

Project Narrative

Long Project Title - Promoting Use of Locally Produced Jatropha Oil as a Sustainable Source of Rural Energy for Irrigation in Nepal

Suggested Short Project Title – WISIONS Jatropha Project in Nepal

Background/Why we're –

Nepal is largely an agriculture based country where 80% of the population depends on agriculture for income and employment. Poor irrigation facilities and access is one of the major reasons for low agricultural productivity in the country. Decentralized irrigation systems like pumping water from underground sources, rivers and ponds can be a more cost effective and sustainable approach. However, decentralized pump irrigation systems also require decentralized energy supply.

At the moment farmers are forced to use diesel or electricity for pumps irrigation. Diesel is expensive, polluting and a scarce fuel in Nepal. Poor farmers simply cannot afford it nor can they buy as required because of the low supply of fuel in the market due to high international prices. Electricity is cheaper at the government subsidized rate but extending lines to farmers' individual lands requires high upfront costs. There is also severe under-supply of electricity in the country resulting in long power-cuts everyday. This will continue for many more years to come. Also monitoring and regulating misuse of subsidized electricity will be hard to difficult and expensive.

Jatropha Curcas L., commonly known as Sajiyon or Ratanjot, or simply Jatropha, is an indigenous plant in Nepal. In Nepal, Jatropha is found widely in the wild in over 70 of the 75 districts of Nepal. Jatropha seeds are going to waste as the farmers are not aware of its benefits and applications. If the farmers' awareness about the use of Jatropha seeds is raised and farming community's capacity is established to locally farm, produce and use the oil to operate their pumps for irrigation then a sustainable supply of affordable and decentralized energy can be ensured

Objectives –

This project aims to build capacity of farmers to use Jatropha seeds from plants existing wildly and as hedges. The specific objectives are:

- To improve collection of existing Jatropha seeds
- To support appropriate Jatropha oil base pump technology
- To build capacity to locally produce and use Jatropha oil for pump irrigation, replace manual and diesel base irrigation system for higher crop production
- To conduct impact studies to highlight findings to policy

Activities/Components:-

This is one project will be implemented in 300 rural house holds in 3 communities of Shiraha district of Nepal. 10 groups and 1 coordination committee will be formed in each community for organized and sustainable implementation. The major activities will include:-

Improve collection of existing Jatropha seeds in community level.

Key objective of this project is to improve the collection of existing Jatropha seeds and utilize as a sustainable source of rural energy for irrigation. Under this objective social mobilization and awareness raising activities will be done in 300 rural house holds in 3 communities. The mobilization and awareness activities will include group formation and strengthening coordination and management capacity of the user group.

The section below gives detailed description of the activities: -

Community identification.

Based on the data available at Center for Integrated Rural Community Development, Nepal (CIRCOD-Nepal) and PAF, three communities will be selected for the project. The activity will include a database catalogue of the selected community.

Households identification

Under this project, about 300 households are identified as vulnerable households within PAF working areas. Three orientation sessions (about 30 participants per session) will be organized to discuss with community representatives on the objectives and activities of the proposed project. 300 household's baseline surveys will be carried out to identify the poorest households in the project communities. The survey will consider income, ethnicity, property holdings, women headed households, conflict effected, among others, when identifying the poorest households. A verification based on community inputs will be done to verify the socio-economic status of these households.

Group Formation.

Once the potential households are identified the formation of groups among them will be carried out. A total of 30 community groups (each group 10HHs) are expected to be formed within the 3 selected communities. A coordination committee will be formed in each community. The purposes of the groups will be organize and assess the needs of the community related to this project.

Awareness Raising Program on Jatropha.

This activity will include awareness raising program on a) Jatropha seed collection and b) rural household's ability to achieve some degree of energy self sufficiency for irrigation that will yield higher income. This activity includes the following tasks:-

- Preparation of awareness material (500 brochures) on importance of Jatropha seed and irrigation technology.
- Three community level awareness raising workshops (30 participants in each workshop).
- Exposure visit for farmer groups (30 participants, one each from farmer groups)

Support to establishment of Oil expelling centers and irrigation pumps.

The activity will support the establishment of 3 Jatropha expelling centers and 30 Jatropha oil operating irrigation pumps. The main focus of this activity will be on a) fuel switch from commercial diesel to bio-diesel in irrigation pumps b) technology upgrade from the existing manual treadle pumps to mechanized pumps in three communities of Shiraha district. This activity include:-

Selection and Procurement of expeller and irrigation pump.

Appropriately designed pumps will be one of the key factors for the Jatropha based irrigation program. Due to high viscosity of Jatropha oil it is not suitable for operating a normal diesel engine for pumping. There needs to be a modification to the diesel engine so that Jatropha oil can be used directly without risking the frequent clogging of the engine. WI India has already tested this technology for irrigation as well as rural electrification in India. This project will play a crucial role to link with Winrock India activities and extend relationships with the manufacturers of the pump and the expeller.

Establishment of Expelling Center

Three expelling centers will be established within each community. The expelling center will be managed by a coordination committee, which will be the umbrella organization of 10 farmer groups in each community. As the experiences shows, the total cost of the installation of an expelling unit is about EUR 3000. This cost includes the expeller house. Under this project 50% financial support will be provided to the coordination community towards the installation of expelling centers and remaining 50% of the investment will be mobilized by the coordination committees.

Establishment of irrigation pumps.

The project will install 30 irrigation pumps in three communities. One irrigation pump will be managed by each group, which will each have 10 households. These 10 households will use the irrigation pumps on mutually agreed rotational basis. As the experiences show, the total cost of the installation of an irrigation pump is about EUR1200. This cost includes the engine the alternator and the pump. Under this project, it is proposed that 80% financial support will be provided by PAF for installation of irrigation pump and the farmer user groups will raise the 20% of the investment amount.

Training for operation and maintenance

Jatropha oil expeller and irrigation pump operation and maintenance training will be provided to the farmer groups. In total 4 trainings will be organized. WI will be responsible for organizing the training activities.

Capacity building activities for income generation.

This project focuses on income generation of the 300 households through higher agricultural yield due to improved irrigation system with a lower operating cost. The lower operating cost is due to the locally available jatropha oil as a sustainable energy source. This activity will include the following:-

Technical training for income generation to the rural households.

This activity will focus on the promotion of income generation activities within farming communities. Based on a need of accessible market and local absorptive capacity this activity will organize training programs on vegetable production, micro irrigation technology, enterprises development, business plan development, marketing and skill development. There will be six community group level trainings which will accommodate about 25 participants.

Linkage establishment between Farmer groups, PAF and micro financing institutions (MFIs)

Micro financing support to the rural households is important in vegetable farming to help procure seeds, fertilizers and insecticides. This activity will also organize 3 interaction programs between local farmers, entrepreneurs and MFIs representative. Each interaction program is expected to have about 25 participants.

Conduct impact studies and dissemination of results to policy makers.

The activities and the results of the project will be chronicled for a wider dissemination to government agencies, NGOs and bilateral and multilateral partners. WI will prepare impact assessment of the project based on baseline survey and coordination with partner organizations and arrange a workshop for interaction dissemination and stakeholders. The interaction and the impact assessment will help institutionalize the Jatropha oil based irrigation system within the government and donor programs. It will help to provide supportive role for expansion of such activities as well as policy formulation in Nepal.

Accomplishments/Results: Plan activities going to be started soon