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Jyoti Parikh: Growing our own oil

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Through oilseeds, India can produce 20 million tonnes of oil within 10 to 15 years

India's energy challenge is particularly daunting today. Oil prices have remained above $60 per barrel for sometime now. Oil and gas imports cost the nation Rs.120000 crores annually and the cost of high oil prices for this year has yet to be estimated. In 2003 India consumed 124 million tons (MT) out of crude oil and oil products of which 73% was imported. Given that our consumption of energy will only increase and that India has only about 700 million tons of economic reserves of crude oil left (enough oil for 22 years of production at the current level and 6 years of current consumption!), it is imperative that we look for alternatives. Some of the initiatives under discussion are energy efficiency, renewable energy, equity oil abroad, higher domestic oil recovery and production and so on. These alternatives, however, are not enough to bridge the gap between growing future demand and the domestic supply of energy.

In light of this energy quandary, oil seeds based fuels are being discussed viz. biodiesel and Straight Vegetable Oil (SVO). These options could be used in the transport and agricultural sectors respectively. What would this require? At the national level, 15 million hectares of wasteland could give about 20 million tonnes of oil equivalent output. The non-edible oil seeds can be grown along railway lines, wastelands, highways and fencing of various types. For mass cultivation, the long list of oil seeds has been narrowed down to two major candidates – *Jatropha* (Ratanjot) and *Pongamia* (Karanj) Although, other seeds such as *Neem* and *Mahua* can fulfill niche markets. The process of using such bio-fuels is fairly simple: it consists of growing plants, collecting oil seeds, installing expellers and extracting raw oil. To use SVO in stationary equipment further minor processing is required and to use biodiesel of higher quality transesterification is needed. Efforts to develop these mechanisms and technologies are underway in different parts of the country but the spark that ignites the whole programme is missing.

Let us contextualize the oil seeds plan with respect to other programmes of equivalent magnitudes of say 20 to 30MT per year. ONGC produces about 26 to 30 MT of oil per year which depends on limited and non-renewable sources discovered at great cost, risk and effort over past years. The pipeline through Iran, which requires considerable investment and diplomatic effort, will also result in about 20 MT of supply per year (providing it materializes after international negotiations). Through oil seeds, India can reach a goal of 20 MT production within 10 to 15 years. As plantations can supply oil seeds for 30 to 35 years, 600 to 700 MT of oil could be obtained over this period. Thus, the programme should be given the importance in terms of political will and investments as finding 600 to 700 MT of recoverable resource of petroleum. Moreover, the programme will provide energy security not only at the national level but at the local level, providing livelihoods for the poor without the corresponding risk the above two have. However, the point is to do all three together because we do not add up to 50% of current consumption. Both the President, Mr. A.P.J. Abdul Kalam and the Planning Commission have emphasized these options. The latter has put forth a national mission report on biodiesel but not for SVO.

The national mission report on biodiesel discusses the techno-economic possibility of various bio-fuels which develops a demonstration project of 4 lakh hectares. There are however, three additional points that must be considered beyond that project.

First, while this report has good analytical content its plans rely on a coordination committee consisting of representatives from Government Departments. However, for successful implementation various management models will be needed with considerable input from the private and public sector. For example, entrepreneurship at the micro-enterprise level (managed by NGOs) is one possibility for SVO. This is especially appropriate for block level implementation of few tons per day for local use. A large-scale implementation consisting of all steps from growing to processing can be handled by the corporate sector. Furthermore, various combinations of public private partnership should be encouraged.

Second, the report currently looks into only the biodiesel for transport sector. They may have their own reasons and priorities, but where do poor farmers, whose demands are not met, stand in this regard? Their needs for oil for irrigation pumps, diesel generators, and farm equipment can be met from a variety of non-edible oil seeds available without the expensive

transsterification process to convert SVO to biodiesel. Biodiesel used in transport sector is meant for engines which are expensive and require high quality fuels. Moreover, for vehicles strict pollution standards are required. Why should the farmers pay additional Rs 8-10 per litre for the process needed for automobiles, when they only require SVO for their stationary equipment? A road map must be prepared for meeting farmers' needs at least cost and also for private and public sector involvement.

Third, the possibility to get additional revenue from carbon credits should be considered. Biomass based fuels not only emit less local environmental pollutants; they also avoid Green House Gases (GHG) emissions (emitted from fossil fuels) that are responsible for climate change or global warming. Internationally, GHG reductions get carbon credits, which are valued at about $5 to $7 per ton of GHG saved or avoided. These additional revenues can help bridge the gap between the supply cost and price to be charged to the consumer. However, the condition for getting carbon credit is that the project should not be done for statutory requirement, such as any court order or act of parliament (because then the project is being undertaken for reasons other than saving GHG emissions). Announcing mandatory percentage of mix in biodiesel has to be done carefully if we do not wish to lose carbon credits.

Oil-seed energy relies on land, water, sunshine, some chemicals and fertilizers. A minimum purchase price for oilseeds or oil may be offered to motivate cultivation. Renewable oil can be cultivated under employment guarantee schemes, Akshay Urja initiative, Bharat Nirman and others, so as to help *Aam Aadmi(common man in Hindi language-also a symbol for the ruling party currently-somehow they did not think of the gender issue when proposing the symbol!)* grow his own oil (although the *Aam Aurat-common woman ,* can do this as well, if not better). Public sector units of the petroleum sector and other sectors and enterprises can take the lead to galvanise this effort.

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