five years. First, AID financed two studies in 1985 and 1986 by Donald Fiester. One reviewed productivity in the industry and made recommendations for improvement. The other examined the effects of deregulation and suggested areas for future deregulation. Second, AID has made loans to coffee projects through the JADF, Trafalgar Development Bank, and the new PL-480 Section 108 commercial bank auction program. JADF has J\$17.1 million in coffee, J\$15.8 million in loans and J\$1.3 million in equity. TDB has one coffee loan, amounting to J\$1.2 million. Mutual Security Bank has one loan of J\$1 million from funds secured in the first Section 108 auction. Third, AID's Hillside Agriculture Project (HAP) is helping small non-Blue Mountain farmers by financing approximately 340 acres of resuscitation and 60 acres of new planting. This should raise yields in the affected areas from an estimated 8,370 boxes annually to almost 30,000 boxes, over a threefold increase in three years. Finally, AID has provided grant funds for research on control of coffee rust, effective

use of fertilizer, and other areas affecting the productivity of the coffee industry through the Jamaica Agricultural Research Program, which is administered by the JADF.

At present, the greatest need--but perhaps also the most difficult task--is to rejuvenate the cooperatives or find an alternative way of improving productivity and efficiency in small farmer production. Because cooperatives have no administrative capability, AID should not provide them direct grants or loans. Alternative channels are the CIB and CIDCO or private sector entities such as Jablum, which have experience in working with cooperatives. The goal should be to make the cooperatives into Approved Growers/Exporters which are strong enough to compete with other deregulated exporters for coffee. Membership in the cooperatives should be sufficiently attractive to the new breed of commercial farmer to convince them to join and support cooperatives in their areas. The successful New Castle cooperative, which contracts with the CIB for processing, could be a model for the non-Blue Mountain cooperatives.

To accomplish this goal, the cooperatives should have their own full time managers to work with cooperative members on improving the quality of coffee, contracting the processing, and marketing the coffee. AID could assist by providing funding over a specified time period for a cooperative manager's salary, with the understanding that the cooperative will assume this expense when AID funding ends. AID could also help the Jamaicans study successful cooperatives in other coffee producing countries (for example, Costa Rica) to determine the elements that contribute to their success. The CIB's new "Big Brother" program should also be monitored to gauge its progress, success, and additional requirements for assistance. In particular coffee farmers with business experience should be encouraged to share their skills with cooperative members.

Another way in which AID could assist the coffee industry is to provide subloans either through the CIB or through a private entity, perhaps on the model of CDC's recent loan to Jablum. Jablum has experience in all aspects of the industry and an interest in eliciting more coffee production from cooperatives and small farmers. It now has a track record as an intermediary for donor financing as well. Alternative channels for onlending to coffee farmers are the private development institutions (JADF, TDB, and NDF).

One important constraint on returns to coffee growers appears to be the high cost of producing and processing coffee in Jamaica. While the producing side has been studied in detail, I have not found any comprehensive cost analysis of the processing side.

If the CIB is prepared to implement proposals on cost reduction in collecting, processing, insurance and distribution, AID could provide assistance by financing a comprehensive cost analysis of this side of the industry.

The inadequacy of the road infrastructure has already been identified as a major cost factor on the collection/distribution side. To the extent AID can finance secondary and tertiary roads, the coffee industry would greatly benefit from rehabilitation and new construction of roads in coffee producing areas.

11. APPENDICES

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TABLE I
 JAMAICAN EXPORTS OF COFFEE BY VOLOSSE, 1984-1989

COUNTRY	1984	1985	1986	1987	1988	1989 (prov.)
Unroasted green beans, lbs.						
Antigua/Barbuda	--	--	--	451	--	--
Netherlands	--	--	--	35200	--	--
Switzerland	--	--	--	6387	7999	--
Australia	--	--	--	--	1120	--
United Kingdom	527641	26684	16947	94512	201016	130267
Canada	--	--	1104	--	--	999
United States	35570	26770	161687	219947	240295	167309
Japan	2358323	1695956	1466300	1644639	1837585	1518573
Netherlands Antilles	--	--	--	--	161	--
Italy	--	15409	--	--	--	--
Cayman Islands	--	--	--	--	--	278
TOTAL	2921534	1764819	1646038	2001136	2288176	1817426
TOTAL IN M/T	1325.0	800.5	746.6	907.7	1037.9	824.4
Roasted & Ground, lbs.						
United Kingdom	--	1826	1384	--	1463	1199
Canada	8967	23672	12085	23760	16841	3933
United States	65120	106317	65793	105923	90924	27024
Australia	--	--	--	--	1263	--
Bahamas	--	--	1162	629	--	--
New Zealand	816	--	--	--	--	--
Barbados	4068	4552	8811	7711	1085	754
Cayman Islands	--	3159	2581	3747	4508	2129
St. Chris. & Nevis	1076	--	1126	598	97	--
Antigua & Barbuda	--	719	480	596	447	597
Montserrat	119	73	--	119	--	--
Grenada	--	240	--	--	--	337
Cuba	--	792	524	242	--	--
Japan	--	--	933	100	26006	450
Trinidad & Tobago	--	--	--	4200	601	--
Hong Kong	--	--	--	--	504	--
Domenica	--	--	--	--	618	--
Netherlands Antilles	--	--	--	352	719	--
Austria	--	--	--	125	--	--
Malta	--	--	--	26	--	--
TOTAL	100166	141350	94879	148136	145076	36423
TOTAL IN M/T	45.4	64.1	43.0	67.2	65.8	16.5
TOTAL EXPORTS, RSTD. & UNRSTD. '000 lbs.	3021.7	1906.2	1740.9	2149.3	2433.3	1853.8
TOTAL EXPORTS, RSTD. & UNRSTD., M/T	1370.4	864.6	789.6	974.9	1103.7	840.9

TABLE 3
Jamaican Exports of Coffee by Value, US\$'000, 1984-1989

COUNTRY	1984	1985	1986	1987	1988	1989 (prov.)
Unroasted green beans, US\$'000						
Antigua/Barbuda	\$0	\$0	\$0	\$1	\$0	\$0
Netherlands	\$0	\$0	\$0	\$214	\$0	\$0
Switzerland	\$0	\$0	\$0	\$48	\$60	\$0
Australia	\$0	\$0	\$0	\$0	\$8	\$0
United Kingdom	\$429	\$128	\$84	\$429	\$789	\$651
Canada	\$0	\$0	\$9	\$0	\$0	\$9
United States	\$125	\$167	\$886	\$1,360	\$1,366	\$1,167
Japan	\$7,592	\$6,463	\$5,710	\$6,256	\$6,977	\$7,576
Netherlands Antilles	\$0	\$0	\$0	\$0	\$1	\$0
Italy	\$0	\$65	\$0	\$0	\$0	\$0
Cayman Islands	\$0	\$0	\$0	\$0	\$0	\$3
TOTAL	\$8,146	\$6,842	\$6,688	\$8,310	\$9,201	\$9,407
Roasted & Ground, US\$'000						
United Kingdom	\$0	\$13	\$11	\$0	\$12	\$0
Canada	\$32	\$71	\$50	\$97	\$68	\$10
United States	\$438	\$560	\$408	\$669	\$652	\$30
Australia	\$0	\$0	\$0	\$0	\$12	\$219
Bahamas	\$0	\$0	\$9	\$5	\$0	\$0
New Zealand	\$3	\$0	\$0	\$0	\$0	\$0
Barbados	\$12	\$12	\$29	\$28	\$5	\$4
Cayman Islands	\$0	\$20	\$20	\$28	\$37	\$27
St. Chris. & Nevis	\$3	\$0	\$3	\$2	\$0	\$0
Antigua & Barbuda	\$0	\$3	\$1	\$2	\$2	\$4
Montserrat	\$0	\$0	\$0	\$1	\$0	\$0
Grenada	\$0	\$1	\$0	\$0	\$0	\$0
Cuba	\$0	\$2	\$3	\$1	\$0	\$2
Japan	\$0	\$0	\$8	\$1	\$267	\$8
Trinidad & Tobago	\$0	\$0	\$0	\$22	\$2	\$0
Hong Kong	\$0	\$0	\$0	\$0	\$4	\$0
Dominica	\$0	\$0	\$0	\$0	\$3	\$0
Netherlands Antilles	\$0	\$0	\$0	\$3	\$7	\$0
Austria	\$0	\$0	\$0	\$0	\$0	\$0
Malta	\$0	\$0	\$0	\$0	\$0	\$0
TOTAL	\$489	\$683	\$543	\$858	\$1,073	\$302
TOTAL ROASTED & UNROASTED, US\$'000	\$8,635	\$7,525	\$7,230	\$9,168	\$10,274	\$9,709

Source: Statistical Institute of Jamaica, Annual Import/Export Statistics
Exchange Rates: 1984, US\$1=J\$3.94; 1985, US\$1=J\$5.48; 1986, US\$1=J\$5.48; 1987, US\$1=J\$5.50.

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TABLE 4
 Coffee Prices to Growers (net of cess), 1983/84-1988/89 (J\$ per box, 10 lb. dry bean equivalent), and
 Export Prices for Jamaican and Other Arabica Coffee (US\$ per lb.)

	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89
Blue Mountain coffee (J\$/box)	\$140	\$246	\$222	\$210	\$208	\$208
Lowland coffee (J\$ per box)	\$32	\$43	\$63	\$70	\$80	\$79
Average export price (US\$/lb.)						
Jamaican coffee, f.o.b.	\$5.06	\$5.08	\$5.10	\$5.15	\$5.17	\$6.23
Colombian coffee (New York)	\$1.44	\$1.46	\$1.95	\$1.12	\$1.35	N.A.
Brazilian coffee (New York)	\$1.50	\$1.49	\$2.31	\$1.06	\$1.22	N.A.
Other milds (New York)	\$1.44	\$1.46	\$1.93	\$1.12	\$1.35	\$1.10

Source: Planning Institute of Jamaica, Economic and Social Survey; CIB; IMF Yearbook

Exchange Rates: 1984, US\$1=J\$3.94; 1985, US\$1=J\$5.48; 1986, US\$1=J\$5.48; 1987, US\$1=J\$5.50;
 1988, US\$1=J\$5.49; 1989, US\$1=J\$5.74

TABLE 5
Jamaican Coffee Production and Yields

	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90 (est)
Area planted (acres)	15000	16530	18160	19790	21420	22632	23442
Area harvested (acres)	14400	15000	15000	18000	19000	10000	12000
Bearing trees (millions)	10	11	14	16	17	18	10
Non-bearing trees (millions)	2	2	2	2	2	2	11
Total trees (millions)	12	13	16	18	19	20	21
Total production ('000 lbs.)	3580	2549	3513	3667	4489	1930	2520
Blue Mountain ('000 lbs.)	336	562	878	1190	1264	650	NA
Non-Blue Mountain ('000 lbs.)	3044	1987	2635	2477	3225	1280	NA
Total production ('000 boxes)	358	255	351	367	449	193	252
Yield (boxes/acre)	24.9	17.0	23.4	20.4	23.6	19.3	21.0
Domestic sales ('000 lbs.)	1328	1163	1054	1378	1204	1069	NA
Export sales ('000 lbs.)	2455	1782	2172	2059	2970	1618	NA
Export sales (M/T)	1113.6	808.3	985.2	933.9	1347.2	733.9	NA
Annual sales (dom. & exp., '000 lbs.)	3783	2945	3226	3437	4174	2687	NA
Domestic sales value (\$'000)	6560	9140	10929	15203	14943	14702	NA
Export sales value (\$'000)	6214	20523	42876	38559	50562	42919	NA

Source: USDA World Coffee Situation August 1989; CIB Annual Reports; CIB

TABLE 6
Costa Rican Coffee Production and Yields

	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90
Area planted (acres)	215000	222392	224883	227335	239690	247103	249574
Area harvested (acres)	192740	210037	217450	222392	229806	229606	232277
Bearing trees (millions)	263	325	332	342	355	367	372
Non-bearing trees (millions)	61	39	27	8	15	28	32
Total trees (millions)	344	364	359	350	370	395	404
Total production ('000 lbs.)	275810	332804	200265	339418	314150	364815	357143
Total production ('000 boxes)	27381	33280	29027	33542	31415	36482	35714
Yield (boxes/acre)	142.1	158.5	92.1	152.6	136.7	158.7	153.8
Beans used domestically ('000 lbs.)	36820	31085	31481	32011	31746	32407	33069
Beans exported ('000 lbs.)	233069	271296	191270	310185	286376	324074	317460
Ground/roasted exports ('000 lbs.)	2646	4233	5291	5291	5291	5291	5291
Total exports ('000 lbs.)	235714	275529	196561	315476	291667	329365	322751
Total exports ('000 M/T)	196.92	129.98	89.16	145.10	172.30	149.40	146.40

Source: USDA World Coffee Situation August 1989

TABLE 7
Colombian Coffee Production and Yields

	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90
Area planted ('000 acres)	2503	2503	2503	2508	2330	2632	2661
Area harvested ('000 acres)	2360	2298	2286	2451	2347	2409	2471
Bearing trees (millions)	2424	2387	2448	2520	2165	2290	2300
Non-bearing trees (millions)	255	292	250	170	535	460	520
Total trees (millions)	2679	2679	2698	2690	2700	2750	2820
Total production ('000 lbs.)	1719577	1455026	1587302	1455026	1719577	1481481	1719577
Total production ('000 boxes)	171958	145503	158730	145503	171958	148148	171956
Yield (boxes/acre)	72.9	63.3	69.4	59.4	73.3	61.5	69.6
Beans used domestically ('000 lbs.)	246032	246693	247354	264550	267196	277778	287037
Beans exported ('000 lbs.)	1288889	1274868	1524471	1560053	1190212	1236772	1275132
Soluble exports ('000 lbs.)	27365	27778	38492	32143	41138	46296	47619
Total exports ('000 lbs.)	1318254	1302646	1562963	1592196	1231349	1283069	1322751
Total exports ('000 M/T)	598.0	590.9	708.9	722.2	558.5	582.0	600.0

Source: USDA World Coffee Situation August 1989

TABLE 8
Guatemalan Coffee Production and Yields

	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90
Area planted ('000 acres)	667197	667197	667197	667197	667197	667197	667197
Area harvested ('000 acres)	642486	642486	642486	630131	617775	617775	617775
Bearing trees (millions)	555	574	613	631	624	624	624
Non-bearing trees (millions)	45	46	47	49	47	47	47
Total trees (millions)	600	620	660	680	671	671	671
Total production ('000 lbs.)	309535	357553	350542	376072	399486	387713	423296
Total production ('000 boxes)	30954	35755	35054	37607	39949	38771	42330
Yield (boxes/acre)	48.2	55.7	54.6	59.7	64.7	62.8	68.5
Beans used domestically ('000 lbs.)	44975	43652	39684	39684	39684	39684	39684
Beans exported ('000 lbs.)	261518	411391	304244	359405	293926	304244	304244
Soluble exports ('000 lbs.)	132	397	132	--	--	--	--
Total exports ('000 lbs.)	261650	411788	304376	359405	293926	304244	304244
Total exports ('000 M/T)	118.7	186.6	138.1	163.0	133.3	138.0	138.0

Source: USDA World Coffee Situation August 1989

TABLE 9
Kenyan Coffee Production and Yields

	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90
Area planted (acres)	360770	375596	385450	387951	390422	395364	395364
Area harvested (acres)	333589	341002	355828	373125	380538	385480	387951
Bearing trees (millions)	182	184	190	236	237	240	241
Non-bearing trees (millions)	18	19	7	6	6	6	5
Total trees (millions)	200	203	197	242	243	246	246
Total Arabica production ('000 lbs.)	262169	204894	265873	240873	278175	231349	262434
Total Arab. production ('000 boxes)	26217	20489	26587	24087	27818	23135	26243
Yield (boxes/acre)	78.6	60.1	74.7	64.6	73.1	60.0	67.6
Beans used domestically ('000 lbs.)	5820	8069	7937	11905	10714	13228	13228
Beans exported ('000 lbs.)	200132	212169	273810	232937	173942	218254	264550
Total exports ('000 lbs.)	200132	212169	273810	232937	173942	218254	264550
Total exports ('000 M/T)	90.8	96.2	124.2	105.7	78.9	99.0	120.0

Source: USDA World Coffee Situation August 1989

TABLE 10

Jamaican Production Costs and Revenue: Blue Mountain, High Mountain and Low Land (J\$ per acre)

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Years 8-10
BLUE MOUNTAIN								
Operating Costs (Estab. & Maintce)								
Coffee	\$10,901	\$3,154	\$4,368	\$4,957	\$5,545	\$5,937	5937	6374
Temporary Shade	\$4,234	\$2,122	\$2,122					
Total	\$15,135	\$5,276	\$6,490	\$4,957	\$5,545	\$5,937	\$5,937	\$6,374
Labor as a % of operating costs	43%	30%	46%	52%	56%	58%	58%	58%
Revenue (J\$220/box net of cess)†	\$0	\$0	\$2,200	\$8,800	\$15,400	\$19,800	\$19,800	\$19,800
‡Estimated yield (boxes) per acre:	0	0	10-20	40-50	70-80	90-100	90-100	90-100
Gross Estimated Returns per acre	(\$15,135)	(\$5,276)	(\$4,290)	\$3,843	\$9,855	\$13,863	\$13,863	\$13,426
HIGH MOUNTAIN								
Operating Costs (Estab. & Maintce)								
Coffee	\$7,656	\$3,153	\$4,482	\$5,349	\$6,098	\$7,036	\$7,036	\$7,677
Temporary Shade	\$4,234	\$2,122	\$2,122					
Total	\$11,890	\$5,275	\$6,604	\$5,349	\$6,098	\$7,036	\$7,036	\$7,677
Labor as a % of operating costs	46%	41%	46%	51%	56%	60%	60%	59%
Revenue (J\$122/box net of cess)†	0	0	2460	7320	12200	18300	18300	18300
‡Estimated yield (boxes) per acre:	0	0	20	60	100	150	150	150
Gross Estimated Returns per acre	(\$11,890)	(\$5,275)	(\$4,144)	\$1,971	\$6,102	\$11,264	\$11,264	\$10,623
LOW MOUNTAIN								
Operating Costs (Estab. & Maintce)								
Coffee	\$7,656	\$3,153	\$4,482	\$5,349	\$6,098	\$7,036	\$7,036	\$7,677
Temporary Shade	\$4,234	\$2,122	\$2,122					
Total	\$11,890	\$5,275	\$6,604	\$5,349	\$6,098	\$7,036	\$7,036	\$7,677
Labor as a % of operating costs	46%	41%	46%	51%	56%	60%	60%	59%
Revenue (J\$63/box net of cess)†	\$0	\$0	\$1,260	\$3,780	\$6,300	\$9,450	\$9,450	\$9,450
‡Estimated yield (boxes) per acre:	0	0	20	60	100	150	150	150
Gross Estimated Returns per acre	(\$11,890)	(\$5,275)	(\$5,344)	(\$1,569)	\$202	\$2,414	\$2,414	\$1,773

Source: JADF project costing

for Growth of the Coffee Industry, 1987/88-1997/98

	To date	1987/88	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98
PLAIN										
g (acres)										
g areas planted	2700	3000	3390	3980	8640	9410	10820	11370	11570	11570
reas planted:										
1,700 acres)	2600	100	--	--	--	--	--	--	--	--
(2,500 acres)	700	200	450	450	500	400	300	--	--	--
(770 acres)	--	40	70	130	180	280	--	--	--	--
te funding (1,000 acres)	--	50	50	100	100	150	250	200	--	--
areas planted	7000	7390	7960	8640	9410	10820	11370	11570	11570	11570
on (boxes)										
g areas	--	--	--	232000	290000	290000	290000	290000	290000	290000
east	--	--	--	1000	4000	6000	7000	7000	7000	7000
	--	--	--	2000	12500	34500	64000	97500	131000	161000
	--	--	--	400	1900	5400	11100	18900	28700	37900
te funding	--	--	--	500	2500	6000	11500	18000	25500	35500
production	--	80640	220000	235900	310900	341900	383600	431400	482200	531400
MOUNTAIN										
g (acres)										
g areas planted	14600	15000	15420	15320	15265	15275	15280	15400	15500	15500
reas planted:										
1,500 acres)	400	30	400	300	100	--	--	--	--	--
(800 acres)	--	70	50	120	180	210	220	--	--	--
r (2,000 acres)	--	100	150	150	300	400	400	500	--	--
itation										
(700 acres)	--	25	50	100	150	175	200	--	--	--
rs (3,000 acres)	--	700	300	500	500	500	500	300	--	--
esuscitated areas	14600	14275	13225	12000	10780	9500	8300	7600	--	--
ility:	--	--	(700)	(625)	(570)	(605)	(500)	(400)	--	--
areas planted	15000	15420	15320	15265	15275	15280	15400	15500	15500	15500
ion (boxes)										
reas	--	--	--	3000	16000	43000	69000	84000	88900	88000
	--	--	--	200	1300	4400	10800	20700	32500	43600
	--	--	--	1000	5500	17500	34000	56000	90000	131000
itation										
	--	--	--	500	2500	7000	15000	26500	40500	52000
rs	--	--	--	14000	48000	84000	120000	160000	200000	236000
esuscitated areas	--	--	--	225000	202500	182500	146250	147800	133000	119800
	--	171360	240000	243700	275800	338400	395050	495000	584300	670400
AS PLANTED (ACRES)	22000	22810	23280	23905	24685	26100	26770	27070	27070	27070
LECTED PRODUCTION (BOXES)	--	257000	460000	479600	586700	680300	778650	926400	1066500	1201800

APPENDIX II: INDIVIDUALS INTERVIEWED AND CONTACTED

Keble Munn, C.D.	Chairman, Coffee Industry Board
John A. Pickersgill	General Manager, Coffee Industry Board
George McPherson	General Manager, Coffee Industry Development Company, Ltd.
Joyce Chang	Secretary, CIB and CIDCO
Denzil Dunkley	Extension Officer, CIDCO
Ian A.N. Maxwell	Manager, Technical Services, JADF
Dr. Keith Roache	Managing Director, JADF
Ronald Thwaites	Managing Director, Jablum Jamaica Ltd.
Yoshito Yamazaki	Managing Director, Jamaica UCC Blue Mountain Coffee Co. Ltd.
Dr. Perceival Broderick	Managing Director, Farms (Consolidated) Ltd.
Ashley Emberson-Bain	Commonwealth Development Corporation
Hans-Jurgen B. Ottomeyer	Counselor, Commission of the European Communities in Jamaica
Errol Lewis	Manager, Project Finance, Trafalgar Development Bank
Yvonne C. Gunning	Senior Agricultural Officer, National Commercial Bank
Len B. Hutchinson	Credit Manager, Agriculture/Agroindustry, Jamaica Citizens Bank Ltd.
Jackie Minott	Managing Director, Jamaica Standard Products Ltd.
Douglas Graham	Chairman, New Castle Blue Mountain Coffee Growers Cooperative Society Ltd.
Jackie Thwaites	Dyoll Insurance Company

Senator Courtney Fletcher	President, JAS and President, Coffee Cooperative Federation
Richard Owens	USAID/Jamaica, ARDO
Mark Nolan	USAID/Jamaica, ARDO

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APPENDIX III: DOCUMENTS CONSULTED

- Fiester, Donald A Review of Coffee Productivity and Processing in Jamaica, October 1985
- Fiester, Donald A Review of Progress and Potentials for Deregulation in the Coffee Industry of Jamaica, August 1986
- Nesbeth, Winston Report on Export Agriculture, July 1989
- Planning Institute of Jamaica Blue Mountain Coffee Project, Claverty Cottage/Shirley Castle--Portland, 1981
- Landell Mills Ass. Ltd. Pricing Policy Study on Traditional Export Crops, June 1985
- McFarlane, Beverly Growing Coffee in Jamaica, 1986
- North West St. Catherine Coffee Cooperative Resuscitation Sub-Project
- The Guys Hill Coffee Cooperative Resuscitation Sub-Project
- Coffee Industry Board Annual Report for year ended July 31, 1985 (latest available)
- JADF Non-Blue Mountain Coffee Costs and Revenues, December 1989
- JADF Blue Mountain Coffee Costs and Revenues, December 1989
- US Department of Agriculture World Coffee Situation, August 1989
- Planning Institute of Jamaica Economic and Social Survey, Annuals 1984-1988

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