



Energy Security Dialogue

Bio-fuels and Energy Security

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Growth of the Indian economy has contributed to the increasing demand of fossil fuel imports for meeting the energy demand across various sectors of the economy. Spiraling global oil prices, inherent foreign exchange risks, global and local environmental pollution associated with fossil fuel imports has turned the spotlight on alternative renewable biofuel options like bio-ethanol and bio-diesel. In this regard, indigenously produced biofuels as blends with fossil fuels could play a key role in ensuring the country's energy security along with enabling employment generation, rural development, and reduction in environmental pollution. Any emphasis on biofuel production and usage for energy security would have to also take account of the concomitant impacts of biofuels on environment, land, cropping pattern issues. The concomitant impacts of biofuel production on Environment, Land, and Cropping Pattern would depend on the type of feedstock selected for biofuel production as well as on the conditions in which they are grown. This would differ across countries and types of biofuels produced.

The workshop started with two presentations from TERI. The first one gave a brief introduction of the project objectives, methodology, expected outcomes and the importance of the dialogues in the project. The second presentation addressed the following questions: (i) what are the output-input ratios of various feedstocks for biofuel production and their consecutive impacts on energy security. (ii) what are the food security issues associated with the production of various feedstocks for biofuel production (iii) what is the economics of bio-fuel production and net return from biofuel feedstocks in comparison to alternative plantation and crop choices and (iv) what is the importance of equity investments in land, technology and feedstocks for biofuel production in addressing energy security.

Three key questions were discussed during the meeting.

- Is the energy output to input ratio high enough to make biofuel production viable in terms of its impacts on environment and energy security?
- What are the food security issues that can arise due to use of arable, irrigated land for cultivation of crops for biofuel production?
- Can equity investments abroad in crops, plantations, land and processing of crops for biofuel production ensure energy security?

Key takeaways

- Energy Output to Input ratio of biofuels is critical if energy security is to be addressed through this route. This could be achieved through a careful selection of feedstock, crops for biofuel production, complemented by energy efficient technologies.
- Impact of biofuel production on food security of India would be dynamic and may have a larger impact in the long run. This impact on food security however would vary across regions and states of India depending on the types of crops grown.
- Benefit creation from existing and forthcoming inward equity investments to India could contribute to the overall energy security of the country through enhancement of rural energy security. Rural energy security could be increased by energy efficient usage of existing local feedstock, facilitated by the availability of advanced technologies through inward equity investments. Appropriate institutions need to be designed to ensure such benefit creation.
- Outward equity investments from India seeking access to land, efficient technology to raise productivity of feedstock, and subsequent energy efficient conversion to biofuel could contribute to energy security.