

Viet Nam Biofuels Activities

Biofuels production in Viet Nam is in its very early stage of development. Although Viet Nam has been producing ethyl alcohol for many years (76 million liters in 2005), it has been consumed primarily by the alcoholic beverage and pharmaceutical industries. Just recently, in November 2007, the government approved the production and use of biofuels as it seeks to diversify its energy portfolio. Its target is 500 million liters of fuel ethanol and 50 million liters of biodiesel by 2020. The government plans to create favorable conditions for the development of biofuels and promote investments, including tax incentives and low-interest loans. The priority for biofuels R&D in Viet Nam is increasing crop productivity and development of advanced conversion technologies.



Viet Nam is rich in biomass resources and it has great potential for biofuels production. The existing ethyl alcohol industry is already using cane molasses and starches as feedstock. Estimates show that if Viet Nam uses all cane molasses and 10% of cassava and corn production, it could produce about 320 million liters of fuel ethanol. Sugarcane production has been consistent during the past six years, about 15 million tonnes annually; while cassava production has grown rapidly from 2 million tonnes in 2000 to about 8 million in 2006. Viet Nam is also rich in cellulosic biomass, such as agricultural residues (rice husk, straw, baggase, and cane leaf) at 45.6 million tonnes, and woody residues at 1.6 million tonnes (Tran Dinh Man 2007). Dedicated energy crops, particularly elephant grass, are also seen as an opportunity. Pilot elephant grass plantations have been set up in Dongthap province (67 hectare - ha), BacKan (100 ha), and TuyenQuang (200 ha). Viet Nam has also expressed interest in production of ethanol from seaweed.

Two fuel ethanol plants are expected to come online in Viet Nam during 2008-2009:

- Viet Nam's Bien Hoa Sugar Company and Singapore's Fair Energy Asia Ltd. have signed a memorandum of understanding for the construction of an ethanol plant capable of producing 63 million liters a year. The plant will be built in an industrial zone in Ninh Dien village, Chau Thanh district, in the southwestern province of Tay Ninh, and it will use sugarcane molasses (Biopact 2007).
- Petrosetco, a subsidiary of state-run oil monopoly Petrovietnam, has teamed up with Japan's Itochu Corp. to build a biorefinery in Ho Chi Minh City's Hiep Phuoc Industrial Park. The facility will use cassava as a feedstock, and it is expected to produce 100 million liters of ethanol annually. The company plans to build three additional ethanol plants using cassava, sugarcane, and rice as feedstock.

Potential biodiesel feedstock in Viet Nam includes animal fat (catfish oil), used cooking oil, rubber seed, and jatropha oil.

After two years of experimentation, the Vietnamese catfish processor and exporter Agifish announced in 2006 that it had successfully produced biodiesel using catfish oil. The company is building a 10,000 tonnes/year biodiesel facility in the southern Mekong delta province of An Giang. The company notes that a kilogram of catfish fat could produce 1 liter of biodiesel. Viet Nam produced about 60,000 tonnes of "Basa" fish oil in 2005. The production in the past was primarily for exports to the United States and Europe (Mail & Guardian 2006).

Technology for producing biodiesel from used cooking oil has been successfully developed by HCM City's Research Centre for Petrochemical and Refinery Technology. About 73,800 tonnes of used cooking oil were produced in 2005, which would translate to approximately 33,000 tonnes of biodiesel. A trial project producing 2 tonnes/day biodiesel is underway by Saigon Petro (Tran Dinh Man 2007).

Biodiesel production from rubber seed oil and other oil-bearing crops (jatropha) is being researched by the Institute of Applied Materials & Science and Institute of Tropical Biology in Ho Chi Minh City (HCMC). The Department of Agriculture & Rural Development has a jatropha trial plantation of 5,000 ha. Eco-Carbone has identified four regions in Viet Nam for jatropha development, and will enter into partnership with local farmers and communities for a minimum of 30,000 ha. Within the framework of the R&D program carried out by Eco-Carbone, a series of agronomic tests for yield comparison are being implemented to select the most productive jatropha species for cultivation in Viet Nam. Biodiesel production is expected to start in 2010 and Eco-Carbone's objective is to reach 60,000 tons of biodiesel production per year at full capacity (Eco-Carbon 2008).

Sources

1. [Asia Cleantech](#), *Asia Clean Energy & Asia Clean Technology News*, November 2007
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3. [Biopact](#), August 2007
4. [Eco-Carbon](#), March 2008
5. [Mail & Guardian](#), July 2006