

**The Institute of the Americas and the Organization of American States
Central American Energy:
Renewables, Integration & Investment**

**Diversifying the Energy Matrix
The Role & Opportunities for Biofuels**

**US-Brazil Biofuels MOU
El Salvador, Dominican Republic,
Haiti**

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Scope of Winrock's Work

- Identify potential biofuel projects and support needed to advance biofuels for domestic consumption in El Salvador, Dominican Republic and Haiti
- Undertake a Definitional Mission to identify need for Technical Assistance in the public sector and private sector projects that might qualify for Feasibility Study Grants
- Build on DM work in order to increase the number of awards and assist private sector players to move forward with SECCI proposals to IADB
- Work supported by USTDA, OAS and US State Dept.



Sugar/Ethanol – El Salvador

- **Current Sugar Production ~600,000 tons/yr**
 - Around 46% sold in domestic market for ~\$0.20US/lb.
 - Roughly 10% exported to US under the tariff-rate quota (TRQ) system at ~\$0.20US/lb.
 - Remainder (~264,000 tons) sold on world market (*Equivalent to 35 million gallons ethanol*).
- **Ethanol Fuel Market**
 - Gasoline consumption approximately **150 million gal/yr.**
 - Proposed 10% blending legislation would require 15 million gal/yr.
 - Total ethanol from molasses potential ~6.4 million gal/yr.



What should you do with extra 264,000 tons of sugar?

- Value of sugar sold over past 20 years on world market has been ~\$0.10US/lb or \$52.8 million per year
- Ethanol equivalent per year ~35 million gallons or ~\$64 million with oil at \$65/barrel

Comparison of Values

	\$.05/lb	\$.10/lb	\$.15/lb	\$.20/lb
Value as sugar	\$26.4 million	\$52.8 million	\$79.2 million	\$106 million
	\$45/bl	\$65/bl	\$85/bl	\$100/bl
Value as ethanol	\$47.5 million	\$64 million	\$81 million	\$93 million



Major Initiatives (1) – El Salvador

■ **Dedicated Cane to Ethanol**

- Sponsored by Ministry of Economy & Inter-American Development Bank
- Potential location in Usulután identified by FGV
- Feasibility Study being prepared by FGV

■ **Ethanol from Molasses and Sugar at Existing Mills**

- Sponsored by Asociación Azucarera and U.S. Brazil Biofuels Partnership
- El Angel and La Magdalena mills targeted by Asociación Azucarera
- Feasibility Study being prepared by Arkel and Delta-T



Major Initiatives (2) – El Salvador

- **Technical Assistance for Market Integration of Ethanol**
 - Sponsored by Ministry of Economy and Organization of American States
 - Awarded to Energy and Security Group
- **CENTA/MINEC/IADB – Feasibility Study of castor for biodiesel production**
 - Sponsored by Ministry of Economy & Inter-American Dev. Bank
 - Final scope under review



National Summary – Dominican Republic

- **Current Sugar Production**
 - ~ 530,000 metric tons per year.
 - Not enough to meet current domestic demand and U.S. quota.
- **Ethanol Fuel Market**
 - Gasoline consumption ~260 million gal/yr.
 - E10 requires ~26 million gal/yr.
- **New Cane Production for Ethanol**
 - Estimate 20,000 ha could produce ~26 million gal/yr.



Does DR have land to expand sugar cane cultivation for ethanol?

Historic Use of Land

	Land Use	Sugar Cane
Mid-1980s (peak)	300,000 hectares	11.8 million tonnes
2007	135,000 hectares	5.3 million tonnes

- At least 100,000 ha of land suitable for sugar cane could be brought into production.
- Estimate 20,000 ha could produce ~26 million gal/yr and create 20,000 jobs
- Foreign exchange savings ~\$47 million/yr at \$65/bl crude



Major Initiatives – Dominican Republic

- **Technical Assistance for Market Integration of Ethanol**
 - Sponsored by National Energy Commission, the Ministry of Industry and Commerce, and the Organization of American States
- **Mobile Mills for Ethanol from Smaller Feedstock Producers**
 - Originated by CTD (Omar Bros and partners)
 - Baylor University and the U.S.-Brazil Biofuels Partnership
- **Cane and Sweet Sorghum to Ethanol**
 - Under-development by RJS Group
 - Application for SECCI grant



National Summary – Haiti

■ Availability of Land

- ~1.7 million ha over 20% slope that is marginal for agriculture with only 2-3% of forest cover remaining.
- ~700,000 ha are unused or underutilized lands potentially suitable for jatropha.
- To achieve 10% blend of biodiesel for transport would require ~22,000 ha.

■ Biodiesel Fuel Market

- Haiti imports 92 million gal/yr of diesel (50/50 for transport and power generation) - \$115 million plus.
- Petroleum imports consume 50% of foreign exchange.



Major Initiatives – Haiti

- **15 possible projects were reviewed**
- **USTDA selected Jatropha Interbanx S.A. (JTX) project for FS grant**
 - Aimed at providing commercial nurseries and a number of large jatropha farms
 - **Technical Assistance for Biofuels Policy, Standards, Regulations and Incentives – OAS support within the US-Brazil Biofuels Partnership**
 - Aimed at providing a legal and regulatory framework for use of biofuels in the vehicle fuel sector
- **SECCI Applications for IADB funds**
 - PHS Group is proposing to develop commercial scale jatropha plantations
 - CHIBAS is proposing to develop improved varieties of jatropha
 - Three more under preparation



Summary

- **Attractive private sector bioethanol opportunities exist in El Salvador and Dominican Republic**
- **Biodiesel fuel from jatropha appears possible in Haiti but studies are needed to validate potential investment returns**
- **In all three countries:**
 - Adequate land resources are available for biofuels
 - Interested and motivated developers exist
 - Assistance on biofuels policies and implementation of a domestic market is ongoing

