GAPFund Application Form

TECHNICAL APPLICATION GUIDELINES

The technical component is designed to determine the ability of the institution to clearly articulate the programmatic and budget activities of the proposed project. Organizations must demonstrate their ability to manage and implement the proposed program that contributes directly to the GAPFund objectives. Applicant must adhere to the following guidelines in order to be considered:

1. The Technical Application must include the following:
   A. Cover Sheet
   B. Technical Proposal
   C. Budget Summary
   D. Annex A - Objectives and Activities Table
   E. Annex B - Implementation Arrangement Table
   F. Annex C - CVs for Key Staff
   G. Annex D – Budget (please follow the proposal budget guidelines below)
2. Application must be completed in English.
3. Please try to stay within the page limits as much as possible.

PROPOSAL BUDGET GUIDELINES

Instructions for completing Proposal Budget are:

1. All applicants must use the Excel budget template provided.
2. Budget figures must be provided in US dollars.
3. Provide a separate budget for each partner institution.
4. Applicants must submit their budgets as a separate Excel file, with separate tabs for each partner institution, and enter data using formulas rather than hard numbers wherever possible.
5. Budgets must show, per line item, the amount being requested of GAPFund, the amount being provided as match, and the total project cost.
6. Under Salaries, list each staff member separately, showing the individual's name, daily rate, and number of days.
7. Fringe benefits must be based on actual expenses or approved institutional rates.
8. Travel costs are reimbursed in amount of airfare, train, water transport or vehicle costs. Airfares are paid for economy class only. Per Diem payment may not exceed those provided for by the U.S. Government.
9. Under Activities, list specific items not accounted for in Salaries or Travel & Per Diem. Break each activity into its separate elements. For example, for a workshop, illustrative line items might include workshop venue rental fee, equipment rental fee, printing/photocopying of participant materials, meals, etc.
10. Indirect cost rates, if used, must be supported by an audited calculation, and applicant must provide proof of this approved, audited rate.

Technical Application Form

A. COVER PAGE :

Project Title: Capacity building-cum-demonstration on RETs and rural micro enterprise model for Bio-fuel processing for poverty reduction

Region/Country: **Rajasthan state/ India**

Primary Institution:

Name and title of primary contact person: Raymond Myles, Secretary General, INSEDA (Integrated Sustainable and Ecological Development Association)

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Implementation Partners (if applicable): WAFD (Women's Action For Development), Secretariat Address: Third Floor, St. Soldier Tower, Vikas Puri, New Delhi-110018

Contact information (same as above), as well as following INSEDA South Asian Regional Project Office address for marking copy of all correspondences:

INSEDA-INFORSE- SA Regional Support Unit (RSU) Office
27 B, Zamrud Pur, Behind Kailash Apartments, New Delhi-110048, India

Expected Dates for Start: **April, 2006**

Expected Dates for Completion **March, 2007**

GVEP Theme Addressed: Capacity Development: entrepreneurial development, consumer organization and micro-credit system aimed at expanding number and capabilities of enterprises operating in rural markets. It will also increase access to energy services.

Knowledge Management: to enable the sharing of information on innovative approaches, lessons learned and best practices for improved energy service delivery, while providing a forum for networking among partners

Requested Funding Amount (in US dollors):

Amount of funding being requested from GAP fund:
Amount of cost-share being provided:
Total cost of proposed project:

A brief summary of the project: (Max. ½ page)

The government has formulated a plan for bio-fuels with only techno-economic details. However, it has ownership of its own projects. Community initiative is the missing link in the Government programme. The project submitted here is a socio-economic-experiment-cum-field level pilot implementation RETs with major emphasis on income generation through bio-fuel production. The project theme is capacity building-cum-demonstration of rural oriented RETs with main focus on rural micro enterprise model for bio-fuel production and marketing for poverty reduction for the rural household from 12 Solar Eco-Villages (SEVs) in Bharatpur district of Rajasthan states. With one time initial grant towards capital and other related costs, the communities from the 12 SEVs, with the socio-technical guidance from the two partner NGOs (INSEDA & WAFD), will operate and manage these facilities, through the "SEV Management Group /Committee".

The project will promote people-centered, community oriented concrete actions, for implementation of RETs and biomass based energy activities for reducing dependence on fossil fuel. In more concrete terms, it will promote action for growing of bio-fuel crops, on surplus, degraded and community land as well as production of bio-fuel in the project areas, leading to enhancement of income, local level employment generation and means of livelihood for the poor, while solving the energy problems of the entire community.

In addition, the project will also formulate micro enterprise model for locally available bio-fuel extraction, which will provide sustainable livelihood as well as demonstrate the benefits of the model on socio-economic conditions of the community. Further, it will lead to increased access to alternative fuel at local village level and premises.

The end uses of the extracted bio-fuel, biogas plant and SPV systems would be utilized as: (a) Electric Generator sets, (b) Irrigation and drinking water pumps etc, (c) Farm equipments such as threshers, chaff-cutters and expellers for edible oils, (d) Crushing & grinding for various purposes including food processing & flour mills, (e) Cottage (home-level), village and rural industries, (f) Cooking and direct lighting and mechanical and electrical power using biogas; and (g) SPV lanterns and home lighting systems for individual houses and demonstration community street lighting units in selected village.

The marketing activities will initially be taken up by the informal "SEV Management Group /Committee"; which later-on be re-organized and eventually formed in to a registered body, either a society or a cooperative etc. This body will procure and market the produce (bio-fuel) locally and in nearly villages, towns, districts, state and else where in the country. As the currently cost of commercial diesel is Rs.28/ltr (US$ 0.65/ltr approx.), the cost of bio-fuel @ Rs.18/ltr (US$ 0.42/ltr approx.) would be attractive.

The potential users will get a valuable cost benefit compared to the commercially available diesel, as per the current option. This is expected to result in creating positive impact in terms of mass acceptance of the concept of decentralized implementation of biomass based energy and other rural oriented RETs in general. This model will also lay a firm foundation on the ground for large-scale capacity building of various stake-holders, dissemination, implementation, technology transfer, replication and adoption.

B. TECHNICAL PROPOSAL:

Executive Summary (Max. 1 page): The project attempts to harness locally available biomass to generate bio-fuel, biogas as well as other RETs, like SPV solar lanterns, stand alone solar home system and community SPV lighting. The project will formulate micro enterprise model for locally available bio-fuel extraction, which will provide sustainable livelihood as well as demonstrate the benefits of the model on socio-economic conditions of the community, in production, processing, marketing and repairs & maintenance. In addition, it will be providing power to home and village level rural micro-enterprises, like mustard oil expeller, animal feed grinding & mixing and flour mills etc. All this will lead to increased access to alternative (environmental benign as well as ecologically and people friendly) fuel at local village level and premises.

Objectives:

The specific objectives are:

- To formulate micro enterprise model for bio-mass based energy system at village level
- To extract fuel from non-edible oil seeds that would provide alternative fuels in rural areas
- To provide sustainable livelihood options for women at village level
- To develop enterprise to process locally available "Jatropha" and other oil-seeds
- To identify current activities in biomass based strategies for extraction, utilization and commercialization of oil
- To provide cooking and direct lighting and mechanical and electrical power using biogas energy
- To provide SPV based lighting for the individual households, more specifically for the study of students and running other electrical appliances and other small useful gadgets at home and community street lighting in selected village as demonstration units
- To utilise bioenergy based power for operating cottage (home-level), village and rural industries

Activities:

- Pilot implementation and dissemination of model in the existing joint INSEDA-WAFD 12 villages programme, which is being converted and developed as 12 model Solar Eco-villages (SEVs) in the Bharatpur district of Rajasthan State
- Initiate process for networking of private sectors, NGOs (INSEDA members and other Indian NGOs), stakeholders engaged in bioenergy, bio-fuel cultivation and other RETs
- Organize workshops for local stakeholders, NGOs, private sectors and Government agencies
- Develop pay-back mechanisms and replicability of the installation with involvement of micro-credits and other financial institutions

Partner involved:

a). Women Action for development (WAFD): Partner NGO of INSEDA with field office in Bharatpur (Rajasthan state). The WAFD supports programmes designed to promote community development for the empowerment of women and children,

Solar Eco-Villages (SEVs), bioenergy (biogas and Jatropha) and other rural oriented RETs as well as other sustainable development projects/ programmes at the village level.

b). Village Panchayat: Local Self Governing Body (The rural local governments in India are called Panchayats).

c). SEV Management Group/Committee: This group/committee will gradually be formed as a registered society/cooperative for the promotion of rural oriented RETs, bioenergy or Bio-fuel: The society/cooperative formed will procure the oil-seeds and will engage in oil-extraction and its marketing to end users.

Unique Factors:

This proposed system will be largely managed by rural women and youth who will get livelihood from bringing oil-seeds for processing, and marketing of end products:

- -Replicable in Bharatpur district and Rajasthan state as well as in India.
- -Involvement of local community, keeping people, especially the women in the center.
- -Autonomous registered Society/Cooperative structure in the model (however, as mentioned-above, in the initial period, it will be managed by the **SEV Management Group/Committee)**
- -A model for undertaking post-implementation activity for the bio-fuel plantation programme of the Government of India at the rural level.

II. Implementation and Work Plan (Max. 10 pages)

1. Describe the problem the proposed project will address:

1.1. BACKGROUND:

The energy demand in India is expected to grow at 4.8% most of which is used in industry, transport or urban areas. At 479 kg of oil equivalent the per capita, the current energy consumption of India is very low. Ever increasing consumption of fossil fuel and petroleum products has been a matter of concern for the country for huge out-going of foreign exchange on the one hand and increasing emission causing environmental hazards on the other. Due to the stagnation in the domestic crude oil output, the momentum of growth experienced a quantum jump since 1990s when the economic reforms were introduced paving the way for a much higher rate of development leading the demand for oil to continue to rise at an ever-increasing pace. The situation offers us a challenge as well as an opportunity to look for substitutes of fossil fuels for both economic and environmental benefits to the country. The net imports of crude oil (MT) has grown from 34 (MT) to 90 (MT) over a period of six years up to 2003-04. Value of imports has increased from Rs200bn to Rs835bn over a period of 6years up to 2003-04.

On the other hand for significant local level impact, the biomass based strategies are actively being discussed in the recent years in India at the ministerial level especially in the planning commission, Ministry of Non-Conventional Sources (MNES), Ministry of Rural development and Ministry of Human Resources (Employment generation Schemes), for the following reasons:

- In the context of high oil prices local solutions for **national security** are needed.
- Biomass and other RET based strategies also offer **village level energy security**. They are suited especially for remote and far-flung areas which have

no access to modern energy, such as electricity, diesel, kerosene, petrol, LPG and so on. Therefore, dependence on locally available resources may give better security and better control to rural areas as well as the communities living in villages, especially in the far-flung and remote regions of the country.

- **Technology Components are simple** and suited for locally existing small or medium scale enterprises.
- They are **environmentally friendly** in terms of local environment and Greenhouse Gases (GHGs). They have the added advantage of the possibility to receive carbon credits through Clean Development Mechanism (CDM) by bundling small projects. Partial financing from carbon credits will also be explored to supplement the project
- There are **employment opportunities for unskilled and semi-skilled** persons including women for growing biomass, operating conversion technologies such as biogas plants, gasifiers or oil extraction equipments.
- Moreover, there can be expansion of **livelihood opportunities**, if access to modern energies is available. Availability of energy can serve as a multiplier for income generation.
- These measures will lead to sustainable energy solutions, equitable development leading to poverty alleviation and attainment of Millennium Development Goals (MDG) especially relating to poverty, livelihood, as well as issues related to health of women, adolescent girls and girl child and infant mortality and so on.
- The promotion of biomass based solutions involves a host of stakeholders whose concerns and reactions need to be integrated.
- A steady supply of raw material during the lean season and during drought years, of the required type of biomass needs to be secured.
- Above all, alternative models for public-private partnerships are needed that would also integrate role of NGOs and Micro Level People's Institutions (MLIPs), like, self-help groups (SHGs), micro-financing groups (MFGs), village level user-associations (VLUAs), mahila mandals (women's groups), panchayats and other stakeholders.
- Many questions regarding the economic feasibilities, government's role, incentives for taking risk that seem much higher in the initial stages are raised, especially by the private sector. Regulatory issues and standards, land allocation are some of the key concerns.

But, promotion of renewable energy in India has been a top-down exercise supported by the central government and to some extent the state governments. Laudable as this is, it is bound to run into obstacles if bottom-up concerns at field level are not addressed, barriers are not identified and solutions that meet different stakeholder concerns are not found.

1. 2. TYPES OF FEEDSTOCK /OILSEEDS:

Oil can be extracted from a variety of plants and oilseeds. Under Indian condition only such plant sources can be considered for bio-fuel production which are not edible oil in appreciable quantity and which can be grown on large-scale on country's wastelands. Moreover, some plants and seeds in India have tremendous medicinal value, considering these plants for bio-fuel production may not be a viable and wise option. Considering all the above options, probable bio-diesel yielding trees in India are (a) Jatropha curcas or

Ratanjot, (b) Pongamia pinnata or Karanj, (c) Calophyllum inophyllum or Nagchampa, (d) Hevea brasiliensis or Rubber seeds, (e) Calotropis gigantia or Ark, (f) Euphorbia tirucalli or Sher, and (g) Boswellia ovalifololata.

A modest beginning has been made by the Indian Government, by launching a National Mission on Bio-fuel (NMBF) comprising six micro missions covering all aspects of plantation, procurement of seed, oil extraction, trans-esterification, blending and trade, and research and development. It is expected that the plantation in 4 lakh (400,000) hectare, in phases will generate 127.6 million person days of work. In addition, the seed collection will provide sustainable employment to the tune of 8 million person days and primary processing; oil esterification, transport etc. will create additional jobs. There will be manifold increase in employment generation once the Demonstration Project under the National Mission has been successfully implemented and gives rise to the Second Phase in the Eleventh Plan. Thus Bio-fuel development by itself could become a major poverty alleviation programme for rural poor apart from providing energy security to the country in general and the rural areas in particular and up gradation of the rural non-farm sector.

The concept and the project profile of the National Mission on Bio-diesel (NMBD) has been the outcome of an intensive consultation process with the various stakeholders viz. the automobile manufacturers, the farming community, NGOs, concerned Central & State Government Departments and research bodies.

JUSTIFICATION FOR THE PROJECT

A large part of India's population, mostly in the rural areas fall below the poverty line. Hence a programme for the development of energy from raw material which grows in the rural areas will go a long way in providing energy security to the rural people. Crude oil production in India is estimated to hover around 33-34 million metric tonnes per annum even though there will be increase in gas production from 86 million standard cubic meters per day (2002-03) to 103 million standard cubic meters per day in (2006-07). The increasing gap between demand and domestically produced petroleum is a matter of serious concern. Our dependence on import of oil will increase in the foreseeable future.

While the country is short of petroleum reserve, it has large arable land as well as good climatic conditions (tropical) with adequate rainfall in large parts of the area to account for large biomass production each year. Since edible oil demand is higher than its domestic production, there is no possibility of diverting this oil for production of bio-diesel. Fortunately there is a large junk of degraded forestland and unutilized public land, field boundaries and fallow lands of farmers where non-edible oil-seeds can be grown. There are many tree species, which bear seeds rich in oil. Of these some promising tree species have been evaluated and it has been found that there are a number of them such as *Jatropha curcas* (Ratanjyot) and *Pongamia Pinnata* ('Honge' or 'Karanja') that would be very suitable in our conditions. However, ***Jatropha Curcas (Ratanjyot)*** has been found most suitable for the purpose, especially in the SEVD programme areas of INSEDA and WAFD, i.e. in the Bharatpur district of Rajasthan state.

There is a considerable demand for alternative fuel at the local level for stationary equipment. The demand will increase because extracted bio-fuel will cost less than the commercially available diesel. Moreover, there are transportation bottlenecks in commercial diesel and supply is irregular and inadequate for the rural areas due to poor road network.

The end uses of the extracted bio-fuel would be as given below:

- Electric Generator sets
- Irrigation and drinking water pumps and tube wells
- Farm equipment such as threshers,
- Crushing and grinding for various purposes including food processing
- Flour mills
- Rural Industries

The components and sub-components of the proposed project is to be adequately dove-tailed and fully integrated with in the existing on-going Solar Eco-Villages development (SEVD) programme, a joint initiative of the two Indian NGO partners, namely INSEDA (national level NGO) and WAFD (grassroots NGO), since April 2002. This is with a view to achieve concrete physical results/outputs as well as for creating positive impact (both quantitative and qualitative), leading to empowerment of the local communities, especially the poor, women and youth in these target villages. With one time initial grant towards capital costs, the 12 Solar Eco-Villages (SEVs) communities, with the socio-technical guidance and assistance by these two partner NGOs, will operate and manage these facilities, initially through an informal "SEV Management Group /Committee". This over all "SEV Management Group" is initially proposed to be comprised of 16 core members (in the ratio of 50% female and 50% male), and may be selected from the following groups- (a) the elected/selected representatives from among the 48 villages volunteers, known as REEVOCs (Rural Energy and Ecological Volunteers Corps) of the on-going 12 Solar Eco-Villages development (SEVD) programme, (b) representatives from SEVD project team, (c) member representatives from the two key project partners, INSEDA & WAFD, (d) a few other representative from SEVs; and (e) other individuals and external experts. In addition, a few associate members could also be inducted/ co-opted for a given period.

Eventually, based on the experience gained and lessons learnt, this body/committee is proposed to be re-organized and registered to become a completely autonomous body, in due course, as per a time frame of the entire SEVD programme already worked out by INSEDA and WAFD. The entire SEVD programme (which would also include the proposed bioenergy and bio-fuel project), would eventually be handed over to the local community, after successful implementation, operation and achievement of results as well as the period of hand-holding, and appropriate capacity building for the preparation of these villages community. For other details refer the four papers/case studied attached as **Appendix- 3, 4, 5 and 6**, by the Secretary General, INSEDA and the Executive Director, WAFD. The enterprise model proposed here may serve as a demonstration for village level decentralized implementation for large scale bioenergy and other RET promotion and mainly the bio-fuel implementation programme currently under discussion within the government.

There is a considerable demand for renewable energy, like biogas, gasifier and alternative fuel at the local level for operating stationary machines and equipment. The demand for locally-grown and processed, non-edible vegetable oil based energy (both direct as well as in the form of bio-diesel) would however find more potential and acceptance for adoption, therefore, will increase. This is because extracted bio-fuel from non-edible oil seeds like Jatropha Curcas will cost less than the commercially available diesel (which, being a fossil fuel, apart from damaging the environment is also unsustainable). The cultivation and processing of Jatropha Curcas for bio-fuel also has maximum potential for

addressing livelihood due to its employment and income generation potential in rural areas (both for landless and landless groups). Moreover, there are transportation bottlenecks in commercial diesel and supply is irregular and inadequate for the rural areas due to poor road network. Therefore, once the socio-technical aspects is demonstrated and economic viability is established by this implementation of the proposed model, it could easily attract investment by the financing institutions for promoting rural entrepreneurship by progress and appropriately trained youth.

The end uses of the extracted bio-fuel, biogas plant and SPV lanterns and SPV home lighting systems would be utilized as follows:

- Electric Generator sets
- Irrigation and drinking water pumps and tube-wells
- Farm equipments such as threshers, chaff-cutters and expellers for edible oils
- Crushing and grinding for various purposes including food processing
- Flour mills
- Cottage (home-level), village and rural industries
- Cooking and direct lighting and mechanical and electrical power using biogas
- Lighting for the individual households, more specifically for the study of students and running other electrical appliances and gadgets at home and community street lighting in selected village as demonstration units

The marketing activities will be taken up initially by the informal “SEV Management Group /Committee”; and if required could be re-organized later-on for this purpose, based on lessons learnt. In the initial stages the “SEV Management Group /Committee” will have the marketing linkage restricted to the near by villages and semi urban areas to have the multiplier effect.

Due to the fact that currently commercial diesel costs Rs.28/ltr (US$ 0.65/ltr approx.), the cost of Rs.18/ltr (US$ 0.42/ltr approx.) would be attractive, as per the current option. Thus the potential users will get a valuable cost benefit as compared to the commercially available diesel.

The “SEV Management Group /Committee” (and later on getting gradually evolved as a formal body in the form of registered society/cooperative), will procure and market the produce (bio-fuel) locally and in near by villages, towns, districts in Rajasthan state and may be in other states etc., as per the demand and supply position.

2. Project description– Describe how the proposed project will address the above problem.

The main focus /thrust and long-term goal of SEVD programme in the 12 target villages, in the rural energy sector, would be the plantation, production and marketing of bio-fuel/bio-diesel from non-edible oilseed crops. However, as a result of earlier field level demonstration as well as due to the creation of awareness and motivation by the SEVD staff and REEVOCs, the community living with in these 12 SEVs are already requesting for some of the other rural oriented RETs (SPV system for lighting) and bioenergy technologies (low cost household biogas plant). More specifically, the Grameen Bandhu biogas model, as it also addresses the income generation activities for landless labourers, artisans and rural women, thus addressing the issue of poverty reduction, empowerment of women and improvement in the quality of life of the target groups. These RETs would continue to be undertaken for implementation for realising the short and mid-term goal, which will also give us added credibility and trust in the eyes of the local community. This would help in the effective implementation of comparatively a complex component and activity in the form of bio-fuel/bio-diesel, production and marketing, as although aware and accepted in principle, target community has not seen such units in operation before, except hearing about them in the meetings and awareness camps.

However, as the bio-fuel/bio-diesel is proposed to be the main trust of this project, therefore, this aspect is deliberated discussed in more detail in the subsequent paragraphs:

Implementation strategy:

Jatropha Plantation:

Jatropha Curcas has been found to be the most suitable tree species for the reasons summarized below: It can be grown as a quick yielding plant even in adverse land situations viz. degraded and barren lands under forest and non-forest use, dry and drought prone areas, marginal lands and as agro forestry crop. It can be planted on fallow lands and along farmers field boundaries as hedge because it does not grow too tall as well as on vacant lands alongside railways, highways, irrigation canals and unused lands in townships etc. under Public /Private Sector Undertakings.

- The seeds of Jatropha are available during the non-rainy season, which facilitates better collection and processing. The cost of plantation is largely incurred in the first year and improved planting material can make a huge difference in yield.
- Raising Jatropha plant and its maintenance creates jobs for the rural poor, particularly the landless, in plantation and primary processing through expellers.
- It has multiple uses and after the extraction of oil from the seeds, the oil cake left behind can be used for biogas production. The oil cake is excellent organic manure; it can be applied to the agricultural and horticultural crops, either mixed with cattle dung manure or alone. The biomass of Jatropha Curcas enriches the soil and it can also be put to other uses.
- Retains soil moisture and improve land capability and environment.
- Jatropha adds to the capital stock of the farmers and the community, for sustainable generation of income and employment.

Bio-diesel (BD) viz. a viz. Straight Vegetable Oil (SVO)

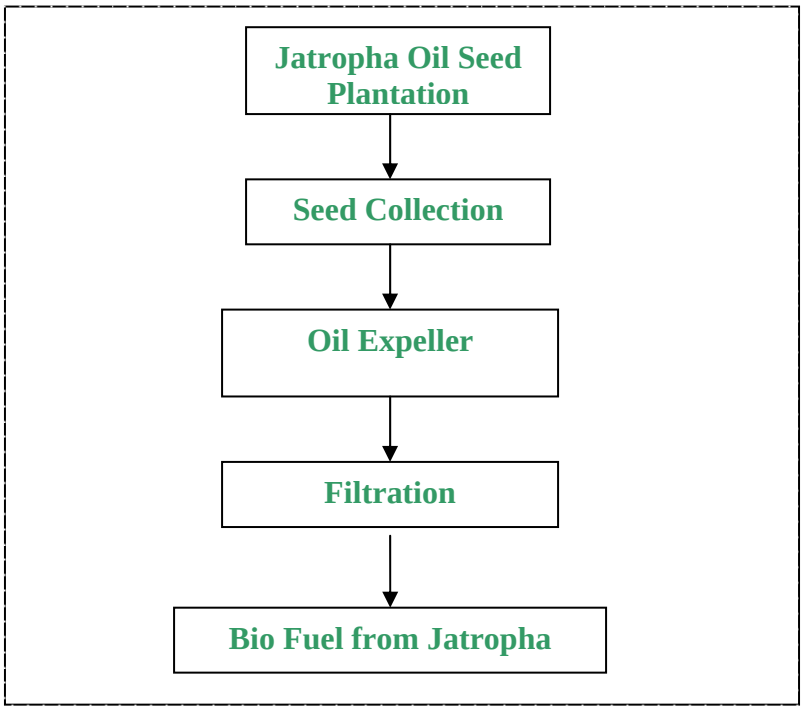
Among bio-fuel most attention is paid on transport sectors substitutes such as ethanol as in gasoline and biodiesel. In order to blend Bio-diesel obtained from Jatropha oil seeds with diesel require the following:

a) Oil extraction estirification process

b) While the first process costs Rs.6 per liter (US$ 0.14 per liter) the total transportation to diesel substitute require up to Rs.18 to 20 per liter (US$ 0.42 to 0.47 per liter). The latter is needed for automobiles where rigourous quality and environmental standards are needed for automobiles that cost thousands of dollars and affect health of people especially in the urban areas. There are many end-users in the rural areas that do not require such high quality in terms of their *Cetane* numbers and environmental performance for example, operating of the following
   - Stationary equipment
   - Irrigation and drinking water pumps and tube wells
   - Farm equipment such as threshers,
   - Crushing and grinding for various purposes including food processing
   - Flour mills
   - Electricity generators

c). Thus, it would be ideal to introduce VO or SVO as a product with appropriate quality that matches needs of the end-users and ability to pay.

The following flow chart demonstrates the broad process of Jatropha, from plantation of oil seeds to the production of bio-fuel (or bio-diesel), which is the main component of the proposed project "**Capacity building-cum-demonstration on RETs and rural micro enterprise model for Bio-fuel processing for poverty reduction**".



Roles and broad responsibility of different key Stake holders

It is well known that most of the rural areas in India do not have modern energy services (MES). This project attempts to address this issue by utilization of locally available biomass to generate bio-fuel. The project will formulate micro-enterprise model for locally available bio-fuel extraction. It will provide sustainable livelihood as well demonstrate the benefits of the model on socio-economic conditions of the community. Further, it will lead to increased access to alternative fuel at local village level and premises. The project will encourage community towards social and agro forestry, increase of green cover area, and reduction the dependence on fossil fuel.

The project will be implemented by INSEDA in association with WAFD and SEVD project staff, REEVOCs and by involving the Village Panchayat form these 12 Solar Eco-Village. In the initial stage, project will be implemented by setting up of one oil-extraction units in one of the 12 Solar Eco-villages (SEVs) or any other central place from the majority of project villages and as close as possible from the Bharatpur district headquarters for easy marketing.

The role of INSEDA will range from guiding and supervising in the site selection, compilation, preparation and up-gradation of appropriate documents (pamphlets, awareness and publicity materials) and existing technical and financial manuals, capacity building of the existing SEVD (Solar Eco-village development) programme staff as trainers (for training REEVOCs as well as technicians, artisans and implementers, identification of technologies, installation, socio–technical and up-dating of village computer database (base line data was collected in 2003-04 and has already been fed in the computer (MS Access), which will be used for socio-technical and economic analysis, training for installation, repair & maintenance and impact measurement, both quantitative and qualitative.

The role of WAFD will range from site selection, training of SEVD staff and REEVOCs as trainers and guiding SEVD staff them in the identification, selection and formation of Micro-financing Groups (MFGs), from the existing 12 solar-eco villages (a joint programme of INSEDA and WAFD, being implemented since April 2002 in two adjacent blocks of Bharatpur). WAFD will also undertake jointly with INESEDA, participatory monitoring of the project for output as per the sanctioned project plans.

The role of SEVD staff will range from awareness creation of the 48 village volunteers (known as REEVOCs) from the existing 12 solar-eco villages, training of REEVOCs and women from the project in Micro-financing, formation of Micro-financing Groups (MFGs) as well as site selection (for RETs and Jatropha plantation) along with REEVOCs,, The SEVD staff will also be involved in the direct implementation of the project by actively associating the REEVOCs.

The REEVOCs (Rural Energy and Ecological Volunteers Corps), who are the selected village level volunteers, will be involved in the direct implementation of the project along with SEVD staff. The 12 Solar Eco-villages (SEVs) has a total of 48 REEVOCs (24 female and 24 male). Each SEVs already have a team of 4 (2 female and 2 male) village volunteers (REEVOCs) who have been associated with the SEVD programme from a minimum of 1 to a maximum of 3 years now. These REEVOCs meet once a month as a group in the Training Workshop-cum-Meeting, for on-going training as well as joint review of last months activities-cum-planning for the next month.

Two important stakeholders (village groups) who have been playing active role in SEVD programme are the women groups and the rural eco-youth club. Both these groups meet

every month in their respective villages once a month along with the SEVD project staff and the team of REEVOCs from their villages. The meetings are used for awareness, motivation and training, as well as getting feed-back on implementation and other relevant things. Apart form these, the several of the members of women groups are associated with implementing new ideas and technology meant for their benefit on the ground. The youth groups are also involved in concrete action, like nursery raising, small scale Jatropha plantation, composting etc.

When ever any important programme involving the entire village is taken up, SEVD project staff in association with REEVOCs and other local leader organize the whole village level meetings, known as “Gram Shabha”. This way the endorsement (either informal or formal) is achieved and any activities implemented in these 12 SEVs are implemented with out any problems, of course the level of implementation and achievements depends upon the level of understanding, progressiveness as well as other internal and external factors. The experience of INSEDA and WAFD during the past 3 years of joint implementation of SEVD programme has shown that some time initial slow progress in a few SEVs gets sudden momentum after a successful demonstration and availably of finances and other positive factors.

All the above-mentioned stake-holder (groups) will be associated in the implementation of this project.

Project will have distinct phases. These are:

- Preliminary activities of start-up, scoping and creating awareness
- Training on extracting ,operating, managing the project
- Settng up the extraction units
- Participatory development of indicators by INSEDA along with WAFD, SEVD staff and REEVOCs for on-going participatory monitoring and later on measurement of impact (both quantitative and qualitative) in the end of a feasible time frame.
- The SEVD staff, REEVOCs and may be selected beneficiaries will be trained for the participatory monitoring, as well as evaluation of the programme after the proposed project is over.
- Follow up and monitoring together with assessments of how well the project was conducted and whether the expected benefits were achieved.
- Post implementation reviews and feedback

INSEDA will be responsible for commissioning the review process to ensure continuity after one year. The output will be forwarded to the appropriate stakeholders and the benefits are realized. The project partner WAFD and other relevant personnel would be consulted and involved in the review process.

Time schedule enclosed in the detailed proposal

In addition to the above we will have:

- Awareness and training programme,
- Dissemination workshops
- Discussion with policy makers

3. **List the project's objectives: The specific objectives are:**

- To formulate micro-enterprise model for bio-mass based energy system at the village level
- To extract fuel from oil seeds that provide alternative fuels in rural areas
- To provide sustainable livilihood options for women at village level
- To develop enterprise to process locally available jatropha and other oil-seeds
- To identify current activities in biomass based strategies for extraction,utilisation and commercialization of oil
- To create photo and process documentation of the model for awareness and capacity building of NGOs and others for undertaking similar activities
- To organize national level workshop of different stakeholders, to disseminate information and to initiate action for the creation of NGO network on bio-fuel and other rural oriented RETs and awareness and wider replication and implementation of this model by the network of NGOs. INSEDA is a National Association of approximately 50 NGOs and other informally associated NGOs, individuals & professionals who will be approached first for forming this network

Activities:

- Pilot implementation and dissemination of model in the twelve villages of two adjacent blocks in the Bharatpur district of Rajasthan State
- Network of private sectors, NGO's, stakeholders engaged in bio-fuel cultivation
- Organise workshops for local stakeholders, NGO's, Private sectors and Government agencies
- Develop pay-back mechanisms and replicability of the installation with involvement of micro-credits and other financial institution

4. **List the concrete results the project plans to achieve: Immediate Short Term Replicability:**

INSEDA and WAFD, as their ongoing joint "Solar Eco-village development (SEVD) programme" are engaged in promoting and implementation of bio-fuel crop (Jatropha) plantation spread over 30 acres (@ 2.5 acres per villages) in 12 SEVs. Last year due to unprecedented rains in a few days, the Jatropha nursery raised by a few farmers as well as some plantation in low lying areas were destroyed. In the coming season these farmers are planning to cover more areas under Jatropha cultivation, and expected to plant 30 acres in the next two crop seasons. As soon as a ready market is created, the Jatropha plantation will jump several folds. As a follow-up of the proposed project INSEDA and WAFD would also play inspirational role for promoting Jatropha plantation in additional 100 acres, in other villages, at least in the 4 blocks, through 40 new villages (@ 10 villages per block) in which WAFD is presently operating through the community development programme and micro-financing activities. Based on the successful implementation of this model; the two organisations plan to set up oil extraction units for making bio-fuel (bio-diesel).

This micro-enterprise model project could be replicated in at least 40 new villages in Bharatpur district alone within few years of the implementation of this project. In addition, INSEDA would also involve other grassroots NGOs and other agencies for

taking up implementation of this model (especially plantation of Jatropha plants) in as many as 100 villages in three districts of Rajasthan, neighbouring with Bharatpur district, after seeing the successful implementation of this model.

Replicability at Country level:

Considering 35 million hectares of wasteland available in villages in India, the project has immense scope and high Replicability. There is already a National draft policy on bio-fuels (not yet finalised and funded) may adopt/replicate successfully implemented programmes.

"We have nearly 63 million hectares of wasteland available in the country, out of which 35 million hectares of wasteland have been allotted for tree plantation".

5. Implementation methodology:

Implementation strategy

(Elaborate on Implementation strategy- general to specific and the roles of the two partners-INSEDA and WAFD)

The project will be implemented by INSEDA in joint partnership with WAFD, a grassroots level NGO, in 12 SEVs in Roopwas and Sewar block of the Bharatpur district, Rajasthan state. Detail information about INSEDA and WAFD and their role in SEVD programme are attached as **Appendix- 1 & 2**:

The role of INSEDA will range from site selection to awareness creation and identification of technologies, socio–technical inputs and advice, data base (already collected detail household baseline survey in the year 2003, including the current energy utilization status, of these 12 solar eco-villages and created data base in MS Access) management and using it for the economic analysis installation, training for repair and maintenance. Project will have distinct phases. These are:

- Preliminary activities of start-up, creating awareness and scooping.
- Training on extracting, operating and managing the project, broken down into appropriate stages
- Follow up and monitoring together with assessments of how well the project was conducted and whether the expected benefits were achieved.
- Post implementation reviews and feedback

INSEDA will be responsible for commissioning the review process to ensure that the project is implementation as proposed and sanctioned by the funding agency. The output will be forwarded to the appropriate stakeholders and the benefits are realized. The relevant personnel are consulted and involved in the review process.

The WAFD (Women Action For Development) is working in four blocks (namely Sever, Roopwas, Bayana and Deegh) of Bharatpur District in Rajasthan state- each block has, on average 70- 80 villages. WAFD has selected 90 villages in these four blocks for its developmental interventions. The role of WAFD would be to give training to SEVD project staff REEVOCs, villagers, organising meetings at the village level, starting additional SHGs and Micro Finance Groups (MFGs), women's groups meetings, training and monitoring of rural eco-youth clubs (REYC) in these 12 SEVs, organising of supply and procurement of seeds, jointly with INSEDA do weekly, fortnightly and monthly

monitoring of the implementation of activities in the 12 target villages, directly by its secretariat as well as through the SEVD staff (as they are directly responsible to the WAFD for administrative & financial control and reporting etc.) for organizing of monthly training workshop-cum-meetings of REEVOCs and jointly with INSEDA preparing for reports for donor agencies.

Training and RET Implementation Programmes:

INSEDA in close cooperation with the local partner organization, WAFD, will organize the following training programmes for all the stakeholders:

- Developing awareness creation and entrepreneurship training modules for different target group participants
- Organizing skill development programmes
- Upgrading skills of the members from the existing 12 Solar Eco-villages through management development programmes
- Assistance in procurement of seeds and processing on pilot scale through the small scale demonstration unit
- Training, assistance and guidance to SEVD project staff and rural volunteers (REEVOCs) in the implementation of other RET activities, like fixed dome plant biogas plant (mainly Grameen Bandhu and Deenbandhu models),
- Implementation of 50 fixed dome biogas plant (Grameen Bandhu or/and Deenbandhu models),
- Implementation of 100 SPV lanterns and a 24 stand-alone home system and 12 SPV street lighting system, one each in all the 12 solar eco-villages (SEVs),
- Installation and training in 1 community level, demonstration solar vegetable-cum-fruit dryer, which is available in India,
- In addition installation and training in 1 community level, demonstration SPV powered drinking water system in selected SEVs; and.
- Repair and maintenance programmes

Preparatory Consultation Activities carried out:

Discussions are held regularly with families and village leaders and elders by the six regular SEVD staff (who are based in the WAFD field office at the Bharatpur district headquarters) working in the 12 solar eco-villages programme, during the course of visit to these villages for awareness building, training, information collection, monitoring and conducting and participating in village level meetings. This has been also been an effective way to get feedback and regular interactions. In addition the 48 REEVOCs in 12 eco-villages (24 male and 24 female @ one eco-village team consisting of 2 male and 2 female per) meet and interact with local villagers on day-to-day basis. Over and above this, either of the two chief functionaries of INSEDA and WAFD visit the project sites, approximately once in a month (and stay there for a few days at a time), to personally interact, getting feed-back and participatory review and monitoring of the programme. They also keep in touch with the SEVD staff through E-Mails and telephones on regular basis. During the discussions, over the past one year, all the SEVD staff and the 48 REEVOCs (who themselves belong to the farming families except in one village which mainly belongs to landless agricultural laborer group), and are more or less considered village leader of their own villages, after their association with this SEVD programme, for the last 2-3 three years) all the new RET programmes are discussed and the villages

are aware of the proposed interventions in bio-fuel/bio-diesel. Moreover, these 48 REEVOCs meet once a month at one place for training workshop-cum-review meetings, in which they also discuss previous months work achievement and next month's work plan. Once in six months the entire group (SEVD staff and the REEVOCs) sits with the Secretary General, INSEDA to do advanced planning (preparation of the broad Action Plan) for the next six-months, which is entirely participatory in nature. Once a year a team of representatives, normally 2-3 from JYY, University of Jyväskylä, Finland (which is the overseas partners in the Finnish Government funded project) visit India. For the participatory monitoring of the project, they stay in Bharatpur for about two weeks and visiting each village along with SEVs staff, REEVOCs and have consultation with the end users and villages of the SEV programme. It has already been proposed to form a separate SEV group, leading to formal registered autonomous body of SEV development programme to promote and implement the programme further. After this is done then the specialist input will be provided by INSEDA and WAFD. This SEV group or committee would then look after the various activities like procurement/collection and distribution/supply of Jatropha seeds, processing it for bio-fuel/bio-diesel and marketing it through appropriate channels. In addition they will also promote other ecological, environmental, RE, organic farming, water harvesting and conservation and sanitation programme. They would eventually look after the payment of wages and biomass costs, operation and maintenance of the system and monitoring the project. (Note: For more details on these aspects refer to the three **Appendix- 4, 5 and 6** for case study prepared by the Executive Director, WAFD for the capacity building project of NGOs on RET for poverty reduction in South Asian Region, a project of INFORSE South Asia, funded out of the DANIDA (Denmark) small grant project, being implemented in four countries namely, India, Bangladesh, Sri Lanka and Nepal, through the respective National Focal Points in these countries.

Due to last one year of intensive interaction, the villagers have become aware of the Jatropha and bio-diesel and are looking forward to mass cultivation, collection as well as would be most willing to work for extracting oil from the seeds and in marketing of the SVO (Straight Vegetable Oil). The villagers are all facing the financial crunch and economic stress due to frequent increase in price and yet shortage of diesel and electricity, and realize the importance of diesel and electric pump sets for irrigation of their crops. As they only take one crop (Rabi or Winter season) per year, which must not fail if they have to avoid going in to further debt from the local money lenders and back to below subsistence living and near starvation situation. The use of SVO will be:

- Support to agriculture sector
- Part replacement of imported crude
- Setting up of village level micro enterprises**.**
- Straight Vegetable oil (SVO) can power the pump sets of the farmers, floor mills, and diesel generators and lead to further enterprise development.

The by-product from crushing Jatropha seeds would give them oil cake and glycerol. These have good commercial value. The cost components of extracting SVO are the price of seed, seed collection and oil extraction, transport of seed and oil. In the initial phase the project will install one pilot extraction-cum-demonstration-cum training unit which would demonstrate the viability of all activities including plantation, seed collection, oil extraction, marketing etc through the involvement of the solar eco-village group/committee who will own and run the units. It will also be used for training of other

NGOs and implementing agencies. Later on this will be replicated in the other villages though grassroots NGOs and MLIPS (Micro Level People Institutions).

6. Expected capacity building results and tools:

- Awareness and training programme
- Dissemination workshops
- Discussion with policy makers

7. Beneficiaries: list the individuals and institutions to be reached and how they will benefit: List of REEVOCs and farmers from these 12 SEVs with their basic information are extracted from the database and attached as **Appendix- 7 & 8**.

8. Proposed project's contribution to the objectives of GVEP and relevance to other GVEP activities and country action plans:

The proposed project will contribute to the objectives of GVEP and is relevant to other GVEP activities and country action plans. More specifically it will contribute toward the livelihoods-improving pro-poor energy services, capacity development and knowledge management in the renewable energy sector and also addresses the issues related to sustainable development at the village and community level.

9. Proposed project's relevance to the Millennium Development Goals: In the project we are promoting the use of environmentally **friendly** Jatropha plantations and other appropriate RETs. They have (especially the Jatropha plantation, collection and processing) the added advantage of the possibility to receive carbon credits through Clean Development Mechanism (CDM) by bundling small projects. Partial financing from carbon credits will be explored to supplement the project.

- ☛ There are **employment opportunities for unskilled and semi-skilled** persons including women for growing biomass, operating conversion technologies such as biogas plants, gasifiers or oil extraction equipments.
- ☛ Moreover, there can be expansion of **livelihood opportunities**, if access to modern energies is available. Availability of energy can serve as a multiplier for income generation.

These measures will lead to sustainable energy solutions, equitable development leading to poverty alleviation and attainment of Millennium Development Goals (MDG) especially relating to poverty, livelihood, maternal health, infant mortality and so on.

11. **Knowledge dissemination** plan/tools (provide specific names or illustrative examples of individuals and institutions to be targeted by the project's outreach/dissemination efforts):

The micro- enterprise model project could be replicated in as many of the villages of Bharatpur district and 100 villages in three adjoining districts of Rajasthan state alone, within few years of this project. As the Bharatpur is also bordering with Agra District in UP, and not too far from the other two states, MP and Haryana, and the farmers from these regions travel to each other villages, therefore, once the success of this model is demonstrated and seen on the ground it will be taken up and replicated by many farmers in these regions. Under that situation the model would also be used as an excellent demonstration-sum training model.

12. Implementation monitoring and reporting plan

Project sustainability after completion, both institutionally and financially:

The following components and activities related to RETs and bioenergy would be implemented:

a). Implementation of 50 units of fixed dome household biogas plant, more specifically 50 the Grameen Bandhu model,.

b). 24 SPV lanterns (@ 2 per village) will be given to selected beneficiaries for demonstration purpose,

c). Jatropha nursery raising in 6 acres (@ ½ acre per solar eco-village (SEVs).

d). Jatropha plantation on 30 acres land (@ 2 ½ acres in each of the 12 SEVs.

e). Training programmes on building of Grameen Bandhu biogas plants- Total of 6 trainings- trainees would be master trainers (technicians, supervisors) and SEVD project staff- (1no.), master masons- (2nos.) and landless rural women -(3nos).

f). Training of farmers (including women and rural youth and REEVOCs) on Jatropha cultivation, collection and processing- 6nos,

g). Capacity building of SEVD staff: On-the-job orientation and trainings on implementation, participatory monitoring and reporting- 2 nos.

h). Building and establishment of a small-scale pilot demonstration-cum-training, bio-fuel processing plant- 1 no.

i). Promotion and establishment of Micro Credit/Micro-Finance group- 12nos.

j). Establishment of SEV Management Group/Committee: - 1no.

k). Camps, meetings (beneficiaries, villagers, rural youth, MLPIs, like Panchayat leaders, women groups and CBOs) etc.: - 5nos.

l). Organisation of workshop/conference/meeting (project staff and NGOs): - 2nos.

m). Revision of available and existing manuals and translation with INSEDA:

n). Production of simple guidelines on REs and bio-fuel implementation and production process etc.

o). Production of simple training aids and communication and publicity material; and

p). Compilation and production of RE based case studies.

Concrete action in the implementation of bio-fuel activities are described in the subsequent paragraph:

The end uses of the extracted bio-fuel would be utilized as follows::

- Procuring the oilseeds at given price from the village women
- Setting up the extraction units
- Processing the seeds at one place
- Marketing the bio-fuel mainly to be used in stationary equipment

The technical viability of bio-fuel would be at all the 4 levels

The oil-extraction technology to be used is proven with satisfactory results. The use of technology will be preceded by training for operation and maintenance by experts from INSEDA. The technology is:

- Simple to use

- Can be customised and upgraded to requirements
- Gender friendly

The autonomous society/cooperative mechanism will ensure efficient procurement/collection of oilseeds, transportation to production unit, extraction of oil and marketing to end users.

The project is viable with initial financial support to implement the model.

The project can be implemented in one year as the oil-seeds would be available from the existing Jatropha plantations. Till the required quantity is procured from with in the 12 SEVD villages, the project will also procure Jatropha seed from the neighbouring districts and states. Further, sustainability is ensured as the plantation in nearly 30 acres will mature next year and 100 acres after two years.

Risks and barriers:

- Availability of vast land
- High risk exposure
- Returns not commensurate with risk

Major risks to the successful implementation of the project and measures to manage risks: The expected cost of extracted oil in this project would be Rupees 15-18 per liter (US$ 0.35-0.42/ltr). However, the commercially available bio-diesel is Rs.28/ltr (US$ 0.65/ltr). With recent increase in oil prices ($60-65/barrel), it is essential to look for substitutes of fossil fuels for both economic and environmental benefits to the country. The dissemination of this model for bio-fuel extraction will provide better energy services at the village level.

The project is economically feasible as the local resources are used and the community will be responsible for the assets, operation, management and end users of the energy services available by the use of bio-fuel. The autonomous society/cooperative mechanism will ensure that the collection/procurement and marketing of the bio-fuels is economic as own labour is not fully charged.

Obstacles so far:

- Management plan was missing
- There were no significant alternative solutions to the fossil fuel, untill recently. The oil prices are high now and subsidy for diesel is reduced.
- Community initiative is the missing link in the previous programmes

The financial support from GAPFund will serve this project as a demonstrative model. The plantations of Jatropha are already underway by the farmers in these 12 Solar Eco-Villages some of them started the Jatropha nursery and plantation since the last 3 years.

With in the SEVD project, INSEDA's partners WAFD, has started Micro-credit/Finance programme of women groups, and if required, they would be given credit for plantations under that programme The success of this project will further attract additional funding downstream in extracting oil. Indian government policy and plans to promote bio-fuels will also help raising resources.

V. Team Composition (Max. ½ page)

(Identify the Task Manager and team members, including their organization and area of expertise).

The Task Manager of the proposed project is the Secretary General, INSEDA, who is supported by a team of specialists and consultants whose CV's with their areas of expertise are attached with the proposal.

VI. Institutional Capabilities (Max. 2 pages)

Provide a brief description of each institution and a table listing the relevant previous projects or programmes of each institution which demonstrate the institutions' abilities to successfully implement the proposed project, highlighting local participation. See Annual report/ information attached as Annexure- D & E.

VI. Additional Comments on Technical Proposal

The two partners (INSEDA and WAFD) have the relevant experience both at the national and grassroots level, having trained staff in technical as well as social and community development field. In addition our experts, consultants and other team members have long experience in the field of REs, SHG and Micro-financing, women's development and capacity building. Our team also has experience in monitoring and evaluation of people-centered developmental projects, especially in rural and ecological development projects/programmes. Therefore, we are confident to successfully implement this project if the grant is sanctioned per our plans and financial projections.

The total cost of the project is US$ 120,661.00, out of which the matching contribution is US$ 26,600.00, which is over 20% of the total project cost. Therefore, our net request for grant works out to US$ 94,000.00, which is with in the stipulated financial assistance which could be granted.

C. BUDGET SUMMARY (Max. ½ page)

Provide a brief narrative of your budget and how it will be allocated among the activities planned.

ANNEX 1: PROPOSED BUDGET (in US dollars) PER YEAR:

Sl. No.	Head	GVEP Grants	Match	Total
1.	Salary/FB			
2.	Travel/Per Diem			
3.	Equipments			
4.	Activities Planned			
5.	Other direct expenses			
	Total			

ANNEX II: Establishment of model Jatropha seed procurement centre

Sr. No.	Component	Tentative cost (US$)
I	Cost of building (PCC floor with asbestos roof) Processing shed+ godown for keeping raw material and storage for oil and cake 20×20 sq ft @ US$ 4.75 per square (400 sq ft.)	
II	Cleaner and grader	
III	Decorticator/dehuller	
IV	Drier	
V	Depulper	
VI	a) Oil expeller (0.5 T per day capacity) b) 5 HP motor c) Starter/main switch d) Installation e) Electric line from main feeder up to centre	
VII	Security deposits for electric connection 3 phase. Water connection etc	
VIII	Switching machine	
IX	2 storage tank for oil– 1 MT each @ US$ 120/- MT	
X	Filter press	
XI	Weighing machine	
XII	Moisture meter (1)	
XIII	Gunny bags for oil cake etc.	
XIV	Drying floor– 400 sq ft (20 ft × 30 ft) PCC @ US$ 2.35/- per sft.	
XV	Diesel Gen-set– 1 (5 KVA)	
XVI	Furniture, stationary and office equipments	
	Total (US$)	

ANNEX A – OBJECTIVES AND ACTIVITIES TABLE

ACTIVITY SCHEDULE (for major components with physical implementation)

Project Phase	Activity	Duration (in Months)													
		1	2	3	4	5	6	7	8	9	10	11	12		
I. GENERAL RET AND BIOMASS ENERGY SPECIFIC ACTIVITIES															
(a)	Capacity building (workshops, trainings and Camps)														
(b)	Construction of training-cum-demonstration biogas plants														
(c)	Construction of training-cum-demonstration SPV units (solar lanterns)														
(d)	Preparation of materials and manuals														
(e)	Nursery raising for Jatropha plantation														
(f)	Jatropha plantation														
II. BIO-FUEL ACTIVITIES IN THE FOLLOWING FOUR (4) PHASES:															
1	STEP 1: CAPACITY BUILDING TRAINING & Awareness Creation														
1	STEP 2: INSTITUTIONAL SET UP • Formation of SEV Management Group/Committee (gradually getting converted in to a formally registered body, either a society or Cooperative or any other appropriate body) • Training of Operator, workers, seed collection, simple accounts														
2	STEP 3: CONSTRUCTION OF BIO-FUEL UNIT & PROCUREMENT OF EQUIPMENTS (Construction: processing shed, godown, storage)														
3	STEP 4: PRODUCTION OF BIOFUEL (on going activity)														
3	STEP 5: MARKETING OF BIOFUEL														
3	STEP 6: PROJECT MONITORING (Immediately after step 4, on going activity)														
4	*STEP 7: PROJECT EVALUATION & LESSONS LEARNT*														
4	STEP 8: COMPILATION OF MODEL REPORT (With future planning)														
III. FINAL PROJECT COMPLITION REPORT															

Annex- B: Implementation Arrangement Table

(Please fill out the following matrix)

ACTIVITIES		TIME LINE												RESPONSIBILITIES	BUDGET
		1	2	3	4	5	6	7	8	9	10	11	12		
TASK- I	GENERAL RET AND BIOMASS ENERGY SPECIFIC ACTIVITIES													INSEDA and WAFD	
(a)	Capacity building (workshops, trainings and Camps)														13,300
(b)	Construction of training-cum-demonstration biogas plants														14,350
(c)	Construction of training-cum-demonstration SPV units (solar lanterns)														2,400
(d)	Preparation of materials and manuals														3,500
(e)	Nursery raising for Jatropha plantation														700
(f)	Jatropha plantation														3,000
TASK- II	BIO-FUEL ACTIVITIES IN THE FOLLOWING FOUR (4) PHASES														
TASK- III	CAPACITY BUILDING TRAINING & Awareness Creation													INSEDA and WAFD	7,326
TASK- IV	INSTITUTIONAL SET UP • Formation of SEV Management Group/Committee (gradually getting converted in to a formally registered body, either a society or Cooperative or any other appropriate body) • Training of Operator, workers, seed collection, simple accounts, monitoring tc. • Other direct costs-office supplies-maintenance-postage-printing-rents-communications etc. • Travel & Per diem													INSEDA and WAFD	11,800 5,100 12,800 9,500
TASK- V	CONSTRUCTION OF BIO-FUEL UNIT & PROCUREMENT OF EQUIPMENTS													INSEDA and WAFD	2,6425

	(Construction: processing shed, godown, storage)														
TASK- VI	PRODUCTION OF BIOFUEL													INSEDA and WAFD	2,010
3	MARKETING OF BIOFUEL														1,500
3	PROJECT MONITORING (Immediately after step 4, on going activity)														3,550
TASK- VII	PROJECT EVALUATION & LESSONS LEARNT													INSEDA	2,400
TASK- IX	COMPILATION OF MODEL REPORT (With future planning)													INSEDA with the assistance of WAFD	500
TASK- X	FINAL PROJECT COMPLITION REPORT													INSEDA	500
	TOTAL (US$)														120,661

The extraction unit will be set up in one of the SEVs in Bharatpur district of Rajasthan state, where number of farmers have already taken up nursery raising and plantation of Jatropha. Alternatively, it would be taken up in a centrally convenient place, closer from the Bharatpur district headquarters for transport for better marketing of process bio-fuel for export to other districts in the states and elsewhere. Many more farmers have been motivated by the SEVD team to undertake more available area, especially the boundaries of their farm land under the Jatropha plantations in the coming seasons. The adjoining districts in the Rajasthan state also has land under Jatropha plantation.

The implementing strategy bio-fuel production from Jatropha is as discussed in more detail in the subsequent paragraphs:

1. INITIAL STAKEHOLDERS' MEETING:

A stakeholders meeting would be held to discuss the plan of implementation. While each of the involved stakeholders has a definite role and responsibility; the modalities of the function of the each one will be further discussed, threadbare in respect of the proposed project and mutually agreed upon by them. The functioning of rural micro-enterprise model for biofuel extraction would be based on through understanding of all the involved stakeholders and their role and responsibility clearly defined, to ensure effective and efficient implementation of this unit/system. Following are the key stake-holders, proposed to be associated in the implementation and management of the units:

- Principle Implementation agency (INSEDA),
- Partners Implementation agency (WAFD),
- Selected/elected group of members from among the 48 members of the REEVOCs,
- SEV Management Group/Committee **(**gradually getting converted in to a formally registered body, either a society or Cooperative or any other appropriate body),
- If required, some of the local leaders from the SEVD villages and may be representatives of the Village Panchayats, and
- External experts (technical and marketing personnel)

The final composition of the management group/team would be decided during the course of implementation of the project.

Development of Rural Micro-enterprise Model along with stakeholders:

The village, its natural resources and the stakeholders would all influence the conceptualization of the model. Hence bottlenecks, barriers and the views of all the stakeholders' would be taken to implement the project successfully.

1.1 Technology to be used:

The inputs (feedstock, seed quantity etc) would be the determinants for selecting the technology and the scale and size of the extraction plant. Chemical analysis of the seeds will be done with the help of the laboratory in the state.

1.2 Organization structure of the project:

The framework of coordinating all the inputs, managing the outputs, prices of the byproducts needs to be worked out with the consensus of all involved stakeholders

and the market conditions. The preliminary economic analysis presented in the proposal will be reworked under field conditions. The project will be implemented as a team with complete involvement of all the villagers.

1.3 Awareness generation, training and development programme:

In the beginning of the project there will be awareness generation programme where brief presentation will be given to the entire village. A few volunteers out of the members of REEVOCs will be identified to involve on a regular basis. Any disputes in operation, marketing and sharing of will resolved by the SEV Management Group/Committee. All involved stakeholders, essentially the selected local villagers from the 12 solar eco-villages and the members of the elected bio-fuel autonomous society/cooperative would be trained. The stakeholders meeting would decide the course of training that would be required.

ANNEX C: CVS FOR KEY STAFF

Please provide CVs for key staff using the format below. Please limit each CV to 4 pages.