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Biofuels Fighting for Space in Central America and Cuba

By Adriana E. Sánchez, special to NotiEn

Brazil has found great success building its ethanol industry with the use of sugarcane, and there are suggestions that other countries in Latin America might replicate this feat, allowing them to use biofuels to increase their energy independence. Central American countries and Cuba share some similarities with Brazil, and they are the ones often mentioned for potential growth in biofuels. These countries face significant obstacles because of a lack of infrastructure and inadequate energy policies, which make them particularly dependent on foreign imports of fossil fuels to partially satisfy their populations' growing energy demand.

"Brazil started the ethanol infrastructure many years ago; Brazilians strengthened their agricultural research of sugarcane, have more than enough land to cultivate the crop, and have invested heavily in technology. I don't believe Central America can imitate Brazil's model right now," Ismael Antonio Sánchez Figueroa, the chief energy expert of the Universidad Centroamericana José Simón Cañas in El Salvador, said during an interview with NotiEn.

Central America explores various biofuel options

Despite their limitations, the recent increase in oil prices and a short supply of fossil fuels are forcing Central American nations to embrace and start exploring alternative sources of energy production, and many policymakers in the region are looking at what Brazil has done.

The need is urgent because an estimated 10 million people out of a population of 40 million living in the region do not have access to electricity, and around 20 million still use firewood for cooking.

Honduras appears to be taking the lead in biofuel production, particularly with the use of African palm oil, said the Foreign Agricultural Service (FAS), a branch of the US Department of Agriculture (USDA). In 2008, the Central American country produced 380,000 metric tons of palm oil, and 115,000 hectares of land are used for cultivating African palm.

Honduras has 10 African palm-oil-extracting plants, but only five have the equipment and appropriate facilities to produce biofuels. Those five plants have the capacity to process 66,100 gallons of biofuels daily, but economics had put production on hold. A major factor was the high cost to develop biofuels relative to fossil fuels, which had been subsidized by the Honduran government.

"As the government of Honduras removes some of its fuel subsidies, consumer prices will rise," said an FAS report in 2010. "Subsequently, the incentive to use and produce biofuels will increase. In addition, the cost of biofuel production in Honduras is affected by a higher international price obtained with the sale of African palm oil."

In addition to African palm, Central American governments are considering other crops to produce biofuels. *Jatropha curcas*, a tree-like plant that grows in poor soil and has limited need for water, is becoming a strong option. At maturity, usually four to five years, *jatropha* can provide 1,500 to 2,000 liters of oil per hectare. The quality of the oil is similar to corn or soybean oil, and it is easier to process because it does not require further refining.

El Salvador, Nicaragua, Guatemala, Costa Rica, Panama, and Honduras are either cultivating *jatropha* or conducting studies to determine whether the crop is suitable for their biofuels industry. Although results have not been successful in every country, Honduras' main *Jatropha Agroipsa* plantation produced 200,000 liters of biodiesel in 2009 and is expected to produce 2 million liters in 2011.

El Salvador is also moving forward on biofuels, although development of its industry might not be as dramatic as in neighboring Honduras. Salvadorans are entering into associations with other countries, such as the Netherlands, Brazil, Guatemala, and the US, to develop biofuels operations. These partnerships are developing and pushing the biofuels industry to produce ethanol as well as fuels created with the castor-oil plant *Recinus communis*, commonly known as *higuerilla*. The Centro Nacional de Tecnología Agropecuaria y Forestal (CENTA) says that close to 4,000 seeds have been distributed among farmworkers to study and develop the castor-oil plant industry in the country.

Most biofuels developed in Central America are produced using similar crops, but some Central American nations such as Costa Rica, Honduras, and Panama are producing or analyzing technologies to develop biodiesel extraction from maritime products such as tilapia entrails and seaweed.

Although the future could seem promising for biofuel production in Central America, Sánchez Figueroa suggests that the world needs to look at the region as a series of countries with different resources, needs, and energy policies that greatly affect the direction a country chooses regarding developing and exploiting natural resources and ultimately regarding its energy future.

While most Central American countries have adopted measures and initiatives to develop biodiesel, such as the energy-emergency plan developed by the Comité de Cooperación de Hidrocarburos de América Central (CCHAC) to increase and expand production of biofuels, Honduras is currently the only country in the isthmus that has laws to provide benefits for biofuel production. The laws provide tax exemptions from custom tariffs, income tax, and other related taxes for 12 years for the production of ethanol and other biofuels.

Cuba could produce ethanol from sugarcane

Similar to Central America, Cuba's potential to become a leader in biofuel production is subject to speculation, and it will be strongly tied to the energy policy that the island adopts

within the next few years. The Association for the Study of Cuban Economy (ASCE) says sugarcane could seemingly provide the raw material for biofuel production. But tight supplies might be a problem. The island nation is expected to produce only 1.2 million tons of raw sugar. This is a very small amount when compared to sugar production in the 1990s, which was estimated to reach 7 million to 8 million tons per year. With its current sugarcane output, Cuba could produce an estimated 3.2 billion gallons of ethanol per year, energy industry sources say.

In an interview with NotiEn, Jorge Piñón, a well-known expert on Cuban energy policy, suggested that Cuba would have to stop its dependence on fossil fuels from foreign countries if it is to develop energy independence. "Cuba passed from papa Russia to papa Venezuela to solve its population's energy demand," said Piñón. "Cuba must strive to start working on an energy policy that can help the country independent of who is in power."

Piñón said ethanol production has not been more actively promoted because of the complicated relation that Cuba has had with sugarcane. "Fidel Castro puts his foot down every time there are talks about an increase in ethanol production; for him it is a political issue," said Piñón, a visiting research fellow at the Cuban Research Institute at Florida International University's Latin American and Caribbean Center and an analyst for the Center for Hemispheric Policy at the University of Miami.

Although advances have been made in increasing alternative-energy production in Cuba and Central America, there is much more to be accomplished in these regions. Cuba is still heavily dependent on Venezuela's oil, and, according to Piñón, the energy future of the island nation is tied very closely to the fate of its South American benefactor.