US-India Consortium for Development of Sustainable Advanced Lignocellulosic Biofuel Systems

Work Package 3

Sustainability, Marketing & Policy

OBJECTIVE 5

Develop Standards & Certification Protocols

Task-1: Analyze existing biofuel standards & certification

Task-2: Develop practical and custom design standards & certification protocols for biofuel and bio-products of this project

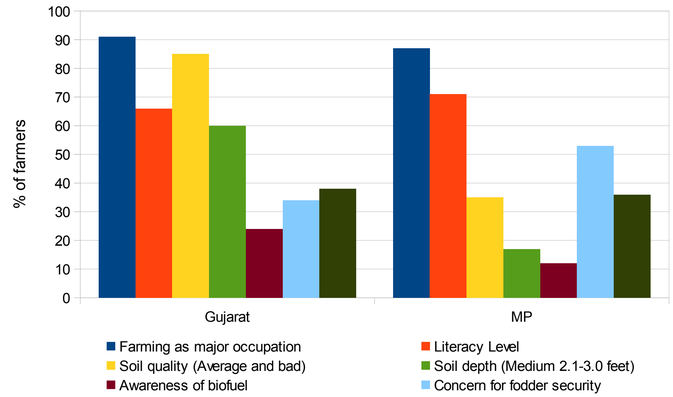
Sample Size

Guajart:- 415 households from 9 villages of three districts (Aravali, Bhavnagar, Surendranagar) from semi-arid regions.
Madhya Pradesh:- 333 households from 10 villages of five districts (Gwalior, Morena, Bhind, Dewas and Khargone)

Base Line Survey Objectives

1. To evaluate past and current practices for the landowners and harvesters.
2. Evaluation with the indicators developed for biofuel production from high biomass yielding sorghum, pearl millet and bamboo from Gujarat and Madhya Pradesh.

Base Line Survey Findings



Focused Group Discussions

• Objectives

1. Validate baseline survey.
2. Assess current agricultural practices.
3. Common issues faced by farmers.
4. Assess willingness for feedstock cultivation.

• Key Findings

1. Variation in seed input rate for Sorghum cultivation in Gujarat.
2. Scarce resource availability (Irrigation water, fertile land).
3. Farm security and stray animal invasion.
4. Labor shortage in surveyed region.



OBJECTIVE 6

Energy, Emissions & Economic Analysis

Task-1: Energy and emissions sensitivity report for different feedstock base biofuel production systems

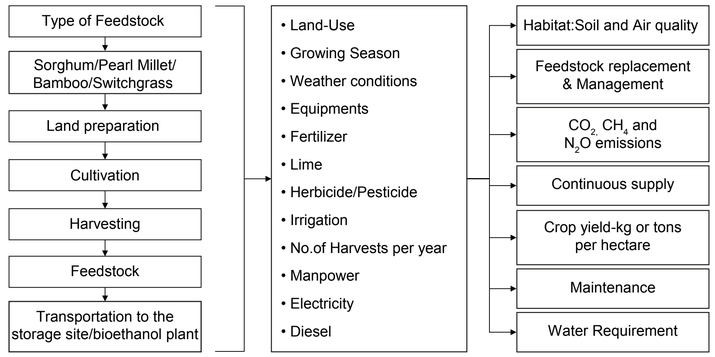
Task-2: Assess economic feasibility of bio-fuels and bio-products

Task-3: Identify cost-effective strategies for long-term market growth for bio-fuels

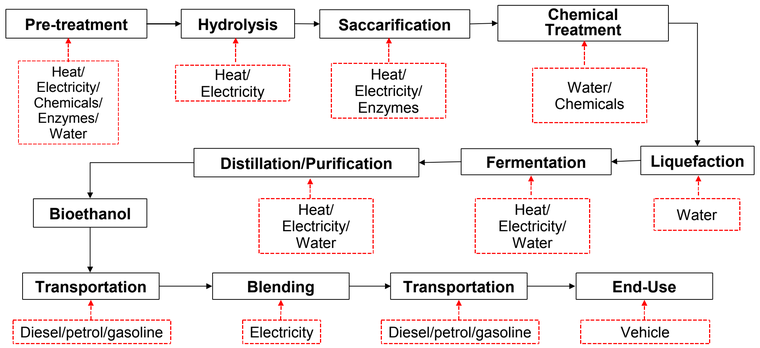
Task-4: Assess drivers and barriers for non-food based biofuel adoption

Task-5: Assess private production model for advanced bio fuel feed stocks in India

Feedstock Production



Conversion Technology



The system description would be used for

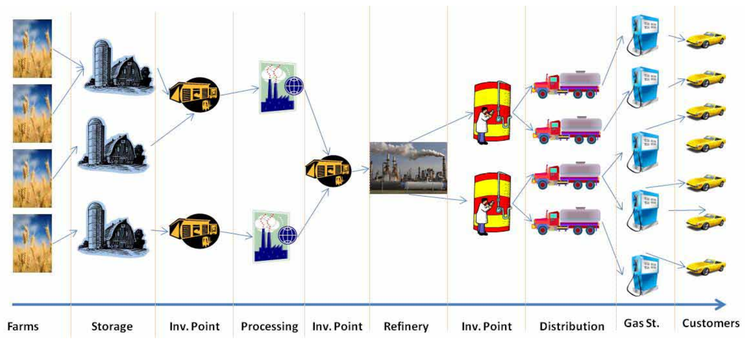
1. Cost-benefit analysis of feedstock production.
2. Energy ratio and emission analysis for environmental load using SimaPro

OBJECTIVE 7

Supply Chain Management Analysis

Task-1: Analysis of supply chain aspects affecting the production and sustainability of bio-fuels

Task-2: Indentification of drivers and barriers impacting the marketability and distribution of nonfood biomass based bio-fuels



Optimization of NPV (Net Present Value) as an indicator for capital budgeting.

$$NPV = \sum_{m=1}^{T_L} \left(\frac{R_m}{(1+i)^m} \right)$$

Where, R_m = annual cash flow; T_L = life time of the project;
i = discount rate (or annual rate of return of a competing investment)