IMPLEMENTING THE GBEP INDICATORS IN JAMAICA

Global Bioenergy Partnership
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Jamaica
Jamaica Overview:
Selected Indicators – 2012

- Population: 2,711,500
- GDP (nominal): US$14.83 billion
- GDP per Capita: US$5472.5
- Inflation: 8%
- Trade Balance: US$ -1905.2 million
- Energy Consumption per Capita: 7.3 BOE
- Oil Imports (Volume): 20,305,842 barrels of oil
- Oil Import bill (Value): US$2.21 billion
- Electricity Generation: 4,136 GWh per annum
- Total Alternative Energy: 1014,000 BOE
- Sugar Exports: US$94.1 million
- Unemployment Rate: 13.7% (male 10.3%, female 17.8%)

Source:
Petroleum Imports for 2013

- Refinery, 77.58
- Marketing Companies, 5.29
- Bauxite, 17.14

Petroleum Consumption by Activity (Barrels) 2013

- Refinery
- Road and Rail Transportation
- Shipping
- Aviation
- Cement Manufacturing
- Electricity Generation
- Bauxite/Alumina Production
- Sugar Manufacturing
- Residential
- Other Manufacturing
- Other
Background

• Jamaica’s National Energy Policy (NEP) 2009-2030, was approved by Cabinet in June 2010, and accepted by Parliament in December 2010 as a White Paper. The NEP ‘promotes energy security, environmental sustainability of the energy sector, energy efficiency and conservation, energy sources diversification, and increased use of economically viable renewable energy sources’; with the aim of greenhouse gas emissions reductions.

• The NEP articulates that 20% of Jamaica’s energy mix will be generated from renewable sources by 2030 of which bioenergy’s contribution will be substantial.

• Further, our minister, as a representative of the political directorate that is tasked with policy development, has increased this target to 30% of electricity generated should be from renewables sources.
Renewable Energy in Jamaica

- Fuelwood: 57%
- Bagasse factories: 24%
- Solar: 1%
- Hydro: 5%
- Wind: 2%
- Ethanol: 11%
Background

- The NEP 2009-2030 has five (5) draft associated policies or addendum:
  - 1. Renewable Energy Policy
  - 2. Energy Efficiency and Conservation Policy
  - 3. Biofuels Policy
  - 4. Energy from Waste Policy
  - 5. Carbon Trading Policy

- A National Energy Action Plan 2013-2016 was also developed, which basically strategies the priority actions of the NEP. During the stakeholder consultation to develop same, bioenergy was not considered to be of high importance.
Background

• The National biofuels policy seeks to develop a sustainable biofuels industry that is capable of meeting local demand for biofuels.

• E10 Mandate (2009) created a market for approximately 70 million litres of ethanol for blending with gasoline.
Legislative and Regulatory Framework

- E10 Mandate & ASTM E10 Fuel Standard
- Biofuels Policy (2010-2030) - *draft*
- B5 ASTM Biodiesel Fuel Standard – *draft*
- Vehicle Importation Tax Regime
Agreements

• Changes to the Sugar Protocol under the Cotonou Agreement of the World Trade Organization (WTO)
• Jamaica’s Country Strategy I (2006 – 2013) and Accompanying Measures
• Trilateral Memorandum of Understanding, Jamaica-Brazil-USA
• Jamaica’s Country Strategy II (2006 – 2020) and Accompanying Measures
• E10 exemption for fishing vessels.
• Sugar Sector Privatization Agreements
• Research Partnership Agreements with the Ministry of Agriculture and Fisheries Bodles Agricultural Research Station and the Caribbean Agricultural Research and Development Institute
Research and Development

E10
- Country Strategy for the Adaptation of the Sugar Industry
- Muhkerji Sugar Ethanol Study, 2004
- United Nations Economic Commission for Latin America and the Caribbean’s Renewable Energies Potential, 2005
- United States Trade Development Association’s Biofuels Assessment, 2010

2011
- Technical Assistance for Biofuels Development by Winrock International
- Llandel Mills Biomass Assessment for the Sugar Sector
- Carbon Emissions Reduction Project Identification & Notifications
- Avoided Cost Calculation for Renewable Energy Sources
- FAO, Food and Agriculture Biofuels Report: prospects, risks and opportunities

2012
- Office of Utilities Regulation’s Renewable Energy Bidding Guideline
- Feed-In Tariff (FIT) Assessment by Trama TechnoAmbiental
Research and Development

• 2012 – Alternate Feedstock for Cogeneration in the Sugar Cane Industry
• 2013 – present – Life Cycle Assessment, Legal Preparedness and Capacity Building to Support Biofuels Development in Jamaica
Research and Development

B5
• Biodiesel Feedstock research and procurement
• Biodiesel Cultivation Land Suitability Survey
• Incentives for Biodiesel Production
• Biodiesel Value Chain Analysis
Entrepreneurial Actions

E10

• Establishment of Ethanol Distillation Plants by:
  – Petrojam Ethanol Ltd., 1985
  – ED&F Man, 1997
  – Jamaica Broilers Ethanol Ltd., 2005

• Ethanol trade with the USA and Brazil under the Caribbean Basin Initiative (CBI), 1985

• E10 distribution to local consumers through Petrojam and Marketing Companies, 2008

• Sugar Sector Transformation & Privatization, 2011
Entrepreneurial Actions

B5

• Biodiesel feedstock cultivation, harvest and processing
• Waste Vegetable Oil collection and processing plants:
  – National Bakery,
  – Happy Foods Ltd.,
  – University of the West Indies June 2013 – November 2014,
  – RYCO
  – others

NB: UWI and a local Community-based Youth NGO in partnership with GEF Small Grants Fund – Project titled ‘A waste to fuel project for energy diversification, transportation, education and climate change mitigation’
The Sugar Cane Industry

• The sugar cane industry has the potential to generate and sell electricity via cogeneration, there is a potential total installed capacity of 91.5 MW, with 56.3 MW available for export to the utility grid.

• This is based on 3.5 million tonnes of cane produced on 52,000 hectares, which would provide all the 70 million litres of ethanol, molasses for rum, sugar and cogeneration.

• Currently gross area for cane is 33,000 hectares with 29, 000 hectares harvested in 2012/13 crop, yielding 1.4 to 1.5 million tonnes cane. Estate cane yields averaged 49 tonnes cane per hectare in 2012/2013, compared with indicated target of 80 tonnes per hectare.
Sustainability of the Industry

• The viability of the sector is heavily dependent on the international price of sugar, the main product of the industry, along with the international price of alternate products of rum and bioethanol. Additionally, the local price of electricity may also contribute to the financial sustainability of the sector.
• The decline in viability of the major part of the industry has a negative impact on social conditions and employment in the rural areas of Jamaica.
Actions Required

- Financing
- Industrial Engineering Study
- Complementary Crops/Alternate Feedstock
- Increased cultivated Areas
- Green Cane and Mechanized harvesting where possible
- Improved varieties
INPUTS

• Estate repowered
• More biomass available
• Higher productivity
OUPUTS OF ACTIONS

• More electricity exported to the grid
• Ethanol/rum production increased
• Cost of production of sugar and by-products decreased
OUTCOMES

• Cost of Energy is lowered
• Dependency on petroleum products is reduced
• Sugar industry’s competitive situation is improved
CHALLENGES/BARRIERS

• Estates owners are not convinced of the profitability of bio-ethanol production.
• Bio-ethanol is in competition with the production of sugar, bagasse for power generation. And molasses for rum (higher value with established niche markets).
• Continued low productivity
• Resistance to green harvesting and mechanization
• Inefficient usage of bagasse
• Low pressure boilers
• Lack of low interest rate financing
• Regulatory conflicts and lack of pricing mechanism for locally produced bio-ethanol, along with compensation for bagasse to the farmers.
CONCLUSION

• The government and Industry stakeholders recognize that significant increases in cane production (improved varieties) is a critical first step for successful vertical diversification of the industry.

• Improved field management.

• Requirement for supplementary biomass resources for year round power generation and supply, at least in the first phase of modernization.

• Bioethanol production will be strongly linked to the industry achieving the expected target of 3.5 million tons of cane by 2018 (currently 1.3-1.4 million tons-2012/2013).

• Retooling and all round efficiency improvement including energy efficiency.

• Introduction of flexi-factory model locally.
Thanks for your attention

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