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**RESTRUCTURING CARIBBEAN INDUSTRIES
TO MEET THE CHALLENGE OF
TRADE LIBERALISATION**

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RESTRUCTURING CARIBBEAN INDUSTRIES TO MEET THE CHALLENGE OF TRADE LIBERALISATION

1. Introduction

Production structures developed in Caribbean countries under conditions of protection, regulation and government assistance. Export structures also developed as a result of protection offered by particular external markets, notably the European Union (EU) and the United States, and by the establishment of the Caribbean Common Market as part of the Caribbean Community (CARICOM). Trade liberalisation at the multilateral level (Uruguay Round) and unilateral liberalisation by Caribbean countries since the 1990s have significantly reduced the level of protection afforded industries in the region.

Trade liberalisation has been part of package of reforms including privatisation of State enterprises, market deregulation and monetary and fiscal policy reforms to achieve price stability and internal and external balance. Reduction in tariffs and non-tariff barriers has affected mainly non-agricultural industries. Agriculture tariffs have been bound at relatively high levels (100 per cent) in the World Trade Organization (WTO) and the CARICOM Common External Tariff (CET) was set at 40 per cent for agricultural products. In addition, CARICOM countries have been imposing additional charges and non-tariff measures to protect their agriculture and agro-industrial products.

At the international level, liberalisation of import tariffs as a result of the Uruguay Round Agreement in 1994 affected trade mainly in industrial goods. However, the tariffication of non-tariff barriers to agricultural trade resulted in high import tariffs which were to be progressively reduced over time. Developing countries were given a longer period for reducing their tariffs but continued to enjoy preferential access to developed country markets for their agricultural commodities. Preferences have since been eroded on account of the need to comply with WTO disciplines in particular reduction in tariffs and subsidies, the tariff and quota free access given to least developed countries under the EU Everything But Arms (EBA) Agreement, the trend towards free trade agreements and the need for the EU to reform its Common Agricultural Policy (CAP) in order to improve competitiveness, among other things.

The progressive liberalisation of protection to industries by CARICOM countries since the 1980s had a significant impact on the manufacturing industries that were established in the region under the Import Substitution Industrialisation (ISI) regime between the late 1940s and 1960s. The economic environment was not conducive to restructuring the industries due to the pursuit of demand management, which, among other things, limited the access to relatively low cost funds to finance retooling and modernisation of industries. On the other hand, the oil boom of the 1970s facilitated the restructuring of manufacturing enterprises as well as the development of infrastructure in Trinidad and Tobago.

The policies of trade liberalisation, deregulation and privatisation, which were pursued by Caribbean governments, within the framework of structural adjustment programmes, were geared toward a reorientation of production for export markets. The preferred option of the

multilateral financial institutions, private sector led development, was adopted by most Caribbean governments, in particular those, such as Guyana and Jamaica that had to rely on support from the International Monetary Fund (IMF) and World Bank to reverse the economic decline of the 1970s. Governments, therefore, took a more or less hands off approach to the development of economic sectors. They are now faced with the challenge of restructuring their agricultural sectors in light of the changes that will affect the preferential access of their agricultural commodities to the EU market.

This study looks at the changes to the EU regimes for preferential access of agricultural commodities, namely bananas, sugar and rice, the approaches to restructuring in Caribbean countries and the requirements for the sustainable development of those industries. However, the study did not limit itself to the challenges facing the export agricultural sector. The objective was to examine the prospects for development of resource-based industries, that is, industries that use indigenous raw materials to produce products for both domestic and export markets. The study therefore examines in addition to the agricultural industries, the cement industry in the Caribbean, whose main input is limestone that is found in Caribbean countries. The study however is not a comprehensive analysis of the industries examined.

Section 2 looks at the antecedents to restructuring, namely the changes in both the external and internal economic environments. Section 3 looks at the restructuring in both agriculture and manufacturing industries. Section 4 considers the option of increase in intraregional trade in the export commodities examined earlier. Section 5 concludes with a discussion of the critical elements of restructuring, in particular the human resource aspect which has implications for poverty reduction and the sustainable livelihoods of the rural population in Caribbean countries.

2. The case for restructuring

2.1 External Factors

Restructuring of economic sectors and industries has been influenced by changes in both the international and domestic economic environments. Trade liberalisation at the multilateral level has been a significant factor in the restructuring of industries in both developed and developing countries. The European Union, which has been the most significant market for the agricultural output of Caribbean countries, embarked on reform of its CAP since the establishment of the Single Market in 1992. Further reform was deemed necessary in light of the negotiations under the Doha Round of Multilateral Trade Liberalisation launched in 2001.

The reason why it is important to understand the reform of the CAP is because the policy covers the agricultural products from the Caribbean that have preferential access to the EU market. Only products subject to the common organization of the EU market are covered by the CAP. These originally included cereals, cotton, rice and sugar. However, a common market organization was introduced for bananas in 1993 when the Single European Market was formed, thus harmonising the import policies of EU countries.

EU reform was aimed largely at reducing agricultural surpluses and hence controlling budget costs by reducing the level of CAP prices. This became even more important with the enlargement of the EU to include countries that are heavily dependent on agriculture. In addition, the EU is aiming at developing a sustainable and competitive agriculture that will at the same time attract young farmers, enhance rural development and protect the environment, among other things. Reform measures have centred on replacement of agricultural price support (subsidies) by direct aid payments to farmers affected by the price cuts. Direct payments have been, however, conditional on compliance with environmental provisions, among other things.

In 2003 a single payment scheme was introduced to replace the direct aid payments to farmers. The intention was to decouple income support from what farmers produce. The payment scheme was linked instead to a number of statutory requirements regarding food safety, animal health and welfare and environmental protection. In 2003 changes were made to regimes for crops such as cereals and rice and commitments agreed for reforming products such as cotton and sugar. Developments in the international environment hastened the reform agenda for sugar on which a number of developing countries, in particular those in the Caribbean, have been dependent. The external factors that influenced the proposed reform of the EU sugar sector were mainly the need to make the EU trade regime World Trade Organization (WTO)-compatible and the EU-EBA sugar commitments to the least developed countries.

The EU sugar trade with Caribbean countries was initially governed by the EU-ACP Sugar Protocol, which formed part of the Lomé Convention the EU signed with the African, Caribbean, Pacific (ACP) countries in 1975. Under the Sugar Protocol the EU undertook to purchase and import from ACP countries specific quantities of sugar at guaranteed prices for an indefinite period. The Protocol, and indeed the Lomé Conventions as a whole, violated the General Agreement on Tariffs and Trade (GATT) rules on non-discrimination as it provided non-reciprocal preferential access to the EU market for a selected set of developing countries that had historical ties with EU countries. The EU requested and obtained in 1994 a waiver from its obligations under GATT Article I until the expiration in 2000 of the fourth Lomé Convention. As a result the EU began to consider a trade regime with ACP countries that would obviate the need for waivers from WTO obligations. In the meantime, with the signing of the EU-ACP Partnership Agreement (Cotonou Agreement) in 2000 waivers were again obtained from WTO obligations.

The EU committed itself to provide duty free access to all products of the least developed countries (LDCs) from 2005. The decision emanated from a provision in the ministerial declaration of the WTO in Singapore in 1996 advocating such measures. It was hoped that a multilateral commitment by developed countries would have resulted from the WTO ministerial in Seattle in 1999. However, the failure of the Seattle meeting left the EU to honour its own commitment to provide preferential market access for LDCs. Such provision would be compatible with WTO rules, which allow special treatment for LDCs.

The actual and proposed reforms of the EU in respect of the trade regimes for bananas, sugar and rice are the most significant factors that will determine changes in the Caribbean banana and sugar industries. It is therefore necessary to review the changes in the EU regimes for

these products. The EU has preferential access regimes for countries with historical ties in order to protect its domestic production of specific crops.

Whereas sugar is produced in almost all of the 25 EU countries (excepting Cyprus, Estonia, Luxembourg and Malta), bananas are produced only by France (overseas departments of Guadeloupe and Martinique), Spain (Canary Islands), Portugal (Madeira, the Azores and Algarve) and Greece (Crete and Lakonia). Germany and France are the largest sugar producers in the EU (50 per cent of the EU-25) followed by Poland, Italy and the United Kingdom. Rice is produced in France, Greece, Italy, Portugal and Spain with Italy and Spain being the largest producers (82 per cent).

2.2 *Banana Regime*

Bananas exported by ACP countries, including Belize, Dominica, Grenada, Jamaica, Saint Lucia and St. Vincent and the Grenadines, were accorded duty-free status within a specified quota (857,000 tonnes per year for each traditional ACP supplier). Exports above the allocated quota would attract a preferential tariff of €750 per tonne. For non-ACP countries, in particular those in Latin America, a collective tariff quota of 2 million tonnes was set with an in-quota tariff rate of €100 per tonne and an out of quota tariff rate of €850 per tonne.

A number of Latin American countries challenged the regime in 1993 on the ground that it violated GATT disciplines. A GATT panel ruling in favour of the complainants (Colombia, Costa Rica, Guatemala, Nicaragua and Venezuela) was ineffective as it could only be adopted by consensus. A negotiated settlement with four of the countries (excluding Guatemala) was arrived at giving them a set of concessions – the tariff quota was increased to 2.2 million tonnes by 1995¹ and specific shares allocated to each of the four countries and the in-quota tariff rate was reduced to €75 per tonne. In addition, 90,000 tonnes of the quota were reserved for non-traditional exporters. Belize and the Dominican Republic were among the beneficiaries of this concession to the ACP countries. A number of Latin American countries were unhappy with the agreement with the implication of further challenges to the EU banana regime.

Banana imports from non-traditional ACP countries as well as from Latin American countries at lower in-quota tariff rates were subject to licensing procedures. Licences were allocated to established importing entities. Two thirds of the licences went to United States companies whereas less than one third (30 per cent) went to European companies.

Another group of five countries (Ecuador, Guatemala, Honduras, Mexico and the United States) challenged the EU regime in 1996, in particular the application of differential tariffs to the same product, the country-specific allocations and the licensing regime. The EU introduced changes to the regime in 1999 following the rulings of the WTO Panel and Appellate Body. Country-specific shares of the 2.553 million tonnes were allocated to Latin American countries with at least a 10 per cent share of the EU market – Ecuador, Costa Rica, Colombia and Panama but country-specific allocations for ACP countries were discontinued. License allocations would be made to traditional importers based on imports during 1994-1996.

¹ The so-called “dollar banana” quota was further increased to 2.553 million tonnes following enlargement of the EU in 1995.

The WTO Panel was re-established on request from Ecuador to determine whether the EU changes were compatible with WTO obligations. It found that the revised EU scheme was not fully compatible with EU obligations under WTO. As a result the Dispute Settlement Body of the WTO authorised the United States to apply discriminatory tariffs against imports from the EU. The EU reported to the Dispute Settlement Body that it had reached a mutually satisfactory solution to the banana situation with the United States and Ecuador. However, the United States and Ecuador did not consider the solution to be mutually satisfactory.

The need to find a WTO-compatible solution to the banana issue determined the nature of the EU Partnership Agreement (Cotonou Agreement) with ACP countries that succeeded the Lomé IV Convention in 2000. The tariff preferences for ACP countries were to be maintained until the beginning of 2006 when a tariff-only regime for bananas would come into effect. The interim arrangement until the tariff-only system in 2006 was to be implemented in two phases over the period July 2001 to December 2005.

In the first phase, July – December 2001, three types of quotas were allocated: an A quota of 2.2 million tonnes (bound in the WTO) at in-quota tariff of €75, a B quota of 353,000 at the same in-quota tariff rate and a C quota of 850,000 tonnes at in-quota tariff rate of €300 per tonne. The quotas were open to all countries. However, in-quota imports from ACP countries received duty free treatment.

In the second phase, January 2002 – December 2005, 100,000 tonnes were transferred from the C quota to the B quota and the C quota was formally reserved for ACP countries². ACP countries therefore lost 100,000 of their original quota to non-traditional and dollar banana exporters and would be confined to supplying bananas to the EU within a new quota of 750,000 tonnes.

The EU proposed to manage the transitional quota system (A, B and C quotas) on a “first come first served” (FCFS) basis. FCFS is considered to be WTO compatible as well as a transparent and flexible way to administer the quotas. This system of management coupled with the change from country specific quota allocations to all-ACP allocation has the effect of making it difficult for the small Caribbean exporters to take advantage of the overall quota. The other significant change was the basis for the allocation of import licences. This effectively reduced the incentive to buy bananas from traditional ACP suppliers.

2.3 *Sugar Regime*

The Sugar Protocol of the Lomé Convention guaranteed preferential access for fixed quantities of ACP sugar at preferential prices indefinitely. Guaranteed prices are negotiated every year within the price range that exists within the EU. In effect, ACP countries receive the same price as countries of the EU. The EU links the guaranteed price for ACP raw cane sugar to the intervention price for raw sugar produced by EU countries. Under the Sugar Protocol ACP countries can export 1.3 million tonnes white sugar equivalent (WSE) to the EU. Of this amount

² The C quota during the first phase was de facto an exclusive ACP quota because of the high in-quota tariff that was set for non-ACP countries.

Caribbean countries were allocated 409,938 tonnes³. A Special Preferential Sugar (SPS) agreement was also negotiated in 1995 (for a fixed period of six years) for ACP countries to supply raw sugar to meet the additional refinery needs of the EU. SPS quotas are determined by the European Commission each year. A total of 29,705 tonnes WSE were allocated to the Caribbean countries of Belize (3,294), Guyana (13,873) and Jamaica (12,538) between 2003 and 2004. However, SPS exports receive only about 85 per cent of the price for ACP quota sugar.

EU-ACP cooperation in sugar has its origin in the colonial relations between Europe and its colonies in the ACP regions. Starting with the British Imperial Preference of 1919 followed by the Commonwealth Sugar Agreement of 1951, which guaranteed preferential access to the British market for sugar from its colonies and Commonwealth countries, respectively, and the Yaoundé Convention of 1963 which guaranteed preferential access to the markets of six members of the European Economic Community for the Associated African and Malagasy States, the trend culminated in the first Lomé Convention of 1975 between the EU-9 including the United Kingdom and an enlarged group of ACP countries. Annexed to the United Kingdom Treaty of Accession to the EU (1972) was a protocol (Protocol 22) stating the commitment of EU member States to safeguard the interests of ACP countries that were dependent on the export of primary products, in particular sugar. The Sugar Protocol, which came into effect in 1975, incorporated the same guarantees that were contained in the Commonwealth Sugar Agreement.

Unlike bananas, sugar is a significant product of EU countries. Subsidies, high prices and high import barriers facilitated the development of the European sugar industry. The Common Market Organisation of sugar was established in 1968 with the objectives of achieving self-sufficiency in sugar supply and raising the income of sugar producers in EU member countries. Production quotas are allocated to member States in order to manage production levels. They total 17.4 million tonnes and are divided into A and B quotas, the former representing approximately internal demand and the latter representing the exportable excess benefiting from export refunds. Producers of quota sugar therefore benefit from the EU intervention (or guaranteed minimum) price of sugar. Sugar beet producers also benefit from guaranteed minimum prices for beet supplied to manufacturers to produce A and B sugar quotas.

ACP countries covered by the Sugar Protocol also benefit from the EU intervention price for sugar. It has been set since 1993/1994 at €631.9 per tonne for white sugar and €523.7 per tonne for raw sugar. Any reduction in price in keeping with CAP reforms will therefore affect both EU and ACP sugar producers. As was the case with bananas, the EU sugar export subsidies and guaranteed price for sugar were challenged at the WTO in 2002 by Australia and Brazil. A Dispute Settlement Body was set up in August 2003 and reported in August 2004 in favour of the countries that challenged the sugar regime.

This development as well as criticisms of the sugar regime as inhibiting competition, distorting trade and discriminating against efficient developing country sugar producers, among other things, hastened proposals for reform of the regime. In July 2004 the EU put forward a proposal to reform the sugar regime and thus achieve competitiveness of the sugar industry as

³ Allocations were: Barbados 32,097, Belize 40,394, Guyana 159,410, Jamaica 118,696, St. Kitts/Nevis 15,590, Trinidad & Tobago 43,751.

well as less trade distortion. The proposed reform involved a number of changes over a four-year period (2006/2007 – 2009/2010) that would affect both EU and ACP producers.

The most significant of these changes include: a significant reduction (39 per cent) in the support price for white sugar and the replacement of the intervention price with a reference price; partial compensation for sugar beet growers in the form of direct payments to cover 60 per cent revenue lost as a result of the price reductions; and simplification of the quota system by merger of the A and B quotas.

Restructuring of the EU sugar industry is expected to be voluntary, resulting in enough quota reduction (by about 2.8 million tonnes from the present 17.4 million tonnes), and hence cuts in quotas were not proposed during the reform period. Cuts would only be introduced at the end of the four-year period depending on the market situation. A restructuring fund is to be made available to provide incentives for restructuring especially for non-viable producers to exit sugar production. These reforms are expected to lead to a significant reduction in subsidised exports (by about 2 million tonnes from the present 2.4 million tonnes).

For ACP countries, and in particular Caribbean countries, the impact of the reforms will be felt primarily in terms of the export earnings that sugar contributes to those economies. While the quota that Caribbean countries have under the Sugar Protocol will remain constant at least in the short term, the earnings from export of sugar to the EU will be drastically reduced during and after the implementation of the price cuts. With a quota of about 462,000 tonnes of centrifugal sugar for the duration of the reform period, earnings will be reduced by about 37 per cent by 2009 given the scheduled reduction of the reference price for white sugar over a four-year period beginning in 2006.

The EU reform proposes support to ACP countries affected by the reform measures. Such support will be mainly in terms of improving international trading conditions for ACP countries; enhancing competitiveness of the sugar sectors of such countries where sustainable; and promoting diversification of sugar-dependent areas. Achieving competitiveness will be directed at both the sugar industry and the sugar cane industry with the objective of adding value to the sugar cane as well as sugar products. European Community assistance to Caribbean and ACP countries would be provided for 2006 but continued support will be available until 2013 through the development portion of the Development Cooperation and Economic Cooperation Instrument.

Caribbean countries also enjoy duty free access for specific quotas of sugar in the United States market, initially under the United States Generalised System of Preferences (GSP) and subsequently under the Caribbean Basin Initiative (CBI). The United States sugar regime, like that of the EU, is based on support to United States sugar producers and import barriers. However, the United States Government does not make direct payments to farmers. The sugar regime was reformed in 1990 after it was challenged by Australia on the ground that it violated Article 11 of the GATT. A low tariff of €11 per tonne (US 0.625 per pound) was set for imports within an import quota of 1.725 million tonnes of raw sugar and a tariff of €276 per tonne (US 16 cents per pound) for imports above that quota.

Whereas EU quotas for ACP countries have remained fixed under the Sugar Protocol, United States quotas have been reduced since the early 1980s. Nevertheless, the United States is committed under the WTO agreement to a minimum quota of 1.1 million metric tonnes. The main beneficiaries of the United States sugar quotas are the Dominican Republic, Brazil, Mexico and the Philippines. Caribbean quotas have been significantly reduced over the years and now represent only about 5 per cent of the total quota. Belize, Guyana and Jamaica are the largest beneficiaries with 11,500 metric tonnes allocated to each country for the 2005 financial year. The other countries have each been allocated 7,300 metric tonnes. Caribbean quota allocations under the US system represent only about 13 per cent of allocation under the EU sugar regime. The price that Caribbean countries receive from exports to the United States market is also lower than what obtains in the EU market.

Table 1: Sugar Quota Allocations to Caribbean Countries

| Country | EU Quota Allocation (Metric Tonnes White Sugar Equivalent) | EU SPS Allocation 2003/2004 (Metric Tonnes White Sugar Equivalent) | US Quota Allocation (Metric Tonnes Raw Value) 2002/2003 |
|--|---|---|--|
| Barbados | 50,312 | | 7,371 |
| Belize | 40,349 | 3,294 | 11,583 |
| Guyana | 159,410 | 13,873 | 12,636 |
| Jamaica | 118,696 | 12,538 | 11,583 |
| St. Kitts and Nevis | 15,591 | | 7,258 |
| Trinidad and Tobago | 43,751 | | 7,371 |
| Source: European Commission and US Department of Agriculture | | | |

2.4 Rice Regime

The EU rice regime, like the other CAP regimes, has been based on an intervention price for paddy rice that varied according to quality, high import tariffs and export subsidies. The EU accounts for about 0.5 per cent of world rice production with Italy (52 per cent) and Spain (30 per cent) being the largest producers. Production in the EU has been increasing due to increase in the area under rice as well as increased yields. The EU is also a significant importer of rice accounting for about 3 per cent of imports. A considerable amount of rice is imported from developing countries on preferential terms.

Imports from ACP countries are subject to quotas: 125,000 tonnes for husked-rice and 20,000 tonnes for broken-rice imports. On the other hand, 35,000 tonnes of rice processed to a certain level in the overseas countries and territories (OCT) are allowed into the EU market free of duty. ACP countries do not enjoy duty free access to the EU market. Instead they pay a reduced duty equal to 35 per cent of the regular import duty less €4.35 per tonne for husked rice and less €3.62 per tonne for broken rice. Imports of ACP rice are subject to a licensing system. Importers have to pay a deposit on the licences that are issued.

Reform of the EU rice regime was initiated in 1995 following the same line of reform of the cereals sector. The EU intervention price was reduced by 15 per cent from €351 per tonne in 1997/1998 to €298.35 per tonne in 1999/2000. EU farmers were compensated by direct aid payments of €17.5 per tonne in 1997/1998 increasing to €35.1 per tonne in 1998/1999 and further to €52.6 per tonne in 1999/2000. In addition, the area under rice was fixed at 433,123 hectares. Despite these changes the imbalance in the EU rice market remained.

In light of the proposed liberalisation from 2007 of access to the EU rice market for the LDCs under the EBA agreement, further reform of the rice regime was adopted in 2003. The intervention price for rice was reduced (by 50 per cent) to €150 per tonne to bring it in line with world market prices by 2004/2005. At the same time direct aid payments to farmers were increased to €177 per tonne. These changes were expected to contain the level of EU rice imports and thus reduce intervention stocks of rice.

The rice reforms will not necessarily reduce rice production in the EU since farmers will continue to benefit from subsidies in the form of aid payments, which were increased to compensate for the reduction in the intervention price. They will however prevent imports from increasing and may even reduce imports that are subject to tariffs. The main ACP countries that would be affected by the reforms are Guyana, the largest exporter, followed by Suriname and Madagascar that exports low volumes of rice.

2.5 *Implications of regime change*

The reform of the EU regimes for bananas, sugar and rice is expected to have a significant impact on ACP countries especially those in the Caribbean region. In the case of bananas, the WTO arbitration panels rejected the EU proposed banana tariffs of €230 and €187 in August and October 2005, respectively. ACP countries had initially hoped for a tariff of €275 and Latin American countries for a tariff no higher than €75 per tonne. EU countries recently agreed (25 November 2005) on a new import tariff of €176 per tonne. A minority of seven EU countries voted against this latest offer. Countries in Northern Europe as well as newer member States of the EU are in favour of a lower tariff whereas countries with interests in the Caribbean and Canary Islands are in favour of a higher tariff to protect their dependencies and former colonies.

Latin American countries are however expected to reject the new tariff and insist on a lower tariff of €75 per tonne. This would jeopardise the Cotonou waiver, which allowed the EU to continue to grant preferential access for ACP bananas provided that the tariff-only regime to be introduced at the beginning of 2006 gave total market access to banana producers from Latin America.

In the case of sugar, EU agriculture ministers agreed (24 November 2005) on a 36 per cent reduction in the intervention price of sugar, which would be implemented over four years starting in July 2006⁴. This represents a smaller reduction (from 39 per cent) and a longer

⁴ The 36 per cent reduction would be implemented as follows: 20 per cent in the first year, 27.5 per cent in the second year, 35 per cent in the third year and 36 per cent in the fourth year. See <http://europa.eu.int/rapidReleasesAction.do?reference=IP/05/1473&forma>

implementation period than originally proposed. EU farmers are to be compensated by as much as 64 per cent of the loss in income caused by the reform in order to adapt or to exit the industry. In addition, EU sugar factories will be paid €730 per tonne in the first two years of the adjustment period and €625 and €520 in the third year and final year respectively to close factories and renounce sugar quotas. ACP producers, on the other hand, are to be offered €40 million to help them adjust to the price reduction, which would move from €523 per tonne to about €335 per tonne for their raw sugar exports to the EU.

In the case of rice, recent agreements with WTO members having negotiating rights have amended the EU rice import regime by establishing new bound tariff rates for rice. The purpose of the import regime change is to bring it in line with CAP reform in the EU. The new bound rates are €65 per tonne for husked brown rice and €175 per tonne for milled rice. In an agreement with Thailand the tariff on milled and semi-milled rice could be reduced further to €145 per tonne. Tariffs would be adjusted every six months based on actual imports compared with an import reference level. Tariffs on imports of rice set for the period 9 January 2005 to 28 February 2006 are as follows:

Table 2: European Union Rice Tariffs

| Rice Tariffs | General | ACP |
|--|----------------|------------|
| Husked (brown) | 42.5 | 14.17 |
| Broken | 128 | 41.18 |
| Milled | 175 | 58.13 |
| Source: USDA GAIN Report Number: E35205 Date: 10/25/2005 | | |

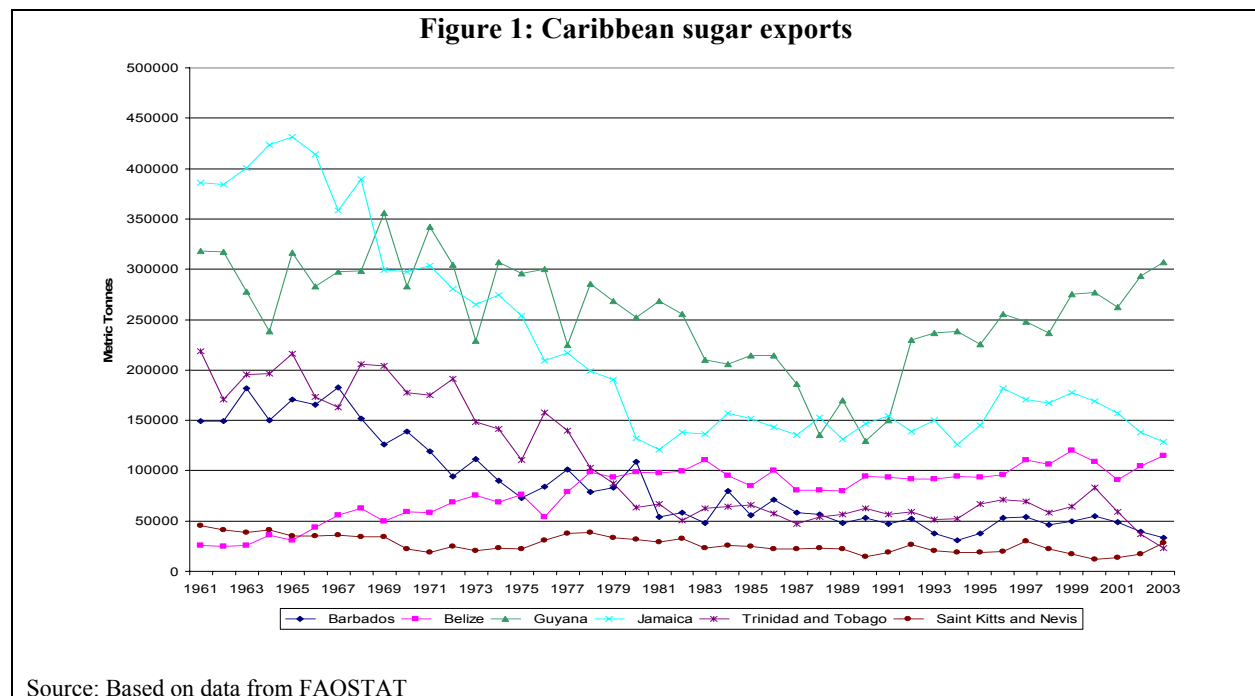
If the volume of imports is less than 186,000 metric tones then the tariff will fall to €30. It will rise to the bound rate of €65 if the volume is greater than 252,000 tonnes.

The loss of banana quotas and a reduced tariff for non-ACP banana imports into the EU will have an adverse impact on the export sector of Jamaica and on the entire economy in the case of the banana exporting countries in the Eastern Caribbean. The reduced prices for sugar will adversely affect export earnings of mainly Barbados, Belize, Guyana and Jamaica. Changes in the rice import regime will affect Guyana and Suriname. The reduction in tariffs will not benefit these countries because the price of rice has been reduced by half. For example, at both the reduced price and reduced tariff ACP countries will receive a price of about €135 per tonne compared to a price of €212 at the previously bound duty and intervention price for rice. This represents a reduction in earnings of about 35 per cent per tonne of rice exports.

Most Caribbean countries will see their earnings from the export of these commodities significantly reduced. For the Windward Islands the impact will be from the changes in the banana regime. For Barbados, Belize and St. Kitts and Nevis it will be mainly sugar, whereas for Jamaica it will be both bananas and sugar. For Guyana it will be sugar and rice whereas for Suriname it will be mainly rice.

2.6 Internal factors

The performance of the banana, sugar and rice industries also indicates the need for reform. Sugar, which was the first and most significant industry in the Caribbean, has had mixed fortunes over the past decades. Sugar exports were on a declining trend between the late 1960s and early 1980s. During the 1980s exports remained more or less stable for most countries except Guyana, which experienced further decline in exports. From 1991, the trend was reversed and Guyana's sugar exports embarked on a significant growth path. Exports from Belize have exhibited more consistent growth since the early 1960s. What the export data show is that despite fixed sugar quotas in overseas markets the exports of most Caribbean countries have declined (Figure 1).



Sugar-cane production has declined in most countries with the most significant decline occurring in Barbados, Jamaica and Trinidad and Tobago (Figure 2). The Dominican Republic, which had experienced high export growth during the 1970s, entered into a period of significant decline from the early 1980s. Decline in sugarcane production is associated with the fall in exports. This decline is also related to decline in area under production and yield. Area harvested declined significantly in Barbados, Jamaica and Trinidad and Tobago although there was a considerable increase in Jamaica in 2004. At the same time yield per hectare also declined (Figures 3-6).

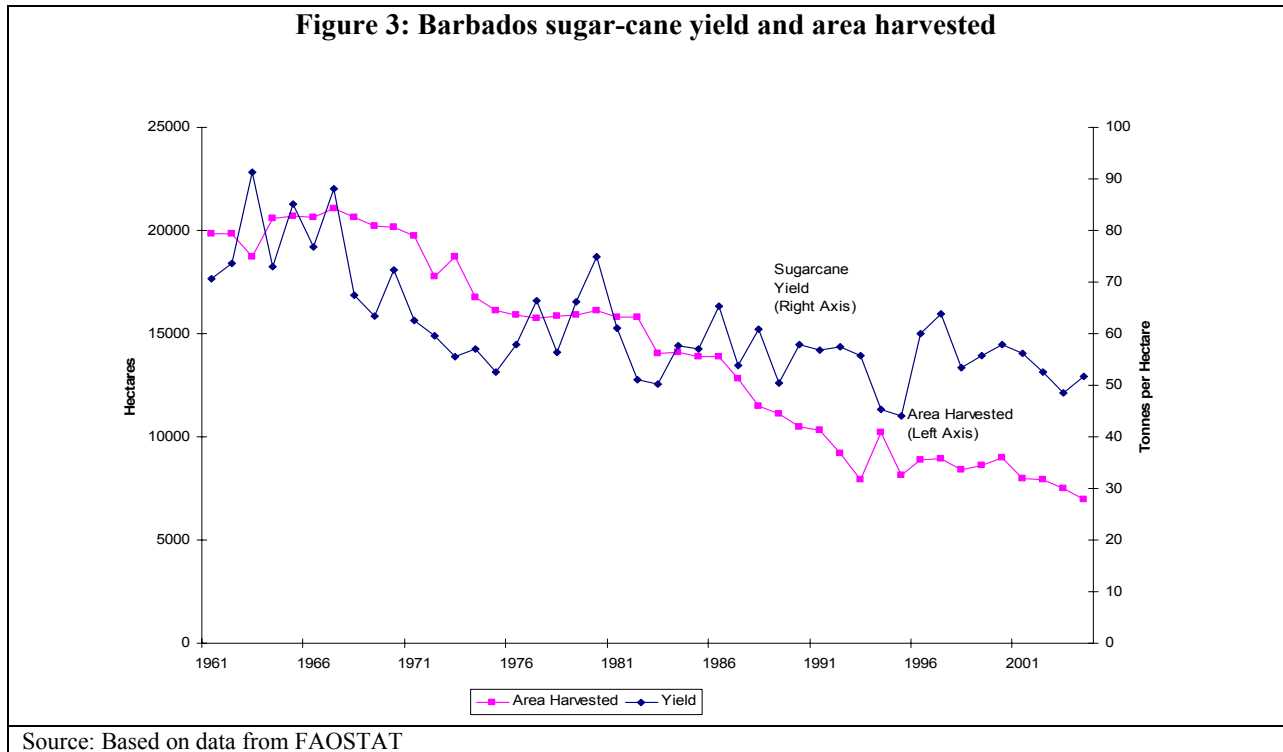
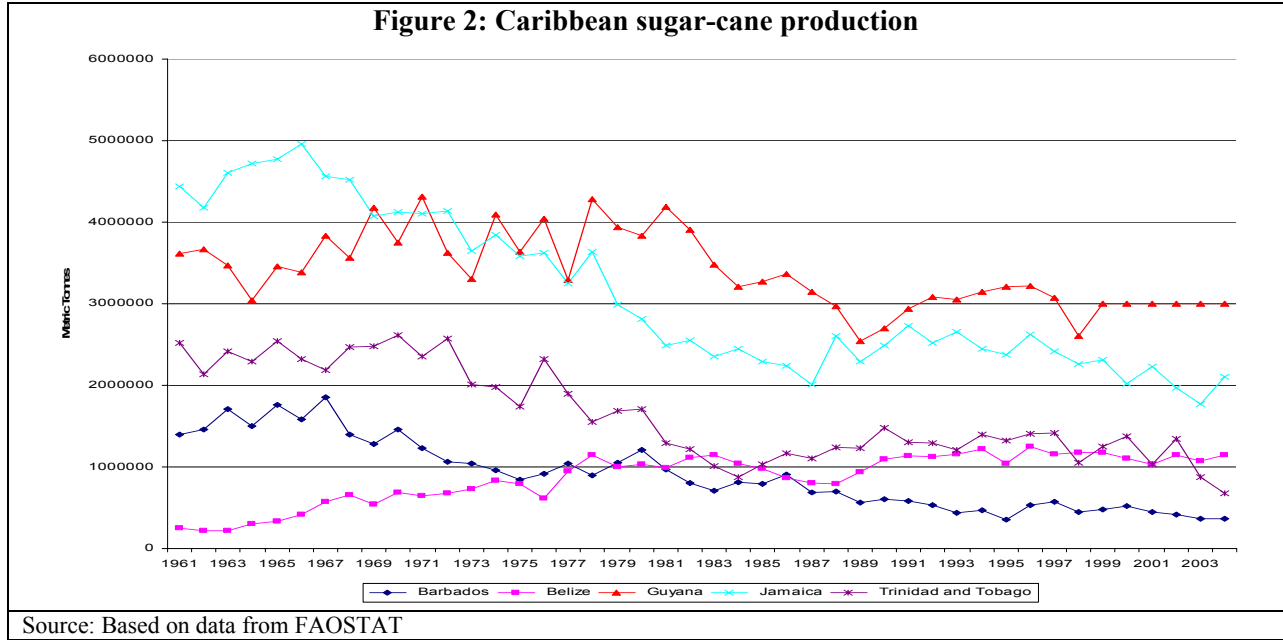
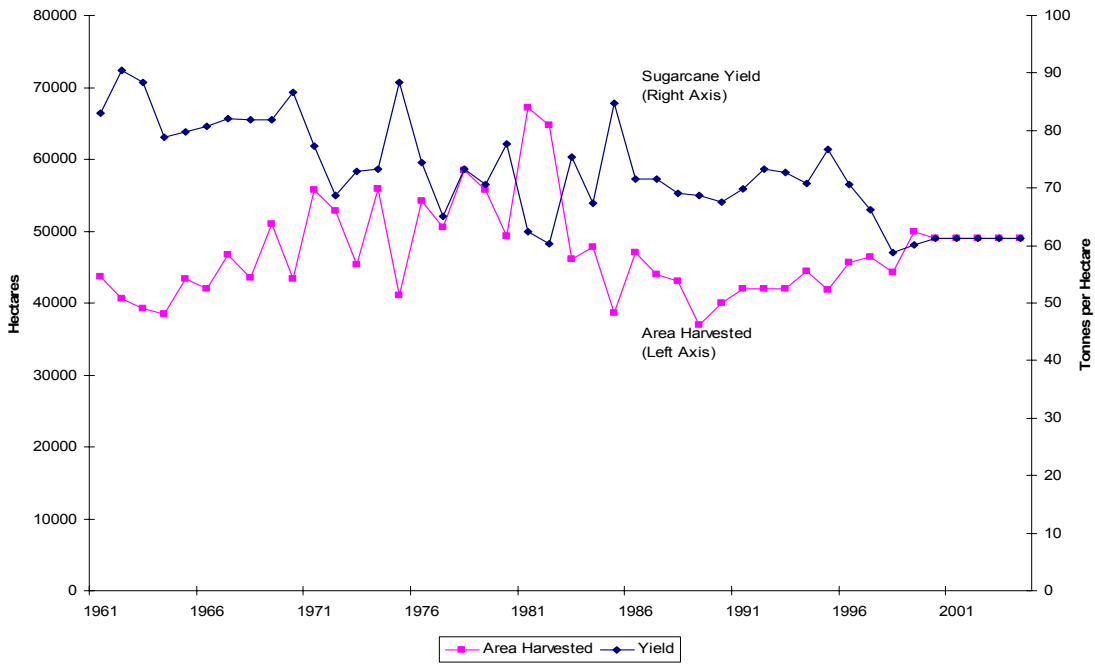
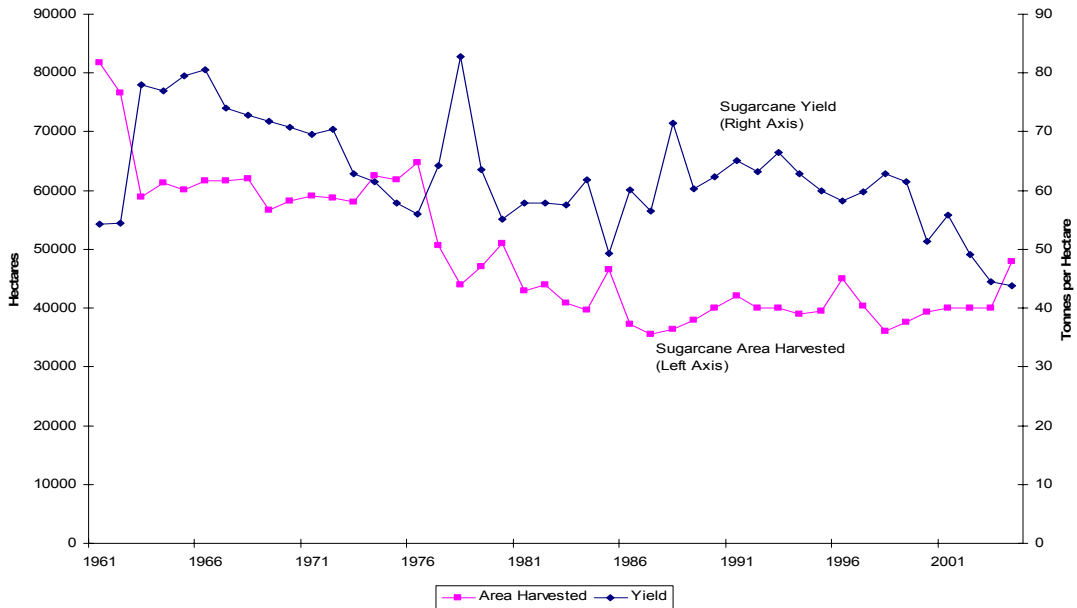


Figure 4: Guyana sugarcane yield and area harvested

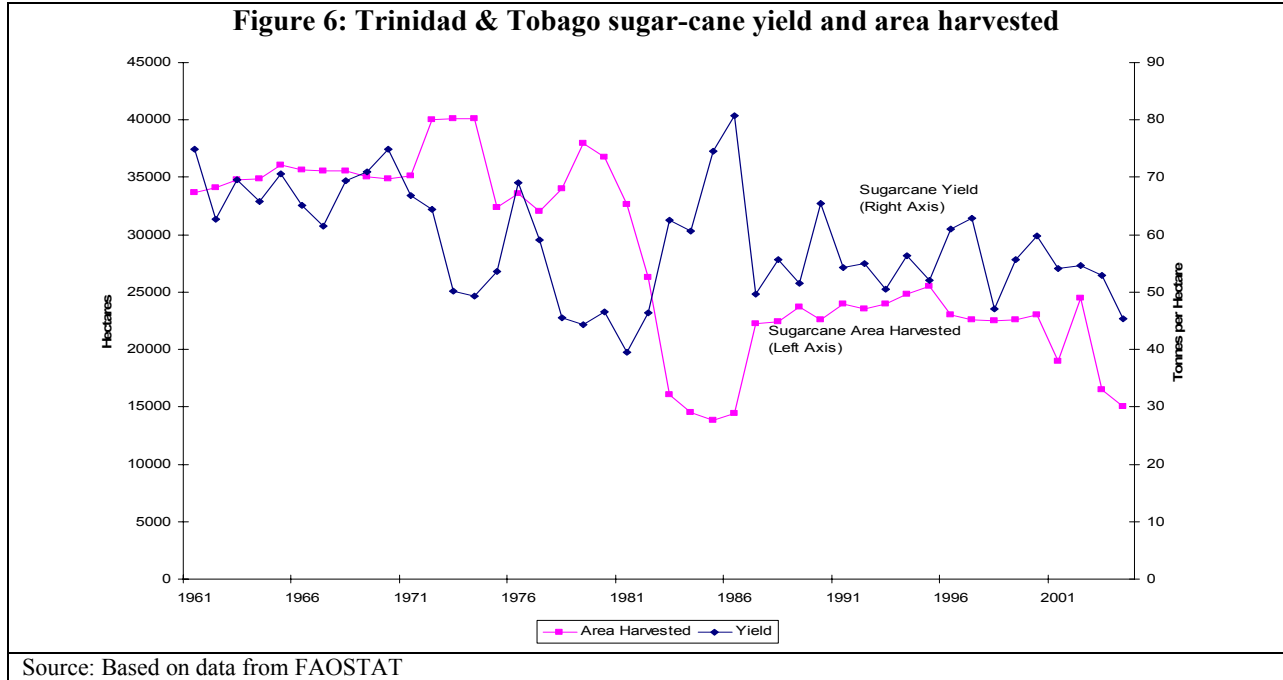


Source: Based on data from FAOSTAT

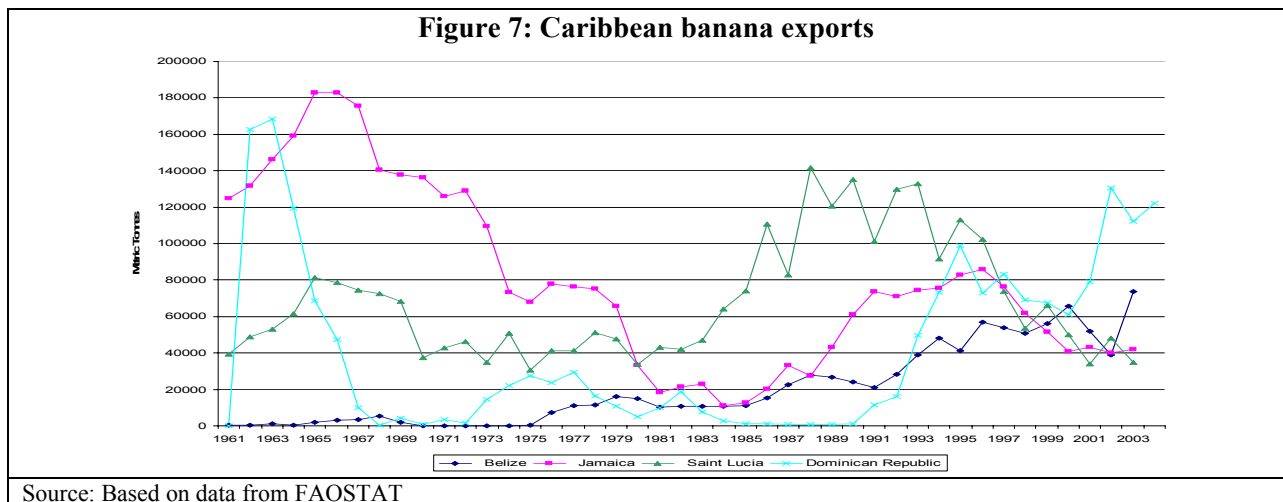
Figure 5: Jamaica sugarcane yield and area harvested

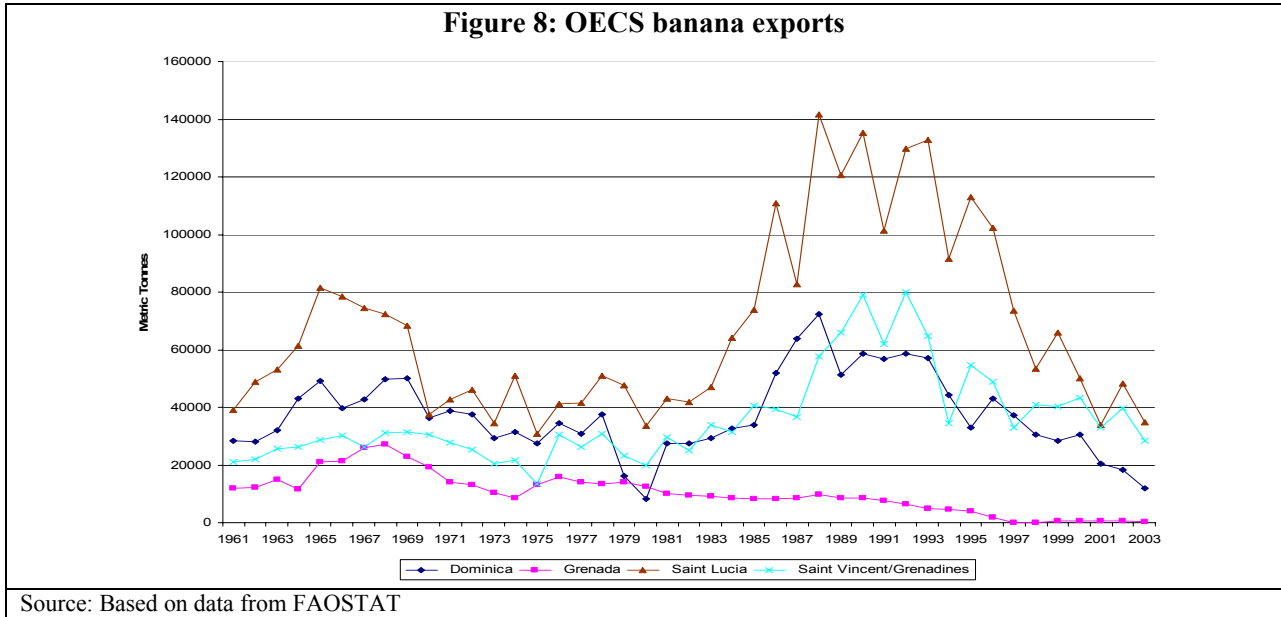


Source: Based on data from FAOSTAT



Banana exports have shown more volatility than sugar exports over the past four decades (Figure 7). There was a marked decline from about the mid 1960s to 1980 followed by equally marked increase during the 1980s until the early 1990s. Decline again set in from the early 1990s for most countries except Belize, which has had a steady increase in exports from the late 1970s. The Dominican Republic compared with CARICOM countries had significant growth in banana exports between 1991 and 1995 and then again from 2001. The countries in the Organisation of Eastern Caribbean States (OECS) region have experienced the most significant decline in their exports especially after the changes in the EU banana regime from 1993 (Figure 8).





Banana production followed a somewhat similar trend to that of exports (Figures 9-10). However, in the case of the Dominican Republic banana production maintained an upward trend despite the decline in exports. This indicates a significant rise in domestic consumption. Banana yield varies among countries from about 3 tonnes per hectare in Grenada to 8 tonnes in Jamaica to 10 tonnes in St. Lucia and to 12 tonnes per hectare in the Dominican Republic (Figures 11-12).

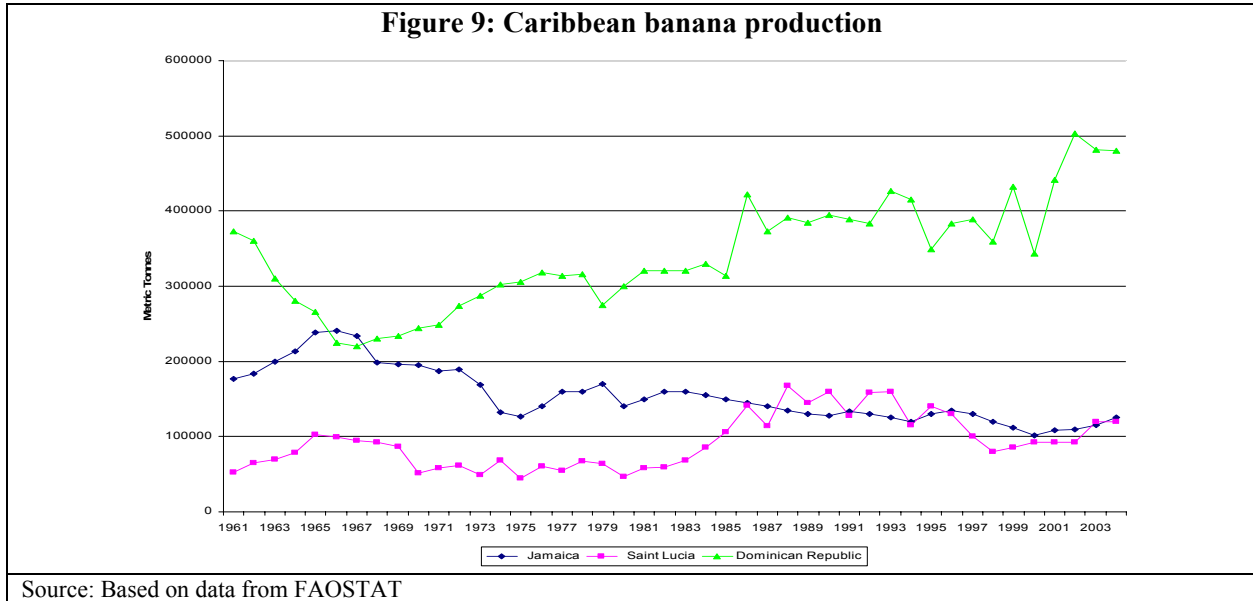
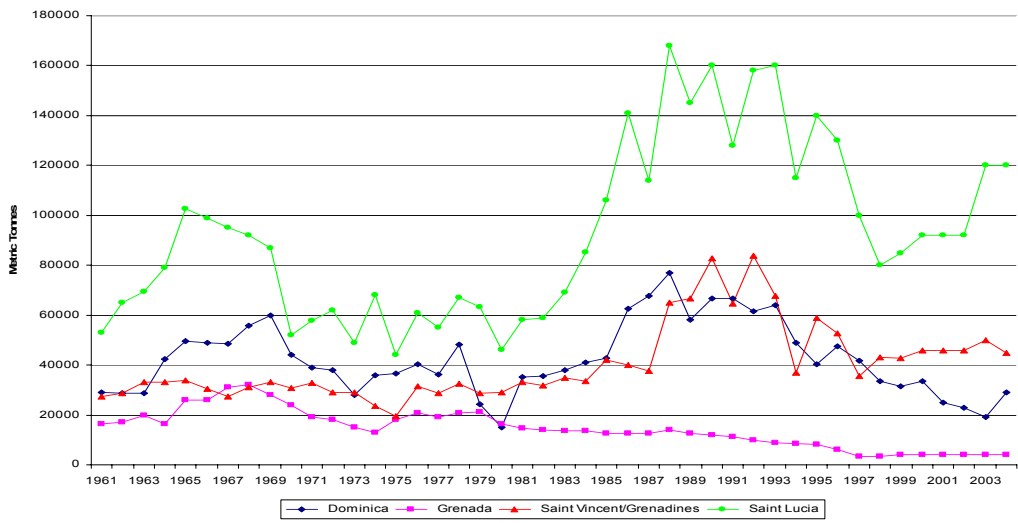
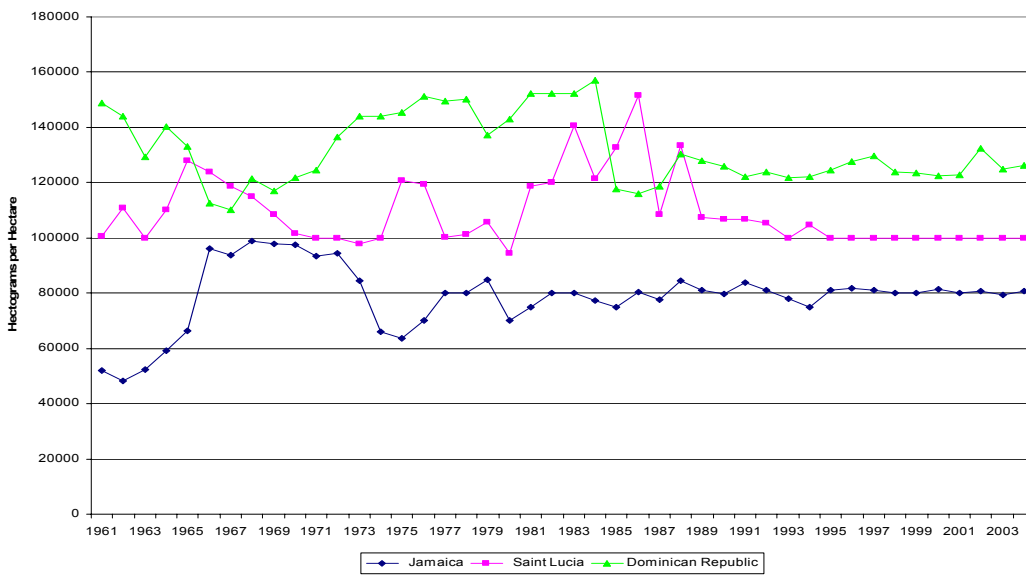


Figure 10: OECS banana production

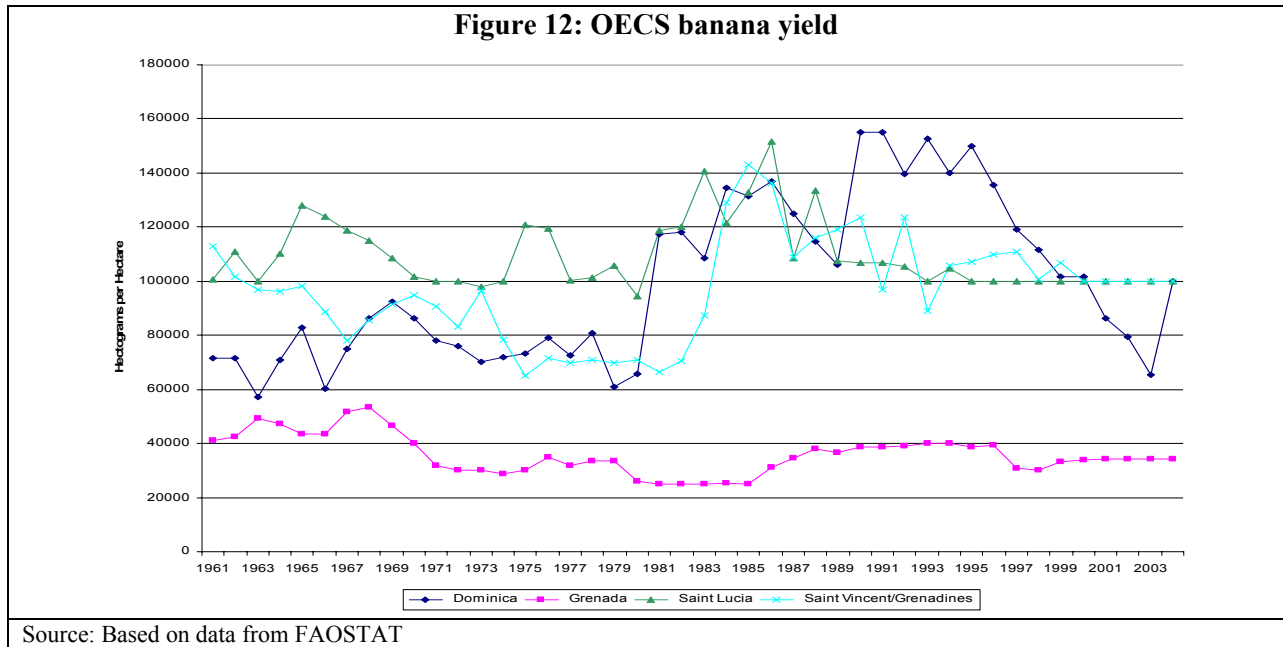


Source: Based on data from FAOSTAT

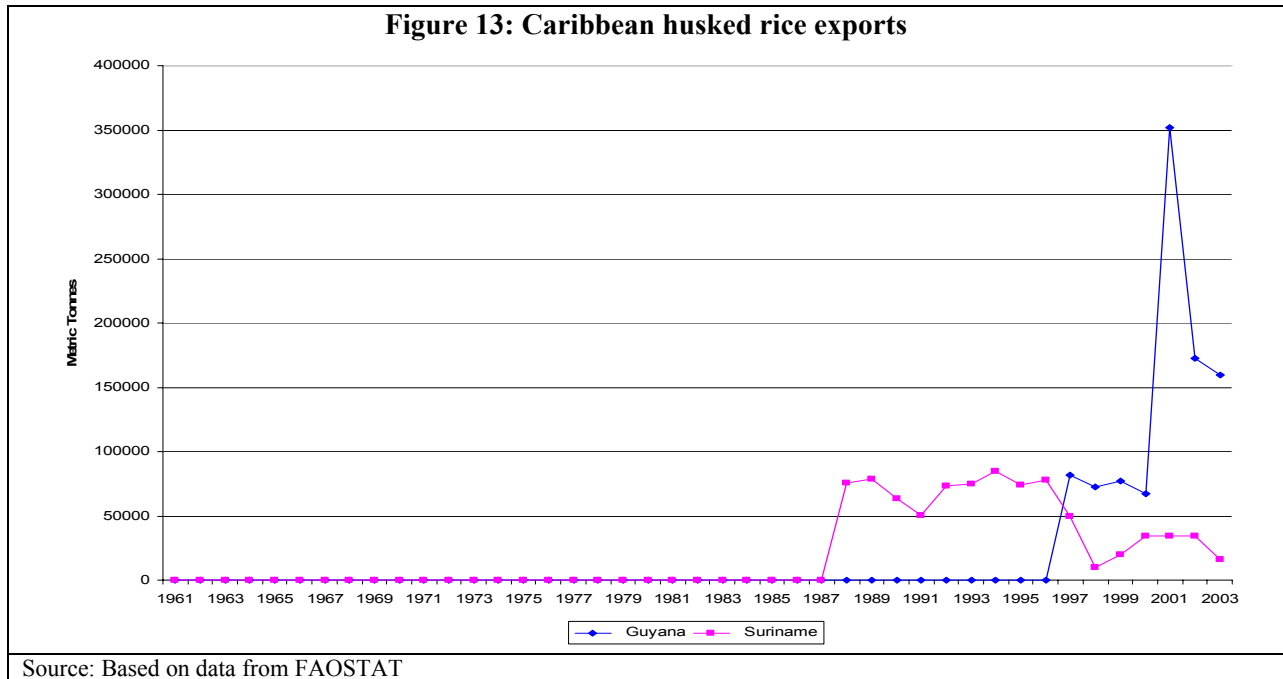
Figure 11: Caribbean banana yield



Source: Based on data from FAOSTAT



Rice exports by the two producers in the region, Guyana and Suriname, have also showed decline over the years although Guyana's exports increased significantly during the 1990s, mainly through the OCT route to the EU market (Figure 13). Output and yield increased significantly especially in the case of Guyana during the 1990s following the change in the country's domestic regime governing rice production and exports.



3. Restructuring in traditional and non-traditional industries

A. *Agriculture*

A.1 The sugar industry

Restructuring of the industries being reviewed in response to the changes in the international trading environment can be examined in terms of the following options:

- (a) Adjustment of industries;
- (b) Diversification out of existing industries; and
- (c) Diversification within existing industries.

A.2 Adjustment of industries

Restructuring in Caribbean economies during most of the colonial period was limited to the agricultural sector and mainly to sugar, which was the mainstay of the economies. Restructuring through adjustment within industries was pursued in attempts to increase efficiency by reducing costs and improving output and yield. The sugar industry, and indeed agriculture on the whole, has continued to be significant despite its declining contribution to output in relation to other sectors of the economy.

| | *Agriculture Land Under Cane (per cent) | +Export Earnings (per cent Domestic Exports) | #Agriculture value added per cent Growth (1992-2003) | +Percentage Agricultural Employment in Sugar |
|-------------------|--|--|--|---|
| Barbados | 38 | 12.5 | -0.5 | 52.6 |
| Belize | 15 | 22.0 | 5.4 | 49.9 |
| Guyana | 3 | 22.6 | 5.0 | 32.2 |
| Jamaica | 6 | 6.2 | 1.1 | 11.2 |
| St Kitts & Nevis | 34 | 17.9 | 1.4 | 52.7 |
| Trinidad & Tobago | 17 | 0.7 | 2.4 | 68.9 |

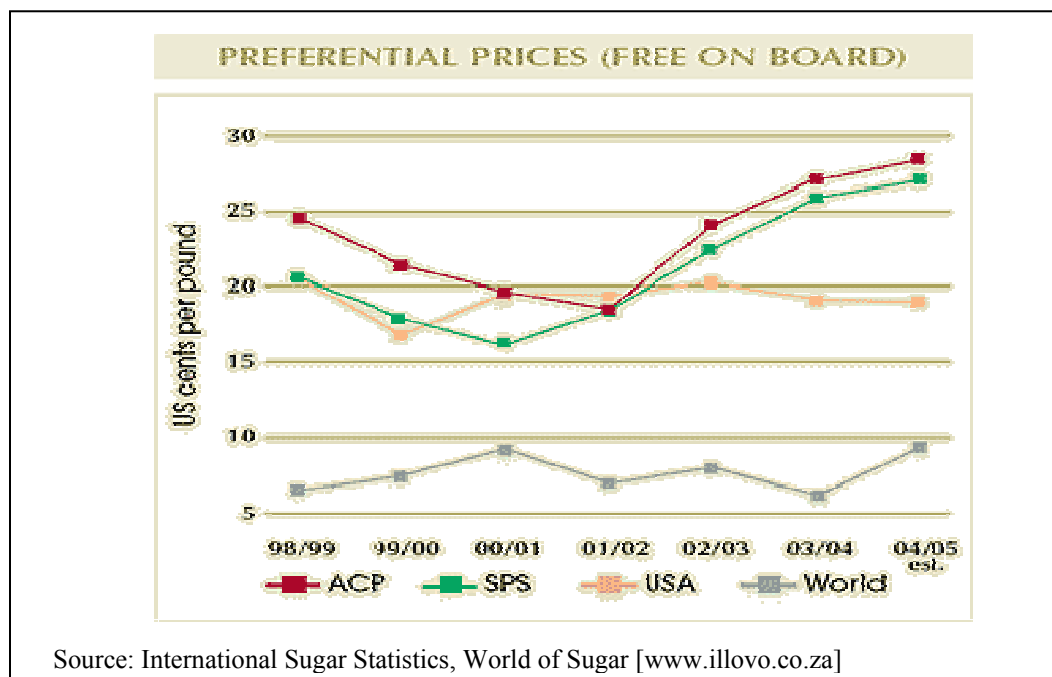
Source: * Averages for 200-2002 from "Addressing the Impact of Preference Erosion in Sugar on Developing Countries", Oxford Policy Management and LMC International Ltd. 2003; + Data for period 2000-2002 from country sources quoted in "Reform of the European Union Sugar Regime" Ministry of Foreign Trade and International Cooperation, Guyana 2005; # from Food and Agriculture Organisation (FAO), The State of Food and Agriculture 2005

In the region, a greater proportion of agricultural land in Barbados and St. Kitts and Nevis is under sugar-cane. Export earnings from sugar make a greater contribution to GDP in Guyana. Contribution to employment, in particular field employment, is significant especially in Belize, Guyana, Jamaica and Trinidad and Tobago.

High cost of production has been an issue affecting the profitability of the sugar industry. Caribbean countries, with the exception of Belize and Guyana, have the highest cost of production. Within the region, costs range from a low of US\$330 per tonne in Belize to a high of US\$1212 per tonne in Trinidad and Tobago. Guyana has a cost of US\$397 per tonne whereas Jamaica has a cost of US\$771 per tonne. St. Kitts and Nevis and Barbados are relatively higher cost producers with costs of US\$882 per tonne and US\$1102 per tonne, respectively. By comparison, Mauritius with the highest sugar quota in the EU has a cost of US\$485 per tonne – lower than the cost in Jamaica but higher than that in Guyana. On the other hand, two of the countries that challenged the EU sugar regime at the WTO, Australia and Brazil, have costs of production of US\$242 per tonne and US\$132 per tonne, respectively.

Field costs such as growing, harvesting and transportation constitute the bulk of the cost of production. In most countries field costs represent over half of total costs. In Guyana and Trinidad and Tobago they represent over 60 per cent of total costs. Factory costs, which include processing, maintenance and factory overheads, are highest in Barbados, Belize and Jamaica, accounting for 24 per cent, 22 per cent and 22 per cent, respectively of total costs.

Caribbean costs of production compare unfavourably with both the world price and EU price of sugar. The cost of production in all countries exceeds the world price of sugar. Guyana and Belize are the only countries whose costs of production are significantly below the EU price, 42 per cent in the case of the former and 52 per cent in the case of the latter. The Barbados cost is about the same as the EU price whereas in St. Kitts and Nevis and in Trinidad and Tobago costs are 30 per cent and 56 per cent higher than the EU price. Despite their high cost of production, Caribbean countries and other ACP countries receive premium prices in the EU and the United States markets compared to the price in the world market.



The high costs of production have resulted in financial losses for the sugar companies. This is particularly the case for Barbados, Jamaica, St. Kitts and Nevis and Trinidad and Tobago. In Trinidad and Tobago, for example, the operating loss of the sugar company in 2001 was more than twice the loss experienced in 1996. The losses have led to transfers by government and accumulation of debt by the companies.

Production of sugar-cane and sugar has declined in the region since the late 1970s (Figure). Sugar-cane yield has also declined over the years. Barbados and Guyana have the highest cane yield per hectare at 63 and 65 tonnes. These countries also have the highest sugar yield at 7 tonnes per hectare in the case of Barbados and 6 tonnes per hectare in the case of Guyana. Jamaica has a similar sugar yield as Guyana despite its lower cane yield.

A number of factors contributed to the decline in yield. Area under production has been significantly reduced since the late 1970s. Reduction in area as well as in the number of sugar mills was undertaken as part of restructuring exercises to stem the losses of sugar companies. Adverse weather conditions such as droughts, on the one hand, and heavy rains, on the other, significantly affected yields. Cost of production inputs such as fertiliser and herbicides affects yield especially in respect of farmers' cane.

Change in technology also has an impact on yields. Increasing mechanisation of field operations, essentially harvesting, has contributed to declining yields in areas where cane varieties were not suited to mechanical harvesting, field layout was inappropriate and the skills of the machine operators were inadequate. The introduction of sucrose enhancement (ripening) technology in Guyana in the late 1990s has contributed to improvement in cane quality and yield. The management required for use of this technology limits its application to large-scale farming operations.

Approaches adopted for improving efficiency and reducing cost included consolidation of sugar operations, technical change and change in the ownership structure of the sugar industry. Progressive reduction of sugar factories over the years resulted in eight sugar factories in Guyana, eight factories in Jamaica, two factories in Trinidad and Tobago prior to 2000 – all factories closed in 2005, one factory in Barbados and one factory in St. Kitts and Nevis that was closed in 2005. Although the rationalisation of factories was intended to reduce cost, cost of production remained high in comparison with competitors in both ACP and non-ACP countries.

Government assumed ownership and control of the sugar industry in most of the CARICOM countries during the 1970s partly on account of ideological orientation – ownership and control of key sectors of the economy – but also because of the need to preserve jobs in the face of industry closure by the foreign-owned (British) companies. The Jamaican Government acquired 8 of the 12 operating sugar factories during the second half of the 1970s. The Guyana government in 1976 acquired the 2 companies that owned and operated the 11 sugar factories. The Trinidad and Tobago Government also acquired the company that owned the sugar assets. State ownership of the Barbados sugar industry was not established until the early 1990s after sugar estates got into difficulties and accumulated significant debt. The sugar company in St. Kitts and Nevis became a public sector company in the late 1970s.

The decline in the performance of the sugar industry continued despite its acquisition by the State in the region. Production levels fell with the result that countries had difficulty filling export quotas. Government participation in the sugar industry limited any significant restructuring in terms of upgrading of field and factory operations. In fact the industry survived largely through government subventions and the economic rent from preferences in the EU market.

A combination of factors led to privatisation of the sugar industry in Jamaica in the 1980s and 1990s and in Guyana in the mid 1990s. Change in ideological orientation (greater reliance on market solutions), the implementation of economic adjustment programmes, which included privatisation of State-owned assets, and the accumulation of debt by the sugar company in Jamaica influenced the privatisation of management in 1984 and the divestment of ownership in 1994. In Guyana, the deterioration in the performance of the sugar industry as well as of the economy as a whole under State ownership and the adjustment programme adopted were determining factors in the privatisation or divestment of the management of the sugar company.

Barbados, Trinidad and Tobago and St. Kitts and Nevis differed from Guyana and Jamaica in the type of restructuring they pursued. The Barbados Government assumed ownership of the sugar company in 1994 but at the same time privatised the management to the British company, Booker Tate, for 10 years until 2004. In St. Kitts and Nevis the sugar company operated as a public sector company until its closure in 2005.

A.3 Limitation of option

The option of improving competitiveness is not considered to be viable given the high cost of the sugar industry in the Caribbean⁵. It was attempted at various periods in the life of the sugar industry but had limited success in achieving the objective of improving competitiveness of the industry. Nationalisation of the sugar industry did not lead to improvement in its performance, but privatisation in Jamaica did not result in sustained improvement either. The privatisation methodology can be said to have been flawed. Privatisation of management instead of divestment of assets had a positive effect on the sugar industry in Guyana. Renationalisation of privatised Jamaican sugar factories only compounded the problem of lack of competitiveness.

A critical factor in improving efficiency and competitiveness is effective management of both field and factory operations. Since field operations are the most costly in the sugar production process and harvesting is the most difficult of the field operations, the quality of field management assumes critical importance in the process. Management of both field and factory has been inadequate in the sugar industry especially in State-owned entities. Weak management in Jamaica, for example, has been manifested in lack of supervision in the field, inefficient use of inputs and lack of coordination of harvesting with factory operations. On the other hand, the efficiency and lower production costs of privately owned sugar estates has been attributed to the system of management in which the estate owners play a direct role in managing the operations.⁶

⁵ This is the view expressed in a study done for the United Kingdom Department of International Development (DfID), "Addressing the Impact of Preference Erosion in Sugar on Developing Countries", Oxford Policy Management and LMC International Ltd. 2003

⁶ This view was expressed by the Chairman of Worthy Park Estate considered to be the most efficient sugar estate in Jamaica.

A significant requirement for this option to work is the financing of investment in upgrading field and factory operations. Constraints on the government budget as well as the need to subsidise the sugar operations have prevented modernisation of the sugar industry in most countries. On the other hand, the private owners of the privatised sugar entities in Jamaica failed to mobilise investment in upgrading operations during the 1990s which resulted in continued poor performance and hence re-nationalisation of the estates. The transfers from the sugar preferences along with government reduction of the sugar levy in Guyana facilitated investment in the sugar industry by the privatised management during the 1990s.

A.4 Diversification out of existing industries

Economic diversification has been pursued by Caribbean countries since the post-second World War period when import substitution manufacturing was undertaken to promote industrialisation and thus reduce dependence on the sugar industry. At the same time, countries with natural resource endowments diversified into mining (e.g. bauxite, petroleum, gold), tourism, financial services and other agricultural activities such as banana and rice. Trade liberalisation has resulted in the decline in manufacturing in most countries (except Trinidad and Tobago).

Caribbean countries have been advised over the years to diversify away from traditional economic activities. However, this option is limited by the small size of individual economies. Countries have therefore remained dependent on earnings from one or a few major commodities. Diversification within a higher level of economic integration such as envisaged in the CARICOM Single Market and Economy (CSME) is a more viable option, as countries would have greater access to factors of production (e.g. finance capital and skilled labour) that may be scarce in any individual country.

Diversification within the agricultural sector has had limited success in Caribbean countries on account of a number of factors. These include land availability (amount of arable land), type of land tenure, access to credit, adequacy of extension services and infrastructure and research and development facilities. Land has been diverted from agricultural activities towards other areas such as tourism and real estate development. Nevertheless, Caribbean countries have been advised to pursue diversification, in particular agricultural diversification, given the erosion of preferences for agricultural commodities and the high level of food imports in the region. The EU has been providing assistance to countries to facilitate diversification into other areas of agricultural production.

A.5 Diversification within existing industries

Diversification into sugar-related activities has been limited essentially to the production of rum from molasses. Sugar companies have however pursued diversification into other areas such as livestock, dairy and citrus and rice in the case of Trinidad and Tobago. However, livestock, dairy, citrus and rice require large land area in order to achieve scale economies and hence efficiency in production⁷. Sugar companies have, since privatisation within the last couple

⁷ This was the finding of the ministerial appointed committee charged with reviewing the operation of the State owned Trinidad and Tobago Sugar Company in 2002.

of decades, reverted back to their core sugar activities in order to reduce costs and improve profitability.

In light of the proposed changes to their trade relations with the EU, Caribbean countries have been considering options for restructuring their sugar industries. Guyana, which is the country whose sugar industry is expected to be better able to withstand the reduction of the EU sugar price, has embarked on a restructuring programme to improve the competitiveness of the sugar industry. That programme involves achieving price competitiveness through the expansion of production capacity and the application of advanced technology in sugar processing. It also includes establishment of cogeneration and refining facilities as well as a potable alcohol distillery.

Trinidad and Tobago, St. Kitts and Nevis, Jamaica and Barbados are high cost producers of sugar and hence need to undertake significant restructuring of their industries if they are to remain viable. In Trinidad and Tobago, proposed options were closure of the industry; restructuring of the industry to include sugar-based products, such as ethanol; and retention of some level of sugar production along with diversification into other agricultural activities. Restructuring would be based on private investment in specific areas such as sugar production, sugar refining and production of fuel ethanol, bagasse, animal feed and pharmaceuticals.

In St. Kitts and Nevis one proposal was to retain the industry to satisfy the quota commitments in the EU and cultivate on some of the sugar lands, in rotation with sugarcane, alternative export crops such as potato, onion, peanut and hot pepper. The options proposed for Jamaica are essentially improving efficiency and reducing cost in sugar operations and diversification both within and out of the sugar-cane industry. As in the case of St. Kitts and Nevis, some farmers would switch from sugarcane production to alternative crops. Diversification within the sugar-cane industry is recommended for cogeneration, production of ethanol and refining of sugar.

Barbados has developed a more or less similar approach to restructuring its sugar industry. Production of sugar would continue but marketing would shift from bulk sugar to “branded” and special sugars. Diversification within the sugarcane industry would be, as is the case for the other sugar producing countries, in the direction of power production and the production of ethanol.

Restructuring to ensure survival and sustainability of sugar operations has to be based on improving efficiency in the production of the sugar-cane and in the processing into sugar. This is a pre-requirement for diversifying into other sugar-based products as envisaged in the restructuring proposals for the sugar producing countries in the region. At the level of field operations, special attention has to be paid to the selection of appropriate varieties of sugar-cane, planting and harvesting methods including irrigation systems and the timely supply of the sugar-cane to the sugar processing factory.

Cogeneration⁸, to be successful, requires significant amounts of bagasse (fibrous fraction of the sugar-cane) to fuel the power plant that would satisfy the energy needs of the sugar process as well as supply electricity to the national grid. High fibre varieties of cane are therefore appropriate for supplying the needs of the power plant. On the other hand, the high sucrose variety of cane is appropriate for the sugar industry, which needs to increase its output of sugar per tonne of cane. It would therefore make economic sense to plant both varieties of cane.

The next issue is the method of planting and harvesting the cane. The practice in Caribbean countries has been to harvest cane from long (6 to as many as 15) ratoon cycles. This significantly reduces yield, which can usually be offset by the use of fertiliser during shorter ratoon cycles. A programme of replanting therefore would have to be adopted. Mechanisation in the sugar industry in the Caribbean has been determined largely by the difficulty in securing labour for activities such as harvesting. However, as was discussed earlier, extensive mechanisation of the harvesting process results in reduced yield unless fields are organized in a manner to facilitate mechanical harvesting⁹.

In terms of sugar processing, sugar production technology used in factories will have to be modernised to improve efficiency. Automation of the process requires investment in machinery and equipment and human capital. It also requires efficient maintenance programmes. The sugar that is produced for distribution as specialty products needs a modern packaging facility geared toward satisfying market requirements.

The question that needs to be addressed is what are the prospects for restructuring the sugar industry in Caribbean countries given the present state of the industry and what is required to reduce cost and diversify into other sugar-cane related activities. Guyana has been preparing an action plan for restructuring its sugar industry. The plan, which is to be completed by February 2006, is aimed at securing assistance from the EU to adjust to the shock of the EU price reduction. The Guyana Sugar Corporation (GUYSUCO) has already embarked on the expansion and modernisation of its sugar processing facility through the construction of a new sugar factory to replace the existing one at Skeldon in the North East of Guyana. It is estimated that output of sugar would increase by about 28 per cent (100,000 metric tonnes) to 450,000 metric tonnes by 2007. The expansion is intended to allow Guyana to take advantage of any additional access to the EU market as well as satisfy the needs of the regional CARICOM market. The modernisation of the industry is also expected to reduce cost of production by about 39 per cent.

Guyana is also diversifying into the production of special sugars. GUYSUCO has been producing and marketing organic sugar since 2003¹⁰. The company packages its special golden brown sugar into sachets of various sizes for distribution to final consumers. At the level of sugarcane production GUYSUCO has been experimenting with the cultivation of high fibre and high sucrose varieties of cane. In relation to the other two areas of diversification, cogeneration and production of ethanol, GUYSUCO will establish at the Skeldon location of the new sugar factory, a 10-megawatt cogeneration facility using bagasse as fuel. Feasibility studies are still

⁸ Cogeneration is defined as the process of generating heat (steam/hot water) and electricity at the same time in the same power plant. See K. Deepchand, "Sugar Cane Bagasse for Electricity Generation in the African Continent".

⁹ The new sugar-cane lands that are being developed in Guyana are to incorporate dual row planting to facilitate mechanised harvesting.

¹⁰ GUYSUCO was certified by Soil Association of the United Kingdom in 2003 as satisfying its standards for organic production.

being conducted on the production of ethanol¹¹. Guyana also proposes to diversify outside of the sugar industry into cash crops and cattle production.¹²

The Barbados Agricultural Marketing Corporation (BAMC) has developed a strategic plan for restructuring its sugar industry. The two additions to its operations would be a power plant and an ethanol plant. Trials have already been done on high fibre and high sucrose varieties of cane. Barbados is likely to be able to produce at least the minimum amount of fibrous cane required for cogeneration because of the higher density – sugar-cane per hectare – of fibrous cane. A new factory employing a higher level of technology is expected to replace the two existing factories in order to achieve the objectives of the strategic plan. Whereas the power plant project can go ahead based on the result of a feasibility study, the feasibility of the ethanol project is still uncertain. Nevertheless, cogeneration is likely to prove costly and hence uncompetitive in the short run unless the high prices of oil are maintained.

The strategy that Belize is adopting is to enhance competitiveness of its sugar industry by increasing the supply of sugarcane, improving field efficiency,¹³ and improving the quality of output. These objectives are to be realized through deregulation of the sugarcane production system and improved agricultural practices, through improvement in harvesting methods as well as in the transportation system from the field to the factory. Belize also plans to build a 25-megawatt (MW) cogeneration facility to provide the sugar factory with energy and to export 13.5 MW of electricity to the national grid by 2008. The country also wants to produce ethanol in order to add value to molasses most of which is being exported. To mitigate the effect of the EU sugar price reduction, Belize is proposing that the EU increase its quota allocation to 100,000 tonnes from the current level of about 42,000 tonnes.

In Jamaica, the government intends to retain sugar production to satisfy the EU and United States markets in addition to the domestic market. An annual target of 200,000 tonnes has been set, the bulk of which (about 69 per cent) will be directed towards those markets. The Jamaican Cabinet recently approved a plan to reform the industry, which will focus on the production of raw sugar, molasses and ethanol¹⁴. The targets for molasses and ethanol are 130,000 tonnes and 70 million litres, respectively. Targets were set based on estimates of market demand.

The government has also proposed to close two of the less efficient government-owned sugar factories and divest the other three.¹⁵ A Brazilian company has indicated interest in acquiring the State-owned companies. The Sugar Company of Jamaica (SCJ) had indicated its desire to restructure the industry by modernising field and factory operations and diversifying into cogeneration, sugar refining, and the production of ethanol. However, feasibility of these activities, which would inform investment decisions, has not yet been determined.

Trinidad and Tobago has yet to indicate a decision on the future structure of the sugar industry. However, the idea seems to be to maintain the industry to rely on private initiative to do

¹¹ "Beyond Preferences" www.stabroeknews.com November 2, 2005

¹² *Stabroek News* Guyana, Thursday 12 January 2006.

¹³ The sugar factory in Belize already operates at a high efficiency level compared with other sugar factories in CARICOM

¹⁴ *Jamaica Observer*, 22 January 2006

¹⁵ This was revealed in Parliament by the Prime Minister of Jamaica on 25 October 2005.

this. The government would provide the infrastructural environment (industrial park) and private enterprise would establish specific manufacturing enterprises such as an ethanol facility to process the sugarcane input. The critical factor would be the availability of sufficient sugarcane at a competitive price to make the value-added activities profitable.

Rationalisation of the industry since 2002 has resulted in one sugar factory, the dissolution of Caroni, which was responsible for both field and factory operations and the establishment of the Sugar Manufacturing Company (SMC), which has responsibility only for the manufacture and refining of sugar. The sugarcane lands have been divested, under lease arrangement, to private farmers. Trinidad and Tobago has been the main refiner of sugar in the region but the refinery has been unable in recent times to satisfy demand on account of shortfall in the supply of the raw material. Whereas there is little interest at present in cogeneration because of the possession of oil and gas facilities, the production of ethanol is under consideration. However, since economic production of ethanol requires a significant supply of sugar-cane, Trinidad and Tobago may have to rely on imported feedstock at least in the short to medium term.

Since most sugar producing Caribbean countries produce rum, diversification in this direction would not be a new undertaking. However, the viability of the industry depends on adequate supplies of the raw material – molasses or cane juice in the case of Trinidad and Tobago for the production of specialty rum. The manufacture of rum as well as ethanol is essentially a distillation process, transforming molasses or cane syrup into potable or ethyl alcohol, respectively. A company that produces rum in Trinidad and Tobago is embarking on the production of ethanol using feedstock (*hydrous* ethanol) imported from Brazil.

In Jamaica, it is a petroleum refining entity that is involved in the production of ethanol. The State-owned Petroleum Corporation of Jamaica (Petrojam) had established an ethanol dehydration plant to take advantage of duty free access to the United States accorded to Caribbean Basin countries under the preferential CBI arrangement of 1981. The plant ceased operation in 1998 but has now been refurbished through joint venture investment between a Brazilian company and Petrojam in the restructuring project. The feedstock for the production of ethanol is to be provided by Brazil. Petrojam is to conduct a pilot project in 2006 to examine the performance of motor vehicles using a blend of ethanol. The government plans to phase out the use of the petroleum based octane enhancer Methyl Tertiary Butyl Ether (MTBE) from 2007 and replace it with ethanol which is to be blended with 90 per cent gasoline to boost engine performance.

Since most sugar producers are contemplating diversifying into ethanol production, in particular with assistance (technical and financial) from Brazil, it is useful to examine the prospects for Caribbean countries. As was already mentioned the major factors in sustaining an ethanol industry are adequate supplies of the feedstock – sugarcane in the case of Caribbean sugar producers – at competitive prices. If the Caribbean relies on Brazil for its feedstock, as it would have to do at least in the short to medium term because of difficulty in producing the required amount of molasses, then the cost of production may not be prohibitive especially since

the output would be exported free of duty to the United States¹⁶. Another point of note is that sugarcane is not the only feedstock that can be used to produce ethanol. The United States and China use corn as feedstock. Thailand has used cassava and rice in addition to sugarcane to produce ethanol. Research on the suitability of other crops would be beneficial to Caribbean countries.

Besides the type and supply of feedstock, there are some other considerations in choosing the option of ethanol production. These include the scale of production, the price of crude oil and the opportunity cost of producing ethanol. Reduction in the cost of production of ethanol in Brazil, for example, is achieved through the significant economies of scale and throughput realised in the large-scale ethanol plants. State-of-the art technology as well as the use of bagasse in the power supply for the distillation process also contributes to lower cost. The current high oil prices increase the competitiveness of ethanol. In fact the high margins of 30 per cent to 35 per cent on 1 gallon (3.8 litres) achieved at ethanol plants in 2005 on account of the significant rise in oil prices have encouraged expansion of ethanol production in the United States. If the price of oil should start to decline then overcapacity in the ethanol industry could result in a fall in ethanol prices.

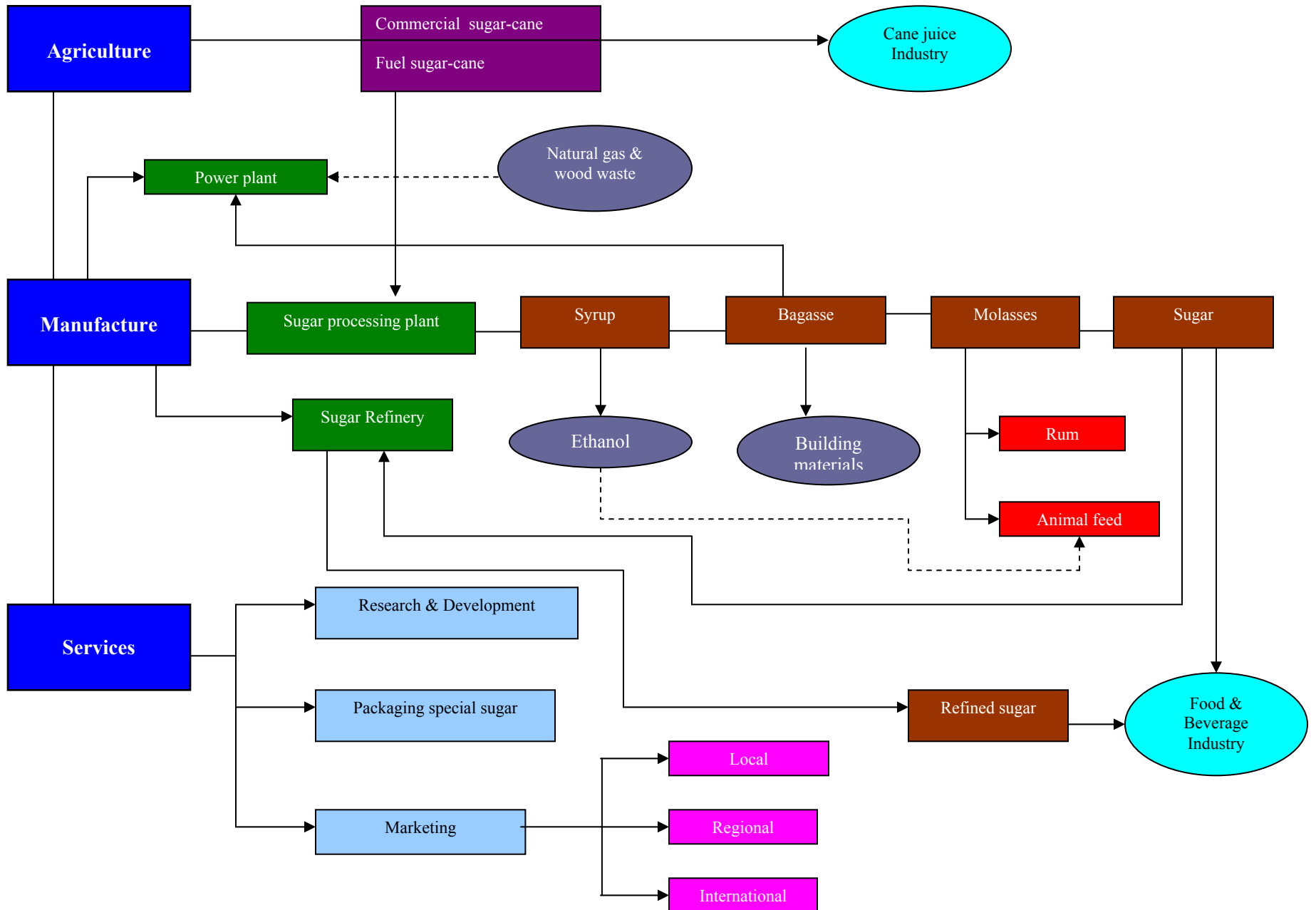
For Caribbean countries the viability of ethanol can be determined by the opportunity cost of producing ethanol from sugarcane, that is, from the relative returns from sugar exports to the EU even at reduced prices compared with the returns from exports of ethanol to the United States. The opportunity cost would also be high if high-grade molasses used in the production of rum is diverted toward the production of ethanol especially if the income earned from sales of rum is greater than that earned from sales of ethanol. The viable option, at least in the short to medium term, would seem to be to import the *hydrous* ethanol from Brazil, which is able to produce it cheaper, and further distil it into *anhydrous* ethanol for blending with gasoline.

A.6 A cluster model of restructuring

An ideal restructuring model for the sugarcane industry is one based on an agglomeration of related and value added activities. Diagram 1 identifies activities and processes and their linkages within an ideal cluster at the national level. Barbados plans to establish a multi-purpose complex that would accord with the cluster concept. However, it may not be economical for all of the sugar producing countries in the region to engage in all the stages of production within the cluster. For example, sugar refining is more feasible in Trinidad and Tobago, which has been refining sugar for sale within the region, on account of the country's energy base. However, hydroelectric and/or cogeneration power in Guyana would make sugar refining a feasible option.

¹⁶ Under the 1983 United States Caribbean Basin Initiative Programme Caribbean countries can export duty free to the United States market ethanol produced from imported feedstock to satisfy up to 7 per cent of total United States demand. There is quota free access for ethanol produced from local feedstock. In 2004 Jamaica exported 138 million litres of ethanol to the United States representing 23 per cent of total United States ethanol imports for that year.

Diagram 1: National cluster of sugar related activities

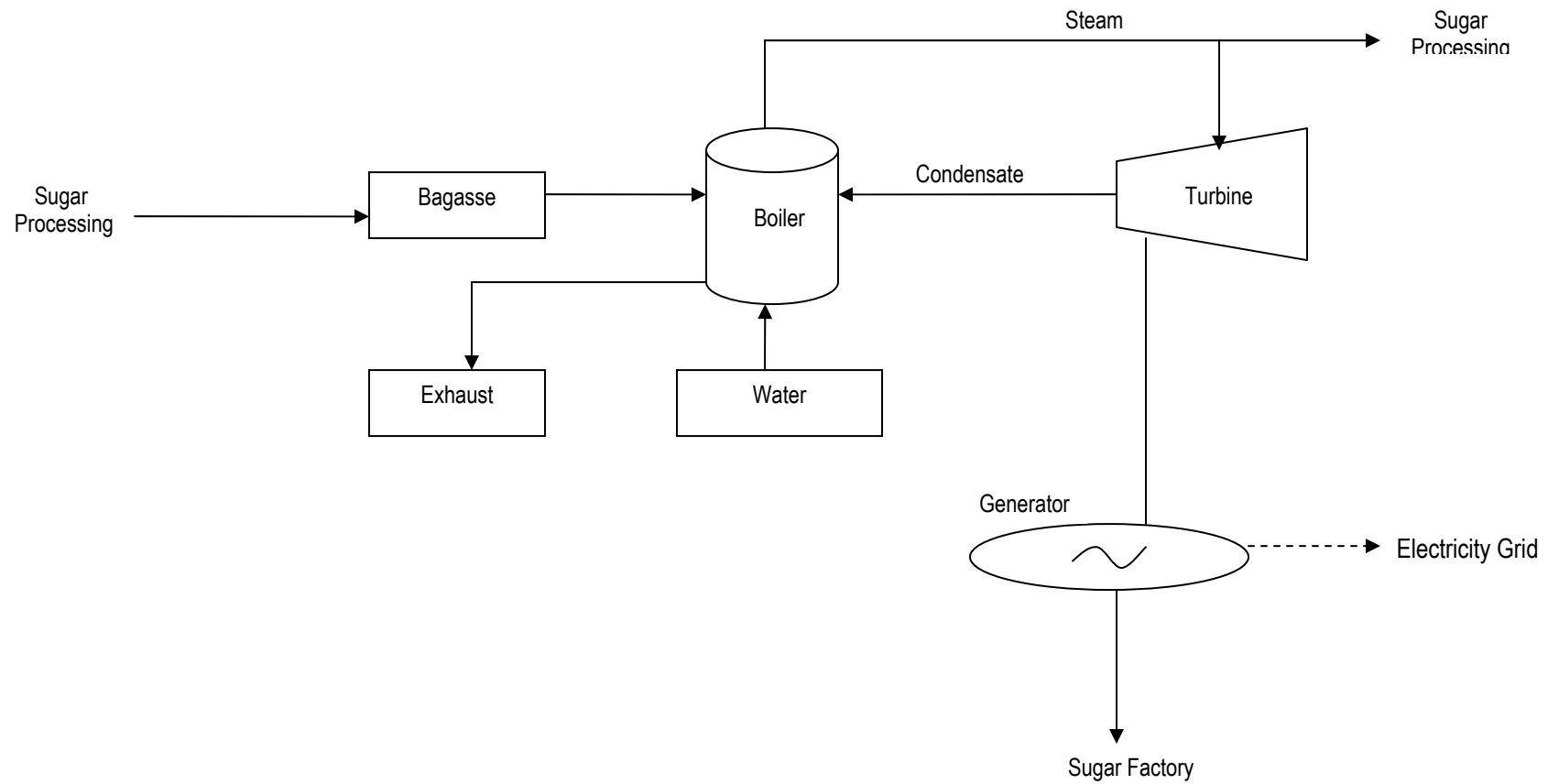


All countries should explore the feasibility of cogeneration facilities. The fibre or bagasse from the sugarcane after it has been milled provides the fuel for the boiler in the sugar mill. That steam from the boiler drives the steam turbine connected to an electrical generator which produces electricity to run the mill as well as supply the national power grid (Diagram 2). To provide power during the whole year, cogeneration power plants would have to use supplemental fuel such as natural gas (or coal) due to insufficient bagasse or difficulty in storing bagasse during out-of-crop season.

Whereas bagasse is an ideal biomass for the production of power, the efficient production of sugarcane is a necessary condition for the success of bagasse based power. Because of the seasonality of sugarcane harvest a cogeneration facility would require supplemental fuel such as coal, natural gas or other biomass. Guyana could explore the substitution of rice husks and/or sawmill residue from its significant rice and wood industries, respectively. Ethanol production could be undertaken by any of the countries if they rely primarily on imported feedstock for further processing and could sell and or export the output profitably.

Research and development (R&D) is an important factor in the development and viability of the activities and processes within the cluster. It is particularly relevant to, among other things, the improvement in cane varieties, supplemental sources of biomass for cogeneration, the use of residue from ethanol production based on local feedstock and other uses of bagasse. There are varying degrees of research capability at national levels. There is the well-known sugarcane breeding station in Barbados as well as the significant research being done by GUYSUCO in Guyana, for example. There needs to be an integrated R&D approach in the region to strengthen capability, avoid duplication of activities and maximise resources.

There are at least two critical requirements for restructuring the sugar industry in the region. One is human capital in terms of both technical and managerial skills and the other is financing for restructuring. The use of biomass for energy would create jobs even for unskilled workers in rural areas. However, ethanol production would have to be on a large scale to generate a significant number of jobs per unit of energy produced. Improved technology and upgraded machinery and equipment would require a more skilled workforce. The region has a dearth of skilled workers. The liberalisation of the movement of skilled labour within the CARICOM region would facilitate the distribution of skills to areas of greatest demand. Nevertheless, the inadequate supply of existing skills would necessitate recruitment from outside the region.

Diagram 2: Sugar industry cogeneration

The cost of restructuring the sugar industry in terms of a cluster of sugarcane related activities would be significant running into millions of dollars per year according to estimates for some Caribbean countries¹⁷. The restructuring of the Guyana industry is being undertaken by the state-owned company with part financing from the World Bank and the Caribbean Development Bank (CDB) and other foreign entities. The Barbados Government would also have to assume the responsibility of securing financing for restructuring by its State-owned entity. Because of budgetary constraints, the Jamaican Government is relying on private sector initiative and investment to lead the restructuring process. The Government in Trinidad and Tobago is also relying on private investment for any further restructuring of its sugar sector. The EU is also committed to providing assistance for the restructuring of the sugar industry in ACP countries.

The importance of the sugar industry to Caribbean countries in terms of its overall contribution to the economies justifies a government led strategy for financing the restructuring of the industry. In large-scale producing countries such as Mauritius and Australia the government has been playing a central role in restructuring programmes. The Government of Mauritius is relying on borrowing to finance the start of its restructuring programme but is hoping to secure the bulk of its financing requirements through proposed assistance by the EU to ACP countries affected by the reform of its sugar regime. Australia, on the other hand, which does not benefit from the EU Sugar Protocol, is supporting restructuring through a package of measures offered by the government including grants to farmers and harvesters who choose to leave the industry as well as to those who restructure their operations.

In Caribbean countries most of the restructuring in the past took place after the Second World War when a measure of stability was restored to the export sugar market and the volatile sugar prices that obtained prior to the war. The Commonwealth Sugar Agreement (CSA) contributed to that stability. Restructuring was mainly in terms of consolidation of factories and technological improvement, namely mechanisation, to improve efficiency and hence reduce costs. In Guyana, for example, restructuring was quite a challenge because of the nature of the land. The complex drainage and irrigation system had to be modernised, which required substantial expenditure. The CSA facilitated restructuring in the post-war period. The upgrading of the sugar industry in Guyana since the divestment of management in the late 1990s was facilitated by the transfers from the EU sugar preferences. The reduction in the guaranteed price, which in turn will result in the reduction of surplus, means that this source of financing would be significantly reduced at a time when the industry needs it the most.

A restructuring fund based on financial allocations from the EU, among other sources, would be a useful mechanism for supporting restructuring measures in Caribbean countries especially within the context of developing a sustainable and integrated sector within the context of the CSME.

¹⁷ Jamaica put the cost of restructuring its industry at US\$672 million over a 10-year period from 2006 to 2015 whereas the proposed Barbados sugar complex is expected to cost \$150 million. The cost of the restructuring plan for Guyana could exceed US\$110 million.

Box 1: Restructuring the Mauritius Sugar Industry

Mauritius is an island with an area of 1860 km² and population of about 1.3 million. It has the largest quota under the EU Sugar Protocol (533,751 tonnes raw value). The bulk (over 90 per cent) of the country's sugar production is directed towards the EU market. During the 1980s the government embarked on a plan to restructure the sugar industry to maintain its viability consequent on the downturn during the 1970s caused by among other things, increase in the sugar export tax and climate change. Restructuring involved consolidation of sugar mills, improvement in irrigation, introduction of high-yielding sugarcane varieties, production of specialty sugars and improved use of sugar by-products such as molasses and bagasse.

Further reforms were pursued during the 1990s and the first half of the present decade. Sugar mills were regrouped and modernised to achieve economies of scale. Consolidation of cane milling also facilitates reduction in the cost of production. Ownership in the sugar industry was broadened by allocating shares in mills and cogeneration plants to small farmers and employees. At the same time labour costs in the industry were reduced through the introduction of voluntary retirement for employees. The current action plan (2005-2015) is aimed at creating a sugar cluster based on increased electricity production from bagasse, increased production of specialty sugars, production of ethanol and the development of other products based on sugar.

Cogeneration in sugar factories was undertaken since the late 1980s. However the amount of electricity produced from bagasse increased significantly from the mid 1990s (from 84 GWh in 1995 to 274 GWh in 2000). Coal has been used as a supplemental fuel in firm power plants that operate year round. All sugar factories are to be equipped with firm power plants, which are considered to have greater efficiency in cogeneration and exporting electricity to the national grid. The current action plan is aimed at producing about 1,700 GWh electricity by 2015 most of which would be based on the use of biomass – cane trash and energy cane and fuel cane. The high fibre content of fuel cane makes it appropriate for the production of energy whereas the energy cane is suitable for both sugar and power production. The use of such canes would also reduce the cost of production in the sugar industry since they require less replanting, are more resistant to diseases and pests and require less weed control. Nevertheless, sugar mills would have to be modernised to improve the efficiency of the use of the bagasse.

The Government of Mauritius played an important role in the restructuring of the sugar industry. Tax incentives were provided for the production of specialty sugars as well as for the use of bagasse to produce electricity. The government and the private sector both actively participated in the restructuring of the sugar industry through the development of a bagasse energy programme that was guided by a high-powered committee chaired by the Minister of Agriculture. Government also established a regulatory framework to encourage private investment in the modernisation of factories as well as in the generation of power.

To ensure the viability of cogeneration in the sugar industry there needs to be a strong link between the electricity utility and the sugar company and an agreement to purchase power from the cogeneration plant. But the most critical ingredient for the success of restructuring is strong support from government in terms of policy towards the sugar industry and incentives provided for development of the various components within the sugar cluster.

Source: Government of Mauritius, "A Roadmap for the Mauritius Sugarcane Industry for the 21st Century"; and "Sugar Cane Bagasse Energy Cogeneration Case Study in Mauritius and Potential for Replication in Fiji".

The rum industry, which is a by-product of the sugar industry, also enjoyed duty free access (subject to quota) for bulk rum to the EU market under the EU Rum Protocol. The quotas on ACP rum imports into the EU market were removed in 1996. However, the preference for ACP countries was eroded by an agreement between the EU and the United States to reduce Most Favoured Nation (MFN) tariffs on spirits to zero¹⁸. The EU has been providing assistance

¹⁸ The United Kingdom Department of International Development (DfID), "Addressing the Impact of Preference Erosion in Sugar on Developing Countries", Oxford Policy Management and LMC International Ltd. 2003

to Caribbean rum producers to improve competitiveness by switching to higher value branded rum.

B. The Banana Industry

B.1 The Windward Islands

Unlike the sugar industry, the banana industry is essentially an agricultural operation – growing and harvesting the banana for export to preferential markets. Banana is the major traditional export of the countries of the Windward Islands in the Eastern Caribbean and the second largest traditional export (after sugar) of Jamaica. The Windward Islands of Dominica, Grenada, Saint Lucia and St. Vincent and the Grenadines have been the countries most affected by the changes in the EU banana regime. Banana exports by these countries declined by 75 per cent between 1992 and 2003. At the same time, the number of farmers as well as the number of banana workers each declined by about 76 per cent. The rate of decline has been less in St. Vincent and the Grenadines compared with the other countries; 67 per cent compared with 83 per cent in the case of Dominica, for example.

The factors responsible for the decline of the industry are mainly the changes in the EU banana regime and the inability of the industry in the Windward Islands to compete due to relatively high cost of production. Inability to compete is due to the small scale of production, hilly terrain and poor soils on which banana is grown, susceptibility to natural disasters and high labour costs. These characteristics are difficult to change and hence the industry's viability was dependent on preferential access to the EU market. The countries would be hard put to maintain a viable industry in the face of an EU tariff of €175 and lower.

The European Union has been providing support (grant funding) to commodity dependent countries under the STABEX (Stabilisation of Export Earnings) facility of the Lomé Convention. This was essentially support to compensate for loss in export earnings due to decline in commodity prices. From 1994 to 1996/97 support was directed at improving competitiveness of banana farmers who had the potential and promoting diversification in cases where competitiveness could not be achieved. The Special Framework of Assistance (SFA) was set up in 1999 to provide assistance to ACP banana industries consequent upon the WTO ruling against the EU banana regime. The SFA was based on a 10-year plan aimed mainly at commercialising the industry, diversifying agriculture and developing social recovery programmes for banana farmers and workers displaced from the industry. In recent years, greater emphasis has been placed on the social recovery programmes.

Funds allocated under the EU support programmes were invested mainly in drainage and irrigation systems and public infrastructure. However, less than 50 per cent of funds programmed for 1999-2001 were spent. Concessionary loans as well as technical support services have been provided to improve farm practice and farm infrastructure. Banana production continued to decline but there has been little evidence of a significant programme of agricultural diversification. The inability of the EU support programmes in achieving their objectives is attributed to a number of factors: the EU funds were unrelated to any assessment of specific

needs or absorptive capacity of the countries; delays in disbursing funds due to EU procedures; the structural character of the Windward Islands; and the heavy reliance on private sector initiative for improving profitability and competitiveness. The last two factors are perhaps the most critical for determining the feasibility of, and requirements for, restructuring the banana industry in the islands.

The Windward Islands are small in terms of both physical size and population size. They produce a narrow range of goods and services, which are geared mainly towards exports because of small internal markets. Crops such as bananas are grown by small-scale producers in poor soil, on hilly terrain and are vulnerable to natural disasters such as hurricanes, drought and flooding. Production costs are high due to relatively high labour costs and small volumes produced, among other things. Farmers have therefore relied on public institutions for support in all areas of production as well as marketing of bananas¹⁹. In addition, farmers received prices higher than world market prices through their guaranteed and preferential access to the EU market.

To be effective EU assistance for restructuring the banana industry would have had to take into account the structure of production and the relationship between farmers and the State. However, the EU approach toward restructuring the industry has been biased towards reliance on market mechanisms and the role of the private sector²⁰. Funding programmes have therefore not been successful in achieving their objectives on account of the failure to factor in the role of the public sector in facilitating access to credit, information, infrastructure, research and technology, among other things.

Traditional banana exports from the Windward Islands would have difficulty in surviving once the EU tariff-only regime based on the recently agreed tariff comes into effect. This is on account of the limited options for restructuring the banana industry in the Windward Islands to make its operations more cost effective. Since the industry would be unable to compete on the basis of price, its survival would depend on its ability to secure a price premium in export markets. This is feasible if its banana could be differentiated by its mode of production in order to secure a niche in export market. Countries have already been pursuing this option through the production of “Fairtrade” bananas.

The Fairtrade Initiative was launched in 1996 to assist small farmers and workers in industries that have been adversely affected by developments in international trade regimes. It provides market access and fair and guaranteed prices to farmers who minimise the use of fertilisers and pesticides and replace them slowly and in part with organic fertilisers. Fairtrade encourages farmers to work towards organic certification in order to earn premium prices. Fairtrade also provides a social premium for investment in projects that improve social and environmental conditions.

The Windward Islands made their first shipment of Fairtrade bananas in 2002. Exports from Dominica have grown significantly since then. However, the export market is unlikely to be

¹⁹ Areas include infrastructure, credit, inputs, technology and shipping facilities. See “Agricultural Development and Economic Diversification in the Windward Islands”, Oxford Policy Management, June 2005.

²⁰ This observation is made in the report cited in Note 11.

able to absorb all the output at the premium prices that can be produced by those countries. This has already been the experience of Dominica, which had to sell its excess output at lower market price.²¹ Countries have therefore been diversifying into other Fairtrade products such as mangoes, limes and sweet potatoes. Nevertheless, for countries to remain competitive in producing and trading in bananas they would have to restructure by consolidating farms. Larger-scale farms would facilitate increase in yields as well as uniformity of bananas produced. The option of full conversion to organic bananas may be more feasible on such farms although organic farming is difficult to undertake²².

B.2 Jamaica

The banana industry in Jamaica differs from that in the Windward Islands in terms of both size and structure. Banana is produced mainly for export by three large-scale estates operating under one group, the Jamaica Producers Group (JP). The latter is the sole owner of the Saint Mary Banana Estates but holds 55 per cent of the shares in each of the other two estates, Victoria Banana Company and Eastern Banana Estates. Fyffes Plc (United Kingdom distributor) holds 40 per cent and the Government of Jamaica 5 per cent in each of those estates.

About 450 individual growers also exported bananas until 2001 when they declined to about 155 regular exporters. Banana production, area cultivated and exports have been declining since the changes in the EU banana regime and also as a consequence of the introduction of the “Black Sigatoka” disease in 1996, which affected in particular small and medium banana producers.

The advantage that the Jamaica banana industry has lies in its scale of operation and vertical integration. Jamaica Producers Group is not only a large-scale producer of bananas but also ships and markets bananas in the United Kingdom through subsidiaries. The subsidiary distributor in the United Kingdom is a joint venture between JP and the American company, Dole, and has a market share of 15 per cent in the United Kingdom, which is supplied by bananas from ACP, Latin America and EU sources. The banana industry also benefits from other institutions that provide specific services. The Banana Export Company (BECo) purchases bananas from growers and sells to the EU at prices negotiated by the State-owned Jamaica Marketing Corporation (JAMCO) based in the United Kingdom.

As in the case of the Windward Islands, Jamaica has been benefiting from EU support programmes to the banana industry – the Banana Support Programme (BSP) from 1996 and the SFA from 1999, which is aimed at the improvement of the competitiveness of the industry. As was observed in the case of the Windward Islands, less than 50 per cent of the funds committed under the EU programme were actually disbursed.²³ The BSP has been instrumental in facilitating improvement in the quality of bananas exported since 1996, however, lower prices have been paid for the higher quality of bananas exported. Since the EU support programme has

²¹ Dominica is the main exporter of Fairtrade bananas in the Windward Islands. See “Agricultural Development and Economic Diversification in the Windward Islands”.

²² This type of farming is examined in “Free Trade and the Development of Sustainable Agriculture in the Caribbean”, ECLAC, Port-of-Spain 2004.

²³ An assessment of the 1999 Banana Country Strategy was done by consultants for the EU and presented in a report on “Study to Update the 1999 Banana Country Strategy” in 2002.

been geared toward improving the competitiveness of the banana industry, the question to be addressed is how viable is the industry in the face of the tariff-only banana regime due to take effect from 2006.

As far as production costs are concerned these have been decreasing since the late 1990s. Production cost per hectare declined by 30 per cent between 1997 and 2000 and by 20 per cent over the 1997-2001 period. The Victoria Banana Company has the lowest production cost whereas the Eastern Banana Estates has the highest cost. Production costs of non-estate export oriented banana producers are comparable to the high cost estate producer. However, most of the exporters are medium to large-scale growers. Small farms were responsible for less than 14 per cent of the bananas exported in 2001. Most of the growers who left the industry consequent upon the changes in the EU banana regime were small-scale farmers. The viability of the export industry is therefore linked to the viability of the estates and the marketing entities.

Although the profits of Jamaica Producers Group from banana production and sales have been declining, the company is involved in other revenue generating activities through its many subsidiaries and equity investment in associated companies in Jamaica and Europe. The Banana Export Company derives its revenue from the sale of bananas as well as from the sale of its share of import license that Jamaica cannot use because of inability to satisfy quality standards. Both sources have been declining due to the changes in the EU regime. However, the decline in revenue (60 per cent)²⁴ has been more or less compensated by the decline in costs (65 per cent) between 1996 and 2001. Nevertheless, the steep decline in both has left a relatively small net income for redistribution to banana growers in 2001 (US\$19,000) compared to 1996 (US\$47,000).

Both estates and other medium-to-large banana farmers can retain viability in exporting bananas to the EU at a relatively low tariff rate of €70 per tonne, which is below the rate currently applied (€75 per tonne) to quota imports into the EU from Latin American producers. The decline in cost of production and the improvement in yields, facilitated by the EU support programmes, have contributed to the viability of the banana industry. However, the level of sustainability of the industry would depend on increased production and improvement in meeting high quality standards.

Producing for the domestic market as well as processing the bananas contributes to the viability of the industry. However, the tendency has been to sell bananas that do not meet export quality standards in the domestic market. The domestic market is therefore treated as a residual for the non-exportable surplus. The potential in the domestic market is for the supply of ripe bananas, green bananas and processed bananas in the form of pre-cooked and packaged green bananas and banana chips. A greater margin is obtained on the sale of ripe bananas than on green bananas. Most of the bananas rejected for exports are sold to the processors of banana chips. Despite the market potential for banana (and plantain) chips, processors tend to have difficulty in obtaining enough of the raw material at reasonable prices and have therefore had to resort to imports to satisfy domestic demand. Some processors export both banana and plantain chips to

²⁴ Calculated from data on BECo income and expenditure for 1996-2001 in the "Study to Update the 1999 Banana Country Strategy".

the United States, the United Kingdom, Canada and the Caribbean. However, they are similarly constrained in their inability to obtain locally the raw material for processing.

Restructuring in the case of the banana industry would be difficult if the objective is to improve competitiveness to supply the bulk market. This is especially so for countries in the Windward Islands given their topography and small scale of production. But even Jamaica with its relatively large-scale and integrated operations would find it difficult to compete with large-scale Latin American producers in a liberalised banana market. The changes in the EU regime since the early 1990s have led to a significant decline in the Caribbean ACP supply of bananas to the EU, from 10 per cent in 1990 to 4 per cent in 2003.

Public policy towards the banana industry in Jamaica is lacking in specificity and focus and is therefore comparable to what obtains in the Windward Islands. Policy makers in the two sets of countries tend to rely on private sector initiative and donor agency programmes for restructuring the banana industry and implementing measures for diversification out of banana production.

A case in point is the campaign in Jamaica by the Ministry of Agriculture and the EU Support Programme that is encouraging increased domestic consumption of bananas. However, although there is high demand for bananas as well as plantains on the local market, there is difficulty in getting a consistent quality of supply. Other constraints are lower productivity due to, among other things, the use of a lower level of technology, high cost of inputs, insecurity of land tenure and inadequate infrastructure and marketing arrangements. Improvement of quality and efficiency in production are critical requirements in developing the local and regional markets for banana.

Producing for niche markets is the more viable option for the banana industry in the region. This requires investment in newer and advanced technologies, machinery and equipment and research and development into different varieties of the fruit. It would also require development of the human capital element in the production and distribution processes.

B.3 The rice industry²⁵

The rice industry is the second largest agricultural industry in Guyana, second only to the sugar industry. Like the sugar industry it is export oriented accounting for about 14 per cent of total exports. Most of the exports are directed towards the EU market where they enjoy preferential access. The industry contributes directly to the livelihoods of about 10,000 farming families and both directly and indirectly to about 14 per cent of the population. Unlike the sugar industry, the rice industry is made up of private and mainly small-scale farms with average size of about 4-8 hectares. There are over 80 licensed rice mills with a total capacity of over 240 Mt/h.

²⁵ Most of the discussion in this section refers to the rice industry in Guyana. The rice industry in Suriname remains largely State-owned although privatisation was recommended in September 2005. Although Belize is more or less self-sufficient in rice production it is not currently a rice exporting country.

Guyana's rice industry, although operated largely by private producers, was heavily regulated by government from the 1970s to the early 1990s. A number of State entities were engaged in activities such as purchasing rice from private producers at fixed prices, operating government owned mills²⁶ and regulating rice exports through licensing and quality control. The industry was restructured during the 1990s so as to reduce the government's role. Price controls were abolished and the milling and export functions were privatised.

The restructuring of the 1990s improved the competitiveness of the industry. Area harvested more than doubled from 1990 to 1999, production increased threefold and yield increased by about 26 per cent over the period. Nevertheless, the cost of production remained high compared with costs in other countries and the world price,²⁷ which would affect Guyana's ability to compete in the market for bulk (unprocessed) rice. Guyana's strategy is to increase yield and thereby reduce unit cost. Other measures to improve competitiveness include reduction of shipping costs, increase in productivity and improvement in the quality of the rice.

The European Union has made available a grant of €24 million to enhance the competitiveness of the rice industry in the Caribbean in light of the erosion of preferential market access. Guyana will benefit from €11 million of this amount, which will cover technical assistance in the form of expertise, training and technical support in establishing national strategies and policies, rehabilitation of infrastructure and training in improved production techniques among other things. The funding will extend over a six-year period beginning in 2006. The country's rice industry will also benefit from a soft loan of €3.2 million for procurement of drainage and irrigation machinery and equipment. Although it is not possible at this time to make an assessment of the likely impact this assistance will have on the restructuring of the rice industry, it is hoped that the lessons learnt from the EU support programmes for the banana industry will contribute toward effectiveness of the rice support programmes.

The restructuring of the rice industry in Guyana is aimed primarily at ensuring its survival as a rice producing and rice exporting industry. Hence the focus on improving the competitiveness of its existing products such as brown rice, white rice, parboiled rice and paddy rice. Nevertheless, it is recognised that diversification within the rice industry can contribute to the development of value added products. However, the initiative for such development is left to the rice millers and other processors and to the Guyana Rice Millers and Export Development Association (GRMEDA), which is expected to obtain information on alternative uses of rice and determine the feasibility of applying the technology in Guyana.

Adding value to the rice produced by using, for example, the by-products to make other related products would ensure the sustainability and competitiveness of the industry in the face of increased trade liberalisation. Value-added products would also contribute toward employment creation, higher quality of jobs and income for farmers and other small-scale producers. Branding, packaging and labelling are also important for differentiating the product and targeting niche markets. The cluster concept explored in relation to the sugar industry is also

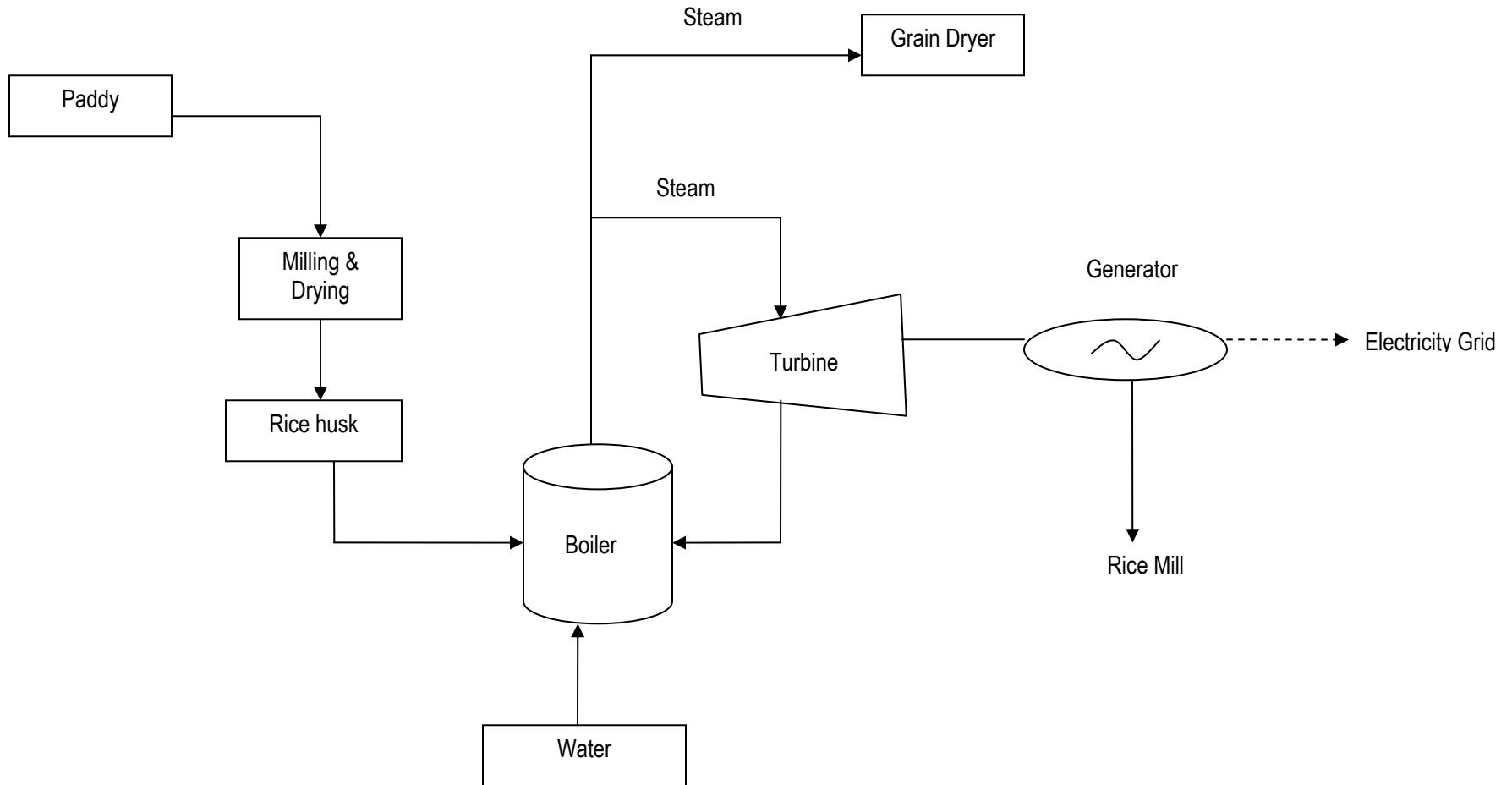
²⁶ Government owned most of the milling capacity in the industry.

²⁷ Cost of production (at 1995 constant prices) for large farms was about 67 per cent above the world price for rice whereas the cost for small and medium farms was almost double the world price. Estimates taken from Guyana National Development Strategy for 1996.

relevant to the rice industry. The cluster would include field operations (growing of the paddy), processing (de-husking and milling) and production of specific types of rice such as white rice and parboiled rice and use of the by-products such as rice husk for fuel and rice bran for livestock feed.

The most significant element in the cluster is that of cogeneration using the rice husk as fuel. For every 1000 tonnes of paddy about 220 tonnes of husk could be produced. And for every tonne of husk about 681 kWh of energy could be generated. A cogeneration plant within a rice mill complex would not only address the electricity needs of the rice mill but could also contribute power to the national grid. This represents a situation similar to that of cogeneration within a sugar factory. The rice husk power plant could also be fired with bagasse and wood waste. Guyana's sugarcane and forestry resources should be able to provide the inputs for the process. Nevertheless, Guyana is a large producer of rice and so should be able to provide enough rice husks for cogeneration purposes.

Power generation in a rice milling complex is illustrated in Diagram 3. Rice milling requires electricity for driving the motors and heat for drying the grain. The steam turbine cogeneration system can satisfy both of these requirements. The boiler generates steam which is converted into mechanical energy. The generator converts the mechanical energy into electrical energy which is then used to power the mill and can also supply electricity to the national grid.

Diagram 3: Rice processing using a Steam Turbine Cogeneration System

Trinidad and Tobago is also a producer of rice although on a relatively small scale compared to Guyana. The industry has been on the decline since the early 1990s when paddy production peaked at 19,090 tonnes in 1992. Trinidad and Tobago is a net importer of rice. In 2002 the government developed a rice industry plan to produce about 20,000 tonnes of rice to satisfy 30 per cent of domestic demand. However paddy production continued to decline. The number of rice farmers also declined from 6,000 in 1992 to 47 in 2004. Reasons given for the decline include the removal of farmers from the Nariva Swamp, poor quality of paddy produced by small farmers and the shortage of labour for rice production.²⁸

In pursuit of government's objective of increasing self-sufficiency in rice production, farmers are guaranteed a fixed price based on the grade of paddy. The government subsidises the price paid to farmers for delivery of paddy to the sole rice mill. The level of subsidy varies according to the grade of rice. In 2003, for example, government subsidy represented 67 per cent of the total price paid to farmers. Despite the guaranteed price and subsidy paid by the government, rice production continued to decline in 2004.

A major factor in the decline of production was the closure of the sugar company, Caroni Limited, which cultivated about 81 hectares and accounted for about 45 per cent of total rice production. However, the government had, since the closure of Caroni, allocated land for rice cultivation to Nariva Farms Limited and Caribbean Rice Association of Trinidad and Tobago. Research on new varieties of rice as well as the application of new technology has been pursued to help farmers reduce cost of production and increase yields and quality.

The rice industry is in danger of further decline with the closure of the sole rice mill at the end of December 2005. The mill, which is majority owned and operated by the State-owned National Flour Mills (NFM), purchased paddy from the farmers and processed it into white rice since 1985. The mill is said to have been operating at a loss for years and was therefore not commercially viable. Losses were over US\$2million between 1997 and 2003 and are projected to be over US\$1million from 2004 to 2005²⁹. NFM has however indicated its willingness to lease/sell its rice mill facilities to farmers. But it is unlikely that farmers would be able to profitably operate the rice mill facilities without the benefit of subsidies.

CARICOM is Guyana's second largest market for its rice exports. Extraregional imports of rice are subject to the CARICOM CET. However, countries in the region including St. Vincent and the Grenadines, which owns a rice mill in Guyana, have been importing rice from outside of the region without paying the CET or only partially applying the tariff.³⁰ Guyana's complaint is being addressed by the twentieth meeting of the CARICOM Council for Trade and Economic Development (COTED).

B.4 The cement industry

The cement industry unlike the banana, sugar and rice industries is largely a domestic-oriented industry located in Barbados, Jamaica and Trinidad and Tobago. It has operated as a

²⁸ "Review of the Rice Industry in Trinidad and Tobago in 2004", Ministry of Agriculture.

²⁹ *Sunday Guardian* (Trinidad) 15 January 2006

³⁰ *Guyana Chronicle* 13 January 2006

monopoly in each country with protection from competing imports through relatively high tariffs on imported cement. The industry in Jamaica is the oldest one having been in operation since 1952. The cement company in Trinidad and Tobago was established in 1954 and the Barbados company in 1981 although the Barbados operation did not commence until 1984. The Jamaican and Trinidad operations started as private sector operations whereas the Barbados operation was a joint venture between the Governments of Barbados and Trinidad and Tobago.

As was the case of the sugar industry in the region the cement industry came within the State sector during the 1970s and early 1980s when Caribbean governments gained control of strategic sectors of their economies. And as was the case of sugar, the cement industries experienced financial losses during the period of State ownership. In Trinidad and Tobago, for example, the government had to provide subsidies to meet the cash needs of the cement company during the 1980s. Nevertheless, the company continued to make losses and accumulate debt. In Jamaica, the government privatised the management of the cement company during the 1990s. Divestment of the majority shares in the cement companies was adopted by the governments of the region between 1989 and 1999.

Restructuring of the cement industry in the early years (1960s) was essentially expansion of productive capacity. During the period of State ownership, a modernisation project was carried out in the early 1980s in Jamaica, which included the use of coal as the main fuel in the plant. At the same time in Trinidad and Tobago the cement company completed a major reorganization of its plant that covered quarrying, manufacture and packaging and distribution. Privatisation of the cement industry facilitated another phase of restructuring that resulted in a vertically integrated industry operating as a transnational enterprise within the Caribbean.

The industry in each country is controlled by the Trinidad Cement Limited (TCL) Group based in Trinidad and Tobago as a result of the acquisition of Arawak Cement Company Limited (ACCL) of Barbados in 1994 and the purchase of majority shares in Caribbean Cement Company Limited (CCCL) in Jamaica. TCL has also established a trading company in Anguilla (1997) and a bagging terminal in Guyana (2004). Vertical integration of the industry in the region was facilitated by the acquisition by CCCL in 1990 of Jamaica Gypsum and Quarries Limited as a wholly-owned subsidiary.

Progressive import liberalisation since the 1990s provided competition for Caribbean produced cement. Cheap foreign imports of cement led the cement company in Jamaica to embark on expansion plans in 2003 to put it in a position to compete with foreign producers. As a condition of its investment in the modernisation of its plant, the company was counting on the government to increase the tariff on imported Portland Grey Cement from 15 per cent to 50 per cent. The Jamaican Government recognised that without adequate protection the viability of the Caribbean cement plant could not be guaranteed. In return for protection against foreign imports CCCL gave a commitment that the price of cement would remain constant in United States dollar terms. In 2004 the Jamaican Government raised the tariff on imported cement from 15 per cent to 40 per cent. And in 2005 TCL and CCCL embarked on a major restructuring of the cement plant in Jamaica.

The objectives of the restructuring are to expand capacity to meet the needs of the regional market for cement and reduce unit costs while improving environmental performance. A significant feature of the restructuring is the construction of a new kiln (Kiln No.5) that will increase the clinker³¹ capacity of the plant from 650,000 to 1,300,000 metric tonnes of clinker per year. The new kiln will be a dry process line with features of energy conservation and environmental protection. The company's existing dry process line is to be modified to improve emissions and its wet process plant, which has significantly higher fuel requirements, is to be retired.

TCL embarked in 2004 on another phase of expansion to bring the capacity of its plant in Trinidad and Tobago to 1,200,000 tonnes. However, it has retained its wet process cement plant that was built in the 1950s. The justification is the location of the quarrying and grinding of the raw material from the processing plant³². However, in Jamaica the quarrying function is located 16 km from the plant but the wet process technology is being abandoned for newer more efficient technology. Although abandoning the wet process technology makes more sense in energy-deficient Jamaica on account of its high energy requirement, Trinidad and Tobago would also benefit from a more sustainable and environmentally friendly approach to the development of its cement industry. The advantage of the wet process is that it significantly reduces dust levels, which adversely affect communities in the vicinity of the cement plant. The disadvantage is that the process requires more energy to remove the water from the raw output.

There are two other factors that would enhance the competitiveness of the cement industry in the region. One is the production of value-added products and the other is the use of alternative sources of energy in the production process. CCCL has introduced a new product, Carib Cement Plus, which is a blended cement product using a percentage of pozzolans³³ to replace the ordinary Portland cement clinker in the cement mix. This new product is expected to improve production efficiency and lower operating costs. The Carib Cement Plus is expected to increase the strength of the ordinary Portland cement. TCL in Trinidad and Tobago introduced specialised cement for the oil industry. As a result, TCL has increased its market share consequent on the acceptance of the product in the industry. Export markets are being explored for the product.

The other factor is reducing the resource intensity of the production process. Cement manufacturing is the largest consumer of energy (about 74 per cent) in the process from quarrying to concrete production. Increasing competitiveness of the cement industry requires improving energy efficiency and reducing environmental pollution from CO₂ emissions. The CCCL plant in Jamaica uses coal as its fuel. The cost of this source of energy is lower than the cost of petroleum or natural gas, all of which Jamaica has to import. Coal produces almost twice as much CO₂ as natural gas. However, changes in technology that reduce carbon dioxide

³¹ **Clinker** is an intermediate product in cement manufacturing consisting of decarbonized, sintered and rapidly cooled limestone. It is produced by subjecting the raw material (mainly limestone), which has been crushed, ground and blended to very high temperatures in rotary kilns.

³² The quarry is located 10 km from the plant. TCL considers that pumping the raw material in the form of slurry is the only economical way of getting it to the plant.

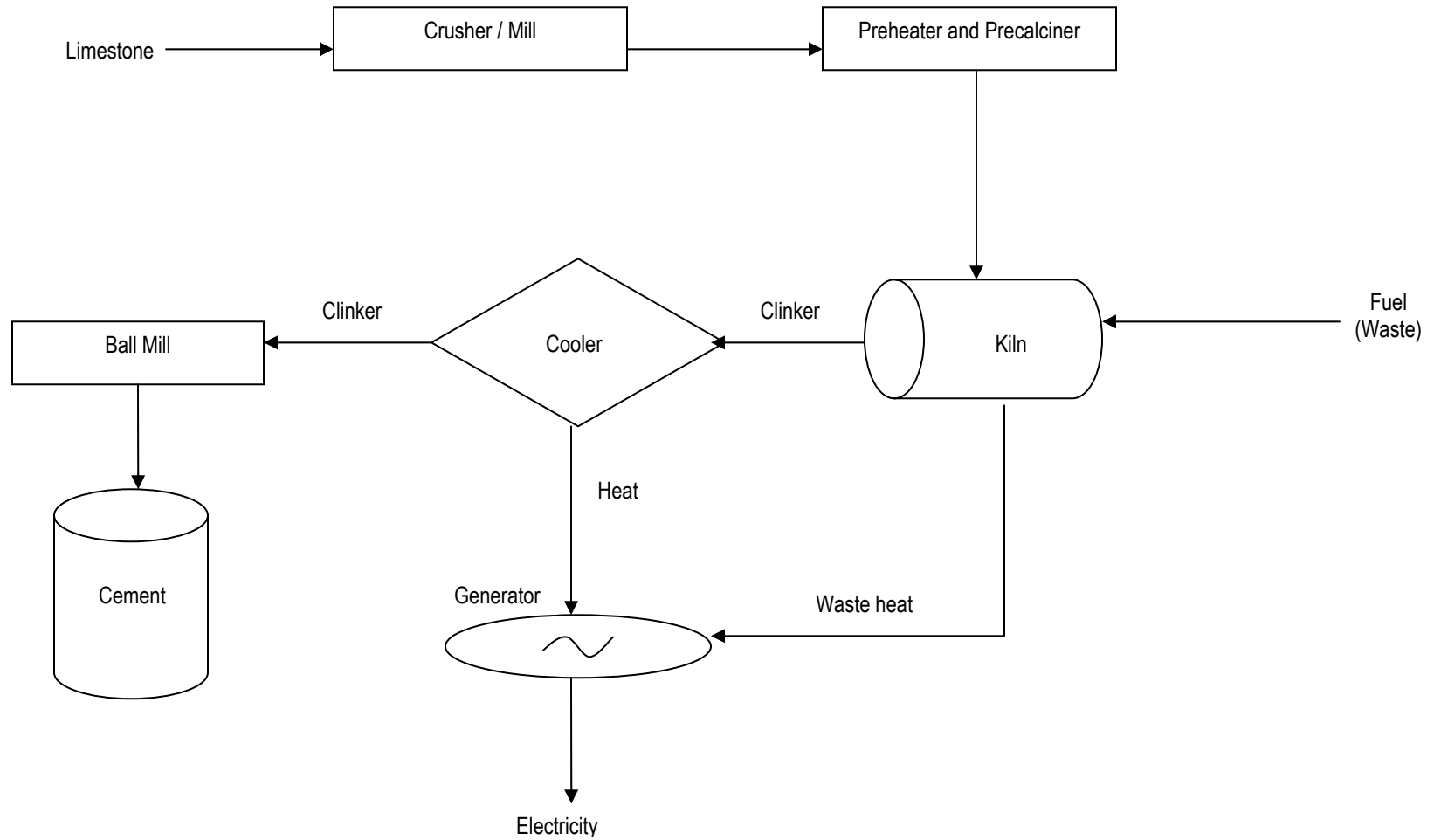
³³ **Pozzolans** are supplements such as fly ash, which is a residue from coal fired power plants. CCCL uses coal as a fuel in its manufacturing process.

emissions from coal-fired plants can justify the retention of coal as the source of fuel in countries dependent on energy imports.

TCL, however, has been examining the feasibility of using waste to fuel its cement kilns in order to protect the environment among other things. Consideration should be given to burning alternatives (biomass or other waste materials) to the conventional fossil fuels in the cement processing plants. The main advantage of using waste fuels is reducing dependence on imported fuels. Such use would also provide an alternative to landfills for disposal of waste materials.

Cogeneration in the cement industry is another option that can be considered especially by countries such as Jamaica which are heavily dependent on energy imports.³⁴ In dry process cement plants waste heat constitutes over one third of the heat input in the process. That heat along with the clinker heat from the cooler can be used to generate electricity. This is done through the use of what is called “bottoming cycle” cogeneration in which the fuel supplied produces high temperature thermal energy and the waste heat from the process is converted into electrical energy by a turbine generator (see Diagram 4). This type of cogeneration scheme is suitable for cement plant kilns which require heat at high temperatures and also reject heat at high temperatures.

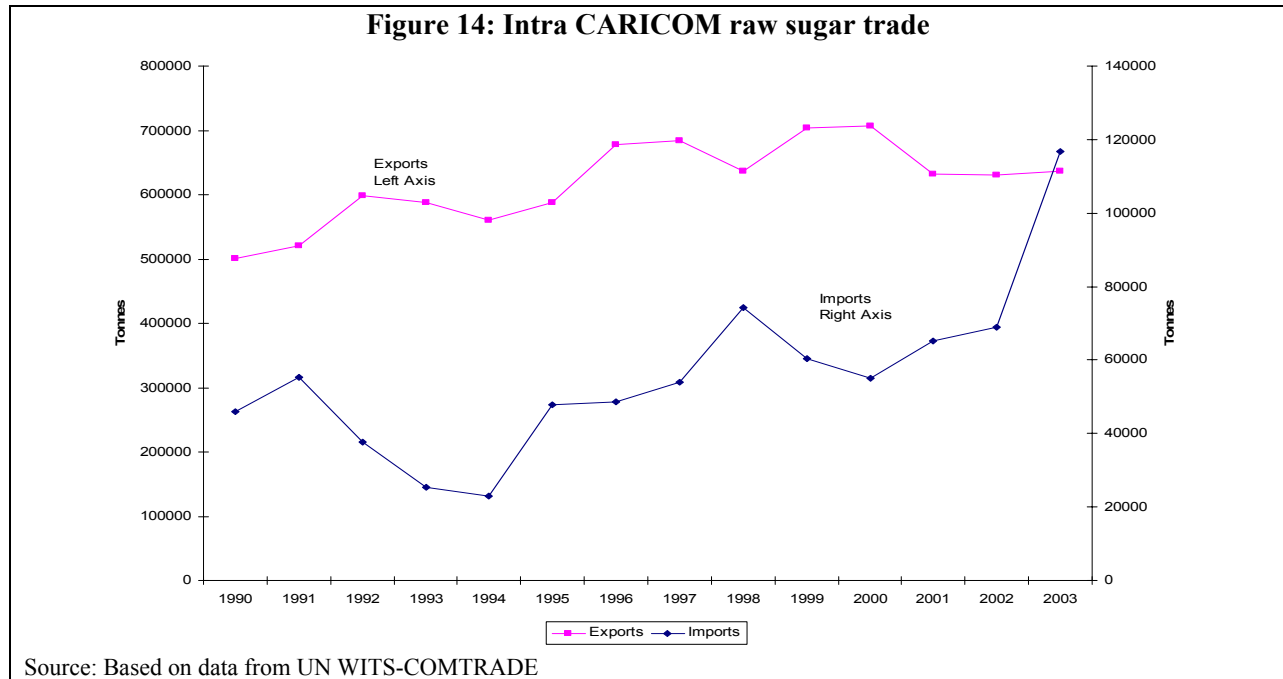
³⁴ Asian countries such as China and Japan rely on cogeneration systems to power their cement industries.

Diagram 4: Cement manufacture and cogeneration

4. Producing to meet domestic and regional requirements

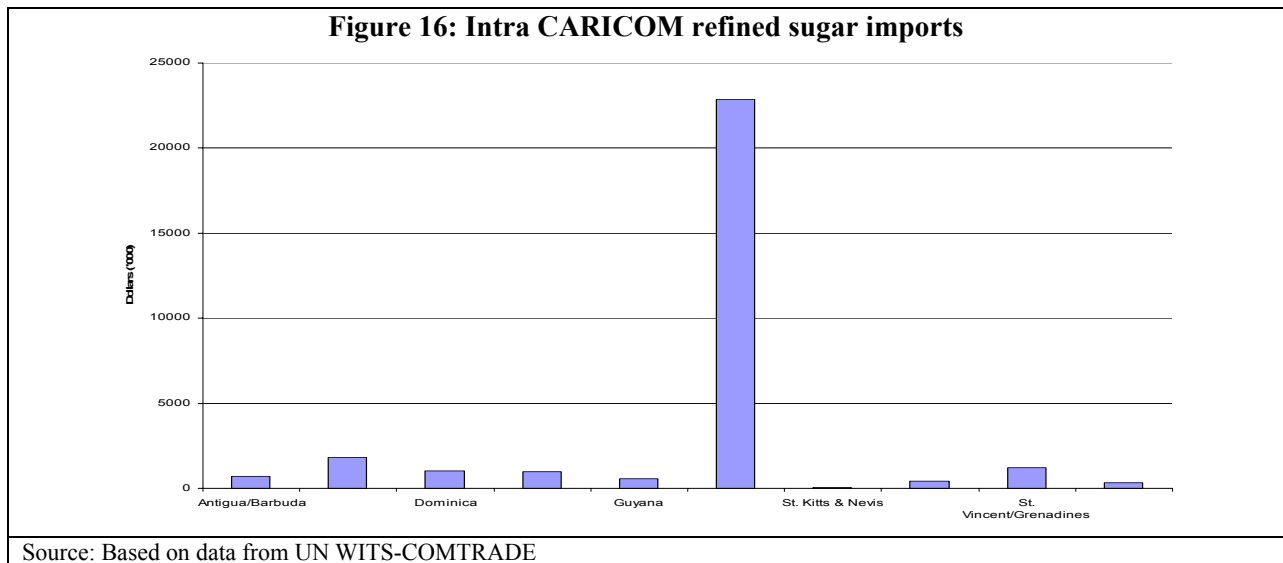
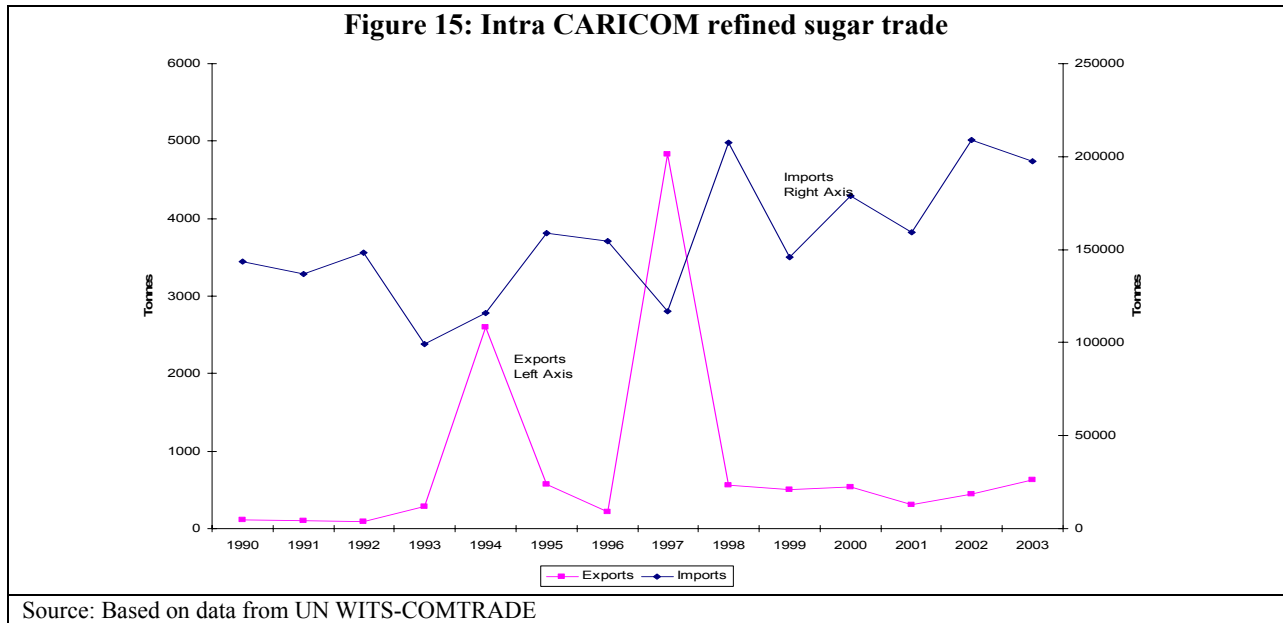
Restructuring production within various industries in Caribbean economies should not be focused exclusively on satisfying the requirements of external markets, although the high quality standards in those markets are objectives that should be aimed at. Production structures in the region have been established to serve mainly the trade arrangements with developed countries to which Caribbean countries were linked as colonies. Sugar production, established since Europe discovered the Caribbean territories, was geared toward satisfying the requirements of European industries. The banana industry was established during the early twentieth century as an export industry. Although the rice industry was developed for domestic consumption,³⁵ the expansion of rice production in Guyana resulted in the first exports being made to other Caribbean countries in 1905. The industry has become export-oriented with about 70 per cent of production being exported.

Restructuring the sugar, banana and rice industries should take into account the whole chain from production to processing, packaging and marketing. Whereas there is potential for increased intraregional trade, there needs to be improvement in quality and consistency of supply as well as in distribution and transport infrastructure. The CARICOM region is a net exporter of raw sugar (Figure 14). Guyana exports a high grade direct consumption raw sugar to CARICOM countries. Such exports increased significantly from 29,792 tonnes in 1999 to 42,035 tonnes in 2000 and to 87,985 tonnes in 2003.

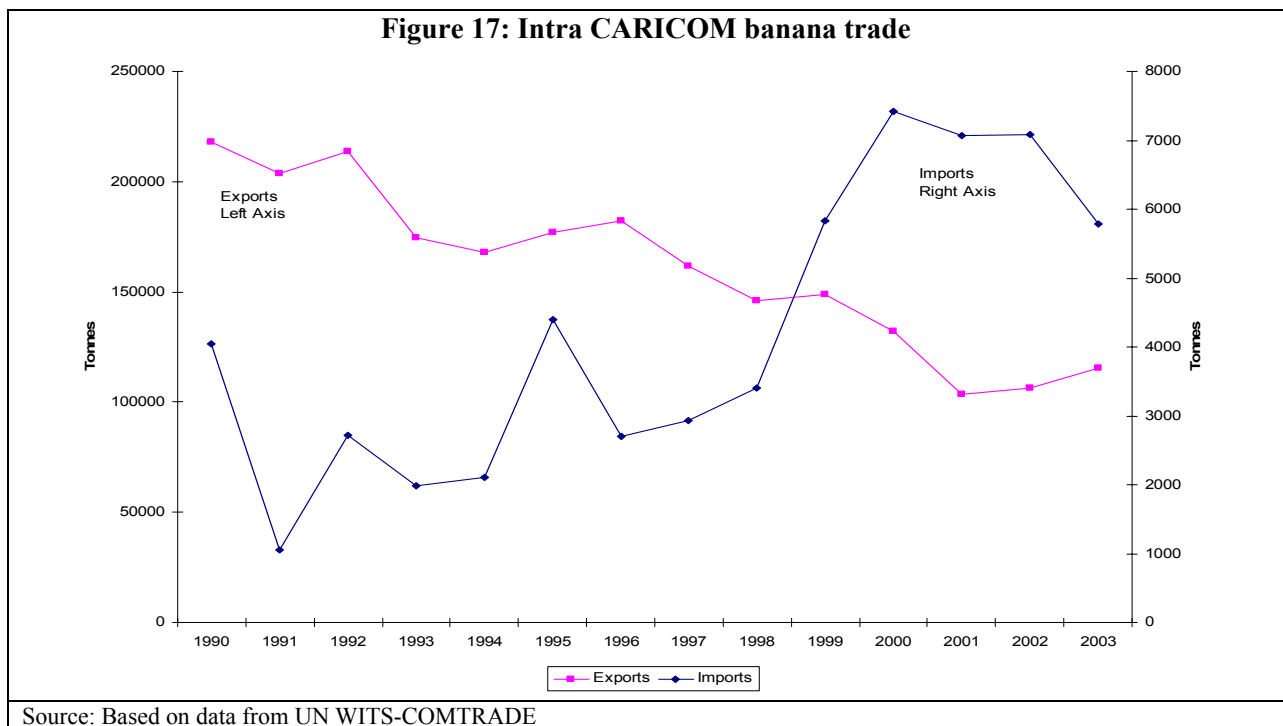


³⁵ Rice was introduced by the Dutch in Guyana during the eighteenth century to supplement the diet of slaves on the sugar plantations.

The region is a net importer of refined sugar (Figure 15). Imports have been increasing since the late 1990s but exports have barely grown over the period. Trinidad and Tobago has been the main exporter of refined sugar in the region but has been unable to increase output due to the restructuring of its sugar company. Jamaica is the main importer of refined sugar, followed by Barbados and St. Vincent and the Grenadines (Figure 16). Although Trinidad and Tobago has a competitive advantage in producing refined sugar on account of its energy base, the decline in its raw sugar production capability would leave the refinery dependent on raw sugar imports and the relatively high transportation costs within the region. On the other hand, the proposed installation of refining capacity and power generation in the Guyana sugar industry along with the significant level of its raw sugar production would give Guyana an advantage in satisfying the demand for refined sugar in the region.



Caribbean countries are net exporters of bananas. However banana exports have declined significantly over the 1990s whereas banana imports have increased significantly over the same period. The marked reversal in trends is illustrated in Figure 17. CARICOM imports are essentially imports from within the region, which indicates diversion of extraregional exports towards the regional market. Banana exports can also be targeted at the tourism segment of the export market. The main exporters of banana in the region are Dominica, Saint Lucia and St. Vincent and the Grenadines. The main importers are Antigua and Barbuda, Barbados, St. Kitts and Nevis and Trinidad and Tobago. Most of the trade in bananas is among the countries of the eastern and southern Caribbean. Jamaica hardly participates in regional banana trade. Part of the reason is the small size of those markets relative to Jamaica and compared with extraregional markets. Domestic and tourism markets would seem to hold the greatest potential for diversifying banana exports.



Rice is a main staple in most Caribbean countries. The rice exporters to the region are Guyana, Suriname, St. Vincent and the Grenadines and Trinidad and Tobago. St. Vincent and the Grenadines and Trinidad and Tobago process and export mainly parboiled rice. Trinidad and Tobago exports most of its rice to Grenada, Dominica, Saint Lucia and Antigua and Barbuda, whereas Guyana exports most of its rice to Jamaica, Trinidad and Tobago, Saint Lucia, St. Vincent and the Grenadines and Dominica. CARICOM countries import rice from other areas such as the United States, Thailand and India.

The decline in rice production in Guyana had led to increased rice imports in Jamaica from the United States. For Guyana to secure the CARICOM market for its rice exports it would have to produce high quality rice at a competitive price. The restructuring of the rice industry

with support from the EU is aimed at that objective. The CARICOM CET on imported rice was reduced from 30 per cent to 25 per cent in 1996. This is an exception as the CET applied to agricultural imports is 40 per cent. Nevertheless, some importers from the region have been importing rice from outside the region and not paying the CET. Guyana has raised this issue with CARICOM authorities referring to the case of St. Vincent and the Grenadines, which owns a rice mill in Guyana but nevertheless has been importing rice from outside the region without paying the CET.

The cement industry in the region is unique in that from its inception it was geared toward satisfying requirements in the Caribbean region. Cement demand in producer countries as well as in other countries in the region is estimated to grow significantly over the next 10 years or so. The expansion envisaged at the plants in Jamaica and Trinidad and Tobago is intended to satisfy the growing demand. The industry would have to reduce costs and increase its value added products to meet the challenge of import tariff reduction.

Enhancing regional trade in the above commodities requires a number of conditions such as:

- (a) Full liberalisation of intra-CARICOM trade as envisaged by the CARICOM Single Market;
- (b) Improvement of transportation infrastructure and, hence, reduction of cost;
- (c) Improvement in quality standards and packaging; and
- (d) Increased cooperation in production, distribution and research and development.

Although CARICOM products are in principle free to move within the region, trade is nevertheless subject to restrictive measures in some countries such as environmental levy, foreign exchange tax, additional stamp duty, non-automatic licensing and monopolistic import entity. These measures together with high intraregional transport costs tend to favour extraregional over intraregional trade. A regional approach to production and trade based on free trade as well as the free movement of factors of production would contribute toward meeting the development objectives of individual countries as well as of the region as a whole. It would also position countries to take advantage of export opportunities in extraregional markets.

5. Conclusion

Despite the constraints on moving forward the Doha Round of Trade negotiations, trade liberalisation will continue to be a feature of trade arrangements between Caribbean and other developing as well as developed countries. Some level of reciprocity in trade will inevitably be a feature of any forthcoming Economic Partnership Agreement (EPA) with the EU. Caribbean countries therefore need to position their economies and particular industries to both take opportunities to increase access for their exports as well as to be able to withstand competition from imports. The Caribbean Single Market, which took effect from January 2006, should be

used to strengthen the ability of industries and firms to compete in regional as well as in extraregional markets. Producers as well as consumers would have to change their approach from producing almost exclusively for export markets while consuming increasingly imported goods. However, it is incumbent on producers to maintain adequate supplies of good quality products in order to encourage increased consumption of domestic products. Guyana has moved in this direction with its sugar exports to CARICOM countries.

Restructuring approaches of the industries examined in this study point to the need for an integrated approach to restructuring both at the national and regional levels. For example, most of the countries in the region, except Trinidad and Tobago, are dependent on imports to satisfy their energy requirements. The prices of oil and gas have skyrocketed within the last couple of years. Sugar is a major export industry that is facing price reduction in its premier export market. The industry is both a user and producer of energy, the latter being based on biomass, which is more environmentally friendly. Caribbean countries also import significant amounts of sugar from extraregional sources. Restructuring should therefore attempt to satisfy domestic demand for sugar, increase production of energy for sale to the national power grid and produce differentiated products for sale to both regional and export markets.

The question that is at the heart of restructuring is whether it makes sense for Caribbean countries and other ACP countries as well to continue to produce commodities like sugar, bananas and rice given their relatively high cost of production and dependence on export preferences, which have been eroded. Agroprocessing of a domestic crop (sugar-cane) facilitated the development of a primary phase of industrialisation, which could have been extended to higher stages of manufacturing. Colonial status and foreign investment by British-based multinational companies precluded the development of, for example, related input industries such as machinery and equipment. The security that export preferences gave Caribbean countries resulted in a failure to pursue modernisation and integrated development of the agriculture sector. Tariff escalation, that is, increased tariffs applied to goods with higher levels of processing, also acted as a constraint on shifting to value added products for export markets.

The rationale for continued production of sugarcane is the beneficial effect of the crop on the soil, its significant caloric content and the fuel and raw material value of the bagasse produced during sugar processing. The sugar industry is the oldest industry in the Caribbean that has been contributing significantly to income and employment especially in rural areas. The sugarcane is a high-yield rationing grass that provides soil cover and maintains soil fertility. It is also resistant to pests and diseases and is able to survive adverse climatic conditions such as hurricanes, floods and drought³⁶.

Although the sugarcane plant is better than the banana plant (herb) for the soil because of its soil-binding properties, the banana herb is a significant small-farmer crop in some Caribbean countries. Premium prices in the EU market have contributed toward sustaining the livelihood of rural farming families. The rice industry has had a similar effect on the lives of farmers and rural folks in Guyana. Industries producing grain such as rice have been protected in both developed and developing countries. Asian countries have been reluctant to liberalise rice imports because of the importance they attach to the rice industry in preserving agriculture and indeed the very

³⁶ G.B. Hagelberg, *The Caribbean Sugar Industries: Constraints and Opportunities*, 1970

culture of the countries. Rice fields are said to act as sponges during heavy rains and serve as buffers against erosion.³⁷

Restructuring industries is not just about competitiveness, important as that might be. The various studies on sugar and bananas undertaken in recent times have stressed the difficulties in achieving competitiveness and recommend instead diversification into other economic activities. The performance of Caribbean industries, such as banana, in terms of cost of production is benchmarked against those of Latin American for example. However, the structure of the industry in most Latin American countries is based on large plantations and non-unionised low cost labour. Caribbean industries tend to be based on small-scale farms using relatively high cost labour determined by the wage structure in the country. Closure of industries on account of failure to achieve cost competitiveness would lead to increased rural-urban migration unless viable alternatives can be found.

Restructuring within a cluster of related activities, as suggested in this study, is the best option to achieve sustainable development of industries such as sugar and rice. It would also preserve both direct and indirect employment of workers and small-scale enterprises that provide inputs and services to the industries. The sugar industry offers the greatest promise in this respect but it also presents the greatest challenge in restructuring. The critical requirement is increased production of sugarcane, ideally fuel and energy canes, to satisfy the demands of the various components of the cluster. Increased productivity and improved efficiency in all of the operations are necessary to ensure viability of the industries.

The small size of economies and relatively small scale of operations in Caribbean countries would suggest the need for integration of production functions within the Caribbean Single Market (2006) and soon to be Single Economy (2008). For example, it would not make much economic sense to establish sugar refineries in all the sugar producing countries given the size of demand that exist within the region. One or two countries could refine sugar and supply the rest of the region. However, the tendency in the region has been to replicate industrial functions in almost every country. Instead of a narrow focus on production integration, countries should view integration within the whole industrial chain especially in distribution and research and development. The cement industry in the region is an example of industrial integration. This aspect requires further study.

Although restructuring would be appropriate in some cases, it may not be feasible in others. Diversification into other areas may be a more appropriate strategy. In Jamaica, for example in the 1980s local entrepreneurs converted a sugarcane farm with a closed sugar factory that was out of cane for more than 10 years into a citrus farm producing fresh juice and concentrates for the domestic market. Further upgrading of production and branding of products have been pursued with the aim of exporting output to regional and extraregional markets. This example illustrates the desired approach to production and export. The company used the domestic market as the platform for developing its product and will use that platform to launch the products in regional and extraregional markets.

³⁷ See "Of Rice and Men", *Time Magazine*, November 28, 2005

Diversification has been pursued in the area of organic farming. For example, Guyana is producing organic sugar, the Dominican Republic is producing organic bananas and Jamaica has embarked on the development of a national policy on organic agriculture and already produces some crops on certified organic farms. Organic production is a challenging method of production that is labour intensive and requires, among other things, effective management of farming operations. The difficulty in restructuring the banana industry in the Eastern Caribbean to improve price competitiveness would suggest a shift in approach toward the production of organic bananas. The difficulty of this approach has been analysed elsewhere.³⁸ Some countries such as Saint Lucia are considering the importation of tissue culture from Israel in order to improve their banana industry. This strategy raises an important issue in the development of agriculture.

Israel, from which some Caribbean countries plan to import banana tissue culture, produces about 70 per cent of its food requirements. Half of the country is desert, which presents challenges for increasing agricultural production. Israel uses a high-tech approach to farming on account of the scarcity of land, labour and water. It produces for a niche market products developed through R&D such as banana saplings propagated from tissue culture and hybrid tomatoes. Israel's strategy is to export the higher value banana tissue culture rather than the low value banana. It is a strategy worth consideration by Caribbean countries. The main requirements of course would be the capability to undertake application oriented R&D and the ability of relevant institutions to collaborate with farmers.

The critical requirements for both restructuring existing industries as well as diversifying into alternative areas are access to financing, availability of skills and, in particular, entrepreneurial skills, research and development capability, efficient and effective management, and strong State support, in cooperation with the private sector including relevant stakeholders. Effective management is perhaps the most critical given the experiences with restructuring throughout the life of the sugar industry in Caribbean countries. Related to that is the important role of State support rather than State management of economic activities.

³⁸ See ECLAC study, *Free Trade and the Development of Sustainable Agriculture in the Caribbean*, 2004

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