Introduction

Jatropha (*Jatropha curcas)* is a drought-resistant perennial shrub with an economic life of 35-50 years. With the increasing interest in biofuels, it is now considered as one of the promising sources of biofuel and has proved to be a viable feedstock because of the 30% oil composition of its nut, which can be easily processed into fuel as Jatropha Methyl Ester (JME), a form of biodiesel.

At present, the biggest biodiesel feedstock and the strongest contender of jatropha in the Philippines is coconut oil.

Market Opportunity

Increase in Actual Sales

- There is a substantial growth in the amount of sales of biodiesel. Actual sales increased from 44,399,918 million liters in 2007 to 64,482,908 million liters in 2008.

Increasing Demand (Projected for 2009-2015)

YEAR	TOTAL DEMAND (in liters)
2009	133,680,000
2010	138,700,000
2011	143,900,000
2012	149,290,000
2013	154,890,000
2014	160,700,000
2015	160,700,000

- The Biofuels Act of 2006 created a guaranteed market for biodiesel through the mandated blends specified by the law.

Exports

- Market opportunities in the industry exist in the exportation of the excess supply of biodiesel in the local market. Furthermore, countries with no enough agricultural lands can invest in the production of jatropha and the processing of JME in the Philippines and then export the latter.
- Starting 2010, the Philippines will be exporting 30 million gallons of jatropha oil as biodiesel feedstock to the US in view of a contract entered into with a U.S. based company.

Philippine Advantage

Natural Resources

- Jatropha
  - The biggest jatropha plantations in the country to date are the 787 hectares of jatropha nursery-cum-pilot-plantations of the Philippine National Oil Company-Alternative Fuels Corporation (PNOC-AFC) in Cagayan de Oro in Mindanao and in Nueva Ecija and in Luzon.
  - Seedlings grown in June 2007 were 571,074.
- Available Land
  - Idle lands all over the Philippines with a total area of 2,003,572 hectares suitable for jatropha plantation.
  - Central Visayas and Bicol have the top 2 largest land areas suitable for the production of the said feedstock.

Ideal Locations

REGION	HECTARES
ARMM	34,995
CAR	51,394
NCR	321
I	108,508
II	57,383
III	160,515
IV-A	120,825
IV-B	11,247
V	208,250
VI	304,412
VII	149,585
VIII	256,148
IX	595,467
X	126,300
XI	43,744
XII	46,105
XIII	95,939
TOTAL	2,003,572

Support Industries/Infrastructure

- The contract-growing scheme is a popular practice in the country where many farmers are willing to enter into with processors or manufacturers.

Human Resources

- Availability
  - The country, being an agricultural country, has many readily-available farm workers who are very knowledgeable on the details and technicalities of farming in the Philippines.
  - Big labor force that is highly skilled, educated, English proficient and has strong and good work ethics for industries.

Industry Potentials

Growth Rate in Number of Industry Players

- From 2005 up to present, there are 11 BOI and DOE-registered biodiesel producers in the country engaged in the production and processing of various biodiesel feedstock.

Contribution to the Economy

- Employment generation and livelihood improvements in the rural areas
- Foreign exchange savings brought about by the decrease in fuel importation

Industry Players and Capacity

Company Name	Location	Capacity (per year)
Chemrez Technologies Inc.	Bagumbayan, Quezon City	50 million liters
Senbel Fine Chemicals*	Lucena City, Quezon	72 million liters
Pure Essence Int'l. Inc.	Pasig City	48.6 million liters
Golden Asian Oil International, Inc.	Pasig City	30 million liters
Bioenergy 8 Corporation	Sasa, Davao City	30 million liters
Tantuco Enterprises, Inc.	Tayabas, Quezon City	36 million liters
Freyvonne Milling Services*	Toril, Davao City	15.6 million liters
Mt. Holly Coco Industrial Co. Ltd.	Lucena City, Quezon	4 million liters
Rasza Agro Produce Corporation*	San Pablo City	720,165 liters
Romtron Philippines*	Odiongan, Romblon	300,000 liters
Phil. Biochem Products, Inc.	Parañaque City	60 million liters
Lipi Tech, Inc.	Carmona, Cavite	30 million liters

Note: *not BOI-registered

Government Support

Laws and Policies

- The Biofuels Act of 2006 (RA 9367)
  - mandates the use of biofuels to all fuel products distributed and sold by oil companies in the Philippine market
- Omnibus Investment Code (EO 226)
  - specifies the granting of incentives to investment projects/activities that are included in the Investment Priorities Plan
- PEZA Law (RA 7196)
  - specifies the granting of incentives to investment projects/activities that are located within economic zones
- R-VAT Law (RA 9337)
  - provides for the value added tax on the various commodities as well as the those that will be given exemptions
- JAO 2008-1
  - provides guidelines governing the biofuel feedstock production, and biofuels and biofuel blends production, distribution and sale

Development Plans and Programs

- Focus of strategic program and projects of the government for biodiesel

- Improving cultivation and diversification of feedstock
- Meeting demands
- Developing cost effective technologies
- Improving support infrastructure
- Increasing investment
- Implementing sustainable incentives across industry sectors
- Improving condition of retail competition
- Better monitoring of biodiesel quantity, quality and price
- Improving enforcement of guidelines and industry standards
- Strengthening DOE capability in its management role of the new industry

Market/Technical/R & D Support

- Integrated R&D program conducted by PNOC-AFC, PCCARD and UPLB:
  - Preliminary evaluation to improve variety (i.e. seed quality testing, storage and development of cost-effective propagation technique)
- S&T Services (NBB website development and hosting with GIS capability and testing facility/analytical laboratory)

Financial Support/Guarantee

- Credit assistance provided for by the Land Bank of the Philippines and the Development Bank of the Philippines for agri-based and renewable/alternative energy sources projects

Incentives

Fiscal

- RA 9367 (The Biofuels Act of 2006)
  - zero specific tax
  - VAT exemption
  - Wastewater charges exemption
  - Financing activities by government financial institutions
- EO 226 (Omnibus Investment Code)
  - ITH
  - Importation of consigned equipment for 10 years
  - 0% duty importation of capital equipment, spare parts and other accessories
- RA 7196 (PEZA Law)
  - ITH
  - special 5% tax on gross income
  - tax and duty-free importation
  - exemption from export taxes, wharfage dues, impost and fees
  - exemption of payment of local government fees
  - 0% VAT
- RA 9337 (R-VAT Law)
  - zero rate for ethanol and biodiesel

Non-Fiscal

- EO 226 (Omnibus Investment Code)
  - Employment of foreign nationals
- RA 7196 (PEZA Law)
  - Special Investor's Visa

- employment of foreign nationals
- simplified import and export duties
- Others
  - Financial Assistance by Government Financial Institutions
  - Promotions by BOI, PEZA, investment promotion agencies (i.e. Clark Development Corporation, SBMA), DOE

Costs of Doing Business

Project Cost for a 2 M li Capacity Plant

Related Expenses	Cost (in Thousand USD)
Pre-Operating Expense	20.70
Cost of Land (Lease of land for the first year)	8.28
Site Development	931.00
Equipment Cost	620.73
Working Capital	62.07
Total	1,642.78

Salaries and Wages

- Minimum Daily Wage Rate (as of May 2009)

REGION	AGRICULTURAL WORKERS	
	Plantation (in USD)	Non-Plantation (in USD)
CAR	4.84	4.84
I	4.55	4.03
II	4.53	4.53
III	5.26	5.26
IV-A	5.28	5.28
IV-B	4.18	4.18
V	4.39	3.97
VI	4.51	4.51
VII	4.66	4.66
VIII	4.53	4.53
IX	4.45	4.03
X	4.88	4.88
XI	5.28	5.28
XII	4.66	4.55
XIII	4.61	4.61
ARMM	4.35	4.35

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