

Progress towards a sugarcane Industry



Developments in
Guyana

Prevailing Conditions in Caribbean Sugar

- Caribbean Sugar Industries have been relatively high cost
- Old Technologies, small factories and relatively high wages
- Sustained preferential raw sugar prices for export income
- Main preferential trade market – EU significantly reduced price from 2009
- Implies that these Industries must significantly improve efficiency, widen production base or both

Features of Guyana Industry

- The Guyana Sugar Industry is probably the most competitive in the SAC group
- The continued viability of this Industry is threatened by the major changes proposed by the EU
- Guysuco has developed a long term strategic plan for cost reduction based on expansion and improved efficiency.

Guysuco Production Strategy

- Increase yields and reduce production costs
- Expand Industry & Diversify Product Base
- Construct new 8400 tcd mill – to produce refined sugar with co-generation of 10MW electricity -2008/2009
- Construct plant to produce 70,000 of packaged direct consumption and special sugars
- Consider construction of 70,000 l/day alcohol distillery

Present production and sales

- Cane – 3441000 MT
- Sugar – 310000 MT
- EU - 201000 MT
- USA – 13000 MT
- Packaged- 5000MT
- Caricom bagged – 35000MT
- Caricom bulk – 35000 MT
- Domestic – 21000 MT
- Molasses – 127000MT

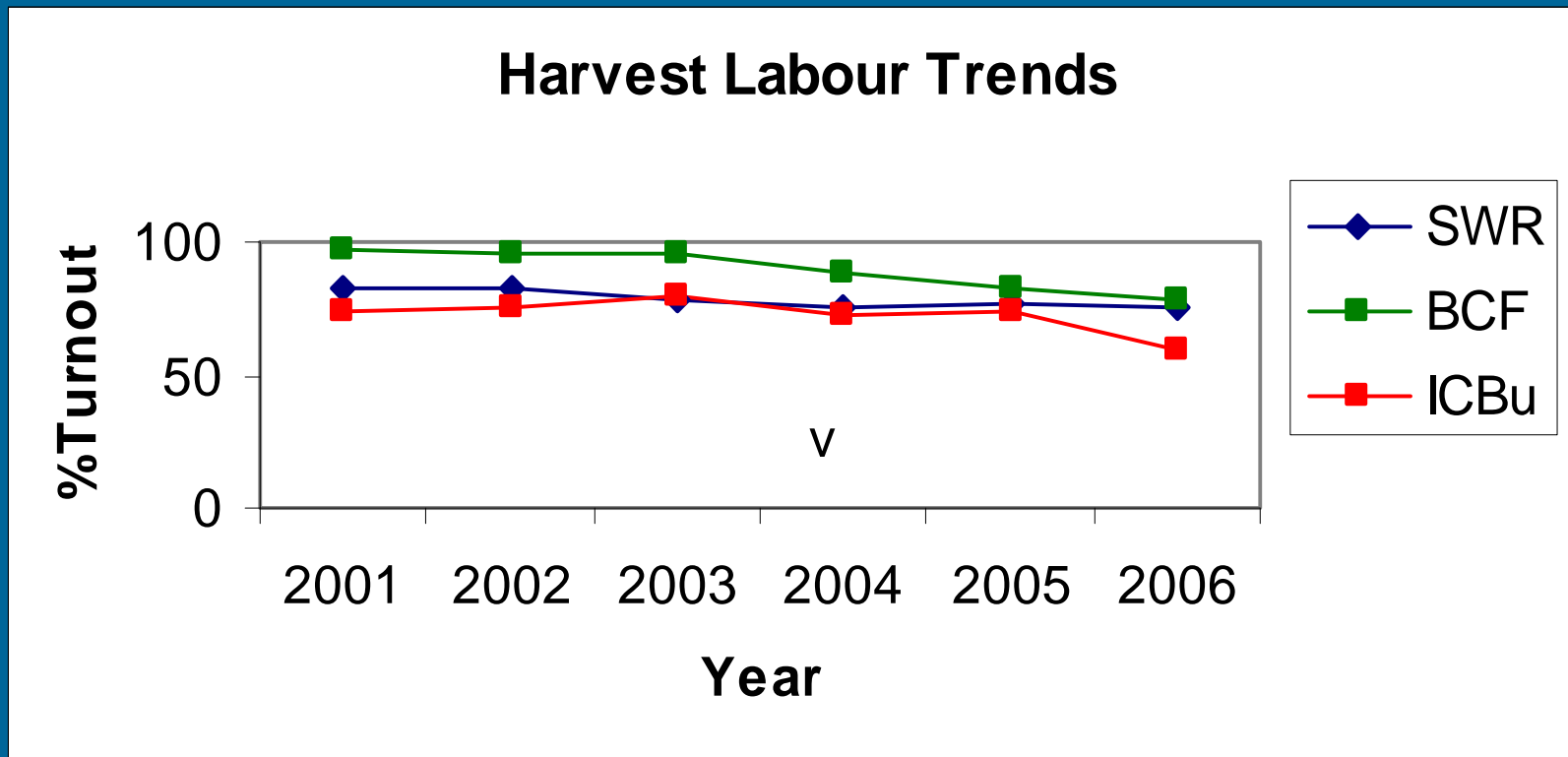
2015 Production and Sales

- Cane – 4643000 MT
- Sugar- 450000 MT
- E U – 191000 MT
- USA – 12000 MT
- Packaged - 70000
- Refined Sugar- Caribbean – 140000 MT
- Caribbean Bagged/Bulk – 16000 MT
- Domestic – 21000 MT
- Molasses – 172000MT

Features of Guysuco Agriculture

- Agriculture is 70% of cost of production
- Operations are intensively manual
- Labour progressively scarce over past 5 years
- Labour (68%) forms the greatest proportion of expenditure in agriculture
- Inflexible system without fundamental change in methods

Harvest Labour Trends 2001 - 2006



Prospects for mechanisation

- Field layouts restrict extent to which mechanised operations can be effectively conducted
 - Development work on mechanisation have focused on improving conditions for infield traffic and in harvesting systems on preserving the cost advantages of water transport

Power Characteristics –Integrated Factory with Annexed Distillery

- Front end consumption - 21kwh/t cane
- Process consumption - 8 kwh/t cane
- Pot export @45 bar 444°C - 92kwh/t cane
- Pot export @ 82 bar 525°C - 143kwh/t cane
- Distillery consumption ~ 4kwh/t cane

Features of Skeldon Project

- Net sugarcane cultivation to increase from 4270ha – estate and 310ha –farmers to 8700 ha – estate and 4250 ha farmers
- Factory capacity 8400 tonnes cane per day
- Crop duration 27 weeks net!
- At steady state design capacity for 1,170,000 tonnes cane and and production of 110,000 VHP sugar

Features of Skeldon Project contd.

- First diffuser in SAC industries
- Factory will export 10MW to grid under firm power agreement
- Feasibility studies and negotiations for refinery as joint venture in progress
- Refinery could be sited at alternative Berbice factory given Skeldon's commitment to grid

Skeldon Cogeneration operation

- Projected 10MW export power from bagasse fired boilers for 37 weeks to 40 weeks including 10 weeks out of crop from stored bagasse
- Projected 8MW export power from Diesel alternators when bagasse stock exhausted
- Supplementing stored bagasse with imports from Albion will extend out of crop generation period
- 6 week window of opportunity for fuel/mpc cane to supplement fuel supply to plant after juice directed to distillery.

Sugar Estates in Guyana



Sugar estates are sited in the major population centres and are ideally positioned for contributing to the domestic grid



Considerations for Ethanol

- Ethanol Blends to 26% in Gasolene feasible but requires minor adjustments in fuel delivery system
- 10% blend - E-10 adapted to modern cars
- Duty free anhydrous ethanol export market to USA under CBI with no limit at present
- Regional market for fuel ethanol also a possibility
- Import substitution for gasolene will require govt support with relevant legislation. Loss of import duty revenue is a consideration

Potential Fuel Usage

- Fuel Imports – 112.6M liters
- Potential substitution at 20% gasohol Blend – 22.5M Liters
- Requirement – 87000t of molasses
- At 10% Substitution – 11.3M Liters
- Requirement – 44000t of molasses

Disposal of Molasses

- Contracted Molasses – 90000t, remainder shipped to Caribbean
- 37000t available final molasses on current production – 9.6M liters of ethanol
- 82000t available final molasses on medium term production – 21.3M liters of ethanol
- Several options for “surplus” molasses

Ethanol Feasibility Studies

- 3 studies conducted from 2002 to 2007 have each indicated positive feasibility of a distillery annexed to a sugar factory for fuel ethanol from molasses fermentation
- The first research was conducted by Guysuco in 2002 –2004 with reference to modernisation of a Demerara production unit for integrated production of sugar, ethanol and co-generated electricity
- The conclusions of this study was reinforced in 2006 by a independent evaluation by an ECLAC consultant for the Industry in general and more recently by a second study by Guysuco/Booker Tate for a distillery in East Berbice. NPV < 7years and cost of ethanol ~ 37¢ per litre

Commercial potential of ethanol in Guysuco

- Present and medium term markets for Guysuco production do not favour substitution of sugar by ethanol
- Ethanol would be price competitive alternative to sugar if sugar price falls below \$320 per tonne
- Ethanol from molasses is a very positive value added product

Commercial Ethanol prospects

- Strong interest expressed by investors in a fuel ethanol project from sugarcane on green field site of 40000ha. Guysuco providing technical support to evaluation
- This project would produce 198M liters of ethanol for export
- Concerns of high land and infrastructure development costs for land in identified project site in Canje. Berbice River Intermediate Savannas also under consideration as alternative.
- This project could also support a 49MW cogeneration facility

Implications

- A 65,000 to 70,000 liter per day alcohol distillery annexed to a sugar factory, using molasses as a substrate could be financially beneficial in the short to medium term
- There is potential for export co-generation from several production units sited along the Guyana coast
- Improved and sustainable yield of cane will be critical to the profitability of all production options.
- Sustainable sugarcane industry will be built on reduced dependence on any single commercial option
- Commitment to a National Renewable Energy Programme will be critical to the success of energy based options for sugarcane .



THANK YOU FOR YOUR
ATTENTION