THE FUTURE OF SUGAR CANE IN A SMALL ECONOMY[1]

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Introduction

The Caribbean became the 'Sugar bowl' of the world during the seventeenth and eighteenth centuries. Most of the sugar was produced in islands which, except for Cuba and Hispaniola, were small.

This paper seeks to examine the salient features of sugar production in some of the countries of the Sugar Association of the Caribbean[2] which include Jamaica, St. Kitts, Barbados and Trinidad. Guyana and Belize, in island terms, represent much larger land masses but the effectively developed portions of even these two continental countries are comparatively small and so they do fit into the concept of a small economy. Sugar has had a very long, perhaps too long, innings in all of these territories - over two centuries - except in the case of Belize where the industry is well under one hundred years old.

We propose to make an empirical analysis of all these relevant features, evaluate the role the industry plays and attempt to pierce the inscrutable veil concealing the future.

Old and New Industries

The advantages of old industries are, if anything, matched by a number of clear disadvantages.

One can count as an advantage of age the accumulation of skills and expertise among the sugar population as well as the development of the infrastructure necessary for the carrying on of the industry. Younger industries can take the fullest advantage of most recent technology, are not saddled with ossified institutions where change comes with difficulty. Soils tend to be less exhausted and the problems connected with excessive acidity of soils associated with long use of nitrogenous fertilizers tend to be less marked. Obsolescence in the factories is not such a serious problem in the younger industries.

Historical Background

The sugar industry has had its vicissitudes because of shortages of labour and capital, depressed markets and disease throughout the nineteenth

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[1]The writer gratefully acknowledges valuable assistance in the compilation of the statistics and the preparation of this paper received from Mr. Gordon Maingot (Chairman, SAC), Mr. Yakub Khan (Secretary, SAC) and Dr. Dayanand Maharaj (External Relations Officer, Caroni Ltd.). The views expressed here are those of the writer and not necessarily those of the three persons referred to.

[2]Referred to hereafter as the SAC countries.

century. Strange as it may seem these problems, although in modified form, are still with us.

Two Royal Commissions of Enquiry of 1897 and 1929 recommended basically the same thing - restructuring the plantation system, letting the farmers grow all the canes and diversification. Half a century later we still have the plantation system in Guyana, Trinidad, Jamaica and St. Kitts and we are still pursuing the endless dialogue about diversification.

The weight of history hangs heavy over the present institutions of the sugar industry, attitudes die hard and the Caribbean sugar industry, except in Barbados and Belize, seems bogged down by some kind of deep psychological inertia in accommodating change.

Characteristic Features

The characteristic features of the sugar industry are now outlined.

The economies of several of the territories, particularly St. Kitts, Belize and Barbados, continue to be monocultural and based on sugar. The sugar plantation continues to be the characteristic agricultural and social structure in Guyana, Trinidad and Jamaica just as it has been for some two centuries. The population itself descends substantially from workers originally brought to the areas for plantation work, mainly sugar.

Sugar exports account for some 80 per cent of sugar production in these territories. But production is declining. A number of factors have been contributing to this. Uncertain climate has been reducing crop output, the adoption of mechanisation in field and factory has been slow and industrial unrest remains a constant problem. Productivity has been consequently low and competition from fast growing and more efficient exporters like Brazil, Phillipines, Australia and the Dominican Republic are threatening to drive less efficient and more costly producers to the ground. Prospects of increased production exist mainly in Belize and Guyana only.

A major problem for all the Caricom sugar industries is their high and increasing costs relative to the other exporting countries (see Table 1). Their industries in general became too dependent on the premium prices of the old CSA for survival, a situation not true for more efficient competitors elsewhere.[1]

The Sugar Industry Today

Because of its age, sugar has passed through virtually all the stages of historic development from windmills to steam and electricity. The factories, many of them over a century old, have been subjected to rehabilitation after rehabilitation even where it might have been better to erect a new mill. But today's costs of a new mill are prohibitively expensive.[2]

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[1] For a critical analysis of the defects of the CSA see "Successor Arrangements to the Present Sugar Marketing Outlets for Caribbean Sugar" by S.N. Girwar (1974). Paper delivered at the Caribbean Cane Farmers' Association Annual Conference.

[2] In 1975, a representative of the American Sugar Cane Growers told the Council on Wages and Price Stability that a mill capable of producing 100,000 metric tons of raw sugar a year would cost over US$60 m. In March 1975, Sir George Bishop, then of Booker McConnel, estimated that the cost of such a new installation with an identical capacity would be US$108 m. to US$120 m. The figure today could be easily 30% higher.

Table 1. Cost of Producing Centrifugal Sugar in Selected Countries.

Country	Costs (US ¢/lb.)	Type of Sugar	Year
Barbados	14.7	Raw	1974/75
Belize	15.5	"	1974/75
Jamaica	14.9	"	1974/75
St. Kitts	14.4	"	1974/75
Trinidad & Tobago	15.6	"	1974/75
Guyana	13.4	"	1974/75
Brazil	9.3	Crystal	1975/76
Colombia	6.4	Raw	April 1976
Dominican Republic	9.5	"	1974/75
U.S.A.	14.0	"	1976
Fiji	7.6	"	1975/76
South Africa	10.3	White	1974/75
Australia	11.5	Raw	1974/75
Phillipines	9.3	"	1974/75
France	14.0	White	1974/75

Note: The figures presented here are not exactly comparable but are valuable, establishing a comparison of the situation relating to costs in a number of countries.

Source: World Sugar (1977). Connell Rice & Sugar Co. Inc.

The Caribbean sugar industry presents an interesting mosaic of past and present inextricably woven together. The movement of the development of small holdings into large conglomerates has ended and there is today little, if any, foreign ownership of the industry. Metropolitan financial interests are fast fading away. Barbados has had the unique experience of being locally owned for the longest period. National control now represents the latest phase in this interesting development. The Guyana Government completed the acquisition of the sugar industry in 1976 and Trinidad in 1977. The Barbados Government restructured the sugar industry whereby local cane growers own both the farms and the factories.

In St. Kitts *"declining production and several other problems prompted the Government to establish the Sugar Industry Rescue Operation, a publicly financed effort to put the industry back on its feet ... In 1975, the Government moved to acquire all private estates through the Sugar Estates Land Acquisition Act."* In 1976 the factory was acquired by the St. Kitts Government. These moves sparked a production response which sent production from 25,855 metric tons (raw value) in 1975 to 36,460 metric tons in 1976 and 41,384 metric tons in 1977, an increase of 60 per cent in two years, a really remarkable feat.[1]

The relative significance of the sugar industry to the economies of the SAC countries is evidenced in a variety of areas.

[1]Report on World Sugar Supply and Demand 1980-1985, USDA, 1977.

Acreage

Table 2 below gives an indication of the total acreage under cane and shows that between 22 and 80 per cent of the arable land under agriculture is devoted to cane.

Table 2. Area Under Cane Compared with Arable Acreage; SAC Countries, 1976

Country	Total Arable Acreage (1)	Total Acreage in Agriculture (2)	Total Acreage in in Cane (3)	(3) as % of (2) (4)
Barbados	66,800	50,000	39,300	79
Guyana	2,000,000	400,000	142,400	36
Jamaica	1,700,000	600,000	131,000	22
St. Kitts	20,000	15,000	12,000	80
Trinidad	630,000	386,200	101,200	26
	4,416,800	1,451,200	425,900	29

Source: Sugar Association of the Caribbean.

Investment

There is an estimated total investment in sugar estates and factories and other equipment, at replacement costs, of well over US$500 m.

Employment

Direct employment is provided for some 140,000 persons who work for the sugar companies in the Caricom area (see Table 3). There are, in addition, some 50,000 cane farmers who themselves employ some 40,000 workers. These figures relate only to direct employment but there is considerable indirect employment by contractors working for the industry in transport, handling and service industries and in the distributive and retail trades serving the industry.

It is estimated that nearly half a million souls or some 10 per cent of the population of the Caricom area are directly or indirectly dependent on sugar for a living.

Table 3. Employment in Sugar Industry.

Country	Estimated Total Labour Force (1)	Number employed in sugar production (Estate/ Farmers Manufacturing) (2)	(2) as % of (1) (3)
Barbados	95,000	7,000	7.4
Guyana	205,000	31,000	15.1
Jamaica	650,000	50,000	7.7
St. Kitts	18,000	6,000	33.3
Trinidad	393,800	44,800	11.4

Gross Domestic Product

The contribution of sugar to the Gross Domestic Product (GDP) is as follows:

Table 4. Contribution of the Sugar Industry to Gross Domestic Product.

Territory	1969 (%)	Subsequent Year as indicated in brackets (%)
Barbados	16.9*	8 (1972)**
Guyana	12.8*	12 (1972)**
Jamaica	4.4*	1 (1973)**
St. Kitts	27.0*	n.a.
Trinidad	3.3*	2 (1972)**
Belize	14.0*	n.a.

Sources: * Paper on the Role and Future of Sugar in the Commonwealth Caribbean. 8th West Indies Agricultural Economics Conference Proceedings, 1973 by S.N. Girwar.

** Irene Hawkins. The Changing Face of the Caribbean, 1976.

Foreign Exchange

The value of exports of sugar, rum and molasses as a percentage of the total exports was as follows in 1969:

Table 5. Value of the Sugar Industry Exports as a Percent of Total Exports.

Territory	Value as % of Total Exports (%)
Barbados	68.6
Guyana	36.1
Jamaica	19.4
St. Kitts	95.4
Trinidad	10.8
Belize	over 50

Social Benefits

The industry through Labour Welfare Schemes has made substantial improvements in the housing of sugar workers and cane farmers, and in the provision of recreation facilities as well as in the development of roads, provision of electricity, water, medical services and generally of an infrastructure on which future development can be based.

Income of the Sugar Industry

The average income from sugar and molasses in Trinidad for the years 1972-1977 as shown in Table 6 is not untypical.

Table 6. Net Revenue per Ton 96° Sugar as per Cane Price Returns Including Molasses; Trinidad.

Year	(TT$)	Production in long tons tel quel
1972	272.95	230,888
1973	310.74	181,165
1974	659.39	183,355
1975	768.50*	160,020
1976	693.37*	200,430
1977	784.80**	173,205

Notes: * Affected by Sugar Levy. Although technically the levy was for one year only (1975), there was a carry-over of sugar which extended the effect of the levy over two years. The total sum collected was around TT$64 m.

**This figure was inflated by Government granting to the sugar industry a sum of $25 m. to compensate it for loss on sales to the local market. The subsidy added $156 per ton on every ton of sugar produced.

Source: Official returns for calculating the price of farmers' canes in Trinidad.

In Trinidad some TT$135 m. were derived in 1977 as revenue from sugar and molasses including a sum of over TT$35 m. paid to cane farmers. The price paid per ton of cane to cane farmers is shown in Table 7 which also displays comparative prices paid in the other territories.

Allowing for leakages of some $40 m. for supplies, etc. some $95 m. remained in circulation in Trinidad and, using a multiplier of 2 which is the average figure for the industry, some $190 m. were put in circulation by the sugar and molasses industries in Trinidad.

A substantial sum is derived from the rum industry, further enhancing the value of the sugar industry. The money circulated by reason of the sugar industry assists substantially in fertilizing the Trinidad economy and this is particularly so in rural Trinidad where the sugar industry is located.

A similar situation obtains in all the Caricom sugar industries.

Sugar Production and Exports

The WISA countries (now SAC), after reaching their peak production in 1965 of 1,300,802 long tons, have witnessed first a stagnation in production, followed by a slow but steady decline reaching the lowest point in twenty-seven years when only 858,733 long tons of sugar were produced in 1977. St. Kitts is the only island were production has improved in recent times (see Tables 8 and 9). In Belize also production expects to reach an all time peak of 110,000 long tons (see Table 10) in 1978.

The 1978 SAC crop, with the poor start in many of the countries, will be hard put to attain 1 million tons (see Table 8).

Table 7. Average Cane Prices Received by Cane Farmers.

Years	Trinidad (TT$)	Barbados (B$)	Guyana (G$)	Jamaica (J$)	St. Kitts (EC$)	Belize	
						T.H. (B$)	Lib. (B$)
1965	11.41	16.74	-	5.60	-	-	10.46
1966	10.31	17.04	10.98	5.67	13.97	-	10.46
1967	11.21	16.88	10.34	6.20	15.15	9.45	9.45
1968	13.95	19.75	10.74	6.54	13.51	10.24	10.92
1969	13.97	17.57	11.35	6.02	11.18	11.95	12.66
1970	11.56	17.60	11.96	6.11	10.41	10.91	12.34
1971	11.40	18.22	12.52	6.63	10.98	12.94	13.48
1972	16.71	22.80	15.91	8.00	17.07	17.12	18.13
1973	18.25	24.75	16.31	8.95	19.27	17.43	18.73
1974	40.78	45.86	n.a.	11.39	31.50	45.08	47.03
1975	47.53	75.05	n.a.	19.47	n.a.	n.a.	n.a.
1976	47.53	n.a.	n.a.	19.14	n.a.	n.a.	n.a.
1977	55.46	n.a.	n.a.	17.50*	n.a.	n.a.	n.a.

Notes: T.H. = Tower Hill Factory
Lib. = Libertad Factory
* Estimated

Source: Correspondence with the Cane Farming Associations of the territories concerned.

The causes of the steady decline are mainly shrinking cane acreages, e.g. Barbados, unseasonable weather (with an all-round drop in rainfall), an increase in the incidence of stale cane as well as malicious fires and problems connected with industrial relations, including strikes, go-slows, sick outs accompanied by a steep increase in absenteeism and a fall in yields of cane per acre, decline in productivity and the spread of disease (smut and froghopper).

All this is happening just when world production is being stepped up (see Table 11). SAC sugar production compared with World Production is shown in Table 12.

Markets

Approximately 70 - 77 per cent of world sugar production is consumed in the producing countries and the remainder enters into international trade. The free market now accounts for over 80 per cent of the sugar traded and the only sugar not traded on the free market is the 1.3 million tons traded under the Sugar Protocol of the Lomé Convention and that traded between Cuba and the Centrally Planned Economies amounting to some 2.4 million metric tons.

The Caricom countries, as high cost producers with a very small home market, continue to be desperately dependent on safe and remunerative markets.

Apart from the guaranteed market to the U.K. under the provisions of the Sugar Protocol of the Lomé Convention[1] of 442,914 long tons, there

[1]For a full discussion of the deficiencies of the Lomé Convention and its capacity to destroy the Caricom sugar industry, see the "ACP-EEC Price Negotiations 1976" by S.N. Girwar. Paper delivered to the CCFA in Barbados.

Table 8. West Indies Production and Exports (Long tons, tel quel).

Year	Total Production	Local Consumption	Exports to U.K.	Exports to U.S.A.	Exports to Free Market	Total Exports	Assured Markets
1965	1,300,802	156,653	705,306	133,949	283,517	1,122,772	925,000
1966	1,191,304	160,659	658,040	158,173	243,111	1,059,324	925,000
1967	1,237,163	165,086	707,893	163,359	170,143	1,041,395	925,000
1968	1,206,097	163,899	705,476	191,530	166,255	1,063,261	925,000
1969	1,136,805	159,191	709,164	202,704	71,135	983,004	925,000
1970	1,077,740	153,980	698,048	190,891	31,410	920,349	925,000
1971	1,131,020	182,069	757,028	186,887	12,930	956,845	925,000
1972	1,060,529	179,763	716,974	154,309	3,115	874,398	925,000
1973	926,209	180,498	684,103	37,277	4,210	725,590	925,000
1974	1,024,708	186,515	419,639	251,666	166,195	874,000	925,000
1975	936,723	187,648	404,826	216,982	121,690	743,496	436,815**
1976	1,022,595	199,027	448,281	210,290	n.a.	850,798*	436,815**
1977	858,733	196,616	465,605	141,403	n.a.	n.a.	436,815**
1978	1,093,088*	n.a.	n.a.	n.a.			

Note: *Estimated
** 48% of sugar without a home. (Table relates to Jamaica, St. Kitts, Barbados, Trinidad and Guyana.)

Source: WISA and SAC Annual Reports

Table 9. Caricom Sugar Crops and Local Consumption.

	Barbados	Guyana	Jamaica	St. Kitts	Trinidad	Belize
1973						
Production	116,359	265,704	325,950	23,322	181,165	
Consumption	12,398	32,749	92,177	2,061	47,653	
1974						
Production	108,560	340,815	366,508	25,470	183,355	
Consumption	17,055	31,714	92,324	2,575	42,847	
1975						
Production	96,889	330,000	370,000	24,500	155,000	
Consumption	14,000	33,700	103,167	2,450	41,000	5,800
1976						
Production	102,169	332,457	352,757	34,782	200,430	65,211
Consumption	14,190	35,571	99,842	2,403	47,021	5,700
1977						
Production	117,911	241,527	285,360	40,730	173,205	95,000
Consumption	14,568	34,109	92,899	2,210	45,253*	6,000
1978*						
Production	110,000	357,000	340,400	36,000	206,100	110,000
Consumption	14,100	35,000	105,000	2,500	52,000	6,000

Note: *Estimated

Source: Sugar Association of the Caribbean.

Table 10. Production and Consumption of Sugar; Belize.

Calendar Year	Production	Consumption
	(tonnes - raw value)	
1969	56,128	5,243
1970	69,753	5,975
1971	64,756	4,962
1972	73,002	4,936
1973	73,689	5,772
1974	91,884	6,351
1975	85,684	5,777
1976	62,242	5,655

Source: Sugar Yearbook, 1976. I.S.O.

are no assured markets for the sugar of the SAC countries. Their guaranteed quota under the CSA was 725,000 tons. Belize has a similar problem as their only guaranteed external outlet is their quota of 42,794 long tons (raw value) to the United Kingdom. Other individual quotas are as follows: Barbados 53,492; Guyana 171,174; Jamaica 128,381; St. Kitts 16,048; Trinidad and Tobago 73,819 long tons, respectively.

Table 11. World Sugar Production and Consumption Compared.

Statistical Crop Year*	World Sugar Production	World Sugar Consumption	Increase or Decrease Production over Consumption	Stocks at Beginning of Year	Crop Years* Average World Raw Sugar Prices
	('000 metric tons, raw value)				(US¢/lb.)
1977-78	91,292	85,696	+5,596	23,330	
1976-77	88,589	82,669	+5,920	20,441	8.44**
1975-76	82,806	79,914	+2,892	17,305	13.62
1974-75	79,600	77,657	+1,943	16,008	29.98
1973-74	80,299	80,072	+ 227	15,995	18.90
1972-73	76,788	77,263	- 475	17,104	8.80
1971-72	73,226	75,373	-2,147	18,933	6.39
1970-71	72,771	74,419	-1,648	21,308	4.35
1969-70	74,346	72,223	+2,123	19,365	3.41
1968-69	67,784	68,141	- 357	19,836	3.06
1967-68	66,435	65,635	+ 800	19,101	1.98
1966-67	65,642	65,457	+ 185	19,165	1.79
1965-66	63,102	62,816	+ 286	18,769	1.99
1964-65	66,831	59,273	+7,558	11,129	2.61
1963-64	54,745	54,261	+ 484	10,293	8.10
1962-63	51,172	54,479	-3,307	13,463	6.34
1961-62	52,351	55,602	-3,251	17,080	2.65
1960-61	56,073	52,734	+3,339	14,790	3.13
1959-60	49,564	48,858	+ 706	13,767	3.07
1958-59	51,034	47,561	+3,473	9,984	3.12
1957-58	45,172	44,704	+ 468	10,234	3.67
1956-57	42,339	42,228	+ 111	10,087	5.08

Notes: *Commencing Sept. 1 and ending August 31.
**Sept. 1976 to June 1977 period only.

Source: Latest F.O. Licht estimate (21/2/78).

Table 12. SAC Sugar Production Compared with World Production.

	1975	1976	1977
	('000 metric tons, raw value)		
World Sugar Production	80,161	81,966	87,357
Caricom Sugar Production	967	1,022	859
% Caricom of World	1.2	1.3	0.983

This leaves some 48 per cent of their export available without an assured outlet. Prior to 1974 this figure was under 10 per cent. The free market has assumed for us in the Caricom countries a position of greater importance than at any previous time subsequent to 1939.[1]

But the EEC to which the ACP countries export some 1.3 million metric tons of sugar normally has a quantity of sugar equal to or greater than this amount for export. The result is that the EEC, as a non-member of the new ISA, is not subject to the discipline of this agreement and remains free to depress further this free market by restituted sales on the world market. Yet the Caricom countries must remain very sensitive about the level of prices on this outlet on which nearly half of their sugars are now sold.

The disadvantages of selling sugar on the premium market of the CSA have now come home to roost. We in the Caricom countries had grown too accustomed during the twenty-one year tenure of that arrangement to sell our sugar on a costs plus market.

A large percentage of this free sugar has been going to the USA (see Table 8) with smaller quantities ending in Canada. The GSP still enjoyed by all the Caricom territories, except Guyana and Jamaica, confers a price advantage worth approximately TT$150 per long ton over the world market.

The internal market has shown a slow but steady increase but the Caricom market (for Customary Local Exports) has witnessed a steep decline mainly because the deficit islands have been able to procure supplies cheaper elsewhere.

The successful negotiation of a new ISA in October 1977 and its coming into force provisionally in January 1978 have given rise to hopes everywhere that the present depressed prices on the world market as represented by the London Daily Price (see Table 13) will respond in an upward direction to the desire of a majority of the exporters to stabilize prices at economic levels.

To begin with, prices for this year continue to be depressed and have even registered a decline. It is, however, confidently predicted that the effects of the new ISA will not be felt before the latter part of this year. In the meantime, world production continues its upward march exceeding consumption by fairly wide margins, thus leading up to a massive build up of stocks (see Table 11) further depressing prices.

Efficiency of the Sugar Industry

The efficiency of the Caricom sugar industry can be considered at three centres - the field, the factory and in the logistics of harvesting and transportation to the factories.

The Field

The main criterion for considering this aspect of efficiency is the sugar produced per hectare or acre[2] (see Table 14).

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[1] Up to the end of 1974 the percentage of available export for which guaranteed markets were available was around 92 per cent.

[2] A hectare equals 2.471 acres.

Table 13. Monthly Average Price per Ton Raw Sugar 96° Basis c.i.f. U.K. per Ton Bulk Basis (London Daily Price).

	1971 (£)	1972 (£)	1973 (£)	1974 (£)	1975 (£)	1976 (£)	1977 (£)	1978 (£)
January	48.56	77.214	98.25	170.59	392.045	164.00	122.05	110.86
February	49.425	79.90	92.20	227.75	341.250	158.450	124.10	107.05
March	48.10	81.95	89.65	223.952	262.105	180.173	127.83	99.90
April	46.545	70.052	91.90	224.45	240.363	180.350	141.68	101.05
May	44.98	65.295	95.85	243.227	179.809	191.200	127.91	
June	43.113	62.727	96.85	242.75	145.048	177.18	114.50	
July	42.80	56.238	98.10	253.087	181.826	179.00	106.62	
August	43.386	62.27	94.25	307.762	209.00	177.10	107.09	
September	41.22	72.023	95.15	350.000	177.454	117.636	104.32	
October	43.71	76.159	101.63	396.956	163.087	165.81	99.67	
November	45.53	75.659	109.795	566.333	157.95	120.73	96.23	
December	56.905	93.052	131.83	459.473	155.238	115.285	106.95	
Annual Average Price	46.18	72.525	99.32	304.72	216.44	154.00	114.802	
Average ISA Daily Price (US¢/lb.) (annual)	4.5219	7.405	9.593*	29.597	20.492			
Highest Price (US¢/lb.)	7.50	9.65	14.00	65.50	45.50			
Lowest Price	3.90	5.10	8.35	12.70	12.15			

Note: *No. 11 Contract US¢ per lb. f.o.b. and stowed bulk.

Source: Czarnikow Weekly Report.

Table 14. Sugar Yield in Tonnes per Hectare and Extraction Rate (%).

Crop Years	Barbados	Jamaica	Belize	Trinidad & Tobago	Antigua & St.Kitts	Guyana	Colombia	Mauritius	Swazi-land	Australia
1965/66	8.72 (11.65)	8.39 (11.52)	3.92 (10.82)	5.78 (9.72)	6.00 (11.16)	7.45 (11.56)	11.49 (11.14)	8.08 (11.11)	8.40 (11.73)	10.18 (14.41)
1966/67	10.03 (11.60)	7.68 (10.47)	5.39 (10.72)	5.52 (9.41)	5.96 (11.70)	7.08 (11.13)	10.83 (10.83)	7.17 (12.25)	14.33 (12.02)	10.85 (14.44)
1967/68	8.20 (12.27)	7.77 (11.10)	8.14 (10.24)	6.47 (10.09)	7.60 (13.55)	7.80 (10.53)	11.36 (11.15)	8.37 (11.65)	13.61 (11.70)	10.89 (14.32)
1968/69	7.10 (11.47)	5.95 (8.75)	3.20 (10.12)	6.44 (9.96)	7.11 (11.81)	8.00 (10.59)	11.82 (11.17)	7.91 (12.27)	12.50 (12.20)	12.14 (14.93)
1969/70	7.96 (11.19)	6.45 (8.91)	5.78 (10.17)	5.92 (8.49)	5.36 (8.83)	7.41 (11.33)	11.79 (11.31)	8.91 (12.16)	11.95 (11.56)	10.70 (14.42)
1970/71	7.12 (11.57)	6.40 (9.41)	5.66 (10.55)	5.72 (9.37)	3.84 (7.95)	7.22 (10.93)	11.51 (11.24)	7.60 (11.93)	11.84 (9.82)	11.35 (14.15)
1971/72	6.56 (11.17)	6.25 (9.13)	6.00 (10.79)	6.25 (9.23)	8.96 (15.46)	6.37 (12.82)	11.68 (10.40)	8.23 (12.51)	13.56 (12.69)	11.69 (14.26)
1972/73	6.45 (11.27)	5.94 (8.57)	5.65 (10.06)	4.68 (9.25)	6.93 (12.32)	6.13 (11.85)	12.16 (11.06)	9.07 (11.52)	11.93 (11.40)	11.87 (14.74)
1973/74	6.72 (11.97)	6.14 (9.35)	6.96 (11.72)	4.86 (9.68)	6.85 (11.07)	6.26 (11.80)	11.88 (11.00)	9.51 (12.47)	11.71 (11.00)	11.50 (13.05)
1974/75	6.33 (12.26)	5.88 (9.50)	6.82 (11.66)	5.04 (9.39)	7.73 (12.21)	5.86 (12.94)	12.85 (11.17)	9.12 (12.72)	12.96 (12.19)	11.56 (14.32)
1975/76	6.53 (11.28)	5.67 (9.80)	4.64 (10.00)	6.05 (8.76)	7.18 (11.81)	6.18 (10.16)	13.09 (10.91)	6.29 (10.42)	13.58 (12.45)	11.44 (13.03)
1976/77	-	5.81 (10.29)	6.79 (11.82)	5.75 (9.54)	7.19 (11.59)	6.36 (11.77)	12.54 (10.69)	8.83 (11.92)	13.64 (12.39)	11.78 (13.52)

Source: World Sugar Capacity Cost and Policy. Connell Rice and Sugar Co. Inc., 1977.

Efficiency, even by our own standards, is on the decline. The three main causes of this are unseasonal weather, reduction in the quality of management and the attitude of the work force which is manifesting an understandable distaste for field work.

The Factory

Factory efficiency can be considered from two view points - technical efficiency and economic efficiency.

Technical efficiency in a sugar factory is usually measured by three principal performance criteria:

(i) Milling efficiency which, measured by well known industry formulae, should represent around 94° or, roughly speaking, the mills should be able to extract some 94 per cent of the sugar in the cane if they are to be considered efficient judged by this criterion. An unnecessarily large number of the factories in the area fall below this level of milling efficiency.

But the reasons are not far to seek. An excessively large number of Caricom sugar industries are under-capitalized and the factory is one of the first places to show this. In the present position of the finances of the entire Caricom sugar industry, this situation is likely to grow worse instead of better.

(ii) BHE (Boiling House Efficiency). This represents a measure of the actual retention in relation to the theoretical retention measured by one of the standard industry formulae.

(iii) Factory loss of sucrose through determined losses in bagasse and filter-cake, and undetermined losses through mechanical losses and inversion and decomposition losses.

Economic efficiency of the factory is judged by the cost of processing a ton of sugar and varies from factory to factory and from country to country. Mounting costs of processing in the Caricom countries, even after making allowance for inflation, do not seem to indicate any improvement in the economic efficiency of our factories.

Table 14 gives some indication of industry efficiency in the Caricom sugar industries and the comparable figures in some other cane sugar producers for easy comparison.

Logistics of Harvesting and Transport

This is one of the critical areas in any cane sugar industry and any delay or hold up in this process is accompanied by heavy sucrose losses. Competent observers report that the time lag of over 72 hours in many instances between the cutting of the canes and its processing accounts for as high as 10 per cent of pre-processing loss of sucrose. This means that, in many instances, there is an overall 10 per cent loss in income which frequently spells the difference between profitability and loss.

Further, the growing incidence of stale canes inhibits the growth of crystals in the vacuum pans and generally gums up the processing end of the factory. This area remains one of the biggest challenges to labour and management if the sugar industry is to be saved.

It may be noted in passing that the Australian sugar industry, the most efficient cane sugar industry in the world, recognises this importance and penalises canes delivered to the factories 18 hours after cutting.

Viewed overall, against the criteria set out, the Caricom sugar industry today is efficient neither technically or economically.

What Hope for Sugar Industry in Caricom?

There has been a heavy investment of capital in recent times in Trinidad and a smaller amount in Jamaica aimed at the rehabilitation of the factories and field transport.

Wages and salaries have increased everywhere and very substantially in some of the territories.

Cost of production has shot up appreciably everywhere, fuelled by falling production, inflation, the oil crisis, monetary instability, trade union pressures and increasing imposts by some governments (see Table 1).

It is to be remembered, in this context, that since over 70 per cent of the costs of production are fixed, falling production exerts a very heavy influence on costs of production.

The average income from sugar in the Caricom countries is between 10 - 12US cents per pound so that virtually all the territories are now experiencing losses.

But how can the sugar industries of the region go on suffering recurrent operational losses year after year and not go bankrupt? The simple answer is that some companies have reserves and can absorb losses over short periods dependent on the level of such reserves. Depreciation, too, correctly appears as a cost but, not being a cost which has to be paid out, this charge can technically be deferred. Yet other companies resort to borrowing. But the heavy fixed overhead costs preclude the possibility of any of these recourses proceeding for any appreciable length of time.

Controlled prices of locally consumed sugar amounting to nearly 200,000 tons, or a fifth of production, at prices below the cost of production have acted as a consistent income depressant. Trinidad and Jamaica are taking steps to correct this situation.

World prices, ever since November 1974, when the all-time record price of £650 was attained, have suffered a steady decline reaching the lowest level since 1974 at £85 per ton in November 1977. The highest point of £151 per metric ton in 1977, even when converted to the long ton basis of earlier years, was below the average price of 1976.

In spite of the new ISA effective since January of this year, prices have remained depressed below the cost of production in *all* the Caricom countries (see Table 13).

Efficiency in the industry has been slowly but steadily falling and with less and less new capital being poured into the industry in most of the territories, plant and machinery will soon begin reacting.

The increased wages are being matched by increased absenteeism of labour dealing a serious blow to productivity. There has been little if any improvement in cultural practices or increase in mechanization, largely because of the attitudes of governments and the unions.

Production has stagnated or declined in absolute terms except in Belize and St. Kitts.

Widespread consideration is now being given to rationalization but nowhere in the region has any definitive statement of intention emerged.

The dialogue about the diversification out of sugar, an intermittent topic of discussion in the industry for over a century, has resumed. Many are agreed that diversification is a good thing but few, if any, concrete proposals worth considering are forthcoming for the protagonists are content with an over-simplification of urging grow less cane and more food, as though cane is itself not a food. They do not go on to particularise what special crops must be planted or how much and what are the marketing arrangements. While it is admitted everywhere that corn and soyabean are two excellent crops which are cultivable in our warm climate, few have stopped to examine whether our soil conditions and cultural methods can successfully accommodate the widespread cultivation of these crops. Not many persons seem aware that cane can grow more successfully under a wider variety of ecological conditions than any other crop grown in the warm climates and, further, that cane can withstand droughts, hurricane and cultural neglect better than any other tropical crop and still produce greater gross income and more calories per acre than any other tropical crop grown on a large scale.

Strikes and go slows continue to plague the Caricom sugar industry as though these are luxuries we can afford. Incendiarism continues to flourish and there is no doubt whatsoever that every malicious fire represents but another nail in the coffin of the region's declining sugar industry.

With a growing gap between average earnings and average costs of production, the question is posed - can the sugar industry of the region survive the recurrent operational losses which they are all suffering in varying degrees now?

State capitalism has been everywhere evident in the Caricom sugar industry except in Barbados and Belize, and this has led to increasing political inputs into the decision-making process in many of the Caribbean sugar territories. The sugar industries in Guyana and Trinidad have witnessed the total identification of the party in opposition with the sugar industry. This means that politics rather than economics will increasingly be the deciding factor in matters relating to sugar.

In Guyana and Trinidad the Government owns the entire industry except the cane farming section. The plantation system continues to operate in Trinidad and Guyana as before. Only the bosses have changed. Jamaica has a mixture of plantation system, cooperative farms and cane farming for producing the canes with the State owning the factories. Only in Barbados and Belize are all the canes produced by cane farmers. Production in Belize will in 1978 cross 100,000 tons for the first time. In Barbados production has declined.

With several of the governments in the region playing a lead role in the industry, these governments would be required to subsidise the sugar industry to an increasing extent if bankruptcy is to be staved off. But only Trinidad with its new access to petro-dollars seems at the moment able to afford to do this for any appreciable period of time. All of the Caricom sugar countries depend in varying degrees on sugar as an earner of foreign exchange. What then?

It is to be remembered, in this context, that the sugar industry is an agro-industrial enterprise, and nowhere in the world has agriculture been successful on a commercial scale except where it is heavily subsidised, so that the fact of the need to subsidise the sugar industry should not prove so disconcerting.

There are several courses open to the sugar industry in the difficult situation in which it finds itself today. But any projected course of action needs to be viewed against the extreme vulnerability of the Caricom sugar industry. This vulnerability derives from the fact that we are very high cost producers; because of low productivity, labour is no longer cheap (and this was our main comparative advantage in the past), expansion except in Guyana and Belize is limited by land space considerations, the high unemployment problem - between 15 to 20 per cent in many of the territories - inhibits further mechanization to reduce costs because this displaces labour and the noticeable aging of the labour force leads us to wonder whether the problems are not solving themselves. The further question we need to consider is - can the Caricom countries afford not to have sugar industries?

The industry can attempt to step up efficiency and productivity.

Any such programme will have to reckon with the present under-capitalization of the industry and the uncontrolled militancy of the trade unions, blissfully ignorant of the economic realities of the industry. Arraigned also against any programme of increased productivity is the intractable objection of the unions against mechanization. It would, therefore, seem that any attempt to reduce costs of production and increase productivity is doomed to failure.

Since costs of production cannot be reduced without the necessary motivation, the only solution appears in agrarian reform[1] whereby cane farmers are required to produce *all* the canes and the factories be co-operatively owned by the cane farmers themselves, as in the case in India and in certain of the factories in Florida and Queensland. This is the only type of participation in the industry which holds out hope for introducing the kind of motivation which alone can save the industry.

In both Belize and Barbados, farmers supply all the canes. Farmers already produce half the canes in Jamaica and about a third in Trinidad. Only in Guyana where farmers supply some 10 per cent of the canes does

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[1] For a reasoned argument for agrarian reform in sugar, see paper "A Strategy for the Transformation of the Plantation System" by Girwar and Dayanand Maharaj, 1972. Conference of Caribbean Cane Farmers' Association.

farming remain tentative and diffident.[1] Farmers are known to produce canes much cheaper than the plantations. The Trinidad figures indicate that plantation cane costs 50 per cent more than farmers' canes.

Government owns the factories in Jamaica, Trinidad, Guyana and St. Kitts. In Belize steps are already being taken by the Belize Sugar Industries Limited (a subsidiary of Tate and Lyle Limited) to divest itself of its equity in the factories. In Barbados the factories are already cooperatively owned by cane farmers.

Indigenisation of the Caricom sugar industry is on the verge of completion, but indigenisation needs to be followed by a restructuring of the industry where the old forms and shibboleths of yesterday are set aside and new forms of organisation developed which can motivate people to give of their best. The rigid separation of the growing and milling processes seems an essential first step in this direction.

Steps must be taken to produce more involvement and much greater worker participation than exists today, in either centrally managed or individually operated holdings.

There are a number of parallel developments which must take place if the industry is to be saved.

Product diversification and the development of linkages represent such suggested developments. Too little effort has been directed towards extracting from sugar and its by-products all the income which can be derived. Too few link industries have been developed. Molasses can so easily be made the basis of a cattle feed industry and a dairy and beef industry. Torula yeast, single cell protein and a spirits industry (to be used as fuels as is being done in Brazil today) can all be developed from molasses.

Bagasse utilization for hard boards, both in Jamaica and Trinidad, has not been the outstanding success it could be, but this does not detract from the intrinsic merits of such utilization. Paper is made in several countries from bagasse. Furfural is in wide demand in the industrial world and this can be extracted from bagasse.

Detergents can be made using sugar as the raw material. Not only has this been shown to be technically feasible but a small factory owned by Tate and Lyle Limited at Reading in the U.K. is already producing detergents in commercial quantities. When it is recalled that detergents made from sugar are non-pollutants of water, its clear advantage indicates a possibility which can be exploited.

The future of sugar in Caricom territories is not without hope once we are prepared to pay the price and Governments are resolved to take the steps necessary to restructure the industry and introduce fully the practice of fuller participation.

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[1] See paper presented to the 14th Convention of the Caribbean Cane Farmers' Association, 1975, entitled "Present and Future Prospects of Cane Farming in Guyana" by S.N. Girwar.

Irene Hawkins in "The Changing Face of the Caribbean" 1976, essays the opinion - "Many of the Caribbean producers will only be able to survive in the long run against very much larger and more efficient producers in countries like Australia or Brazil if the governments in the region can tackle the industry's technical, organisational and labour problems. In recent years more and more Caribbean governments have realized that to a large extent the future of the industry (sugar) lies in their hands and are encouraging the industry's concentration and rationalization."

It is to be recognised that sugar remains politically and socially a highly sensitive commodity and economic criteria as well as social considerations need to be taken into account in policy decisions and strategy chosen.

Diversification *out* of sugar should not be attempted except as a last resort and only if the programme of restructuring the industry, intensifying product diversification and the development of link industries has failed.[1] Rationalization of the sugar industry to the levels only required for local consumption and guaranteed markets represents a final ditch stand of the industry.

There is no denying that the sugar industry is not viable at the moment in any of the Caricom territories except perhaps Belize. But still no viable alternative appears on the horizon but rising expectations and aspirations, coupled with the severe economic limitations of a narrow resource base, continue to pose problems of immense complexity defying both governments and people in finding adequate solutions.

But sugar, in spite of certain emotional hang-ups and unfortunate past associations, still possesses certain competitive advantages and, properly conceived, sugar can continue maximizing the utilization of our land and human resources.

The capital and human investment in sugar is so large and the accumulated skill and expertise of centuries so considerable, that it would not seem to make economic sense to fritter away such resources by just scrapping the industry without a serious and determined effort to restructure the industry, motivate our people to increase productivity by widespread participation which alone can rekindle enthusiasm and make the centuries old work-horse of the Caribbean serve the best interests of the Caribbean peoples.

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[1] For a summary of the case for and against 'Diversification' see paper on "Economic Diversification of Sugar Production in some Caribbean Commonwealth Territories", 1969, by S.N. Girwar.