SUGAR INDUSTRY OF BELIZE

# Transforming Sugar Production in Belize into a Modern, Sustainable, Green Model, Contributing to Jobs, Growth and Energy Security

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**Figures and Tables**



**Acronyms**

| | |
|---|---|
| AR5 | Fifth Assessment Report (Intergovernmental Panel on Climate Change) |
| ACP | Africa, Caribbean and Pacific |
| ASR | American Sugar Refining Inc. |
| BEL | Belize Electricity Limited |
| Belcogen | Belize Co-Generation Energy Ltd. |
| BSCFA | Belize Sugar Cane Farmers Association |
| BSI | Belize Sugar Industries Ltd. |
| CARICOM | Caribbean Community and Common Market |
| EU | European Union |
| FDI | Foreign Direct Investment |
| GDP | Gross Domestic Product |
| GHG | Green House Gases |
| IMF | International Monetary Fund |
| IPCC | Intergovernmental Panel on Climate Change |
| SICB | Sugar Industry Control Board |
| SIMIS | Sugar Industry Management Information System |
| UN | United Nations |
| UNCC | United Nations Framework Convention on Climate Change |
| USDA | United States Department of Agriculture |
| WWF | World Wildlife Fund |
| SCPC | Sugar Cane Production Committee |
| SIRDI | Sugar Industry Research & Development Institute |

## Executive Summary

The Government and industry stakeholders are committed to ensuring the future success and sustainability of the sugar industry in Belize. The industry is of fundamental social and economic importance to the country and all those it supports. Aside from supporting the livelihoods and wellbeing of around 15% of Belizeans, it also contributes greatly to the national economy, both through its contribution to Gross Domestic Product (GDP) (around 5%), employment (around 10%) and to foreign exchange earnings (around 6%).

It provides the platform from which to increase the share of home-grown "green" energy in the nation's energy mix by producing co-generated electricity for sugar production and for the national grid. Increasing renewable energy provision has a double benefit. It introduces the potential to offset the high cost of importing electricity from abroad to the benefit of the nation. It also reduces Belize's carbon footprint and contributes to national climate resilience goals, by offsetting carbon emissions from energy sources which rely on fossil fuels.

The challenge facing many policy makers today is how to mitigate the risks posed by climate change while enabling economic development. The Intergovernmental Panel on Climate Change (IPCC) recognises that the risks posed by climate change are significant, not least for nations such as Belize with long coast lines, vulnerable to changes in sea levels. The IPCC's latest report identifies a warming of ocean and average surface temperatures as posing a challenge to agriculture in both tropical and temperate regions. The report is described as a Synthesis Report as it brings together the work of three working groups and delivers an integrated view of climate change. This report is expected to influence government decision-making and drive cooperative responses at an international level to mitigate GHG emissions.

One of the key options identified in the IPCC's latest report on climate change for the mitigation of GHG emissions is the decarbonisation of energy supply. Key measures include the decarbonising (ie reducing the carbon intensity of) electricity generation. The increase in the production of electricity from renewable energy sources (along with nuclear and carbon capture) is expected to rise from 30% to over 80% of total production by 2050.

Developing a sugar industry which has diversified into the production of co-generated electricity, and is alive to opportunities for further diversification into other derivatives, such as ethanol, can make a significant impact on emission

reduction targets. It is also an important element of managing the future risks of an increasingly volatile and unpredictable global sugar market.

The foundations on which the sugar industry is based are strong: an efficient mill at Tower Hill run by Belize Sugar Industries Ltd, (BSI) with the strategic backing of American Sugar Refining Inc. (ASR), a major US sugar company, with construction of a new mill underway in the West of Belize; sufficient arable land capable of producing high quality sugar cane; a labour force dedicated to the production of sugar cane; and private investors capable of supporting industry growth.

But the sugar cane industry faces fundamental challenges. The principal one is to improve production efficiency of sugar by over 30% above current levels to make Belize sugar production costs competitive against prevailing global market prices. This requires restructuring of the Northern cane industry to improve cane yields and quality, better harvesting and delivery practices, and greater efficiencies at the mill and in factory to ship logistics. Achieving this will require the active participation of all industry stakeholders, working together, toward common strategic aims.

Looking forward, the industry faces a range of options:

- Concentrating on expanding sugar production, and thereby reducing the production cost of sugar through efficiencies of scale. This option requires significant investment to increase cane production and mill and power plant capacity;
- Optimising sugar production at the current capacity of the mill by improving cane and energy production efficiency in order to reduce production costs;
- Adopting a more diversified approach, by introducing new fuel models to increase the production of co-generated electricity for sale to the grid to maximise the contribution electricity sales make to overall industry competitiveness;
- Consider further industry diversification to improve the industry's resilience to market volatility, such as production of bio-ethanol.

Whatever path the industry takes, it is vital for the sake of the national economy that it remains viable and able to compete in an increasingly competitive and volatile global sugar market. There is a clock ticking by which time this must be achieved, driven by a reduction in the prices Belize has traditionally received for the sale of its sugar to its traditional EU export market.

# 1. Introduction

## 1.1 Improving Efficiency, Competitiveness and Sustainability of the Sugar Industry in Northern Belize

The economic wellbeing of the sugar industry in Northern Belize is critical to the protection of jobs and growth in the region, as well as the contribution it makes to the national economy. In addition, it is a major contributor to the nation's energy security by delivering home grown, renewable electricity to Belize's energy matrix.

However, the viability of this important industry is now at risk. Changes to the current EU sugar regime will soon bring an end to the preferential prices that Belize has enjoyed. This change will leave Belize facing competition within a tough world market. Belize sugar is not currently competitive in a global context. To become competitive, production costs must reduce by around a third. This represents an enormous challenge for Belize. It will require the commitment and investment of industry stakeholders to improve the productivity and efficiency of all aspects of the business: farm, factory and logistics. If all industry stakeholders play their respective parts, this is achievable. Longer term, the industry may need to seek to diversify further into other areas, such as bio-ethanol, which is now a significant part of the transport fuels matrix in countries such as the United States and Brazil.

At a broader economic level any decline in the current contribution that sugar makes to Belize's economy would risk an increasingly unstable economic outlook for the whole country, characterized by increased economic hardship in the North of Belize. Conversely, a vibrant and growing sugar industry, operating at double today's production capacity and competing effectively in the global market would deliver a very different outcome. Significant increases in Foreign Direct Investment (FDI) to both grow the industry and to increase foreign currency returns from selling the product, would make a substantial contribution to improving prosperity in the North of Belize and to national economic and energy security objectives.

The production of energy and fuels from renewable energy sources is recognised as one of the most effective ways of reducing Green House Gas (GHG) emissions without compromising development. This is the view taken

by the IPCC (Intergovernmental Panel on Climate Change) in its latest and Fifth Assessment Report (AR5) on the impact of climate change as part of its work under the United Nations Framework Convention on Climate Change (UNCCC). There is no easier and more efficient way for Belize to contribute to this effort than by increasing capacity to generate green energy through an expanding sugar sector. Belize has all the ingredients to develop a sustainable and competitive modern sugar cane and biofuel industry, including sunlight, water and available land. It must not waste this significant natural competitive advantage to the detriment of Belize's economy and people by accepting low productivity and an unsustainable industry.

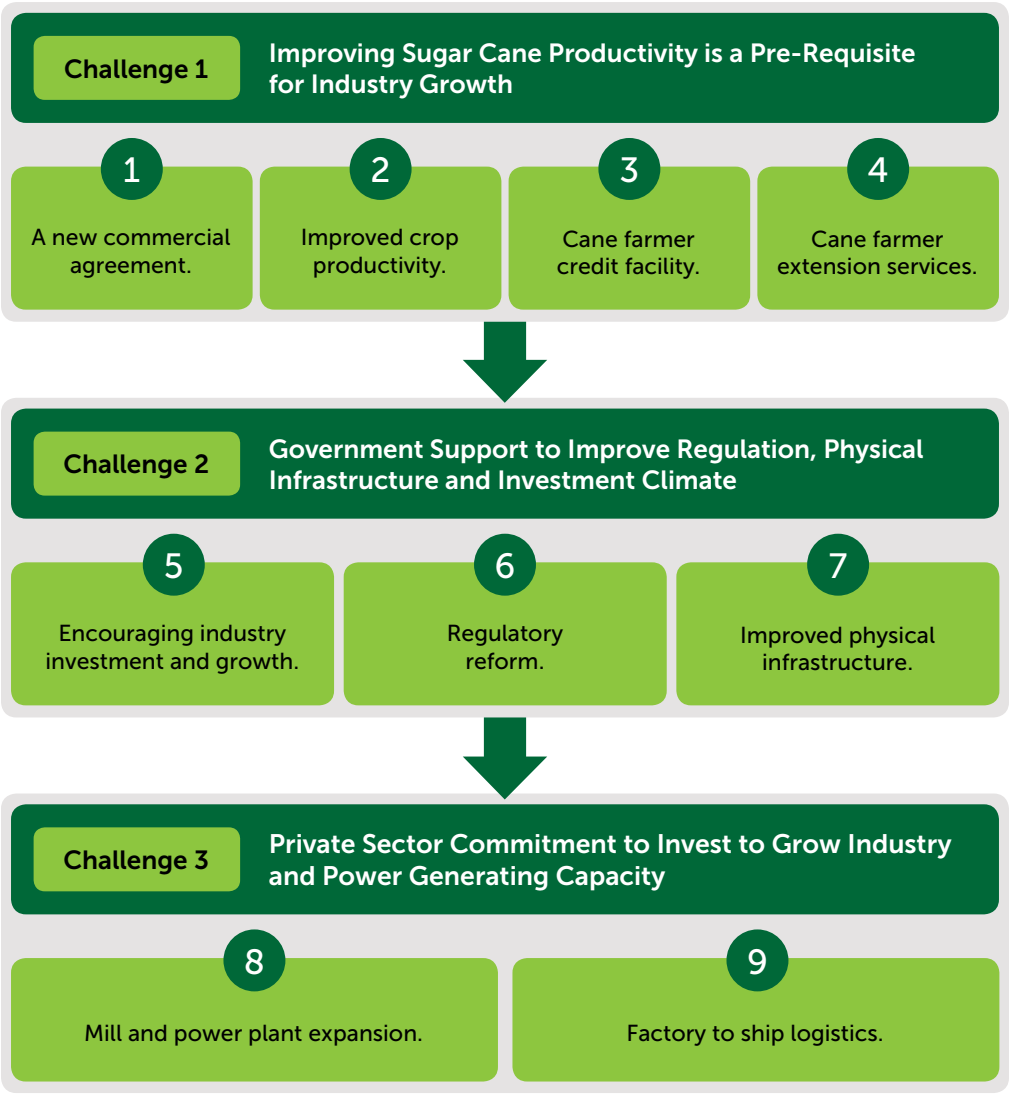
Today the future of the Belize sugar industry lies in the balance. Working together, the government, industry stakeholders and the development community can make it sustainable. The industry needs a strategic plan which sets out the roles and responsibilities of all stakeholders. That is the mission set out in this paper. There is no time to lose.

## 1.2 Impact of the Belize Sugar Industry on National Economic and Climate Goals

| Impact[1] | Following Industry Expansion | Optimised At Current Level With Government Subsidies | Without Expansion or Subsidies |
|---|---|---|---|
| Sugar Production | 200,000 - 250,000 tons. | 123,000 tons. | Zero (Industry Uncompetitive). |
| Total Value (Est) | US$71 – 88 million[2] | US$44 million[3] | Zero (Industry Uncompetitive). |
| Estimated Production Cost of Sugar | US$15 cents/lb. | US$20-21 cents/lb | Zero (Industry Uncompetitive). |
| Contribution to National GDP | 8 – 10% | 4 – 5% | 0% |
| Foreign Exchange Earnings (as % of GDP) | 10% | 6% | 0% |
| Contribution to Foreign Direct Investment | Increase of 75% on current FDI contributions. | Static. | Zero. |
| Contribution to Per Capita Income in Northern Belize | Overall income increase by around 22% per farming family.[4] | Reduction in real income of around 21%.[5] | Deterioration in regional per capita income. |
| Contribution of Co-Generated Electricity to National Grid | 22% | 15% | Zero. |
| Contribution to Climate Goals | Belcogen sales would "offset" 34,000 tons of CO2 emissions and help meet Belizean emissions targets.[6] | Status quo. | A lost opportunity for a demonstrable contribution to reducing emissions. |
| Cost of Government Subsidies[7] | Zero: industry would be sustainable and profitable. | US$20 million per annum[7] | Government would need to subsidise alternative livelihoods in the North of Belize. |

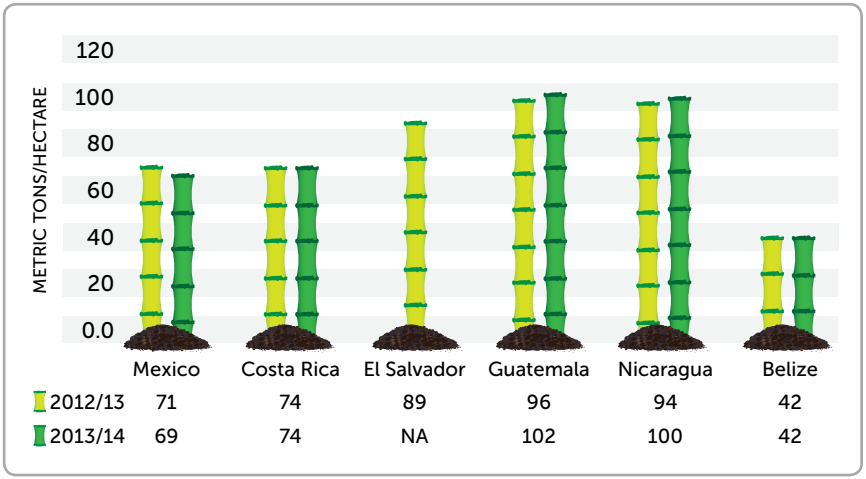
1. *Based on notional but realistic costs according to industry data*
2. *Estimated at current global prices*
3. *Estimated at current global prices*
4. *Based on earnings at 2014 prices and increased earnings at current global prices*
5. *Based on current earnings at 2014 prices and based on current global prices*
6. *If Belcogen sales to BEL were to directly displace purchases of electricity from Mexico, based on 2014 financial year figures*
7. *To Make Belizean Sugar Competitive at Current Market Prices*

## 1.3 Nine Point Plan: Recommendations to Develop the Sugar Industry of Northern Belize



# 2. Nine Recommendations to Underpin Industry Growth and Related Challenges

## 2.1 Challenge 1: The Responsibility of Sugar Cane Producers for Improving Industry Productivity.




Source: USDA Global Agricultural Information Network, Consejo Salvadoreño de la Agroindustria Azucarera and Anecdotal Information

Belize sugar cane productivity is among the lowest in the world. Yields in Belize are around 42 tons per hectare, while other regional industries are producing 100 tons per hectare.

This is due to a number of factors: the failure of the industry to follow best farming practices to ensure high sugar cane yields and quality cane; insufficient affordable credit for farmers to provide these inputs and insufficient technical advice and assistance to help them to improve productivity; an historical mistrust between cane farmer and mill, which prevents effective collaboration for industry development; and structural problems in the industry which prevent it from benefiting from efficiencies of scale or mechanised farming methods.

If the industry is to develop and prosper, it is essential that a constructive working relationship is forged between mill and farmers, founded on fairness, respect and a commercial mentality toward building the business.

As a pre-requisite to industry growth, this requires:

1. **A New Commercial Agreement:** a long-term, comprehensive purchase agreement between cane farmers and the mill which provides certainty for both parties to underpin future investment decisions.

2. **Improved Crop Productivity:** restructuring the cane industry to improve efficiency and cane yields by establishing better co-ordinated planting, husbandry, harvesting and delivery processes; introduction of new cane varieties and systems which permit delivery of mature, clean and fresh cane to the mill; development of an effective cane quality testing program that provides grower specific results allowing individuals to evaluate performance based on field-specific "best management practice"; and increased use of mechanical harvesting. These improvements would be complemented by the effective utilisation of the Sugar Industry Management Information System (SIMIS).

3. **Cane Farmer Credit Facility:** timely, affordable credit for cane farmers, sufficient in scale to permit farmers to make the necessary inputs to improve their productivity under lending terms that support sustainable and competitive farming.

4. **Cane Farmer Extension Services:** provision through relevant industry stakeholders of dedicated extension services and technical support to ensure proper advice, help and information gathering is available to improve farm practices and industry decision making.

## 2.2 Challenge 2: The Responsibility of Government for Improving the Conditions Which Will Enable the Industry to Grow

The Belizean economy relies heavily on agricultural production. This sector needs the full support of Government to develop and grow. The Government and agricultural producers need to integrate their forward planning to ensure they are part of a broader and sustainable agricultural industry, benefiting from improved infrastructure and appropriate regulation.

The legislative infrastructure which underpins the sugar sector is outdated and cumbersome. The Government has acknowledged the need for regulatory

reform. It needs to simplify and make more flexible industry structures to ensure they meet the needs of a modern sugar industry. At the same time, Government needs to create the right incentives for investment in the sugar industry if it is to attract the investment it needs to grow and become more competitive. These incentives include:

i) Raising the artificially low price of domestic sugar in Belize, to provide greater incentive for farmers to invest in sugar cane production: and

ii) Increasing the price paid for co-generated electricity, which currently falls significantly behind the region, to encourage investment in this important sector.

Belize is in a fortunate position. It has the agricultural resources in terms of land, water availability and sunshine hours to develop a leading sugarcane industry. Sugarcane is recognised as an efficient pathway to sustainable bio-energy such as electricity, a key goal identified by the IPCC's latest report, as well as bio-ethanol and sugar.

The opportunity to reshape the sugarcane sector in Belize into a modern biomass based industry that produces sugar; bio-ethanol and sustainable electricity must be embraced. Belize must not overlook its natural advantages as the global economy becomes increasingly focused on renewable energy and sustainable development.

Increasing the incentive to enable renewable energy to take a more prominent role in the nation's energy mix will provide the double benefit of reducing the amount of energy which is imported at high cost, while increasing national reliance on home-grown green energy, contributing to energy security and global climate change goals.

Additionally, the Government needs to adopt a more systematic and comprehensive approach to ensuring the physical infrastructure in Northern Belize permits industry growth. This includes preparation and maintenance of roads and a comprehensive drainage system. The Government should make the sugar industry a high priority in its dialogue with development partners to ensure that it forms a central part of the nation's development objectives.

The following specific actions could be taken by the Government to secure the industry's future:

5. **Encouraging Industry Investment and Growth:** The Government should review the regulated price of domestic sugar and, through the Public Utilities Commission, review prices paid for co-generated electricity, to make future investments in the sugar industry and energy sector commercially viable.

6. **Regulatory Reform:** Government should reform the industry's regulatory structures to encourage a more responsive, business-orientated, and flexible industry, capable of improving the efficiency of sugar cane production and enabling industry stakeholders to make the decisions they need to make, when they need to make them.

7. **Improved Physical Infrastructure:** Government implementation of a comprehensive, integrated infrastructure plan for Northern Belize to improve drainage, irrigation and roads, in conjunction with development partners and industry stakeholders, would contribute to a more sustainable agricultural sector, providing jobs, wealth and a greater contribution to the national economy. Improved infrastructure would improve the cane and sugar productivity in the sugar industry making it more competitive. All agricultural industries would benefit from better roads and access to a deep water port facility from which to export their produce more efficiently.

## 2.3 Challenge 3: The Responsibility of Private Sector and Development Partners for Facilitating Industry Growth

Meeting the challenges set out above will provide security for future private sector investment in the sugar industry. Mill and power plant investments will be needed to meet the requirement from expanding cane supply resulting from improved productivity. To increase the size of the mill at Tower Hill and to increase the capacity at Belcogen to produce sufficient power and steam to increase its milling capacity from 1.3 to 2 million tons of cane in a 26 week crop represents a major investment. Any investment of this size needs to be based on sound financial prospects and a clear industry plan to which all stakeholders are committed. The investment will benefit the entire industry by permitting it to grow and become more competitive.

ASR/BSI with the Government and other industry stakeholders should seek to engage the development community to support industry investment plans as they affect this socio-economic industry.

Expanding milling capacity to meet growth in cane productivity will require:

8. **Mill and Power Plant Expansion:** Increasing mill grinding capacity from its current 1.3 million tons level to the capacity to grind 2 million tons of sugar cane per crop requires an investment of between US$100 - 150 million in the mill and power plant. In order to justify this large investment, the sugar industry needs a business, economic and political climate which provides for security and acceptable returns on future investments to expand and improve its efficiency and productivity.

9. **Factory to Ship Logistics:** integrated public/private sector plan to improve factory to ship sugar transport and loading efficiencies through the introduction of more efficient logistical arrangements, leading to construction and utilisation of a port facility at Commerce Bight.

## 2.4 ASR/BSI Commitment to the Sustainability of the Sugar Sector in Belize

ASR/BSI is keen to work with other industry stakeholders, including Government and development partners, to achieve these outcomes and thereby develop a sustainable and profitable sugar industry in Belize for the benefit of all stakeholders and the wider Belizean economy.

ASR/BSI recognises that all stakeholders need to play their full part in achieving this outcome.

Recognising that modern sugar industries need to diversify to protect themselves against the volatility of a global commodity market which can be impacted by many variables, ASR/BSI will also maintain a flexible approach to future investment, open to the idea of diversification where this makes sense into increased electricity production, value added products, or other derivatives, such as ethanol, and to fully explore and test these models; Or, should the conditions for expansion not be realised, to optimize industry output and profitability at current capacity levels.

# PART ONE

# 3. Part One: The Sugar Market, Industry Growth, Competitiveness and Efficiency

## 3.1 The EU Sugar Market

3.1.1 In October 2017, changes to the EU sugar regime mean that the preferential prices which have provided revenues significantly higher than the global market price for sugar will cease. Regulation limiting the production and distribution of beet sugar and isoglucose in the European market will be removed. This will permit highly competitive European beet farmers and producers of isoglucose to substantially increase the supply of these commodities into the EU market, driving down prices and limiting the demand for raw sugar imports to only the most competitive suppliers.

3.1.2 While Africa, Caribbean and Pacific (ACP) sugar suppliers like Belize will continue to enjoy duty free access to the EU market under the terms of free trade agreements, the revenue they receive will significantly reduce to around global market levels, some 25%-35% lower than traditionally received. If they cannot compete effectively at that time, they will either have to leave the market, or rely on subsidies from national governments until such a time as they can improve their efficiency or diversify to other industries. The level of subsidy the Northern Belize sugar industry would require from the government to remain in business at current production costs and market prices would be around US$ 20 million per annum[8].

## 3.2 Contribution of Sugar to the Wider Economy

3.2.1 The wider economic challenges Belize faces in the run up to 2017 have been clearly documented by economic institutions. While providing a stable rating for Belize's national economy in a recent review, the credit rating agency Standard and Poors' indicated that a more positive outlook would require increased levels of FDI and for improvements in the productivity of export earning sectors, such as agriculture[9]. Moody's credit rating agency flagged the diminishing impact of the petroleum

*8. Based on the cost differential of 6 US dollar cents/lb representing the difference between current production costs and current global market prices.*
*9. www.standardandpoors.com/ratingsdirect*

industry and fiscal challenges linked to servicing government debt as major risks to the economy as we approach 2017[10]. The International Monetary Fund (IMF) has sounded similar warnings.

3.2.2 Doubling the productivity of the industry through farm consolidation and improved farming practices could potentially contribute an additional 3% - 5% to GDP. Similarly, the positive impact of large levels of FDI and an increase in foreign exchange earnings would help to strengthen Belize's economy and reduce the cost of borrowing at a time of anticipated fiscal stress. Eliminating the need to import energy through its replacement with co-generated electricity would be a major saving. Electricity produced and sold in Belize would have a direct and multiplier effect on domestic economic activity, rather than having none.

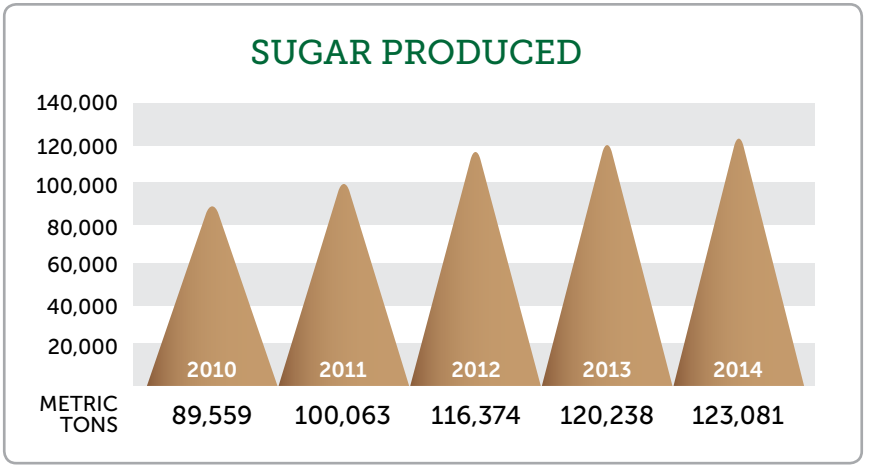
3.2.3 Belize is in a fortunate position. It has the agricultural resources in terms of land, water availability and sunshine hours to develop a leading sugarcane industry. Sugarcane is recognised as an efficient pathway to sustainable bio-energy as electricity, a key goal identified by the IPCC's latest report, as well as bio-ethanol and sugar.

3.2.4 Belizean sugar production has grown from traditional levels of less than 1 million tons of cane producing 90,000 tons of raw sugar to over 1.2 million tons of cane producing 123,000 tons of sugar within a shorter period for the 2014 crop. Had the 2014 crop started on time, permitting a crop season of 28 weeks under optimal production conditions, the results could have been even better

3.2.5 This increase has been facilitated by increases in cane production through both vertical and horizontal growth, and improvements in mill efficiency at Tower Hill Mill, Belize's single functioning sugar mill in Orange Walk, which has increased its grinding rates by over 1100 tons per day above traditional levels, and halved lost time in the mill for maintenance.

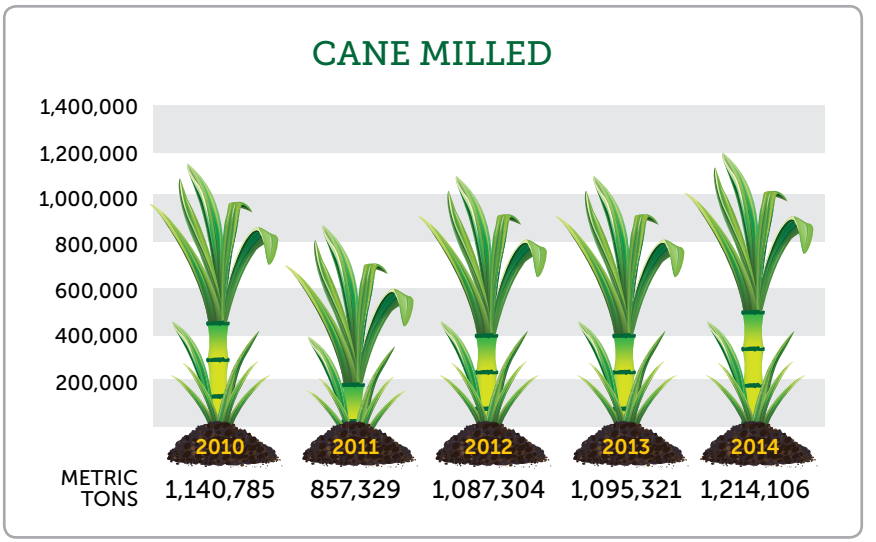
*10. Moody's Investors Services Credit Analysis, 30 June 2014*

FIGURE 1: BELIZE SUGAR PRODUCTION 2010 – 2014




Source: Belize Sugar Industries Ltd.

FIGURE 2: CANE MILLED IN BELIZE FROM 2010 – 2014




Source: Belize Sugar Industries Ltd.

## 3.3 Building a Solid Foundation for Industry Growth

3.3.1 The investment of US$ 65 million by BSI in 2009 in a co-generation energy facility, Belize Co-Generation Energy Ltd (Belcogen), which combined production of heat and steam for the factory process with the production of electricity, provided a solid foundation for industry growth. It enabled Tower Hill mill to increase its capacity to process around 1.3 million tonnes of cane in a twenty eight week crop season.

3.3.2 From the inception of Belcogen, due to a range of factors, including failure to meet its optimal performance targets because of lower than anticipated cane supply and problems with plant performance, BSI came under severe pressure from its lenders to restructure its finances or risk the complete withdrawal of its banking facility. Unable to find a willing new lender or consortium of lenders, as a matter of critical necessity, in October 2010 BSI began the process of identifying a new strategic investor with the requisite resources needed to underpin long term investments and to service its BSI and especially Belcogen loan facilities. The objectives of BSI extended beyond merely substituting one lender for another. BSI sought to engage a strategic partner to inject sufficient funds in the company to reduce the existing debt and expand both processing and cane production.

3.3.3 ASR's acquisition of 81% of BSI in October 2012, including Belcogen, met this need and provided a sound financial basis for industry growth by eliminating the accumulated debt and injecting further funding to improve mill efficiency. To date, ASR has invested US$ 95 million in BSI and Belcogen, to get the mill to its current capacity.

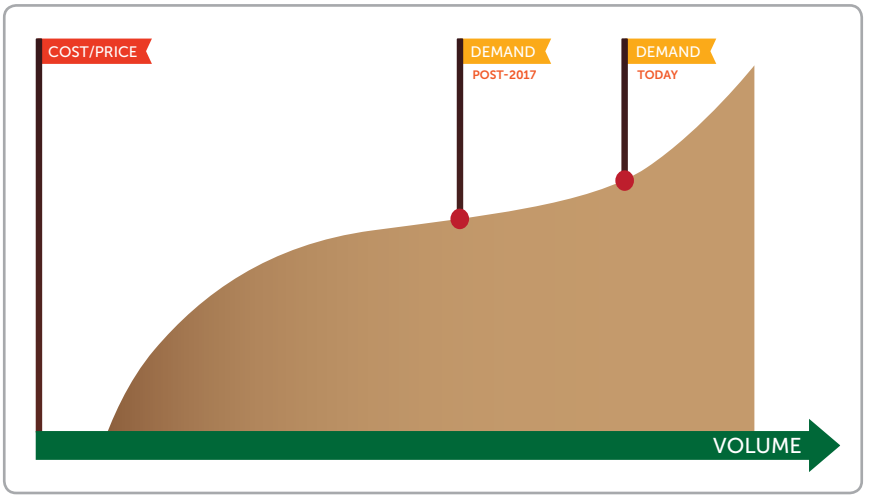
## 3.4 Challenges in the Global Sugar Market

3.4.1 Figure 3, below, sets out the impact on sugar prices of the anticipated increase of supply into the EU market as beet and isoglucose production is liberated. The graph indicates that as domestic sweetener supply increases at a faster pace than demand, prices will fall, denoted by the gap between pre and post 2017 supply lines on the demand scale for raw sugar imports. Beyond 2017, the European Commission anticipates a continued market for raw cane sugar imports into the EU, but warns this

will be filled by only the most competitive of cane sugar producers. The Belize sugar cane industry does not currently count among them.

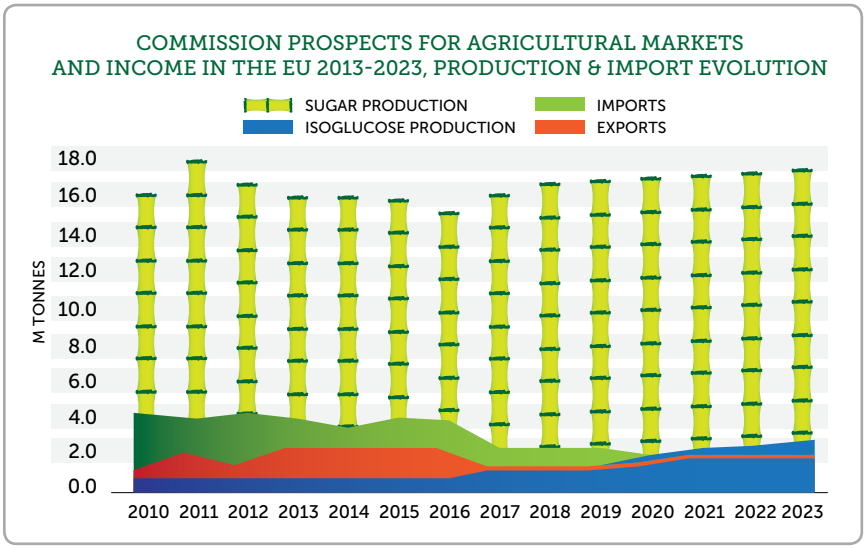
3.4.2 Even in advance of 2017, prices are falling in Europe, as the European Commission manages the transition to a liberated market. The EU Commission released 1.2 million tonnes of additional sugar into the EU market in the 2013 marketing year. Central American tenders at the start of 2014 and increased competition with beet companies in the EU exacerbated this price drop. Prices paid to some ACP markets for the 2013 crop year was more than 40% higher than the world market price at that time. Current world market prices fluctuate around 14 – 16 US dollar cents/lb.

**FIGURE 3: IMPACT OF CHANGES TO SUPPLY OF SUGAR TO EU MARKET POST 2017**




Source: Tate and Lyle Sugars

**FIGURE 4: PREFERENTIAL RAW SUGAR PRICE**




Source: Prospects for Agricultural Markets and Income in the EU 2013-2023, European Commission Publication, 2013

3.4.3 Inevitably, the investment and returns climate for both raw sugar producers exporting to the EU and EU refiners will worsen. This is why, at a time when Belizean sugar farmers are receiving the highest price ever for their cane (BZ$75 per tonne for the 2013 crop) it is imperative that the industry uses the cushion of continued preferential pricing to prepare for the future in the years leading to 2017. There is no time to lose.

## 3.5 Current Production Costs

3.5.1 While Belize sugar production costs are considerably lower than some other Caribbean producers, the industry needs to improve its productivity and lower its costs substantially further to be able to compete effectively at global market prices post 2017. These are currently between 14 – 16 US$ cents per pound. Production costs in Belize are presently around US$ cents 20 – 22 per pound. The main reason for this is that productivity levels on cane land are among the lowest in the world, at around 42 tons of cane per hectare, compared to more than double that

in other regional sugar producing countries. This must change to make the industry competitive. Improved yields will not only benefit the farmer by bringing economies of scale to the cost of inputs to the land, but are fundamental to the economic viability of a future mill expansion. The investment needed to expand the mill and power plant must be aligned to improved productivity in the field. Cane yields on farms in Belize will need to increase to around 70 tons per hectare if the investment to increase capacity is to be viable and the industry truly competitive.

3.5.2 There are environmental as well as economic benefits related to increasing cane productivity. Doubling cane yields on existing land would provide sufficient cane for industry growth without the need for expansion of the existing cane area in Northern Belize, helping to retain intact the natural habitat, which protects rare species such as the Jaguar.

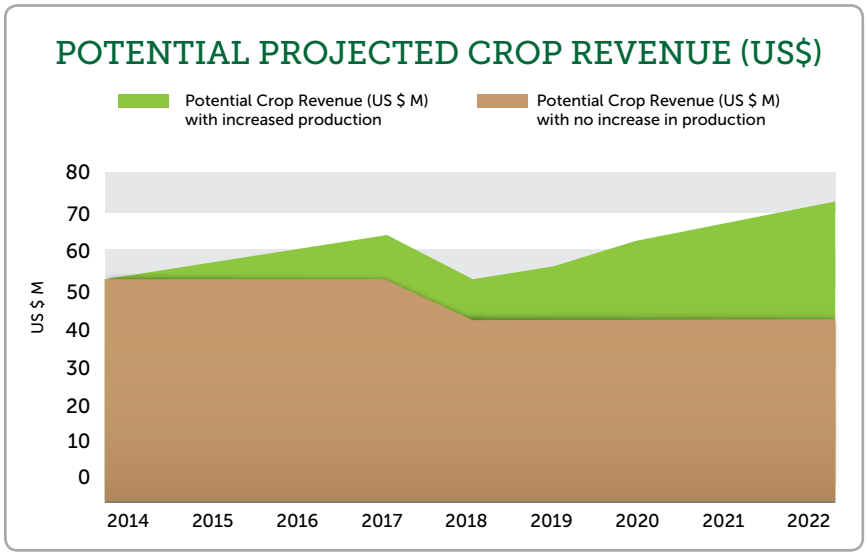
## 3.6 Impact on the National Economy of the Sugar Industry Growth

3.6.1 Investing to double present industry output at a time when prices are falling may seem counter-intuitive. However, increasing the throughput of sugar cane through an expanded milling facility is the most effective way to reduce average production costs and thereby improve industry competitiveness. Increasing sugar cane productivity to permit this is a pre-requisite for industry growth. Improving yields through better farm practices and management would play a major role in improving competitiveness. For farmers, this would mean that while overall price per ton of sugar cane is falling, increased yields on the same area of land would produce an overall increase in revenue.

3.6.2 Increasing farmers overall revenue by securing higher cane yields would help farmers to absorb the shocks of a more volatile and uncertain future market. Achieving this would also put the industry on a positive trajectory of growth, leading to a more sustainable future for those cane farmers who are able and prepared to make the investment. The investment has to be made now to improve the productivity of existing land before 2017. However, this cannot work in isolation to the investment needed to increase milling capacity.

3.6.3 To improve cane productivity, farmers will require access to timely and affordable credit, tailored to their needs. This resource needs to be sourced from commercial and development banks, Government financial institutions, and through development aid. The Government needs to make this support a high priority. It is notable that a Euro 7.5 million EU replanting and husbandry revolving fund has been made available for this purpose. Farmers will also need the provision of expert advice and information to make the right choices of inputs and varieties. Working with development partners, ASR/BSI, the Government, and BSCFA must jointly make this a reality if the industry is to grow. Figure 5. below describes how improving yields will help to overcome the impact of reducing prices leading to higher overall revenue.

**FIGURE 5: INDICATIVE EXAMPLE OF IMPACT ON REVENUE BY INCREASING PRODUCTION**




Source: Tate and Lyle Sugars

3.6.4 Doubling sugar production would increase the contribution sugar makes to national GDP from 5% to around 8%[11], it would boost foreign exchange earnings by around 4%[12] to 10%, strengthening Belize's

*11. 2013 revenue of BZ$138M was 5.2% of GDP. Using No. 11 price of $22/cwt, the project to expand mill capacity to 1.8/2 million tonnes of sugar cane would bring additional revenues of BZ$77M, which is 2.9% of 2013 GDP. Source: Central Bank of Belize.*

*12. In 2013, sugar contributed 5.8% of FX earnings. Source: Central Bank of Belize*

reserve position, and increase FDI by around 75%[13]. These factors would contribute to a strengthening of Belize's economic fundamentals at a crucial time. Increased renewable electricity sales from Belcogen to Belize Electricity Ltd (BEL) would also increase from the current 15% to 22%[14], all year round, moving Belize to a greener energy platform and replacing the costly importation of electricity from Mexico. The cumulative impact of growing the sugar industry is therefore of major national importance for Belize.

## 3.7 Three Core Elements Required to Encourage Industry Growth

3.7.1 The following elements are pre-requisites to encouraging growth in the sugar industry of Northern Belize:

- A constructive and committed attitude on the part of all stakeholders and industry partners and political leaders, to support and grow the industry;
- An investment climate which is suitably attractive to secure the investment necessary to grow the industry. This requires long term certainty subscribed in implementation agreements between those investing, the Government and other relevant industry stakeholders, including a long term cane purchase agreement between mill and farmers;
- Changes to the regulatory environment to make it more conducive to improved industry efficiency and productivity.

## 3.8 Addressing the Bottlenecks to Industry Competitiveness and Efficiency

3.8.1 Provided that a firm foundation for industry expansion can be secured, industry stakeholders need to diligently address the structural bottlenecks which exist to improving industry growth and competitiveness. It is important to recognise that these bottlenecks are inter-connected. It is necessary to find solutions to all of them in a co-ordinated way. Increasing sugar cane production cannot take place without significant investment to increase milling capacity. That investment will only work if there is sufficient sugar cane to grind and

*13. FDI has averaged BZ$266M over the past 8 years. Assuming investment of BZ$200M, this represents 75% of this average. Source: Central Bank of Belize.*
*14. Projected on the basis of an expansion of the industry to process 2 million tonnes of sugar cane. Source: Belize Sugar Industry Ltd.*

improved sugar cane productivity. Increased sugar production will require improvements to the logistical arrangements for transporting and loading sugar from factory to ship and increased power capacity to create the steam and electricity to run a bigger mill. It is the inter-related character of these challenges which requires an industry-wide strategic response.

3.8.2 The bottlenecks to growth and improved competitiveness are:

- Conclusion of a comprehensive, long term purchase agreement between cane farmers and BSI, which will provide certainty for the industry moving forward. It is essential that this covers the period over which a significant industry investment would take place;
- Improved cane productivity and harvesting and delivery mechanisms to obtain maximum cane freshness and sucrose content within cane;
- Establishment of a cane credit facility of BZ$12 million per year at affordable interest rates, which will enable farmers to make appropriate inputs at the right time and to grow their businesses;
- Provision of cane farmer extension services to raise technical capacity to improve production efficiencies, and to gather information to ensure the industry management information system is effective;
- Investment of between US$100 – US$150 million needs to be secured to expand the mill and power plant capacity to handle greater volumes of cane. This will result in a doubling of sugar production and a reduction in the overall production cost of sugar to make it globally competitive;
- Investment in improving factory to ship logistical and loading arrangements to increase efficiency and reduce cost;
- Implementation of a comprehensive infrastructure plan across Northern Belize to ensure that maintenance and repair of physical infrastructure in the sugar belt, including roads and drainage, permit the industry to perform at an optimal level.

3.8.3 The industry needs to consider alternatives to expansion, in the event that a suitable investment climate cannot be achieved. This could be through optimising mill efficiency at its existing capacity of 1.3 million

tons of cane by improving sugar production efficiency and diversifying income through added value products, such as ethanol and electricity production. It could also include sourcing different fuel components to run the Belcogen co-generation plant all year round.

3.8.4 Having decided on the strategic path, the industry will need to work with Government and other industry stakeholders to agree together a roadmap to achieve the conditions for industry sustainability. If the industry can achieve this, the sugar industry will continue to be an important element of Belize's economy, looking forward with confidence to meeting future challenges and remaining sustainable and profitable for cane farmers, their families, and for the benefit of Belize as a whole.

# PART TWO

# 4. PART TWO: Industry Challenges- Sugar and the Economy

## 4.1 Global Perspective

4.1.1 Sugar consumption is rising by around 2% a year in aggregate. Demand is being driven by emerging consumer markets, especially in Asia and Africa where consumption growth rates are aligned with rapidly rising GDP. This rise in demand led to high sugar prices between 2009 and 2012 though in recent years, supply has outstripped demand, due to improved global industry efficiency, climatic conditions, and policies to concentrate on the increase of sugar production against other products, such as bio-ethanol. This has resulted in lower global prices.

4.1.2 EU preferential prices have provided a profitable market for ACP sugar producers, which have traditionally received revenue between 20% – 40% above global market rates. This has tended to mask industry inefficiencies. While it is impossible to accurately predict market trends, continued rising global demand and market adjustments to supply/ demand trends both suggest that it is fair to assume that any increased sugar production in Belize, provided it is produced at competitive production costs, would find a home in markets in the region, the EU or globally. It is entirely conceivable that Belize could increase its share of the regional and global market.

4.1.3 Population growth, urbanization and rising household consumption are increasing demand for food and water. This is causing concerns that inefficient food production is now contributing towards water shortages. According to UN sources, Agriculture uses approximately 70% of the world's accessible water every year while in developing countries agriculture uses as much as 90% of available water. According to studies by the WWF a number of countries are close to reaching their renewable water resource limits while a few are already facing depleting supply.

4.1.4 Over the past decade Brazil, India, Thailand and China combined have increased sugarcane production by 45%. Sugarcane requires between 1,500mm to 2,500mm of annual rainfall. This makes it one of the most water intensive crops. Climate change will impact water scarcity still further. Belize should ensure that it takes advantage of the competitive

advantage that it has in terms of water availability coupled with sunshine hours and available agricultural land. These are natural advantages that should not be overlooked to ensure that Belize and its people are able to benefit from all the advantages that a modern cane industry can deliver in terms of sustainable energy and sustainable development.

## 4.2 Regional Perspective

4.2.1 From its height in the 1980's, the sugar industries of the Caribbean have witnessed a constant contraction. This has resulted from a failure of governments to support and invest in the industries, diversification into other livelihoods, changes to the global sugar market, and in particular the EU which saw prices reduce from 2006 – 2009 by over 30%. Several Caribbean countries have stopped producing sugar altogether, and those who continue to do so, are not competitive by global standards. Presently average production costs across the Caribbean range from 20 US dollar cents to 50 US dollar cents per pound.

**TABLE 1: PEAK AND CURRENT CANE PRODUCTION LEVELS IN THE CARIBBEAN**

| | JAMAICA | GUYANA | BELIZE | BARBADOS |
|---|---|---|---|---|
| Peak sugar production K/T | 360 (1970s) | 325 (2004) | 123 (2014) | 59 (2000) |
| Lowest sugar production K/T | 117 (2010) | 187 (2013) | 90 (historical average) | 14 (2014) |
| Estimated % pop. reliant on industry | 5 | 16 | 15 | 3 |
| Estimated % contribution of sugar to GDP | 3 | 18 | 5 | 1 |
| Number of Mills | 6 | 7 | 1 | 1 |

Source: Industry Information

4.2.2 While Belize sugar production is efficient compared to Caribbean markets, it is far less so when benchmarked against other Central American industries. One of the main differences between Belize and Central American producers is the yield from sugar cane on corresponding areas of land, which is round 50% lower than other regional producers.

## 4.3 National Perspective

4.3.1 Belize's economy has seen average growth of around 2.3% per annum in recent years, which is above growth rates in developed economies but below Africa and Asia. It has been supported by robust growth in tourism and the residual benefit of the petroleum industry. The government has maintained fiscal control and improved Belize's economic stability, reflected in stable credit ratings from credit rating agencies. As a result of the relatively small size of Belize's economy, and the limited economic diversity this permits, economic stability is dependent on the continued performance of each contributing sector – including agriculture.

## 4.4 Importance of Agriculture Production to Belize's Economy

4.4.1 Traditional agricultural exports (sugar, citrus and bananas) provides around 10% of Belize's merchandise exports mix as a percentage of GDP (with petroleum providing around 4.4% and seafood around 3.4% in 2013).

4.4.2 A demonstration of Belize's high dependence on agriculture occurred in 2013, when adverse weather conditions had a major impact on the contribution of agriculture to the overall economy. In 2012 the economy was predicted to grow the following year by 5.2%, mainly due to improvements in agricultural production, led by supportive sugar prices in the EU. Despite robust tourism returns over that period, actual growth dwindled to 0.7% in 2013 as a result of poor agricultural performance due to the weather.

4.4.3 Because of limited diversity in export products, the Belizean economy is also reliant on a small range of export markets. 80% of merchandise export trade, mainly seafood and sugar, are focussed on the US and UK markets, with only 10% of export trade going to regional CARICOM partners. Hence why changes to the EU sugar regime are so significant for Belize.

## 4.5 A Range of Economic Challenges Converge in 2017

4.5.1 The anticipated reduction in sugar prices coincides with a number of other economic challenges for Belize's economy in 2017. The restructuring of government debt in March 2013, which reduced the interest rate from 8.5% to 5%, envisaged a staged increase to 6.8% in 2017. In addition to the increasing cost of debt thereafter, in 2017, fiscal pressure is anticipated to rise when contingent liabilities from compensation claims from industries recently nationalised may need to be met. This could result in a fiscal cost of up to 30% of GDP.

4.5.2 Petroleum output in Belize has been on a steady decline since 2009. It is estimated that fiscal revenues from petroleum will decline from 10.8% of total government revenue in 2010, equivalent to around 3% of GDP, to 2% of total government revenue, or 0.55% of GDP by 2015. Barring any new finds, and the investment needed to develop them, revenue from petroleum is likely to run out completely by 2017/18, removing one of the national economy's most supportive components.

4.5.3 A further challenge to the national economy is the cost of energy. Currently, Belize needs to import expensive electricity from Mexico, primarily during the dry season when the country's hydro-generating capacity is low. The cost of these imports is partially offset by the relatively low price paid for co-generated electricity from Belcogen. The government is actively encouraging investment in new forms of green energy to make national energy supply more sustainable but these projects will take a considerable time to come on stream. An expansion of Belcogen's capacity to meet increased steam and electricity demands to process increased cane supply could boost electricity supply to the national grid from 15% to 22%. This would reduce the burden on the consumer of costly imported electricity and would replace it with home-grown, renewable energy.

## 4.6 The Importance of Sugar to Offset Negative Economic Impacts

4.6.1 The IMF noted in its staff report of July 2013[15] that the external current account deficit in Belize had widened from 1.1 percent of GDP in 2011 to 1.7 percent of GDP at the time of the IMF review. This would normally

*15. IMF Country Report No. 13/227*

result in a lower level of coverage of international reserves. However, coverage increased, partly due to inflows of FDI from the sugar sector. If the industry is forced to optimise at current capacity, the projected level of FDI to grow the industry will not be forthcoming, and this valuable source of economic stability will dry up, meaning that coverage of international reserves would likely drop, bringing further pressure on the economy.

4.6.2 Conversely, if aspirations to double the size of the industry are met, the benefit to the national economy would be substantial. There would be an increase in the industry's contribution to GDP of an estimated BZ$77M. Foreign exchange earnings would rise by around 4% from where they now stand. Levels of FDI for mill and power plant upgrades would double present FDI levels.

4.6.3 If private cane farmers are able to increase their productivity and therefore their profitability and sustainability, this would result in trickle down improvements to the prosperity of around 15% of Belizeans who rely on the industry. This would include improved access to education and healthcare, greater security, improved access to economic activity from excluded groups, particularly women, in the rural communities of Corozal and Orange Walk and greater employment opportunities.

## 4.7 The Value of Private/Public Sector Co-operation

4.7.1 The mix of private sector investment and public sector collaboration to make investments work are both essential components for attracting and retaining FDI. At a point where public finance is stretched, the role of the private sector in developing local industries to deliver income and jobs is absolutely crucial to the longer term national challenges of attaining debt sustainability and sustainable growth. For large, socio-economic industries, such as the sugar industry, it is self-evident that a combination of public and private investments and incentives are required to ultimately deliver these benefits.

4.7.2 To this end, Government, private investors, and development partners, need to work together toward a strategic vision of growth and development. For the sugar industry, while private investors have obvious responsibilities for helping to improve efficiency in production

leading to improved competitiveness, this is only one part of the picture. The industry needs sustained commitment and support from the Government to provide the right infrastructure in which the industry can flourish, such as maintenance and repair of roads and drainage to ensure access to sugar cane fields and the quick and fresh delivery of sugar cane to the mill. A comprehensive infrastructure plan for Northern Belize is required to co-ordinate this work across Government ministries to ensure coherent and consistent inputs, and effective use of resources. The Government should commit to an ongoing budget for this work and launch a consultative exercise with all stakeholders, including development partners, to ensure the plan matches resources to requirements.

4.7.3 While developing countries' economies, such as that of Belize, will in time inevitably wish to transition away from commodity market production dictated by prices over which they have no control, and diversify to a broader range of industrial and service sector opportunities, the agricultural sector of Belize is set to remain of utmost importance to the national economy for the foreseeable future. There are no easy alternatives for those engaged in the sugar industry in Northern Belize. Strengthening the current agricultural platform will provide the foundation from which new diversity can take place. Belize's development partners should therefore make their support to the agricultural sector a high priority. Agriculture, and particularly sugar cane production, should feature in development partners' and Government economic growth strategies. Partnering with the private sector in improving the sector should be a high priority.

4.7.4 Belize currently has insufficient port facilities to handle the export of commodities efficiently. The resultant delays and inefficiency in loading add to the cost of production and reduce competitiveness. Development of a port facility at Commerce Bight capable of accepting larger vessels than can presently load in Belize, with infrastructure in place to improve loading efficiency should therefore be a high priority for the agricultural industry, Government and development partners. In the meantime, a focus is required on improving existing loading efficiency through a public/private partnership approach to improve capital infrastructure and restructure the regulatory environment which underpins costly and inefficient loading service provision in Belize.

# PART THREE

# 5. PART THREE: A Road Map for Industry Growth and Profitability

## 5.1 Industry Solutions: Improving the Commercial, Political and Economic Investment Climate

5.1.1 The key to securing the future of the sugar industry in Northern Belize is the creation of a commercial, political and economic investment climate conducive to its growth. This means a stable investment climate which offers appropriate returns to encourage investment, security for that investment, and a regulatory framework which enables industry stakeholders to improve their efficiency and productivity. Industry development must be underpinned by a renewed commitment from industry stakeholders to work constructively together to secure the industry's future.

## 5.2 Increasing Incentives for Investment at a Field and Factory Level

5.2.1 Foremost among the challenges for the industry is the conclusion of a new commercial agreement between cane farmers and the mill. Neither can exist without the other. Both require certainty that the investments they make will be worthwhile. The new agreement needs to define a number of issues:

- A clear, long term commercial arrangement between cane farmers and mill. There has been considerable conjecture within the sugar industry of Belize and elsewhere about the ownership of sugar cane. A commercial arrangement for the purchase and sale of sugar cane from one party to the other provides certainty to the cane farmer on the terms under which that sugar cane is bought. Equally, the miller is clear that once purchased, the sugar cane becomes the property of the mill. This clarity is required to support future investment decisions and for the mill to enter into contracts to sell the sugar. This arrangement conforms to the principles of both Belizean and international commercial law which govern commercial relationships. The agreement needs to be in place for sufficient time to provide certainty that investments will be secure. It is essential to ensuring that there will be effective engagement by all parties.

- The formula to determine the price per tonne cane paid to the cane farmer. The agreement needs to define the "net-stripped value" of sugar and molasses. This means the value of these products after transportation to the market. It would provide assurance to cane farmers that investments in mill and power plant to increase the capacity of the mill would fall to the mill owners. It would underpin the split of value of these products: 65% of which represents the total sum payable to farmers for cane delivered. The new agreement would also include a payment for bagasse, the terms of which are yet to be agreed.
- The method of payment for sugar cane delivered to the mill. The agreement needs to define the calculation and timing of the first, second and third payment for each crop. It would need to be reflective and supportive of any credit support facility put in place for farmers.
- Controls for the quality of cane delivered to the mill. This would include cane rejection criteria.
- Industry operating standards. The agreement would need to set out procedures for delivering and processing and sampling sugar cane, factory efficiency, and the definition of gross realised proceeds. Agreement on these measures would help to define the sort of regulatory amendments required to the Sugar Act.

5.2.2 These elements are established practice in Belize. They conform to global standards for such agreements. Most of all, they provide the framework to provide certainty to all industry stakeholders for the future.

5.2.3 The first step in this process requires a solution to the ongoing issue of determining a quantum for payment for bagasse. This issue has interrupted serious planning to improve industry competitiveness for over a year. This cannot continue. It has already cost the industry greatly, both in lost time to prepare for the future, and in reduced sugar productivity. It is estimated that the cost to the industry of the late start to the crop in 2014 as a result of the BSCFA's leaders decision not to deliver cane until late January due to the bagasse dispute, some three weeks after prevailing weather conditions would have permitted this, was around BZ$7 million. This comprised the cost of standing cane left in the fields and the lower sugar content of the cane once the rains started in late May. Had the crop been harvested on time, BSI estimates that the cane

quality would have been around 6% higher than it was. This would have meant the value of the crop to farmers, based on the 65% value split would have been between B$ 4.1 million – B$ 7 million.

5.2.4 It is extremely rare to pay for bagasse separately to cane purchase. Mauritius is the only exception. In the case of Mauritius this is part of a government subsidy to the industry. It is important for the sugar industry of Belize to define a realistic and fair quantum for payment for the fibre content of bagasse which is used to produce electricity for sale to the national grid, which protects industry investment and sustainability, is fair to farmers and is based on a clear scientific and technical analysis of the actual costs and revenue involved.

5.2.5 The offer BSI had made during the negotiations met these criteria. The Belcogen power plant is yet to recover its investment and provide a return to its owners. Yet it has provided the foundation on which the industry has been able to grow from processing around a million tonnes of cane to current milling capacity of 1.3 million tonnes. This has enabled farmers to increase their own productivity and profitability. It is estimated that farmers have already benefited to the sum of around BZ$ 11 million as a result of the investment. In the final analysis, because Belcogen has not turned a profit, there is no "profit" to share. Yet, as good industry stakeholder, BSI offered to pay a quantum for bagasse. Moving on from this damaging impasse is a pre-requisite for preparing the industry for the future.

## 5.3 Political Support for Growth of the Sugar Industry

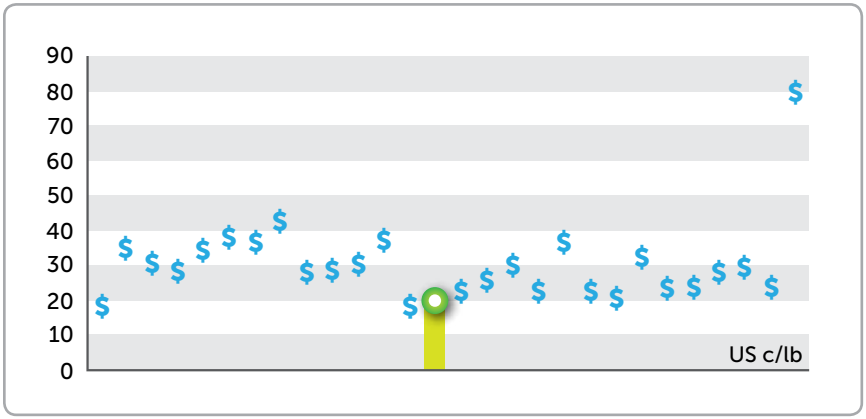
5.3.1 As a socio-economic industry of such importance to the nation, understandably the sugar industry attracts great interest from an economic and political standpoint. To gain the confidence to grow, it is essential that the importance of the sugar industry is recognised above and beyond any partisan political motivation, and that a united political assurance of support for the industry is provided to build industry confidence and secure industry growth. Investors need firm assurance there will be no expropriation of their assets and that business operations will be free from political intervention. Without this assurance, the fundamental conditions which underpin acceptable investment risk will be absent.

## 5.4 Improving Incentives to Invest: Domestic Sugar Pricing

5.4.1 Domestic sugar consumption is around 15,000 tons per year in Belize. Domestic sugar prices are controlled by regulation. They are considerably lower than in the rest of the region (at around US$ 20/cwt to a regional average of around US$ 29/cwt). The contrast is even greater when considering that sugar production is highly efficient in neighbouring Guatemala; yet domestic prices are much higher, reflecting the right of the producer to make a profit on the product. This is not the case in Belize, where the producer (farmer and mill) effectively subsidise the price of sugar, which is not remunerative to either.

5.4.2 Figure 6 below shows the price of sugar in Belize contrasted against wholesale prices from a range of producing and importing countries including developed and developing markets. It illustrates how low the sugar price is within Belize.

**FIGURE 6: DOMESTIC SUGAR PRICING**




Source: Czarnikow Group Ltd

5.4.3 Removal of regulatory control on sugar pricing, or at the very least a substantial increase in sugar pricing to bring it more into line with production costs and regional pricing, would help farmers to invest for the future. A rise in pricing of around BZ$ 25 Cents per pound, would on the basis of the 2013 crop, provide farmers with an additional BZ$4.60 revenue per ton of cane.

5.4.4 The cost to the consumer of this increase would not be great in view of the relatively low consumption of sugar in Belize – averaging around BZ$8 per month per person.

5.4.5 The detailed analysis ASR/BSI has presented to the Sugar Industry Control Board is outlined below.

**TABLE 2: IMPACT ON FARMERS' REVENUE OF RAISING DOMESTIC SUGAR PRICES BY 25 CENTS**

| | |
|---|---|
| LOCAL SUGAR PRODUCTION – LONG TONS | 13,065 |
| PRICE INCREASE – BZ$/LB. | 23.10 |
| ADDITIONAL SUGAR PROCEEDS – BZ$ | 7,762,500 |
| FARMERS' SHARE – 65% | 5.045,625 |
| CANE DELIVERED | 1,100,000 |
| ADDITIONAL PRICE PER TON CANE -BZ$ | 4.60 |

Source: BSI Paper for SICB

## 5.5 Incentivising Investment in Renewable Energy to Help Develop the Sugar Industry and Reduce Belize's Carbon Footprint

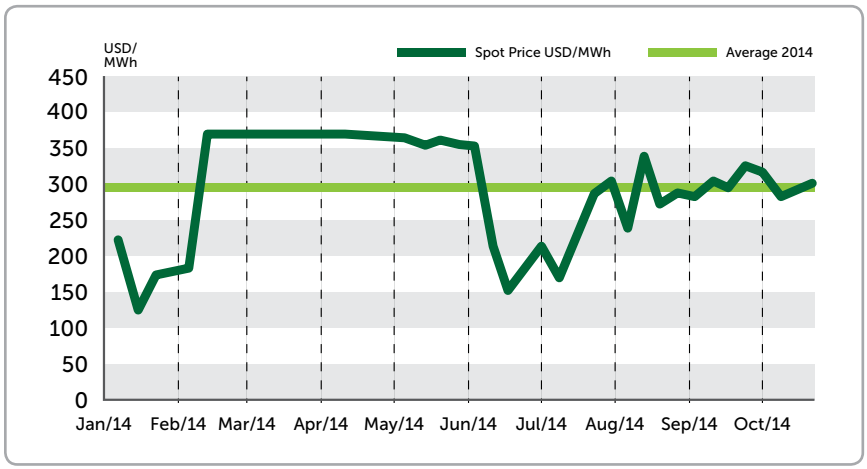
5.5.1 The cost of importing energy into Belize has a major impact on the national economy. Unpredictability of global supply and prices has a disproportionately damaging effect on small countries where the cost of energy has a higher direct impact on the economy than in larger countries. In 2012, due to heavy reliance on fossil fuel energy imports from Mexico, the average cost of power to BEL increased to US$178/MWh. At the same time, Belize's energy needs are growing (electricity demand is projected to rise by 4% per annum). Finding ways to replace these costly imports through home-grown renewable energy sources is a high priority for the government.

5.5.2 Belcogen presently provides around 15% of Belize's electricity needs to the nation. If industry aspirations to grow the business to process 2 million tonnes of sugar cane materialise, this could rise to around 22%. This increased provision of electricity would offset growing and costly imports of electricity from Mexico. Over the last six years, the cost of this imported electricity has been around US$160/Mwh, which

is in line with regional electricity prices. Under the contract signed with BEL, Belize currently pays around US$100/Mwh for electricity produced by Belcogen. This provides insufficient return to encourage future investments in Belcogen, which would be needed to expand energy supply to facilitate industry growth.

5.5.3 Rising demand for electrical energy coupled with strains on existing provisions is forcing prices higher. This is very apparent in Brazil today where 170 mills are now selling electricity. Spot prices have risen this year and are expected to stay firm through 2015 having averaged US$ 292 / MWh so far this year.

**FIGURE 7: ENERGY PRICING**




5.5.4 Business models have demonstrated in many parts of the world that offsetting the cost of importing energy with greater use of home produced co-generated "green" energy through the conversion of the fibre content of bagasse to electricity can produce considerable overall savings. This can be a win-win solution for the businesses involved, which need the power and steam for the sugar production process; but also for the nation by contributing to national energy sustainability and reducing the cost of energy.

5.5.5 The value of diversifying sugar production with other revenue streams, such as ethanol production or co-generated electricity production is well established in the Central American sugar industry, with Guatemala and Nicaragua leading the way with over 25% of national consumption sourced from bagasse co-generation. It is inescapable that for the future, in the face of increasing competition and low sugar prices, sustainable sugar industries will require both diversified and highly productive models to succeed[16]. This is not an either, or situation. As part of its commitment to the industry, ASR/BSI is committed to exploring all avenues to secure industry sustainability.

5.5.6 Regulatory decisions on pricing for co-generated electricity need to take into account both the impact on consumers of the price paid for energy, and also the need for business to make a return on investment which permits investment decisions to be made. In Belize, the price paid for co-generated electricity is over 60% lower than the regional average. This makes future investment decisions far harder. Because increasing the capacity of the Belcogen power plant is a prerequisite for industry growth in Northern Belize, and therefore integrally linked to the competitiveness of the industry, it is important for an urgent revision of co-generated electricity pricing to take place. This needs to assess the impact on consumers of incentivising the investment in future co-generation expansion, with the savings this will deliver by replacing high cost energy imports. The savings achieved through reducing reliance on imported electricity as a result of an expansion in Belcogen's supply from 15% - 22% of national needs could be utilised to offer greater incentives for this investment, without passing on higher electricity costs to consumers.

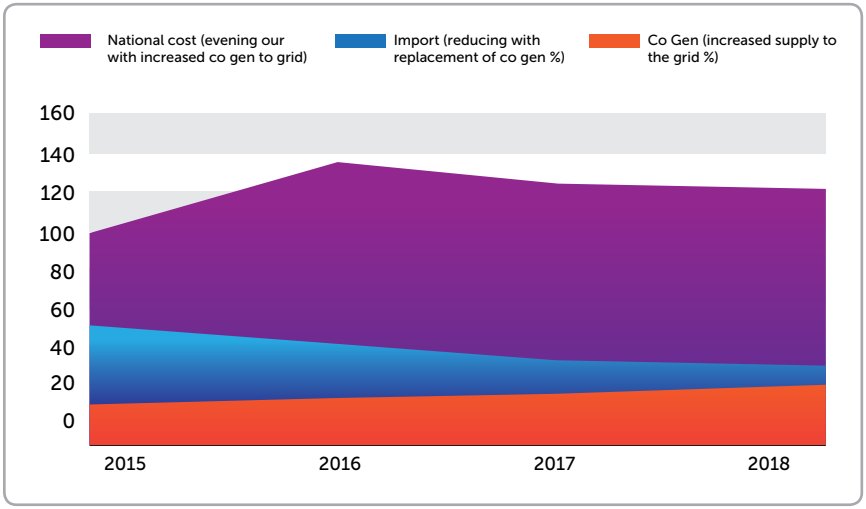
5.5.7 Aside from economic plausibility, increasing supply of co-generated electricity would help Belize to meet its carbon emissions targets and contribute to climate resilience. It would also help cushion Belize from volatile pricing markets dependent on fossil fuels. It is therefore a valuable objective in its own right, irrespective of the benefits of this investment for the sugar industry.

5.5.8 That is why it is important to consider alternative options than simply increasing sugar production capacity through increased cane production. In a different business model, it may be possible to deliver a higher supply

*16. Kingsman weekly sugar editorial, 19 September 2014*

of co-generated electricity to the national grid by identifying new fuel sources for co-generation. This could either ensure year-round energy production at Belcogen[17] at existing capacity, avoiding the need for another major investment to increase capacity. Or, if the model could realise sufficient returns, it could incentivise that future investment. Increasing supply of electricity for sale could help underpin existing industry profitability, without the requirement to expand sugar cane production.

**FIGURE 8: IMPACT OF REPLACING IMPORTED ELECTRICITY WITH CO-GENERATED BELIZEAN ELECTRICITY**




Source: BSI, based on BEL Annual Review

## 5.6 Regulatory Reform

5.6.1 The Sugar Act of 2001 which was enacted to provide a regulatory framework for the industry is outdated and no longer sufficiently responsive to industry needs. The Act was designed as an omnibus piece of legislation drawing together existing legislation. It reconstituted and created new institutions to further the objective of increasing cane sugar production by providing the framework to improve productivity, field efficiency, and cane quality. It envisaged that the target of gradually increasing cane production to meet the needs of the miller would be

met. The Act needs to be updated to enable industry stakeholders to manage the industry effectively on a commercial basis.

5.6.2 This means adopting a more de-regulated approach, where Government involvement in committees and structures which govern the industry reduces, and suppliers and those producing sugar have more autonomy to organise the industry efficiently. Whatever regulatory system emerges, its central objective should be simplification to encourage industry efficiency and growth. It is equally essential that the regulatory environment encourages a commercial orientation for the industry, where industry partners are able to make business decisions which help the industry to become more efficient. As the industry prepares for 2017, it is essential that a thorough review of the regulatory environment takes place, to ensure that it meets these needs.

5.6.3 Core areas for reform are the regulations which establish the functioning and role of the Sugar Cane Industry Production Board, the Sugar Cane Production Committee, and the Belize Sugar Cane Farmers Association. Amendments to the Act are required as some elements have been ruled unconstitutional, and because it does not reflect the role of new entrants in the industry. The fundamental issue to consider is the level and role of government in industry co-ordination. While this may have been necessary in the past, most modern sugar industries leave much of the decision making to suppliers and sugar producers, who are best placed to co-ordinate the most efficient operational platform. Industry stakeholders should come together to discuss and agree on the amendments which would help to achieve this as a matter of urgency.

## 5.7 Improved Cane Productivity

5.7.1 The industry needs to encourage vertical expansion of sugar cane production, by improving cane yields on existing cane land. The goal should be to double cane yields across all cane land within the next eight years. It also needs to improve the sugar productivity in cane by introducing new varieties and ensuring inputs are designed for maximum sucrose content. This can be achieved by a mixture of re-planting old cane, and improved husbandry and harvesting and delivery practices. The industry has seen positive changes in the way in which harvesting

*17. Belcogen currently provides power to the grid for eight months of the year*

and delivery of cane to the mill is co-ordinated. The delivery by appointment system addressed some industry concerns. However, this unique system also has drawbacks. These have a serious impact on cane freshness and efficiency of delivery of cane to the mill. To help improve efficiency, the sugar industry of Belize needs to embrace a completely new concept whereby harvesting is aligned to optimal cane maturity and delivery is by the most time and cost efficient methods.

5.7.2 It is important that agricultural practices evolve to match this new system. The introduction of early, mid and late maturing cane varieties would help to ensure a steady flow of fresh cane across the whole crop. The system to decide which cane to harvest, and when, would need to respect the principles of cane maturity, accessibility and mill capacity. This concept challenges the existing system of delivery by location and time, which cannot meet these criteria.

5.7.3 Industry stakeholders are aware that an increasing shortage of cane cutters is a major disadvantage for the industry. The cost of harvesting is spiralling and this shortage sometimes leads to cane being left in the field. As part of the drive to improve productivity, cane preparation and planting should where possible facilitate a shift to an increased proportion of mechanized harvesting. This will need to be accomplished alongside provision of efficient mechanized services. There may be scope for private enterprise to meet this need, potentially in partnership with development partners.

5.7.4 To achieve these improvements, the industry requires significant re-structuring, to give the emphasis to larger scale farming, which realises efficiency of scale and is more adaptable to modern farming methods. This could be achieved through pooling of resources, or more formal concentrations in farming co-operatives or groups.

## 5.8 Cane Farmer Credit Facility

5.8.1 Traditionally, access to credit has been a problem for some cane farmers. Commercial bank lending rates have been relatively high, due to prevailing market conditions and the level of risk involved. The nature of agribusiness means that crops take time to mature. Many commercial

loans have needed to be repaid in a timescale which encourages indebtedness, rather than profitability and this has led to a spiral of debt and decreased investment confidence.

5.8.2 Some farmers will need access to new forms of credit. These should be affordable and available in a timely manner to match the timing and cost of inputs, and be structured in such a way that they are not over bureaucratic and repayment schedules allow farmers time to improve the productivity and profitability of their businesses. ASR/BSI has engaged in detailed discussion with development partners about the possibility of securing this sort of support. It is essential that industry stakeholders come together to map out a proposal which will meet farmers' needs, while securing the appropriate levels of funding, either from development partners, or through national lending institutions. This facility should be in place to ensure consistent re-planting of significant amount of cane land takes place starting from the 2014/15 crop. It is equally important that existing EU support in this area through the provision of a Euro 7.5 million re-planting and husbandry revolving fund is fully utilised. Industry and financial institutions involved need to come together to search out solutions to the slow disbursement of this resource.

## 5.9 Provision of Cane Farm Extension Services

5.9.1 Similarly, farmers need technical support to raise their capacity to be able to improve productivity. This should take the form of an autonomous extension service funded by a levy on cane harvested. Hitherto, extension work – or technical training provision - has taken place under the auspices of BSI, BSCFA and SIRDI. Paucity of resource often meant that officials involved in this work became diverted to higher priority, project–orientated tasks. ASR/BSI working with BSCFA, SIRDI and development partners could help to co-ordinate this work and submit projects for funding support from development partners. The extension officers would not only impart best practice and improve cane quality and productivity, but could also capture information to help the new Sugar Industry Management Information System to enable improved planning and efficiency across the whole industry.

## 5.10 Mill and Power Plant Expansion, or Optimization

5.10.1 Sugar cane farmers need the assurance that their cane has a home. ASR/ BSI has drawn up extensive plans to invest major capital to increase the size of the mill and the Belcogen co-generation plant. This would allow the capacity of the mill to grind" , to "This would allow the mill the capacity to grind 2 million tonnes of sugar cane. It remains ASR's aspiration to grow the industry. But if the investment climate is not appropriate to realise these plans, then it may be necessary to look for alternative business models to optimize production at sustainable levels. This could include sourcing alternative fuel sources to optimize Belcogen, or retaining mill performance at existing capacity.

## 5.11 Improved Physical Infrastructure

5.11.1 One of the most important challenges facing cane farmers is the deficiency in physical infrastructure which hinders their ability to grow, harvest and deliver cane to the mill. The Government has invested in road building and maintenance, as has the EU. But the long term viability of the industry will rely on consistent investment to ensure the physical infrastructure on which the industry operates is fit for purpose, based on a comprehensive infrastructure plan which considers all aspects of the challenge.

5.11.2 Chief among these is the need to ensure that cane feeder roads as well as the major communication arteries are in good repair at the start of the crop, to ensure cane farmers can deliver their cane unimpeded. This is also a pre-requisite for the success of a new harvesting and delivery system.

5.11.3 Drainage is another major challenge. Too often, once the rains start, cane is left standing because the area is flooded or waterlogged to an extent that it is impossible to retrieve the cane. This requires an integrated drainage system, which covers the whole farm, to ensure that ad-hoc drainage measures do not simply transfer the problem elsewhere on the farm.

5.11.4 To rectify these issues, the Government should utilise resources at its disposal from across relevant Government ministries and agencies,

and development partners, to devise and implement a consolidated infrastructure management programme, including roads and drainage and a budget to implement this plan. Work should begin on this immediately.

## 5.12 Factory to Ship Logistics

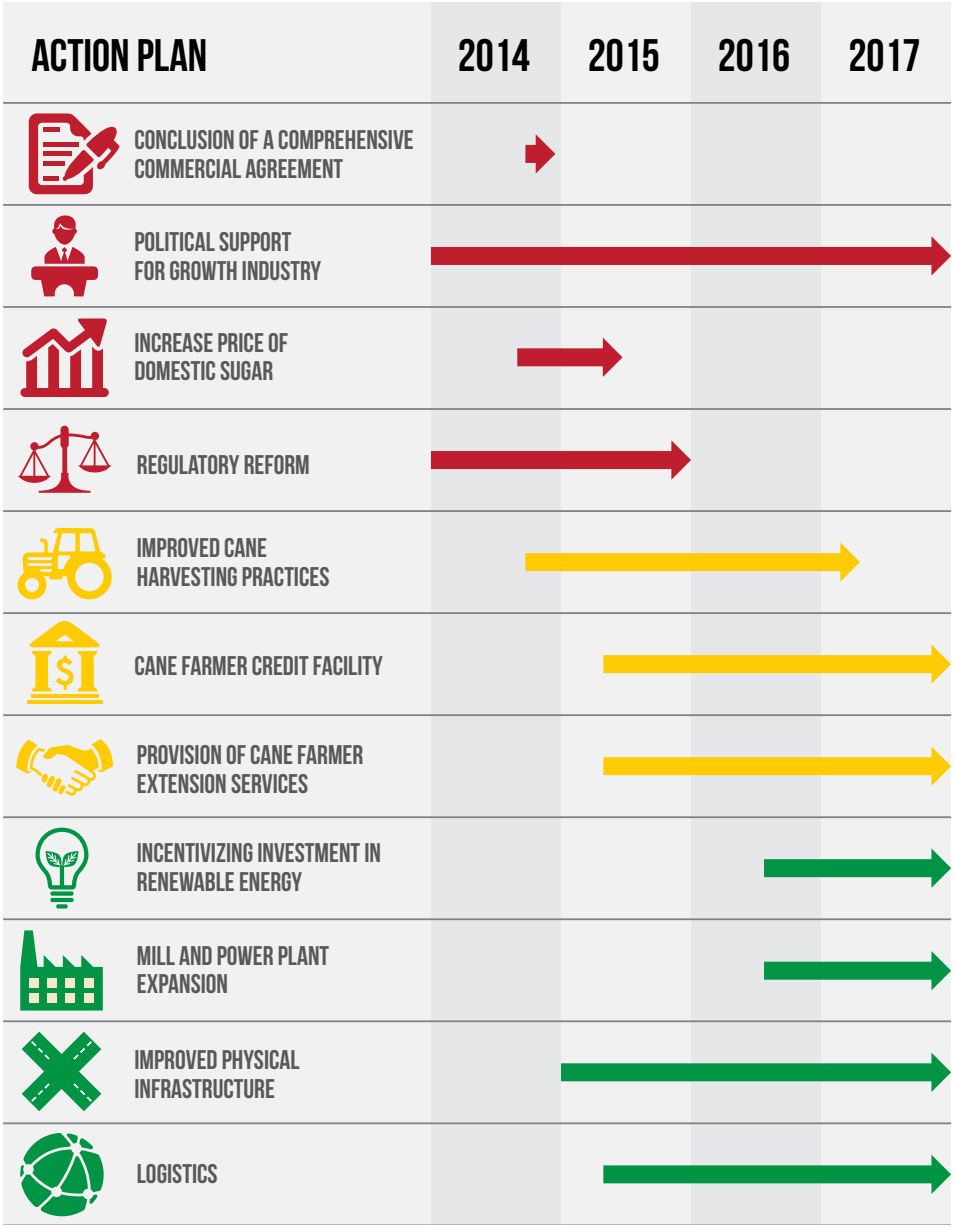
5.12.1 Inefficient factory to ship transportation and loading arrangements remain a blockage to industry growth. Improving loading and transport efficiencies is a key element of improving industry productivity. The EU conducted a useful study on this and recommended the use of larger barges and tugs, and improved loading arrangements, to increase loading rates from 700 to around 4,000 tonnes per day. This would significantly reduce freight and demurrage costs, a direct benefit to both BSI, and also to cane farmers, who share the cost.

5.12.2 Bearing in mind the social-economic nature of this industry, industry stakeholders, including the government and development partners, should come together to examine the best ways to improve the logistical challenges, not just for the sugar industry but for Belize more generally. An investment plan should be drawn up to overcome this challenge. This needs to happen before the 2015/16 crop to avoid the logistical deficiencies becoming a serious bottleneck to growth.

## 5.13 Recommendation

5.13.1 It is recommended that the government and the various arms of the sugar industry of Belize consider and take forward the Road Map for Industry Growth, set out in this paper. A suggested timetable is set out below. ASR/BSI stands ready to play a full and committed part in securing a sustainable and prosperous future for the sugar industry of Belize, working in partnership with the Government and all other industry stakeholders. Planning for this should begin immediately.

TIMELINE FOR ACTION PLAN



## NOTES