

## **Biofuel Policies in Asia\***

### **High price of oil boosting biofuel production in Asia**

The high price in oil have heightened the oil, concerns in Asia and most of the Asian countries are still facing higher oil prices. The net oil imports, as a share of nominal GDP in Asia, was 1.1 per cent in 1995 and the figure rose up to 2.2 per cent in 2003.

Malaysia, the largest producer of palm oil is planning to reduce diesel imports by 500, 000 tons a year and will produce a biodiesel using a mix of palm oil and diesel. The palm oil diesel is set to be a viable alternative for petroleum diesel in Malaysia. The national biofuel policy of Malaysia has been drafted to encourage the production and domestic consumption of palm oil, which is environment-friendly and an alternative source of energy. The Malaysian Palm Oil Board (MPOB) commences the construction of three-biodiesel plants with a combined annual capacity of 60,000 tons and plan to use 5 per cent processed palm oil blended with 95 per cent petroleum diesel within the country and explore exports of the same to European countries.

China launched its bioethanol programme in 2000 with an objective to end fuel shortage, air pollution and enable development of the rural economy. More than 80 per cent of ethanol is made from grains including corn, cassava, rice, etc. It produces ethanol in the ratio of 10 per cent from sugar, 6 per cent from paper pulp waste residue, and the rest from the ethylene by synthetic process. Subsequently, China, the third-largest ethanol producer in the world, produces around 3 billion litres of ethanol annually. Presently, it imports over 30 per cent of oil supplies and is consuming 5.46 million barrels a day (mbd); that is 7 per cent of the world demand.

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Indonesia, the second largest producer of palm oil, exported two million tons in 2005 with an 11 per cent increase from 2004. The Indonesian Palm Oil Producer Association is playing a vital role in increasing palm oil production and improving the production quality. In Thailand, the Government plans to replace regular gasoline with a mix that includes 10 per cent ethanol in 2007.

The Asia Pacific operations of the UK-based DI Oils, based in Manila, are providing biodiesel to the Philippines, Japan, China, Korea, Taiwan and Australia. The company is producing biodiesel from the *Jatropha* plant and has planted 267 000 hectares in Ghana, Madagascar, South Africa, India and the Philippines. India also announced a national biodiesel purchase policy for biodiesel producers to get a support price of Rs 25 per litre for *Jatropha* oil, and intends to bring one million hectares of land under *Jatropha* cultivation to supply blended diesel within few years.

### **Biofuels gathering momentum in India**

India is looking at biofuels as a viable alternative to petroleum diesel and exploring the main commodity sources for biodiesel which can be non-edible oils obtained from plant species such as *Jatropha curcas* (Ratanjyot), *Pongamia pinnata* (Karanj), *Calophyllum inophyllum* (Nagchampa), *Hevca brasiliensis* (Rubber), etc. The relentless rise in oil prices has led to a boost in the use biofuels like ethanol as also to biodiesel production as new sources of energy. Biofuels could help fight global warming by producing fewer green house gases, such as carbon dioxide. They also cut emissions of other toxins, like nitrogen dioxide, which contribute to the rising rates of respiratory diseases in many cities.

The Ministry of Petroleum, Government of India, is playing an important role through the Petroleum Conservation Research Association (PCRA), by launching the National Mission on biodiesel and replicating the existing synergy between the Ministry of Agriculture, Rural Development and Non-Conventional energy of the Government of India. This Mission was launched to give a boost to biofuel production, which can reduce the country's dependence on imported diesel by as much as 20 per cent. Government invested Rs 90 million on the biofuel project in 2004-05. The allocation for the current year has been scaled up to Rs 450 million and Government has announced a purchase policy for ethanol and biodiesel fuels on a per litre basis, that

is, Rs 18.75 for ethanol and Rs 25 for biodiesel, for a stipulated quality.

India has also formulated an action plan for the setting up of the Bio-Fuel Development Authority (BDA) and identified Government-owned waste or fallow land as well as constituting task forces in various states to take the initiative for planting *Jatropha*. The action plan envisages encouraging the private sector to invest in contract farming, the setting up of an oil-exPELLER and transesterification plant for bio-diesel production. This programme was aimed to create awareness to make the people self-sufficient in energy and to generate employment in the rural areas. The issue of biodiesel has assumed significance with the rise in prices of crude oil in the international market. According to a World Bank report, India, consumed about 110 million tons of petroleum products and about 40.6 million tons of diesel in a year. The domestic production is only 30 per cent of the country's demand and the remaining 70 per cent of the demand is met through imports.

The Indian Oil Corporation (IOC) and Hindustan Petroleum Corporation Limited (HPCL) of the Government of India are experimenting with various mixes of bio-diesel with diesel in consultation with while sharing the results of the experimentation with the automobile industry. The IOC has also signed a memorandum of understanding with the Indian Railways for plantation of *Jatropha* on railway land. The National Bank for Agriculture and Rural Development (NABARD) has also initiated a pilot project on biofuel in the *Jatropha* and *Jojoba* variety. At the same time, the National Oilseeds and Vegetable Oils Development Board, under the Ministry of Agriculture is providing a back-ended subsidy of 30 per cent, for the promotion of tree-borne oilseeds like *Jatropha* and *Jojoba*. The Government has estimated the cost of production at Rs 20 per litre if the cost of seeds is taken at Rs 5 per kg.

In India, Gujarat is the first state to run commercial buses using biodiesel fuel. There remain major barriers to the wide spread adoption of biodiesel, which need availability of feedstock. So far, Indian corporates like the Tata Consultancy Services (TCS), Reliance Industries Limited (RIL) and Godrej Agrovet Limited have started a biodiesel agreement with some of the foreign firms. The public and private sector companies such as Indian Oil Corporation (IOC), Indian Farmer Fertilizer Cooperative Limited (IFFCO), Oil and Natural Gas Corporation Limited (ONGC) and Emami have started biodiesel projects in the collaboration with state governments for contract farming of this plant. The private sector has shown great interest in *Jatropha* cultivation. Besides

bio-fuel, another bi-product is glycerol used for extracting glycerine. Also the residual cake could be used for biomass power generation. There is also a joint venture between Tinna Oils and Chemical Company of the United States with Indian firms. In the southern part of the country, Bannari Amman group, a biodiesel production company, has installed a bio-diesel plant with a daily crushing capacity of 3,000 litres. The company is planning to enhance the crushing capacity ten-fold, by expanding the area under *Jatropha* in a phased manner and has cultivated *Jatropha* in 2,000 acres of land. Nandan Biomatrix, an Indian based company, has an agreement with the UK based Synergy Foundation for the plantation of *Jatropha* in one million acres of land for seven years. The Government has also planned to cultivate these varieties in four lakh hectares along with a seed fund of Rs 15000 million. India is producing a large amount of sugar and the output of molasses from the sugar gives more profit for the making of ethanol. The cultivators, especially in the case of biodiesel, need initial support as the oilseed plants take more than three years to get a full harvestable yield. Apart from producing the much needed biofuel this programme will also help in creating enormous employment opportunity through rural employment guarantee schemes.