

BIOFUEL-Farm to Industry through Cooperative Institutional Framework

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SUMMARY

Globally, 140 billion tonnes of biomass are generated every year from agriculture. Current energy systems need a vast transformation to meet the key demands of the 21st century: reduced environmental impact, economic viability and efficiency. An essential part of this energy revolution is bioenergy. The movement towards widespread implementation of first generation biofuels is still in its infancy, requiring continued evaluation and improvement to be fully realized. Cooperatives as an institutional framework will assist the stakeholders in biofuel ecosystem to work, drive and utilize the resources efficiently and will lead to increase in the income and standard of living of the stakeholders. Green rural economies will be future with Cooperatives as building blocks of it. Green business models with cooperative outlook and sustainable effects will channelize the agriculture engine towards its long term returns to stakeholders.

INTRODUCTION

In the wake of the 2023 report of State of India environment by Centre for Science and environment (CSE), the looming risk of climate change is intensely being felt in India. The most impacted are the communities and rural people. On one hand there is a problem of agri waste, crop burning and rising air pollution on the another hand the rising price of fuel and energy makes the ecosystem disconnected. It becomes imperative to develop a farm to fuel ecosystem by empowering communities to not only provide solution but also reap benefits in a circular economy. India's new biofuel policy (2018) aims to augment farmers' income, generate employment, optimally use dry lands and contribute to sustainability. A farmer centric model for generation of bio energy is envisaged through Cooperatives

Cooperatives and Biofuel Farm to Industry Business Model

For the successful implementation of New Biofuel policy, the feedstock availability, technology, production cost will be the determinants. A strong focus on aggregation and technology is imperative for the development of second generation and other advanced biofuels utilizing domestic feed stocks. Online marketplaces like Biofuels Circle Startup have a technology in place to make briquettes and biofuels in other forms and trading exchange for produce but they face the problem of regular availability of feedstock and agri-waste. The transportation cost of agri-waste and storage adds to the production cost of briquettes. The primary cooperative societies have significant role to play in aggregation, storage, logistics and getting to connected to processors and industry.

Aggregation of feedstock and agri waste through Cooperatives- The Primary Agriculture Credit Cooperative Societies are the last mile connectivity in the three tier structure of credit. However, they are first-mile point of aggregations at the village level. With sheer number of people who are members of the society, there is a potential for the PACS to emerge as a model of aggregation. With the concerted focus of the Ministry of Cooperation on the computerization of 63, 000 PACS and encouraging PACS to be Multipurpose societies by having agri infrastructure such as warehouse in Place. It's time for PACS to diversify in the aggregation of feedstock and residue in the most economical way.

Storage and logistics through Warehouse- The members of the society can engage in collecting the agri-waste and aggregate at warehouses which can act as collection centre and short-haul storage. Through mobile-based service the assessment of agri-waste at each farm can be done quickly to enable the aggregation at warehouse and onward transportation as per the agreement with the industry. Under the Agriculture Infrastructure Fund (AIF) number of projects for strengthening of agricultural infrastructure have been availed by PACS.

Setting up baling units- Due to high volume, the transportation of feedstock from the field to the processing facility is a challenging one. Transport of baled straw can be up to 50% cheaper than transportation of loosed material (IASRI) Baling, which is the dense packing of biomass into a manageable form, is of importance because it is an energy-consuming process that determines the efficiency of the bio energy system. The primary cooperative societies can set up biomass baling Units. Depending on requirement the baling units can be stationary balers, movable and field balers. They are further classified into square balers, rectangular balers and round balers as per the shape required.

Setting up Briquette manufacturing plants: The primary societies can set up small to medium-capacity briquette manufacturing plants. Agri waste, Bamboo dust, feed stock, husk, shell, bagasse etc are processed into high density fuel briquettes/pellets they can be efficiently utilized. Briquettes are in high demand in Industry to reduce smoke and carbon emission. The briquettes machines have a subsidy from State Government and can be availed by the societies to establishing the business of briquette plant.

Way forward: Biofuels as Enterprises through Cooperatives

Business models of Aggregation and Storage of Minimum 1000 MT of warehouses, baling units and Briquette manufacturing plants will enhance the diverse business opportunities to cooperatives and viable returns throughout the business cycle. The Government handholding, through fruitful schemes like Agriculture Infrastructure Fund (AIF), and "Sustainable Alternative towards Affordable Transportation" (SATAT) will build decorum to enhance the business activities in Biofuel ecosystem through cooperatives. Further the capacity building, training and incubation through organisations like VAMNICOM, Research Organisations, Technology development and Transfer organisations and Startups working in these fields will mould the cooperatives to execute the bio fuel businesses as per the capacity, technical knowhow, availability of resources and skill manpower. They can help them for validation, technical support, non-technical support like logistics & finance, marketing & networking to sell the products/services to the aligned and versatile stakeholders in agribusiness ecosystem. Cooperatives as an institutional framework will assist the stakeholders in biofuel ecosystem to work, drive and utilize the resources efficiently and will lead to increase in the income and standard of living of the stakeholders. Green rural economies will be future with Cooperatives as building blocks of it. Green business models with cooperative outlook and sustainable effects will channelize the agriculture engine towards its long term returns to stakeholders

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