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# *Implications of Modernizing the Sugar Industry of Belize*

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## *Abstract*

The sugar industry of Belize is faced with challenges from within and without. Trade liberalization and policy adjustment measures, on the international front, brought increased pressures on the preferential markets for sugar affecting both volume and price levels. The internal challenges are related to a poor organizational framework, outdated legislation, low productivity and efficiency of sugarcane production, harvesting and delivery, a high level of indebtedness and an associated low level of investment. The paper will present the status of the sugar industry of Belize, the rationale for the modernization of the sugar industry, the steps being taken to modernize the sugar industry and the implications of the modernization process for the sugar sector and the economy of Belize. There is an urgent need to drastically restructure the industry in order to make it more competitive and to ensure its growth and survival as a solid economic pillar in Belize's development.

*Keywords: Sugar Industry, challenges, trade liberalization, preferential markets, poor organizational framework, modernization, restructure, competitive.*

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## **INTRODUCTION**

The sugar industry of Belize, like most African, Caribbean and Pacific (ACP) Sugar Industries, is faced with various challenges brought about by historical practices and the present move toward globalization and trade liberalization. The Government and other industry stakeholders recognize the need to restructure the industry to make it more efficient and cost-competitive in order to stabilize it so that it can continue to provide employment, incomes and foreign exchange.

This paper will present the status of the sugar industry of Belize, the rationale for modernization of the sugar industry, the steps being taken to modernize the sugar industry and the implications of the modernization process for the sugar sector and the economy of Belize. Clearly this modernization process will require drastic changes that will have a significant socio-economic impact.

## PRESENT STATUS

The sugar industry continues to face increased challenges at the local and international levels. Trade liberalization and policy adjustment measures, on the international front, brought increased pressures on the preferential markets for sugar affecting both volume and price levels. Sugar stocks in the United States of America (US) and global surplus supply on the world market exerted downward pressures on prices. The decline in real prices for sugar was also affected by increased freight charges and the depreciation of the Euro against the dollar. This was reflected in a reduction of 6.8% in the price paid for sugarcane (Table A1) and a 6.6% decline in sugarcane delivered, which amounted to 1,109,000 long tons in 2000 (Table A2). Some 1,023,000 tons of sugar cane was produced in the crop year 2000/2001 yielding 104,000 tons of sugar valued at \$63,000,000 Belize (BZ), despite damages (BZ\$31 million) to the crop caused by hurricane Keith. Production this current crop year 2001/2002 is expected to be negatively affected by estimated damages to sugar cane fields of some BZ\$7.7 million caused by hurricane Chantal.

The internal challenges are related to a poor organizational framework, outdated legislation, low productivity and efficiency of sugarcane production, harvesting and delivery, a high level of indebtedness and an associated low level of investment. The industry produces an average of 120,000 long tons of sugar from about 1 million long tons of cane delivered (Table A2). The sugar production cost is about US 0.16-0.17 cents

per pound (US\$370 per long ton). Costs are substantially higher than those achieved in the lowest cost cane sugar industries (LMC International, 2000).

Special attention needs to be given to reducing the costs, especially at the field level, and to better coordinate and/or deregulate the industry to face the increasing competition. To this end, the Government agreed to the Belize Sugar Industries Ltd.(BSI) forming a company with small farmers to demonstrate effective ways to organize farmers and to plant and deliver sugarcane to the factory in a cost efficient manner using a business approach. On the other hand, the factory is considered fairly efficient, with a factory efficiency of 91.85% in the 1999/2000 crop year (Table A3).

Despite those challenges, the sugar industry remains the largest agricultural industry, a major economic activity and a critical export earner. In 1999, sugar contributed 10.2% to Gross Domestic Product (GDP), 24.7% to total export earnings and 33.2% to agricultural export earnings (Table A4) while sugarcane production contributed 27.3% of total value-added by agricultural crops to GDP (Table A5). The sugar industry also employs 13% of the country's working population and is crucial to the economy of the Corozal and Orange Walk Districts. The challenge is to make this industry competitive and to keep it as a solid economic pillar in Belize's development.

## RATIONALE FOR MODERNIZATION

### *Markets*

The availability of markets and the prices offered in the various markets drive the production process. In other words, there is no need to produce sugar if we cannot market it at a favourable price, bringing profitable incomes to cane farmers and the factory. Our preferential markets in the European Union (EU), the Sugar Protocol (SP) and the Special Preferential Sugar (SPS) under the ACP arrangements (the Cotonou Agreement), are heavily impacted by changes in the EU's Sugar Policy due to the following:

- Trade liberalization measures to comply with World Trade Organization (WTO) commitments
- Internal budgetary restrictions
- Expansion of the EU
- Technological developments
- Trade Agreements with other countries, and
- Lobby by EU sugar users for cheaper sugar.

These factors will all affect quantities and prices offered for sugar when the EU Sugar Regime is reviewed in 2003. For example, the Everything But Arms (EBA) Initiative to allow duty free access for products (including sugar), except arms and ammunition, from 48 less developed countries (LDCs) has caused the SPS allocation for Belize to fall from 8,000 tons to 5,500 tons this 2001/2002 marketing year. This situation may deteriorate further with the acceleration of the liberation of the LDC sugar access to the EU beginning in 2006 and to be completed by 2009.

The preferential market for sugar in the US under the Caribbean Basin Initiative (CBI) arrangements is likely to be affected by increased pressures by Mexico to export excess sugar to the US under the North American Free Trade Association (NAFTA) agreement in the short to medium term. It was reported that Mexico has just recently expropriated 27 of the country's 60 mills to strengthen those industries with the plan to reprivatize them in the near future in order to keep up production levels. Additionally, this CBI arrangement for sugar and other products may change to more open arrangements when the Free Trade Areas of the Americas (FTAA) comes on stream in early 2005.

The Preferential Markets for sugar are therefore under considerable pressure and are to come under further fire at the upcoming WTO meeting in 2003 when agriculture and sugar (with an oversupply on the world market) will be addressed. As it is, both the ACP arrangements for sugar and the CBI arrangements for sugar are operating under a waiver from the WTO which is to be reviewed in 2005 and will prove very difficult in renewing. It is projected that by 2008 all the preferential markets may disappear and that Belize's sugar will be facing open competition, as is being experienced somewhat by bananas. It is expected however, that Belize's allocations to the preferential markets for sugar for next year will remain the same (42,000 tons to the EU and 11,014 tons to the US).

The Market in the Caribbean Community (CARICOM) appears favourable at the moment, but prices are lower than in the

preferential markets in the EU and the US. This market may also be affected by the coming into force of the FTAA in 2005. It means that Belize should be focusing on the world market for sale of its sugar, as Belize's internal market is limited (8,800 tons). The problem is that the world market is under an oversupply with a price of about 6.5 cents/lb US and while Belize's current cost of production is about 16 cents/lb US. Currently, Belize exports roughly 35,000 tons of sugar to the world market while the total value of sugar exported in 2000 amounted to some BZ \$76 million (Table A6).

This means that Belize must act with a sense of urgency to restructure the industry to increase efficiencies, to reduce costs and to get quantities and quality up with the aim to bring the cost of production of sugar down to below 10 cents/lb US in order to face open competition by about 2008. This was supported by the LMC International Report done for the Department for International Development (DFID) of the United Kingdom (UK) (LMC International, 2000) which clearly stated that in order for Belize's sugar industry to survive it needs urgent and drastic restructuring.

### *Production*

One of the major factors affecting the performance of the industry is the low productivity and efficiency of sugarcane production. This is further aggravated by the highly inefficient harvesting and transportation system for sugar cane. Cane yield averages 17.6 long ton (lt) per acre compared to a potential yield of 27lt/acre. Some 8,700 license holders utilized 1,312

transportation units to deliver slightly more than a million tons of sugarcane to the factory in the 1999/2000 season. This is a very expensive way to produce, harvest and transport cane to the factory. There is the opportunity and the need to reduce the cost of production of sugar cane through improved methods of production and to practice economies of scale in harvesting and transportation. The situation is worse off in 2001, when 9299 license holders were registered to deliver 1.3 million tons of cane (Table A7).

The Belize Sugar Industries Ltd. is also said to be experiencing losses mainly due to the drastic decline in prices on the international market, coupled with high freight charges and the unfavourable Euro exchange rate with respect to the US dollar. Volume of sale is also being affected by the impact of trade liberalization, policy adjustments in the EU and the US and surplus stocks on the US and world markets. The opportunity exists to reduce further the costs relating to handling and processing of sugarcane at the mill and to explore the possibilities for reducing the costs of in-land transportation and sea-freight charges for sugar and molasses. The level of factory technology may also need to be critically examined and efforts should be directed at value-added developments (e.g. co-generation).

### *Organizational Framework*

The structure, ownership and legal framework of the industry, involving a number of stake holders, often with differing interests, make it difficult at times to

coordinate and to obtain quick and responsible decisions. The organizational structure and management of the industry need to be upgraded, and supported with modern policies and legislation, with a directed focus on market-led opportunities, cost reductions and increased competitiveness. Elements of research and development, new technologies, tight forecasting and careful marketing, and a business focus need to be urgently introduced to the industry to ensure its survival. Co-generation, for example, is expected to come on stream by 2004 by introducing new technologies with the aim of obtaining increased incomes from value-added development (Montalvo, 2002).

#### THE MODERNIZATION PROCESS

##### *Sugar Industry Task*

Government, in its Manifesto, promised to restructure the sugar industry and appointed a Task Force in 1998 to study the industry and to make recommendations for its improvement. The Terms of Reference given to the Task Force were very specific and included aspects of sugar cane production, harvesting and transportation, processing, marketing and diversification, legislation and institutional strengthening (Ministry of Sugar Industry, 1998). Those recommendations were incorporated in a Sugar Industry Bill, 1999, which was delayed due to concerns coming from industry participants. It was then decided to do a Strategic Plan for the sugar sector to address the challenges and opportunities facing the industry and to bring about better understanding of the issues

facing the industry through greater participation of the various stakeholders.

##### *Strategic Planning*

During the year 2000/2001, a Strategic Planning Workshop provided the opportunity for the various stakeholders to engage in an environmental and situational analysis of the industry, thereby revealing the various strengths, weaknesses, opportunities and threats facing the industry. The participants agreed on Vision and Mission Statements and outlined several objectives, programmes and activities geared to achieving the Vision. It was decided to transform the sugar industry into one that is modern, efficient, dynamic and internationally competitive and one which will be socially, economically, and ecologically sustainable, providing benefits to all stakeholders through the accomplishment of the following objectives:

- To formulate and implement a national sugar policy inclusive of the supporting legislation.
- To improve the organization, management and performance of the industry (Sugar Industry Control Board (SICB), BSI, Belize Cane Farmers Association (BCFA), credit institutions, inputs suppliers).
- To improve the production, productivity and quality of sugar cane.
- To identify, adopt and apply cost effective harvesting alternatives.
- To identify and implement alternatives for cost effective transportation of sugar cane to the factory.
- To investigate, monitor and evaluate existing and alternative marketing

arrangements for sugar and by-products of sugar cane processing.

- To expand factory capacity and to improve current levels of efficiency.
- To identify and implement diversification programs within the industry.
- To identify and implement a diversification program in the Northern districts.
- To improve the framework for policy coordination and dialogue within the industry.

Various programmes, projects and activities were outlined in the Strategic Plan to achieve the above-stated objectives (Ministry of Sugar Industry, 2001).

#### *Position Paper*

A Position Paper giving an overview of the sugar industry, outlining the challenges and issues facing the industry and presenting strategic options and recommendations for adoption to move the industry forward was prepared by the Center for Planning and Projects (CEPPI) of the Inter-American Institute for Cooperation on Agriculture (IICA) and the Ministry of Sugar Industry and submitted along with the Strategic Plan for Cabinet's approval. Cabinet has given its approval for the Strategic Plan for the sugar sector thereby giving the industry the needed assurance and boost in confidence to rapidly advance the necessary interventions to attract the additional investments (field rehabilitation and expansion, research & development, core sampling, factory improvements and co-generation facilities) already identified in the plan to get the industry on a firmer footing. Certain

activities (field survey, privatization/de-regulation committee, harvesting and transportation committee) have already started and need to be amplified and accelerated.

The Position Paper outlined the major priorities to be addressed, in the short and long term, if Belize is to prepare and reposition the industry to compete in the open market, are as follows (IICA, 2001):

- A reduction in the cost of production at both the factory and field levels, particularly in the latter. Based on information available, Belize could achieve an overall sugar production cost of between BZ\$0.12 and BZ\$0.15 per pound.
- Increase the cane yield to at least 30 tons per acre.
- Reduce the TC/TS ratio to achieve a level of 9.5 or lower.
- Improve cane variety to increase sugar productivity per unit of land.
- Maximise the current processing capacity of BSI to produce 126,000 tons per year.
- Achieve over 85% capacity utilization of the factory.
- Achieve and maintain 90% and over in the use of the available grinding time per crop.

These priorities must be addressed with a sense of urgency and with a high degree of coordination in order to make timely and effective interventions in the industry

#### *Sugar Industry Act*

As recommended in the Position Paper, modern legislation, institutions and mechanisms, need to be put in place to bring

about cost reductions, increased efficiencies and productivity at both field and factory levels to face the increasing competition of open trade. The Sugar Industry Act, 2001 is therefore critically important to set the legal framework for industry takeoff by providing an environment of greater certainty and the necessary safety net for investments and industry growth.

The Sugar Industry Act, 2001 underwent extensive discussions and consultations with the various stakeholders (cane farmers, BSI, the Government and others), and have their full support and is the single most important consideration at this stage of development of the sugar industry. The members of the public service, labour, industry and trade committee, the cane farmers, BSI and Government officials spent a tremendous amount of time and energy to discuss and deliberate the Bill and have successfully crafted, in the true spirit of cooperation and collaboration, the various amendments to the Bill to give it the necessary character and force to lay the legal foundation for the stability, expansion and growth of the sugar industry.

The Sugar Industry Act, 2001 will allow for new and better provisions for the administration and future development of the national sugar industry, with a view to increasing Belize's competitiveness in the international sugar markets. The Act incorporates relevant elements of existing legislation and makes provision for new institutional features designed to enhance industry management, increase farmer productivity, and improve sugar cane harvesting and delivery practices.

Key elements of the Sugar Industry Act, 2001, which includes reducing Ministerial power and intervention, are (Government of Belize, 2001):

- The renaming of the Belize Sugar Cane Board (BSCB) as the Sugar Industry Control Board (SICB) and the strengthening of the SICB with the appointment of a Chief Executive Officer (CEO) at the professional level, who will advise on and oversee implementation of Board Policy. The Board has been renamed and now consists of 9 members instead of 12, including one member jointly nominated by the Belize Cane Farmers' Association Representatives and the Manufacturer. The CEO and relevant staff have already been employed.
- The creation of a Sugar Cane Production Committee (SCPC) to be autonomous and to be responsible for all aspects relating to the estimation of sugar cane production, harvesting and delivery. Members on this Committee have been appointed by the Board and the Chairmanship will rotate on an annual basis between cane farmers, BSI and the Government's representative.
- The creation of a Sugar Industry Research and Development Institute (SIRDI) with a broad industry mandate for research, development and training at both field and factory levels. The Institute will assist farmers in all aspects relating to sugar cane culture and utilization; and will address improvements in technology and value-added at the factory level. An Advisory Committee has been set up by



- the Ministry of Sugar Industry to review proposals for the creation of SIRDl.
- The creation of a Sugar Cane Quality Control Authority (SCQCA) to ensure deliveries to the factory of high quality sugar cane and to determine sugar cane prices on this basis. Members of the Board of Directors of this Authority have been appointed by the Sugar Industry Control Board and the Chairman of the Authority was nominated jointly by the Cane Farmers' Association representatives and the manufacturers. The SCQCA has begun discussions on the establishment of a core sampler system to be used for payment to farmers based on quality of cane delivered to the mill rather than on volume.
  - Provisions for the establishment and proper management of the Belize Cane Farmers' Association (BCFA). Members of District Divisional Committees and Branch Councils to hold office for three years instead of one year and retirement of the members of these Committees and Councils will involve only one-third of their members at a time to allow for continuity and preservation of institutional memory. Cane farmers must register with the Association and must deliver a minimum of 75 tons of cane per year to remain on the register.
  - Provisions for the controlled import and export of sugar, ethanol and other derivatives of sugarcane.
  - Provisions relating to manufacturers generally and to manufacturers' quotas in order to coordinate the delivery and processing of sugarcane into sugar,

ethanol and other derivatives of sugarcane.

- The creation of a Sugar Development Fund (SDF) to support development initiatives in the sugar industry. Two sugar special funds, the Sugar (Industry Development) Fund and the Sugar (Labour Welfare) Fund are to be established and operated under particular guidelines.
- A Legal and General Provision to enable the Sugar Industry Control Board to make regulations for the control of the sugar industry and for giving better effect to the provisions of the Act. This Provision also allows for the repeal of the Sugar Cane Industry (Control) Act, the Sugar Cane Farmers' Association Act, and the Sugar (Special Funds) Act.

The Sugar Industry Act, 2001 establishes the legal framework and sets the stage for improved management and performance of the sugar industry at this critical stage of its development.

#### *Policy Initiatives*

The Ministry of the Sugar Industry, Labour and Local Government, through the Sugar Industry Control Board, supported the sugar sector through policy and related initiatives in a targeted effort to stabilize and stimulate the industry. These initiatives included duty-free treatment for fuel, waiver of truck licensing fees, 50% reduction of port cargo dues on exports of sugar and molasses, issuing of additional quotas to support expansion and availability of cane, making credit available, increasing the local price of sugar to support price for sugarcane, provision of

scholarships to high school for children of cane farmers and supplying medical and other assistance to needy families.

While the Government continues to address the needs of the sugar industry locally and the overall need for employment and incomes, the Government is also doing its best through the Ministry of Investment, the Ministry of Foreign Trade, Belize Commodities Secretariat, Belize Trade Investment and Development Service (BELTRADE), embassies abroad and other agencies to attract investments and to maintain the markets and prices for sugar in Europe, the US, CARICOM and Central America. The search for new products and for new markets for new and existing products of sugarcane must be amplified.

A proposal for the Sugar Industry Research and Development Institute is completed (Shaw, 2001), lands have been identified and it is now ready for sourcing of the necessary capital and staffing for implementation. A draft of the Sugar Policy Document for Belize has been completed with the assistance of CEPPI, IICA in Costa Rica (IICA, 2002) to clearly outline policy directives and now needs to be shared with the various stakeholders. The Sugar Cane Census has been completed and the results are being tabulated and analyzed to inform the various policies and plans. A proposal for funding of the rehabilitation of all sugarcane fields, on a phased basis, is soon to be finalized.

#### IMPLEMENTATIONS OF CHANGE

The present state of the sugar industry and the changing local and international

environment for sugar dictates that the industry must be transformed from a somewhat laid-back industry enjoying preferences and subsidies and operating under political patronage to a modern market-led, efficient and competitive industry, run on a business basis, to survive open competition. This will require hard and fast decisions on the part of the stakeholders, as time is not on the side of the industry. The changes will certainly have far-reaching socio-economic and political impacts that will need to be addressed through a number of policy initiatives (Parham, 1998) to set the industry on a sound footing and to reduce the pains of the adjustment process.

#### *Educational Campaign*

The transformation process will require a change in the mindset from one of near complacency and dependency to one of a targeted, deliberate and aggressive nature. This will require a massive educational and informational programme targeted to reach and educate the thousands of small cane farmers who will be required to make economic decisions on their participation in the industry. The Sugar Industry Act, 2001 requires, among other things, that a cane farmer must deliver a minimum of 75 tons of cane per annum to remain on the registration list. Those farmers who cannot meet the stipulated requirements will be forced to exit the industry. It is important to convince farmers to move out of an uneconomic situation to profitable alternatives. This means that profitable or suitable alternatives

must exist or be created to facilitate the transition.

#### *Marketing Strategy*

There is a need to develop an aggressive marketing strategy and international lobby to retain the existing market shares and preferential prices for Belize's sugar. The search for additional preferential and niche marketing arrangements for sugar, by-products of sugar and other derivatives of sugarcane is a must. This requires a high degree of understanding, collaboration and cooperation between Government and the private sector which is time consuming and costly. The private sector participants in the industry must be prepared to develop the expertise and be convinced to assume a fair share of the costs involved.

#### *Sugarcane Rehabilitation*

A programmed and targeted rehabilitation of the sugarcane fields must be carried out in order to reduce production costs, increase yields per unit area and to improve the quality of sugarcane produced and delivered. This programme will be difficult to achieve as the majority of farmers are heavily indebted and may not be able to access regular loans to rehabilitate the fields. Some special loan or financing scheme may have to be designed to allow small farmers with limited delivery quotas and collateral/resources to continue in production. It is expected, based on preliminary results of the Sugar Cane Census, that as much as 50% of the registered farmers may have to exit the industry as they do not produce cane directly and/or may not be able to access the

resources to produce cane economically. This means that they may need to seek employment in other sectors or the unemployment situation may worsen.

#### *Harvesting and Transportation*

Harvesting and transportation of sugarcane accounts for about 65% of the costs of production and delivery of sugarcane to the factory. Arrangements must be made to produce sugarcane in economic size units or in contiguous areas to facilitate bulk/group harvesting and transportation in order to cut the costs involved. Harvesting and transportation of cane by individuals or in small groups is not cost effective. The delivery in smaller size transportation units of 9-10 tons capacity is also least efficient and cause considerable delays in the delivery lines at the mill contributing to a higher percentage of stale cane. The move to larger transportation units and diesel-powered units will be more cost effective and will retire a number of inefficient transportation units. Arrangements must be made to dispose of the retired units to salvage some funds to plough back into the business. There is a lot of dead capital locked up in the excessive number of transportation units in the industry.

#### *Factory Improvement*

Although the factory is said to be fairly efficient (Table A3), there is always a need to review factory operations in an effort to improve handling, throughput and efficiencies and to reduce costs where possible. Efforts should be directed to improve receiving and handling to reduce

sugar loss from stale cane and to maximize the use of the factory facilities during the drier periods of the crop year to increase throughput, to reduce percentage mud and to increase sucrose extraction. Further investment in factory facilities however must be carefully studied in an effort to avoid overcapitalization.

Cane production and factory uptake however must be well coordinated to meet the demand for sugar, to satisfy additional needs for other operations such as cogeneration, to develop economies of scale and to increase overall efficiencies. The Core Sampling procedure should be employed to make payments based on quality of cane as an incentive to farmers to produce better quality cane and to reduce thrash and mud delivered with the cane.

#### *Organizational Framework*

The organization framework and institutional capacity of the industry needs to be evaluated and strengthened to bring about greater collaboration and cooperation among the various stakeholders. There is a high degree of mistrust among the various players. The Secretariat of the SICB has been evaluated and restructured for greater economy and efficiency of operations. The Cane Farmers' Association and Belize Sugar Industries Ltd. should evaluate their own organizational structure and institutional capacities and bring better management and more transparency to the industry.

There may be the need to have one Central Administrative Center for the whole Association with two district sub-centers instead of the two separate and distinct

administrations for the two divisions as currently exist. Some pooling of resources and joint activities need to be activated to bring about cost savings and to better service the members. Belize Sugar Industries Ltd. may need to consider downsizing and outsourcing of certain requirements for cost effectiveness.

It is time that free, open and frank discussions occur at the Sugar Board level in an atmosphere of transparency and trust to bring greater confidence to the industry and to allow for greater policy coordination and more effective decision-making and support. One area for urgent consideration and policy coordination is the high cost for internal transportation and shipping of sugar to the export market.

#### *Research and Development*

The level of research and development in the industry is poor and not well coordinated nor supported. Investment in research and development must be an industry initiative and not only that of the processors. Hence the Sugar Industry Research and Development Institute proposals should be given serious attention and be accelerated to address the research, extension and development needs. The results of the Sugar Cane Census will inform on the field and transportation situation. Investigations must be carried out into the type of field and factory equipment and technologies to be employed, without major additional investments, to bring greater efficiencies to the operations.

There may be a need to consider greater field mechanization and irrigation and newer

equipment with improved automation for the factory to extract more sucrose on a more cost effective basis. Comparability studies must be done across similar industries and competing industries in the cane and sugar business. Research into value-added developments is key to increased utilization of sugarcane, sugar and by-products and to identify additional sources of income to cross-subsidize sugarcane and sugar production (Schaffer & Associates, 1999.) The co-generation activity now being pursued by Belize Sugar Industries Limited is one such activity to be supported. Research and development is costly but it is even more costly not to do so.

#### *Diversification*

While there is certainly a need to retool the industry to bring about greater efficiencies and cost effectiveness, this very process will require that alternative economic activities must be available to absorb displaced farmers and workers. Efforts must be directed at creating diversification within the sugar industry and without (Schaffer & Associates, 1999). Educating and retraining of farmers and workers is key to the success of any diversification programme.

The need to address diversification within the sugar industry through research and development to develop new and improved products from sugarcane and sugar targeted to identified markets cannot be over-emphasized. Alternative agricultural and non-agricultural activities to make the best use of the land and to create needed employment and economic activities is highly important. This is an area where

government, business and labour must come together to identify and fashion economic activities/packages to meet the need of the area and country. Horizontal and vertical integration of diversification efforts must be considered to encourage greater cooperation, trust and confidence in the industry.

#### *Investments*

Considerable time and effort have been expended in analysis work and in developing the various plans, programmes and activities to be carried out. Time is not on the side of the industry and the stakeholders need to focus on implementation activities if they are to prepare the industry for open trade.

The activities under the Strategic Plan need to be amplified and the further detailed analyses required for coordinated implementation should be urgently addressed in order to source the necessary investments. The new legal framework is now in place and the wheels must be set in motion to appoint the additional committees and to establish the various institutions to manage the industry in a coordinated and efficient manner. For example, the Industry Development Fund must be created in order to attract the type of funding to support the transformation process.

The Sugar Industry Control Board has been appointed and it is time to move new initiatives in the areas of policy, legislation and implementation for rapid industry restructuring. The stakeholders need to grab the bull by the horns and make decisions on a timely, informed, cooperative and effective

manner in an atmosphere of trust, confidence and mutual respect

## CONCLUSION

The year 2002 and beyond promises to be filled with many more challenges and opportunities, and with the cooperation and collaboration of all the stakeholders, the industry can position itself to embrace the challenges in a formidable way and to capture the various opportunities as they arise. By working together, the stakeholders will be better able to develop and stabilize the industry, make it competitive and profitable, and thereby provide better incomes, greater employment and foreign exchange earnings to all beneficiaries and interested parties in the northern districts and the country as a whole.

The Government promises to do its utmost to support the industry and to ensure its growth and survival. This includes policy development, the sourcing of markets and credit, support for research and value-added development, identification of diversification activities, providing additional infrastructure and facilitation and exploring economic ways to utilize the existing infrastructure and facilities.

Industry participants need to take up the challenge with a change of attitude and renewed vigour to modernize this industry and to bring it to greater levels of efficiency, productivity and profitability for the benefit of stakeholders and the overall Belizean economy. The success or failure of the

industry lies directly in the hands of the actual stakeholders/participants involved with the business.

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Table A1. Nominal and Real Per Long Ton Prices Paid to Cane Farmers, 1990 – 2001

Year	Nominal Price Per Lt (BZ\$)	Real Price with 1990 as Base Price (BZ\$)
1984/85	31.92	19.53
1985/86	40.30	29.26
1986/87	49.66	44.43
1987/88	53.55	51.67
1988/89	48.43	42.26
1989/90	55.50	55.50
1990/91	55.26	56.00
1991/92	50.61	55.70
1992/93	55.45	55.40
1993/94	51.96	48.65
1994/95	64.55	75.08
1995/96	60.10	65.08
1996/97	55.68	55.86
1997/98	50.78	46.46
1998/99	45.28	39.94
1999/2000	42.18	32.06
2000/01	40.89	31.24

Sources: Central Bank of Belize Annual Reports, BSI, BSCB 1992 – 2000.

Table A2. Sugar Cane and Sugar Production, 1980 – 2001

Crop Year	Estimated Acreage Harvested	Cane Harvested ('000 lt)	Sugar Produced ('000 lt)	Molasses Produced ('000 lt)	Tons Cane/Acre Harvested (lt)	Tons Cane/Ton Sugar (TC/TS)	Recovery Rate (Sugar Prod/Cane Prod)
1980/81	61,000	970	98	32	15.9	9.9	10.1
1981/82	61,000	1,096	106	35	18.0	10.3	9.7
1982/83	59,300	1,132	114	37	19.1	9.9	10.1
1983/84	59,000	1,022	102	33	17.3	10.0	10.0
1984/85	58,000	962	102	28	16.6	9.4	10.6
1985/86	57,000	854	93	30	15.0	9.2	10.9
1986/87	57,000	789	82	24	13.8	9.6	10.4
1987/88	56,000	777	82	23	13.9	9.5	10.6
1988/89	58,000	925	91	28	15.8	10.2	9.8
1989/90	58,500	1,072	100	47	18.3	10.7	9.3
1990/91	60,000	1,114	102	54	18.6	10.9	9.2
1991/92	60,000	1,104	101	45	18.4	10.9	9.1
1992/93	65,000	1,114	100	53	17.1	11.1	9.0
1993/94	65,000	1,199	105	56	18.4	11.4	8.8
1994/95	65,000	1,025	105	32	15.8	9.8	10.2
1995/96	65,000	1,232	109	37	19.0	11.3	8.8
1996/97	60,000	1,191	124	40	19.9	9.6	10.4
1997/98	65,000	1,160	118	42	17.8	9.8	10.2
1998/99	60,100	1,188	117	38	19.8	10.2	9.8
1999/20	60,500	1,109	121	31	18.3	9.2	10.9
2000/01	60,000	1,023	104	34	17.1	9.85	10.2

Sources: BSI, BSCB, BCFA.

Table A3. Factory Efficiency, Cane Purity, Cane/Sugar Ratio, 1988-2001

Crop Year	Factory Efficiency (%)	Cane Purity (%)	TC/TS
1988/89	89,85	86,63	9,54
1989/90	91,64	84,92	9,66
1990/91	90,66	85,41	9,46
1991/92	90,53	86,72	9,73
1992/93	91,04	87,04	9,55
1993/94	90,60	86,20	9,74
1994/95	91,21	85,25	9,04
1995/96	91,88	84,62	10,05
1996/97	91,91	85,28	9,16
1997/98	91,68	84,45	9,82
1998/99	91,15	85,68	10,02
1999/2001	91,85	86,19	9,14
2000/01	90,14	85,65	9,85

Source: BSI Laboratory Reports

Table A4. Sugar Exports as a Percentage of GDP, Total Exports and Agricultural Exports

Year	Sugar Exports as % of:			Sugar and Molasses Exports as % of:		
	GDP	Total Exports	Agric Exports	GDP	Total Exports	Agric Exports
1980	26.1	58.3	72.4	27.3	60.9	75.7
1981	22.8	57.0	73.3	23.5	58.6	75.3
1982	18.0	54.9	64.2	18.5	56.4	65.9
1983	19.4	54.4	65.9	19.8	55.4	67.0
1984	17.5	44.7	59.8	17.8	45.5	60.9
1985	12.3	35.6	45.6	12.5	36.3	46.5
1986	16.4	42.2	56.4	16.6	42.9	57.3
1987	14.6	36.0	49.4	14.8	36.6	50.2
1988	15.3	36.8	50.4	15.5	37.3	51.1
1989	13.2	36.2	47.5	13.4	36.9	48.4
1990	15.0	39.4	49.4	16.2	42.4	53.2
1991	14.2	42.3	56.6	15.5	46.1	61.6
1992	11.7	31.6	40.2	12.7	34.2	43.6
1993	12.3	34.9	46.1	13.8	38.9	51.5
1994	11.8	31.6	40.9	13.3	35.7	46.2
1995	13.5	33.4	40.7	13.7	33.9	41.2
1996	13.1	30.7	38.3	13.3	31.2	38.9
1997	12.3	28.9	39.3	12.5	29.4	40.0
1998	11.8	29.1	39.2	12.0	29.6	40.0
1999	10.2	24.7	33.2	10.4	25.1	33.8

Source: CSO, Belize.



Table A5. Gross Value-Added to Agricultural Crops, 1980 – 2000 (Percentage)

Year	Sugar cane	Oranges	Grape-fruit	Corn	Rice	RK Beans	Bananas	Sub-Total	Others Crops	Total Crops
1980	50.4	15.7	1.5	9.6	6.0	2.0	3.7	89.0	11.0	100
1981	47.8	15.1	2.2	10.8	7.6	2.5	1.8	87.8	12.2	100
1982	52.0	13.9	2.4	10.0	5.3	2.4	0.7	86.7	13.3	100
1983	60.7	10.9	0.7	9.2	3.0	2.3	0.5	87.4	12.6	100
1984	52.4	16.2	1.2	8.3	4.0	1.9	1.6	85.6	14.4	100
1985	48.7	15.0	1.8	10.0	3.9	1.6	2.2	83.2	16.8	100
1986	42.0	18.4	2.5	9.4	3.1	2.7	3.7	81.8	18.2	100
1987	33.1	23.0	3.0	10.3	2.8	3.2	5.7	81.2	18.8	100
1988	34.7	18.3	3.0	10.7	3.6	3.2	7.5	81.1	18.9	100
1989	37.6	17.0	2.7	9.1	2.8	5.1	6.9	81.2	18.8	100
1990	41.4	18.0	3.1	6.5	2.3	2.8	6.9	81.1	18.9	100
1991	44.0	13.0	2.2	11.1	2.4	4.0	5.2	81.9	18.1	100
1992	37.9	22.7	2.9	10.1	2.4	2.8	5.7	84.6	15.4	100
1993	38.8	17.0	2.5	8.3	4.3	3.5	7.4	81.9	18.1	100
1994	39.8	18.5	2.0	6.8	2.7	3.0	9.1	82.0	18.0	100
1995	29.6	26.2	2.7	7.6	3.7	2.7	7.8	80.3	19.7	100
1996	32.5	22.8	2.2	8.7	4.2	2.5	8.5	81.4	18.6	100
1997	27.4	28.9	2.4	7.6	4.9	2.8	7.0	80.9	19.1	100
1998	29.5	27.4	2.3	8.5	3.1	2.3	7.6	80.6	19.4	100
1999	27.3	29.0	2.3	8.3	3.6	2.6	7.6	80.7	19.3	100
2000	17.2	12.6	2.6	3.5	2.4	3.3	33.2	74.8	25.2	100

Source: CSO, Belize.

Table A6. Exports of Sugar by Country, 1980 – 2001

Year	EU		USA		Rest of the World		Total Volume (lt)	Total Value (BZ\$'000)
	Vol. (lt)	Value (BZ\$ '000)	Vol. (lt)	Value (BZ\$ '000)	Vol. (lt)	Value (BZ\$'000)		
1980	35,248	31,729	60,714	62,000	0	0	97,110	95,500
1981	41,826	30,721	43,750	55,000	0	0	90,600	82,700
1982	41,007	31,200	41,980	29,040	6,103	4,761	108,040	65,700
1983	42,399	30,000	26,979	24,935	39,712	12,002	109,089	68,300
1984	43,000	29,600	36,200	29,632	16,400	11,001	95,600	69,800
1985	42,100	27,404	17,700	7,156	35,600	1,924	95,300	49,000
1986	41,200	37,680	51,971	23,425	5,250	1,793	98,521	62,898
1987	48,861	46,139	15,820	9,653	29,120	7,157	78,981	62,622
1988	48,613	48,527	19,317	14,914	23,135	7,012	79,700	70,027
1989	43,400	37,400	24,400	23,800	15,900	6,942	83,700	71,100
1990	41,726	47,000	16,090	16,000	34,638	23,000	92,454	86,000
1991	45,224	52,000	21,215	20,300	25,447	11,100	91,886	83,400
1992	42,102	48,900	13,822	12,500	34,010	13,900	89,934	75,200
1993	42,234	56,405	12,136	10,751	35,900	15,700	90,270	82,900
1994	42,569	51,300	10,210	9,100	40,066	20,200	92,845	80,600
1995	54,538	69,600	14,160	12,600	23,621	13,300	92,319	95,500
1996	50,277	62,000	23,176	21,400	21,375	10,900	94,133	94,300
1997	50,696	54,200	28,691	22,700	36,658	15,000	108,152	91,900
1998	54,568	57,400	15,875	14,400	26,723	17,200	93,677	89,000
1999	57,408	58,400	11,275	10,300	22,791	13,300	91,471	82,000
2000	54,855	56,929	11,015	9,501	34,233	9,266	100,103	75,696
2001	44,545	36,526	10,858	8,556	35,825	14,466	91,228	59,548

Source: BSI, Central Bank of Belize Annual Reports 1980 – 1999.

Table A7. Allocation of Sugar Quota Licenses and Cane Delivery, 2001

Range (LT)	No. License Holders			% of Total	Allocated Licenses (LT)			% of Total	Sugar Cane Delivered			% of Total
	Corozal	Orange Walk	Total		Corozal	Orange Walk	Total		Corozal	Orange Walk	Total	
0-50	1,278	1,827	3,105	33.39	63,309	89,185	152,494	11.75	62,914	76,397	139,311	13.78
51-100	1,354	1,357	2,711	29.15	114,761	119,860	234,621	18.07	68,731	58,313	127,044	12.56
101-200	844	945	1,789	19.24	123,781	134,251	258,032	19.87	99,959	102,919	202,878	20.06
201-300	448	387	835	8.98	108,942	96,144	205,086	15.80	89,310	75,755	165,064	16.32
301-400	217	190	407	4.38	74,538	65,886	140,424	10.82	63,554	52,968	116,522	11.52
401-500	97	78	175	1.88	44,141	34,565	78,706	6.06	39,386	28,767	68,154	6.74
501-600	51	43	94	1.01	27,789	23,563	51,352	3.96	25,756	18,366	44,122	4.36
601-700	31	18	49	0.53	19,893	11,581	31,474	2.42	17,940	8,532	26,472	2.62
701-800	15	18	33	0.35	11,218	13,780	24,998	1.93	8,652	11,230	19,882	1.97
801-900	13	6	19	0.20	10,851	5,026	15,877	1.22	9,948	4,866	14,814	1.46
901-1000	8	19	27	0.29	7,435	18,158	25,593	1.97	7,410	14,951	22,361	2.21
1001-2000	28	21	49	0.53	36,743	27,651	64,394	4.96	31,907	21,463	53,369	5.28
2001-3000	3	3	6	0.06	7,104	8,135	15,239	1.17	5,699	5,523	11,222	1.11
Over 3000	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00
Total	4,387	4,912	9,299	100	650,505	647,785	1298,290	100	531,165	480,049	1011,214	100

Source: BSCB