

Vietnamese Smallholders and Green Energy Vietnam: A Pro-Farmer Partnership for Climate Change Mitigation

Table Overview

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Sector	<i>Biofuel – Biodiesel from Jatropha</i>
Initiation Date & Duration	<i>2007 -</i>
Location	<i>Vietnam, HCM, Ninh Thuan, Quang Tri, Thu Thien Hue</i>
Funder(s)	<i>Private</i>
Project Initiator	<i>Green Energy Vietnam</i>
Overall Budget (if applicable)	<i>16 Million US\$</i>
Output	<i>300,000 tons of biomass green waste; 87,500 tons of solid clean fuel; 37,500 tons of world class sustainable bio-jet fuel feedstock or renewable diesel feedstock per year. Approximately \$12 million per year in smallholder income.</i>
Area of Land (if applicable)	<i>2009; 2000 ha by 2015; 25,000 ha</i>
Beneficiaries	<i>Farmers; 60,000 people estimated 12 million US\$</i>

Abstract

Green Energy, Vietnam J.S.C. (GEV) runs a renewable energy business that produces sustainable biofuel feedstocks by cultivating *Jatropha Curcas* on marginal or less-productive lands; avoiding upward pressure on food prices and needless impact on high conservation areas.

GEV's agricultural partners are Vietnamese cooperatives and farmer's unions. These entities are contracted over the long-term (30 years) to sell their produced biomass to GEV – in return for GEV's establishment investment, professional training, and the guaranteed purchase of their produce. GEV processes the biomass for sale and distribution in Vietnam and globally. The actual production units are the cooperative's members, Vietnamese smallholders, who plant *Jatropha* on a portion of their own land. The smallholders are assisted in their biofuel feedstock start-up with help from GEV via 'forgivable loans' for establishment costs, seedlings, and extensive training.

The resultant biomass products of this cooperative venture between GEV and the smallholder are considered some of the most desirable biofuel feedstocks in the world, due to their sustainability qualifications. This case study is an example of bridging international demand for second-generation feedstocks for the most high-value biofuels with persistent care methodologies that only smallholders can bring to the production of this sustainable feedstock.

Context / Challenge

Vietnam has since the start of the Doi Moi (renovation) policy in the late 80's made a more than remarkable economic recovery and growth. This fast accumulation of wealth has, however, also exposed the country to the dependency on external energy sources especially on fossil fuels for transportation and electricity generation.

Since the early 2000's the government has been investing research funds into testing biofuel mixtures to study if and how it could be introduced in the country. Upon successful

completion of these tests the government decided to develop its own biofuel industry, focusing on both biodiesel and bio-ethanol. Research funds were made available to test feedstocks and a national policy was developed to establish around half a million hectare each for *Jatropha Curcas* and Cassava. Refinery plans were also developed and ethanol refining plants have come into operation since 2009.

Green Energy Vietnam started as a small operation in Ho Chi Minh City, focusing on refining biodiesel. Initially the market was tested by producing biodiesel from waste oils. In 2007 the company decided to start experimenting with biofuel feedstock. They formed an alliance with the Forestry Technology Institute to test different cultivars of *Jatropha curcas* for Vietnam. As part of the business expansion strategy investment capital was attracted from Australian JatOil.

Making use of existing rural structures of communes and farmer cooperatives, Green Energy Vietnam decided to develop a contract farming system with cooperatives. This way the company secures large amounts of feedstock, necessary for their refining operations. At the same time this contributes to giving farming households a sustainable income for the coming years.

- ❑ GEV's agronomic/environmental goal is, along with its smallholder production partners, to expand the production base of *Jatropha Curcas* to 25,000 hectares – each one established under the principals of the Roundtable on Sustainable Biofuels and increase the Vietnamese production of substantive amounts of clean fuel.
- ❑ The economic goal is to deliver additional income for approximately twenty thousand smallholder households (a 60,000 beneficiary headcount). Since GEV does not encourage cultivation of *Jatropha* on productive lands this is an addition to existing income (in fact, sufficient existing income is an attribute that will cause rejection by GEV's site survey teams for a particular piece of land).



In order to carry out these activities in a sustainable manner, the company adheres to the Roundtable for Sustainable Biofuels criterias. Only marginal lands that are not used (or cannot be used) for food production are brought under production for *Jatropha*.

- ❑ The economic goal for GEV is to conduct its business sustainably so that it may remain an economic force in the clean energy industry and adhere to its commercial obligations to its smallholder partners over the long haul.
- ❑ In the longer term, GEV hopes to replicate these processes, institutions and methods throughout Vietnam and the Mekong region increasing rural incomes, buttressing rural financial sectors, fostering more foreign direct investment, sustaining shareholder's expectation of increased value - all the while curtailing climate change with the production of massive quantities of clean fuel.

The company not only signs contracts with the farmer cooperatives but also invests in training the households on growing the feedstock, provides quality seedlings and supports the cooperatives on business development.

Stakeholders, their roles and relationships

The direct business link is between the company, Green Energy Vietnam and the Farmer Cooperatives. The company seeks advice from a number of institutions and organisations around them to improve their business operations.

- Rural Agricultural Cooperatives
- Vietnamese Smallholders
- Green Energy Vietnam/Jatolil



GEV works together with public institutions at national, provincial and lower levels to develop appropriate policies and implementation mechanisms for the contract farming modalities. Partners in this are:

- MARD/Department of Forestry
- Vietnamese Cooperative Alliances
- Farmer's Union
- Peoples Committees

GEV also works together with the Centre for Biotechnology in Forestry, to test and develop the best cultivars and production methods for *Jatropha Curcas* in Vietnam. As a last important collaboration, GEV has sought advisory services from SNV – Netherlands Development Organisation, to help them build the capacity of cooperatives in the management of the contract farming system.

Method / Intervention

Green Energy Vietnam is a for profit company that seeks to produce high quality bio-diesel for aviation and other transport industries. In order to do so it will establish long-term contractual relationships with cooperatives, representing smallholder farmer producers.

For the selection of appropriate feedstock production areas, it follows a thorough process, in line with the RSB standards. Steps in this are:

- Develop methodologies to determine suitable land from the perspective of the planter, the purchaser (GEV) and the end-user.
- Identify actual planting area: soil test and analysis, meteorological criteria, sustainability criteria and ranking process for *Jatropha* planting.
- Work with local authorities for agreement of plantation: meetings, workshops.
- Develop, negotiate and sign agreements with cooperative alliances and provincial farmer unions.
- Together with these cooperative alliances and provincial farmer unions organize promotion of *Jatropha Curcas* and



- sign contracts with co-ops and commune farmer unions: advertisement, meeting, workshops.
- TOT for co-ops and relevant stakeholders in organization of Jatropha plantation.
- Details site selection with farmers registration
- Training (off-site and on-site) of plantation techniques for farmers.
- Roll-out of plantation
- On farm monitoring technical support by GEV extension officers.
- Buy-back seed purchases organized by farmer union and co-ops.
- Processing for PPO, fertilizer/biomass

Outcome / Impacts

Since the start of field testing in 2007 of the Jatropha plant GEV has achieved the following results:

- Developed an efficient system for funnelling direct investment to the smallholder
- Developed methods for Jatropha cultivation by smallholders
- Trained 20,000 smallholders in these methods
- Delivered 37 million income producing trees to smallholders
- Developed harvest procedures and accounting methods to deliver payments
- Built supply chain to process and distribute biomass products



In addition, GEV achieved:

- Delivered direct investment for agricultural establishment and training: \$8.55 million
- Yearly income on non-productive land equal to comparable crops but with fewer man-day's work
- Created the production of clean fuel switch of many thousands of tons of dirty coal and petroleum
- Green cover and land rejuvenation for 25,000 hectares for decades to come
- Increased capacity in agricultural cooperatives, their oversight associations, farmer productivity, better access to capital and greater optimism of rural life

Analytical Questions

GEV is aware that biofuel production animates debate in term of social and environmental issues and GEV is still questioning relevant topics such as:

Are smallholders best served by the food versus fuel debate? If the biofuel production is well integrated in the original production system of the farmers, this debate should evolve toward an agricultural production combined with alternative production such as biofuel that could complement and diversify incomes for small holders.

Why is there a hesitation for a real push in biofuels production? Afforestation, anti-desertification, climate change mitigation, poverty alleviation, gender equality, energy security, etc are very important issues and “true” efforts must be made to avoid amplification of these problems.

What can the Vietnamese government really do? Can they be trusted to protect the investors (yield security, market equality)? This is one major question for investors, security! Although the government has engaged in bioenergy production, the guarantees are not always clear in this emerging sector and it is very important for the investors to feel support/trust from the government to develop the sector together.