

Biofuel sector: A missed opportunity

India, though an early mover in the biofuel sector, failed to embrace rewards from one of the safest and cleanest of energy sources. To tap this precious resource, the Government has to formulate a new strategy

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After lying in limbo for a few years, concomitant with low oil prices, India's biofuel sector made headlines recently. It all began with Prime Minister Narendra Modi's announcement on World Biofuel Day on August 10, that the Government aims to develop biofuel economy worth one trillion rupees, with state-run oil marketing companies investing ₹10,000 crore for setting up 12 second-generation bio refineries. The Prime Minister also stressed upon the role of biofuels in boosting farm income, aiding India's energy security and creating jobs in a cleaner environment. Subsequently, the operation of SpiceJet's first experimental commercial flight from Dehradun to Delhi that ran on a combination of 25 per cent jet fuel blended with 75 per cent indigenously produced biofuel, caught media attention.

All said and done, the overall scenario is not too promising. The limitation of feedstock of biofuel limit the blending to about one to three per cent only. While India has given a push for the renewable sector in the Paris Agreement, biofuel is not the one that is supposed to be in the driving seat for renewable push. This happened even though India was an early mover in the biofuel sector right after the first oil shock in the 1970s. By contrast, countries in Asia, Africa, and Latin America, who entered in this sector much later, have achieved a better performance.

There are several factors behind India's dismal performance. Since neither the market nor the commodity related to biodiesel existed before the programme was launched, the state has to play multiple roles for the emergence and growth of the sector.

First, the state has to act as a facilitator for creating necessary infrastructure and provide various supports, services or inputs for the producers.

Second, it has to act as a regulator, defining rules of the game,

ensuring adequate incentives for all stakeholders to retain long-term interests as is needed for proper development of the market.

Third, it has to act as an active player to not only produce the commodity, but also create examples and demonstrations for others, particularly private operators. All this requires development of efficient institutions for information communication among various agents to incentivise the farmers and other stakeholders.

Nevertheless, these tasks are delicate and time-consuming. The development of the biodiesel sector hinges on how effectively the state performs these tasks and thus, helps overcome the main constraints, as discussed above. Given the state of progress in this sector, it seems that the state has performed poorly in fulfilling these commitments.

A unique aspect of India's biofuel programme is the use of under-utilised and degraded land to cultivate feedstock for biofuel. Although there are several sources of feedstock for biofuel, such as tree-borne oilseeds (TBOs), edible vegetable oil, animal fat and algae, the Indian Government has emphasised on TBOs in its biodiesel programme of 2003, and selected jatropha as the predominant plant variety.

Subsequently, the Indian Government has allowed the producers to choose any TBOs that suit the local conditions and that will not affect regular crop production. TBOs are planned to be cultivated in the wastelands, fallow lands, other unused Government lands, by roadside and across railway tracks, around forestlands and as fencing in farmlands.

Apparently, it seems that there is no dearth of wasteland for planting oilseeds bearing trees. But locating the actual land suitable for cultivation is a difficult proposition due to ownership issues. Furthermore, many of these lands are being used by poor people for grazing animals or for collecting fuel woods or for minor crops. Bringing Government and communal land into plantation should ensure that the existing users' livelihood is not snatched, and if so, alternative mechanism should be developed to satisfy their needs. Of course, it would be appropriate to involve them as one of the stake-



holders. There are instances of Joint Forest Management Programme, where existing land users were not included as members but those with influence in the Panchayat became members. In case of small farmers who are already using their waste/marginal land for some income generation, diverting it for plantation purpose must ensure higher income for the future and current level of earning for initial three years. Rural Landless Employment Guarantee Programme (RLEGP) is a good initiative in this direction for current earnings.

To raise confidence and ensure future income of the farmer, it needs demonstration from the Government. There is also the need for some agreement of minimum income with progressive incentive for extra production.

Further, research and development for new and high-yielding plant varieties are the most important tasks for the Government not only because these require substantial resources but also due to its positive externalities. The state has made some arrangements for R&D and field trials involving almost all major research institutes

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and universities of the country for the development of jatropha plants. Based on these initial experiences with jatropha and the infrastructure created, researches should be extended to other TBOs focusing on developing locally grown plants.

In other words, it is high time to broaden the biodiesel programme to include every possible TBOs with an emphasis on using and developing local varieties. The newly-approved biofuel policy has taken a right step in this direction. Efficient institutions capable of linking R&D centres to the demonstration of plants to farmers, disseminating the right kind of information about cropping practice, risk and return as well as designing the right kind of incentives are very much essential for the success of the biodiesel programme.

Finally, multiplicity of value chain organisations need to evolve in biodiesel production. The state is involved either as a part of the value chain or as a catalyst for its formation, or both. In a number of these value chain organisations, there exists a problem of incentive alignment.

Since the plantation has substantial gestation lag, the yield

will be obtained over a long period. No doubt, the plantation needs to be taken care of throughout the period, primarily by farmers, implying there should be adequate incentive and safeguards for them.

Incentive in some form of ownership rights would induce them to take a long-term interest. Buy back agreement is good but that the contracted price should be adjusted when the market price goes up, and in any case the price should not fall below the cost of production. For the small farmers, a floor price together with incremental price for additional output would provide them incentive to raise their farm productivity. Low yield is one of the major constraints in biofuel. Apart from the high yielding plant development through R&D, there is a substantial scope for raising yield through better care and management practices at the farm level, and the above mentioned incentives can play a significant role in this regard.

Thus, the biofuel ecosystem needs to mature before India can garner the fruits of biofuel sector.

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