PROJECT CONCEPT PAPER: GUIDELINES

GENERAL

1. PROJECT TITLE

Promotion of Parabolic Solar Cookers by NGO Network through Micro Level People Institutions

2. NAME AND ADDRESS OF THE ORGANISATION/INSTITUTION SUBMITTING THE PROPOSAL

Integrated Sustainable Energy and Ecological Development Association- INSEDA
INSEDA is a registered Society, registered on December 11, 1995 in Delhi

a). INSEDA's Address- National Secretariat

Third Floor, St. Soldier Tower,
Vikas Puri, New Delhi- 110018

b). INSEDA's Telephone, Fax and E-Mail

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3 ORGANIZATIONAL STRUCTURE

a). The Integrated Sustainable Energy and Ecological Development Association (INSEDA) is the Nodal Agency for the implementation of this project. INSEDA is a National organisation formed by NGOs involved in the promotion of renewable energy programmes, since 1980. It is a membership organisation having over 70 Members who are operating in almost all the states of India. The member organisations had been operating as an informal network for more than 15 years before establishing INSEDA as a formal body. INSEDA was registered as a society on December 11, 1995, under the society registration act XXII of 1860, Delhi. The area of operation of INSEDA is the entire country. See profile of INSEDA attached as Annexure- A.

b). Organisational Structure

(i) The INSEDA is a Network, which has its main focus as the development and promotion of sustainable rural energy. INSEDA has over 70 member/partner NGOs, spread throughout the country, operating in almost all the major states of India. All the members/partners have a deeper commitment to the promotion of low cost affordable renewal energy technologies. This common interest and goal binds the member NGOs together. The attached Annexure- B gives the distribution of NGO members of INSEDA, all of whom have a fairly well developed infrastructure at the grassroots level to implement developmental projects/programs.

(ii) Present Officer Bearers of INSEDA, elected in August 1998, for three years Period

Fr. Mathew Vadakkemuriyil	President (Secretary, MDS, Kanjirapally, Kerala)
Dr. T. K. Moulik	First Vice President (Chief Executive Officer, ERM-India, New Delhi)
Mr. I. B. C. Din	Second Vice President (Director, RSC, Ankleshwar, Gujarat)
Mr. Raymond Myles	Secretary General (Chief Executive of INSEDA, New Delhi)
Mr. Sushil I. Parmar	Secretary (Director, JIFORD, Deoria, UP)
Mr. Umed Lal Bangerwal	Treasurer (General Secretary, ESA, Dehradun, UP)
Dr. S. Kamraj	Joint Treasurer (Advisor, NERD & Prof. RE, TNU, Coimbatore, TN)

(iii) The Secretary General-cum-Chief Executive, with three part time staff manages the day-to-day activities of INSEDA. To provide effective overall management, technical, training and monitoring services, the cost of hiring project staff are built in to the budget and accordingly hired for that period.

(iv) A few consultants are also attached with the organisation who prepare proposal as per the charter and mandate of INSEDA as well as assist, guide and advice in the implementation of projects. Whenever required INSEDA either use the expertise of its member agencies or hires consultants or project staff to perform the tasks and accordingly build in their cost in it.

c). INSEDA Staff & Consultants

(i) Chief Executive

(ii) Part time Staff

- Accountant
- Administration
- Office Attendant

(iii) Consultants

- Consultant (Renewal Energy)
- Consultant (Livestock & Natural Resources Development)
- Consultant (Development Education & Women's Development)
- Consultant (Conservation of Biodiversity & Building of Traditional Seed Banks)

d). Environmental and Renewable Energy Related Projects/ Activities handled by INSEDA in the Past Three Years

(i) Central Asia Region Workshop-cum-Meeting on the "Promotion of RETs through Adult and Functional Education

Organised a Central Asia Region Workshop-cum-Meeting on the theme- "Promotion of RETs through Adult and Functional Education, jointly sponsored and organised by INforSE (Denmark) and INSEDA in May 1996 at Lucknow, U.P. Over 45 delegates participated in Workshop. During the first day of the workshop, the five documents of the World Solar Summit were discussed and the recommendations were sent to INFORSE for presenting NGOs views to the UNESCO Secretariat as the input to the Final document. The Secretary General also participated in the World Solar Summit at Harare.

(ii) National Awareness Workshop of NGO on RETs

National NGO Awareness Workshop on RETs was organised in the month of May 1997. This workshop was sponsored by IREDA, Government of India Enterprise. IREDA was started by MNES in 1987 for commercialisation of RETs. The workshop was attended by 50 participant nominated by invited NGOs, mainly INSEDA member organisations, IREDA, MNES, RET manufacturers and other invitees.

(iii) Awareness Camps on RETs for End User's by INSEDA Members and NGOs

INSEDA acted as Nodal Agency for organising 32 IREDA sponsored Awareness Camps on RETs for End Users by its member NGOs in 1997. The Secretary General also participated in some of the camps as one of the resource persons. As a follow up of the workshop and Camps, some NGOs have shown interest in taking loans from IREDA. The INSEDA facilitating the process encouraging some of the NGOs to

develop project for getting loans for RET gadgets, but NGOs being new to this approach and due to fulfilling of strict requirements, it is taking time for developing commercially oriented viable loan projects on RET. More over majority of NGOs are still sceptical and taking their own time to understand the implications of getting directly involved in the loaning aspects on interest due to lack of previous experience. They would like to go slow in direction, gradually changing over from development-cum-semi market approach to gain experience before switching over completely. They would like INSEDA to take up and promote a development oriented RET program for the members, with built in component for future movement towards semi-market approach with thrust on capacity building and developmental approach. The INSEDA Members would like such project to a network project, which would gradually strengthen and equip them to handle bigger project on their own. A network project could help them to learn together and help each other and share the problems and solve as a larger group before taking up loan oriented RETs projects individually.

(iv) World Bank Study on the Environmental Issues in the Power Sector

On behalf of INSEDA the Secretary General was involved in the World Bank study on the Environmental Issues in the Power Sector in India, since May 1997, which started in the first quarter of 1996. The World Bank had initiated a two-year Study in the "Environmental Issues in the Power Sector in India". This study project was supported by the joint World Bank (WB)/United Nations Development Program (UNDP), Energy Sector Management Assistance Program (ESMAP). The principal purpose was of the study was to improve environment planning, management and decision-making tool, which would enable the Government of India to objectively evaluate alternative options for power development in the country. Recognising NGOs as one of the important stakeholders, the study also envisaged involving them, by keeping NGOs informed about the key findings as it progresses, as well as to get their views and feedback for incorporation in the study. At the conclusion of this study a Joint INSEDA-World Bank National NGO Workshop was organised in May 1998. The main objective of the workshop was to share the key findings of the study and get the feedback and suggestions of the NGO Community, for incorporating in this report. The detailed proceedings of this workshop was complied and sent to over 100 NGOs, Bilateral Funding Agencies and others Organisations, as a part of sharing and dissemination of the deliberations and recommendations of the NGO Workshop. The World Bank has initiated the second phase to disseminate the key findings of the study at this study to the decision-makers at the state level. The Secretary General is again involved on behalf of INSEDA to facilitate involvement of NGOs from the respective states by participation in the state level workshops.

e). Proposed Role of INSEDA as Nodal-cum- Apex NGO on behalf of its Members

(i) All the INSEDA members have been involved in the promotion and implementation of renewable energy; ecological and environmental related programmes, however the type of activities/projects and the degree of involvement vary from organisation to organisation. The size and level of projects varies upon the area of operation, capacity of NGOs, and the availability of funds.

(ii) INSEDA has been playing the role of facilitator, capacity building, acting as channelling agency for RET training, organising workshops, participating in studies related to environment, ecology and renewable energy, providing consultancy services to members in project development and recommending them to funding agencies. However, the vision and expectations of members had been that INSEDA would

gradually move in to take up the role of Nodal-cum-Apex NGO for developing and promoting large network projects involving about 50 NGOs. At the same time it had been agreed in principle that INSEDA would only get involved directly in a network projects (related to RET, Ecology or/and Environment development) if there were innovations, either in terms of technology transfer and promotion or a new approach to implementation. More over, Now it has also completed over three years as a registered body, therefore has agreed to honour the sentiments of the members to act as nodal-cum-apex body on their behalf for taking up projects related to energy & environment and eco-development. The proposed solar cooker project provides the scope to become a pathfinder project for implementing RET programmes by NGOs.

f). Annual Budget of the INSEDA Network

The INSEDA is a national association of grassroots NGOs, who have good infrastructure at the grass roots level to implement development project with people's participation. The Executive Body and the Office Bearers are made up of Chief Functionaries/Project Directors/Senior Staff Members of NGOs (or connected with NGOs), elected for a period of three years at a time. All the members had been implementing Renewable Energy Programs, focusing on biogas technology for over 15 years before forming INSEDA. Due to this no need was felt to have a top-heavy structure of INSEDA with permanent staff of its own for carrying & implementing grass roots programs- thus substantially reducing overhead cost of INSEDA. However, the annual budget of the individual Member NGOs and the INSEDA would be supplied if it were an essential requirement to process this application.

4. GEOGRAPHICAL AREA OF FOCUS OF THE PROJECT PROPOSAL

a). Geographical Area of the Propose Project

The area of operation of INSEDA is the entire country. INSEDA is a National organisation formed by NGOs involved in the promotion of renewable energy programs, since 1980. It is a membership organisation (Association), presently having over 70 Members, operating in almost all the major states of India. Out of these a ***maximum*** of 50 NGOs with a ***maximum*** of 50 RE-PEM-RC (***Renewable Energy Extension- Promotion- Marketing Resource Centres at Zonal, Regional, District and Block Level***), covering all the geographical areas, will be selected to associated as partners in the proposed project for the implementation of PCSC. These 50 NGOs/Centres will in turn promote, establish and strengthen 250 Village level Renewal Energy Promotion Centres (VL-RE-PCs) and 250 Micro-level People's Institutions (MLPIs) for the systematic promotion, extension and marketing of PCSC (Parabolic Concentrated Solar Cookers), to intensively cover the entire operational areas of partner/associated NGOs. This would, in due course, enable wider dissemination, adoption, diffusion and absorption of PCSC and other RETs meant for rural areas of the country.

b). Selection of NGOs to Cover the Maximum Geographical Area of the Country

The selection of NGOs would be balanced in such a way that the entire geographical region of the country is covered, to get wider impact of the dissemination of this project.

(i) The final selection of NGOs will be based on the following criteria:

- Availability of appropriate infrastructure,
- Level, duration and commitment of involvement in RETs,
- Area of operation falling in most needy & potential regions for Solar Cookers and
- Availability of land space for establishing RE-PEM-RCs.

(ii) If an NGO is operating in more than one state or region and there is potential then they can have more than one PSC Promotion Centres (District or Block Level RE-PEM-RCs). This would, however be subject to fulfilling other conditions, provided there is no other NGO operating any PSC Promotion Centre in that area or it is overlapping with the operational areas of other NGO included in this project.

c). Role & Responsibilities of RE-PEM-RCs for Effective Coverage of Geographical Area

The role responsibilities, functional aspects, channel of communications and reporting system of each group of centres (RE-PEM-RCs) are given later on in this proposal.

5. RELATIONSHIP TO ICEF MANDATE AND FUNDING PRIORITIES

a). INSEDA is a National organisation formed by NGOs involved in the promotion of renewable energy programs, since 1980. It is a membership organisation (Association), presently having over 70 Members, operating in almost all the major states of India. The majority of member organisations were operating as an informal network for more than 15 years before they formed INSEDA as a formal body. The following broad objectives of INSEDA will demonstrate the activities promoted by it well fits in to the mandate and funding priorities of *INDIA–CANADA ENVIRONMENT FACILITY- ICEF:*

(i) To develop, promote, transfer and extend environmentally sound, sustainable technologies for the optimum utilisation of natural resources through appropriate socio-technical interventions, for sustainable human development,

(ii) To systematically promote Renewable Energy Technologies (RETs) such as biogas, animate energy (human & animal) and other RETs with the aim of bringing about qualitative improvements in the lives of people, giving maximum thrust on the Rural Energy Programs, focusing on the welfare and empowerment of women,

(iii) To encourage INSEDA Members and other related NGOs & CBOs to undertake Solar Energy Programs, which is a 'Zero Emission' & 'Ozone Friendly Energy',

(iv) To promote biomass energy, which is 'Carbon Neutral' as they offset at least the same amount of Carbon Dioxide (CO2) from atmosphere as, released by them when used as fuel,

(v) To promote & facilitate implementation of technologies related to sustainable environmental & ecological development, conservation and protection,

(vi) To Conserve Biodiversity In-Situ and Building of Traditional Seed Banks,

(vii) Promotion of Sustainable Energy based Eco-Village Models in partnership with member NGOs, and

(viii) To perform the role of facilitator, capacity building, acting as channelling agency for RET training, organising workshops, participating in studies related to environment, ecology and renewable energy, providing consultancy services to members in project development and recommending them to funding agencies.

b). The common major goal and intervention of INSEDA and its NGO members is promotion of renewable sources of energy in rural areas of the country, which includes Biogas, Improved Chulha, Solar Energy and Micro Hydro. The major RET projects/programs and trainings of INSEDA members NGOs are supported by the Ministry of Non-conventional Energy (MNES), Govt. of India and Indian Renewable Energy Development Agency (IREDA), a Government of India enterprise for the commercialisation of Renewable Energy. This also fulfils one of the

very important aspects to get government support in principle for the proposed project and in turn enabling ICEF for getting positive response and clearance from various Central Government Departments and Ministries.

BACKGROUND INFORMATION

6. GENERAL ENVIRONMENTAL SITUATION

Introduction

a). The global data on poverty are shocking and alarming. As per the World Bank estimates in 1985 (World Bank 1990) over 1 billion people (roughly 1/3rd of the total world population) in the Third World were living in a state of poverty. Of these, 630 million were extremely poor. Approximately one billion people would be added to the population of the developing world, by the year 2000. This assumes great significance particularly because the environmental degradation and rural impoverishment are increasingly encountered on the same downward spiral. Therefore, the protection of environment, promotion of renewable energy, tackle & reduction of poverty and employment generation, through eco-friendly sustainable development, remains the top global development agenda for the 21st Century.

b). It is now very well recognised that there is a ***very close relationship*** between the ***livelihood & quality of life*** of rural families (especially the women in the developing country) and the ***form of energy*** and its ***consumption pattern*** in the rural household. The time spent in the collection of firewood and biomass and its traditional mode of utilisation for meeting domestic energy needs are the major contributors of drudgery, misery and health problems of rural women and girl child. Any program aiming at the well being of rural women must take the energy concerns in to account.

c). Even though the energy is central to all development and economic growth, at the same time it is also important that the various options used for meeting energy needs are eco-friendly and environmentally sustainable. Almost all form of conventional sources of energy creates more environmental problems than solving them. The nuclear, thermal, large hydro power and other fossil fuel based energy forms have been known to cause serious problems pertaining to ecological, environmental, natural resources depletion & agriculture, as well as creating negative impact on air, water, land and public health. It has now been accepted that no meaningful socio-economic development of rural areas and empowerment of people, especially the deprived & marginalised groups can take place without adequate energy supply.

Issues and Problems Related to Energy and Environment under India Situation

a). Key Findings of the two years World Bank Study in the Environmental Issues in the Power Sector in India, concluded in March/April 1998 points to the adverse impact of conventional power generation, which needs to be tackled on war footing. In this connection the presentation by Dr. Robin Bates and Dr. Mudassar Imran of World Bank, Washington DC, highlighted the following important points related to energy development in the National NGO Workshop held in Delhi. Refer proceedings of the Joint INSEDA-World Bank National NGO Workshop on the Environmental Issues in the power sector in India, organised by INSEDA in May 1998, attached as Annexure- C.

b). Meeting energy needs from coal based power plants cause following environmental problems:

(i) Land use changes and population re-settlement,

(ii) Water & land pollution,

(iii) Emissions of particulate (like domestic heating and cooking with wood, charcoal damages heath of the people and the use of gasoline causes emissions),

(iv) Green house gas emission leads to potential climate change from power plants- especially the sulphur dioxide can cause acid rains, and

(v) Potential climate change- this can cause change in weather conditions, like flooding and tornadoes.

c). The graphs shown by Dr. Robin Bates in the NGO Workshop for the annual mean of concentration of pollution of selected cities, demonstrated his points that meeting energy needs from the existing conventional sources for meeting energy needs required enforcement of tough choices, which would necessary involve 'Trade Offs'. Therefore, as per Dr. Robin Bates, the key environmental challenges in the energy sector in India, as follows:

(i) Local air pollution (largely due to coal and biomass burning),

(ii) Local water pollution,

(iii) Industrial hazard,

(iv) Recurrent Disasters, and

(v) Global Emission

d). The above-mentioned study has pointed out that the coal burning (for power generation) and (NGO know that the biomass burning in rural areas in a traditional way for cooking) would *- remain the main source of generating power and meeting domestic energy needs, respectively in the foreseeable future. Due to this and the use of other forms of unsustainable forms of energy is going to get worsen and therefore, there is a need to develop and energy efficient scenario. As per the energy scenario developed by the two-year study, the share of renewable energy till 2015 would be only 15%. Due to these billions of dollars of internal and external sources of funding will be required to put back the existing power and energy sector to deliver in an efficient manner.

Situation in Rural India

a). About 75% of Indian population living in rural areas, are directly or indirectly dependent on Agriculture & allied activities, mainly rain- fed crop production. Majority of them use biomass (cattle manure in the form of dung cakes, crop wastes, harvested crop stems and dried twigs & fuel woods etc) in very inefficient traditional cook stoves, for meeting their domestic fuel needs and kerosene for lighting. Where ever, there is electricity connections, they are so erratic, especially at the time of peak cropping seasons, that even in the case of irrigated agriculture, the farmers have to depend on diesel operated machines for water pumping, harvesting, transport and post-harvest operations. The total dependence of a majority of peasants on rain-fed agriculture and unsustainable farming practices is further degrading the already degraded farming land, leading to droughts, floods resulting into increased poverty. Added to this unsustainable use of biomass for meeting the domestic fuel need of the people have resulted into a large land getting converted into wasteland and also adding pressure on the existing forests for food production and meeting fuel wood needs. This is causing mass, permanent and seasonal migration to cities in search of employment, which is creating pressure of population on the urban areas as well. Therefore, there is a need for tackling the twin problems of energy and food production need on priority basis in a sustainable manner using limited available resources without further degrading existing ecological and environmental base of rural areas.

d). The energy is a prime need, as life is dependent on energy of various forms. The Indian energy scene is characterised by low per capita energy consumption, about hundred kilowatts per capita per day, and hence result is low per capita gross domestic product (GDP). Out of five

lakhs seventy five thousand (575,000) villages of India, there are as many as three lacks fifty thousand (3,50,000) villages with population less than five hundred. Because of their low load factor and their distance from Industrial belts and main grid, it is most uneconomical to electrify these villages. Even though, the fossil fuels are not recommended due to negative impact on environment, but even they are also becoming very difficult to supply to rural areas for crop production, allied activities and domestic purposes, at an economic rate. Therefore there is a need to identify and systematically promote efficient and pollution free alternate sources of energy, either based on efficient use of locally available Biomass or Solar or any other Renewable Sources. Such energy devices should be low cost, requiring low maintenance having longer useful working life, which could be managed, operated, maintained, serviced and repaired by local people on a sustainable basis after they are provided appropriate trainings.

c). As the life becomes more and more energy centred in rural India the urgent needs are being felt to find sustainable energy solutions for meeting the needs of people, especially the domestic energy needs. The traditional and inefficient use of biomass is one of the major problems of ecological and environmental problems in rural areas of the country. The reason for this is that the renewable energy options have not yet been accepted by rural masses, even though they have been tested and ready for people to use. The situation of each village and socio-cultural environment are specific to a given region, in some cases it varies from block to block, panchayat to panchayat and many time even one village to another village in the same panchayat. The RET would fit in well in rural & remote areas of India as by and large they are situation and site specific, therefore systematic promotion of new & efficient equipment/machines/gadgets/devices for effective harnessing of RE sources for rural household is a must and can be hardly over emphasised.

b). The experience of NGOs and other development organisations have shown that the centralised generation of energy creates more problems especially when it has to be utilised in village, distance places and remote areas. Apart from heavy transmission losses, high repair and maintenance cost and pollution, and erratic supply for example use of electricity and centralised biogas plants for cooking and lighting purpose. The Solar and Biomass Energy has definite potential, more so in rural areas but their promotion should be done on scientific line with comprehensive package for technology diffusion. Some of the major components of the promotional package would include extension (demonstration, awareness, skills development, education and capacity building of rural people with marketing orientation), socio-technical, post installation services as well as, financial package (combination of subsidy, incentives and credits) management, feedback and monitoring & evaluation aspects. However, the last but most important inputs required for the success of RE program in rural areas would be *"Building, strengthening and firmly establishing viable delivery-cum-back-up mechanism for decentralised pro-active development oriented interventions",* at the grassroots level for building people's confidence in the technology.

Available Technologies to Tackle the Twin Problems of Rural Energy through Renewal Energy Options

The following options are available for tackling ***Twin Problems of Rural Energy*** (Domestic Fuel and Power Generation for Agriculture & Rural Industries) in India through environmentally eco-friendly and sustainable renewable energy technology in an effective manner:

a). Domestic Energy for Rural Households

(i) This problem of cooking can be effectively solved either alone or by the combination of (1) biogas plants, (2) smokeless stoves (3) biomass briquettes as fuel and (4) solar cookers- either box type or parabolic type.

(ii) The problem of lighting can be effectively solved either alone or by the combination of (1) biogas plants, (2) solar photovoltaic and (3) electric power generation using biogas plants and gasifiers. In all these cases there are two options available- either to have large size plants on community or commercial basis or stand-alone systems for meeting household needs.

b). Decentralised Generation of Power for Operating Pump Sets for Irrigation and Drinking Water

(i) The problems of irrigation (individual or community) and community based drinking water supply can be solved by (1) biogas based dual fuel engine, and (2) gasifier based dual fuel engines.

(ii) In either case there are two options for operating power driven irrigation or drinking water pump-set- (1) mechanically by directly connecting the pump sets to the engine or (2) by running a pump set coupled with an appropriate capacity generator.

(iii) The mechanical or electrical generator using either biogas or biomass gasifiers can also be used for supplying power for other agro-based processing activities or cottage level or village level industries for micro level operations.

c). Biomass Briquettes, Fuel Wood and Energy Plantation

(i) The problem of cooking fuel and regular running of wood based gasifiers could be solved by promoting briquettes making from surplus biomass, plantation of fast growing fuel wood trees or energy crops on individual and community lands in a planned manner. Plantation of fuel wood trees and/or energy crops could be taken up as a part of activities for both domestic fuels as well as for operating gasifiers.

(ii) Making briquettes from biomass and raising of nursery by several people in the village in a decentralised manner would promote employment generation and would provide additional income to rural people, especially to meet their needs during off-seasons. This would require very little investment and low level of skills & expertise.

(iii) Therefore this activity could be taken as part of activities for both meeting domestic fuel needs as well as for operating gasifiers for mechanical or electrical power.

(iv) The Bioenergy Plantation program would generate employment and self-employment in villages thus contributing to local rural economy as well as check migrations to cities and already crowded urban centres.

PROJECT DESCRIPTION

7. PROBLEM (S) OR ISSUES THE PROJECT INTENDS TO ADDRESS

General

a). The energy needs in rural areas is mainly for domestic (cooking & lighting) and irrigation & drinking water purposes. This would contribute to meeting energy demand, removing drudgery and to the rural economy (both agrarian and as small scale repair shops for RET devices and machines by unemployed youth as self employed barefoot technicians). Of these the chief energy requirement in the context of Indian Villages are cooking and lighting needs.

b). The fuel wood, crop residues and agricultural biomass including cattle manure supply the substantial part of energy for cooking. While the fuel-wood is getting scarcer by the day, direct burning of all form of biomass in traditional & inefficient way are contributing to drudgery, time spent in collection & cooking, negative impact on the health of people, ecological degradation and environmental hazards.

c). The NGOs strongly belief that in spite of such huge amount of investment (if at all that is available) will still not solve the fringe of Rural Energy Problems, due to some of the following reasons given below:

(i) Remoteness, socio-cultural barriers,

(ii) Appropriate, efficient and affordable technology

(iii) Lack of infrastructures at the grass-roots level,

(iv) Lack of appropriate investment in RE demonstration and feed-back system,

(v) Lack of people's awareness and education and post installation services,

(vi) On the spot and timely back-up support and post-installation and repairs & spare parts facilities at the grass-roots levels etc., and

(vii) Appropriate Financing Mechanism for RET acceptance in Rural Areas

d) The NGOs Members of INSEDA have accepted the challenge to implement & demonstrate the use of Renewal Energy (RE) as well as for developing an effective delivery, management, post-installation and monitoring system, and appropriate financial mechanism for future replication of sustainable energy for large-scale applications in rural areas.

Priorities of the Government/Local Administration

a). The important of energy was realised globally soon after the oil crisis triggered by the by war in Middle East in early seventies. The pressure due to shortage of fossil fuel was felt very much on the developing countries. Realising the importance of developing its own sustainable energy sources, India gave a big trust; especially to meet the domestic energy needs in the rural areas. The importance given to renewal energy can be judged from the following decision of the Central & State Government and the Local Administration and the political-will.

(i) Promotion of Biogas Technology became one of the of the 20-Points Program of the then Prime Minister,

(ii) A separate Department under the Ministry of Science and Technology (later on Ministry of Power) was created in 1982 to give a major thrust to RE Program. This was Department of Non-conventional Energy Sources- DNES, which is the Nodal Department for RE Programs,

(iii) The IREDA (Indian Renewable Energy Development Agency) was established within the DNES in 1987, for the commercialisation of RETs,

(iv) After the Earth Summit at Rio de Janeiro in June, 1992, the Government of India decided to give much more focused attention to Renewable Energy by upgrading the DNES to the level of Ministry- the Ministry of Non Conventional Energy Sources (MNES), which has been directly under the charge of the Prime Minister,

(v) Almost all the states in the country have a nodal department to promote the RE Programs,

(vi) Similarly all the districts and blocks have targets to implement renewable energy technology, and have remained the priority for more than one and half decades,

(vii) Realising the decentralised nature of renewal energy implementation for success, the Government of India has followed a Multi-Model and Multi model approach, for the promotion of mature, tested and approved RE Technologies,

(viii) As for the Rural Energy Promotion, especially for meeting the domestic household energy needs, which required extension and developmental approach for

implementation, the MNES (earlier DNES) involved NGOs in this program, right from the initiation of REs programs, through State Government Nodal Agency.

(ix) Realising the importance of NGO in the promotion of Low cost renewable Energy especially for rural applications, and based on the feedback, a few years ago MNES recognised some of the NGO Network/Associations as Nodal Agency for channelling funds directly to partner/member NGOs, for effective implementation.

b). Thus above-mentioned realities amply demonstrates that the development, promotion and implementation of renewable energy is one of the priorities areas of the Government of India (GOI) and the State Government, for over one and a half decade.

Solar Cookers Promotion in India, Problems Faced and the Need for New Approach for Diffusion

a). Advantages of Harnessing of Solar Energy for Cooking Using Solar Cookers

(i) Solar Cookers in General

- The Solar Energy Technology for cooking purpose is very simple and easy to handle in rural situation.
- The simple and sturdy Solar Energy Equipments/Gadgets if built as per the approved and tested designs require no or very little care and maintenance.
- They are eco-friendly and environmental benign.

(ii) Parabolic Concentrated Solar Cookers (PCSC)

- Cooked food can be kept in simple hot-box (made of straw) for longer period.
- Solar Cookers can be effectively used for cooking Animal food and for boiling water, thus saving time, fuel as well as remove drudgery to rural women.
- The cooking can take place anywhere, in place where enough open space is available to keep the cooker and the solar energy can be tapped unhindered.
- Almost all types of cooking, such as frying, roasting, steaming, can be done.
- Varieties of foods from all regions of the country can be cooked after some training and practice.
- Villagers can be easily taught to cook the type of food they normally cook in a traditional Chulha (Cook Stove).
- Simple day-to-day care and maintenance of PCSC can be easily taught to village women, so that they don't have to depend on skilled workers for looking after their cookers.

(iii) Present Situation- Need, Potential and Status of Promotion of Solar Cookers

- Around 1.5 billion people worldwide use wood for cooking. Fuel-wood, however, has scared in many developing countries as large wooded areas have been cut down, which is resulting in soil erosion, loss of fertile agricultural and grazing lands in villages, desertification and negative ecological and environmental impact.
- The situation in India remains the same as in any other developing country. The main sources of cooking energy in the country are firewood and other biomass (cattle dung cakes and crop residues, burned inside the traditional cook stoves in a very inefficient manner. This causes health problems, long hours of cooking time and drudgery in collecting and storing firewood and biomass.

- In India the possibility of getting enormous heat from Solar Energy, in most of the state in for about 300 days per year.
- An appropriate Solar Cooker design can solve the at least 75% of cooking fuel needs in households in rural areas.
- However, the Solar Cooker is not propagated systematically in India, especially in rural areas.

b). Design, Development and Current Status of Promotion of Solar Cookers Models

(i) As per records, the isolated work on the design, development and testing of different types of cooker were going on in India from at least the beginning of 1970's to develop workable field worthy models. In the initial years, the committed designers, developers and promoters tried & testing and to a limited extent field evaluated the following main types of Solar Cookers:

Box Type Solar Cookers

- Box Types Solar Cookers with Several Reflectors on all the sides (mainly mirrors and in some cases Reflective Sheets made of Aluminium Foils pasted on flat boards to make the entire unit lighter). This was to harness as much as possible solar energy from all the sides for directing inside the insulating cooking box below it.
- Box Type Cookers with one reflecting Mirror facing the South, to harness maximum solar energy during the day. This type was comparatively simple in design and maintenance & repairs.

Parabolic Type Concentrated Solar Cookers

- The Parabolic Concentrator made of small mirror pieces (about 1 to 2 inches square pieces) pasted on the parabolic surface to form the reflective surface.
- The Parabolic Concentrator made of papier-mâché (moulded in to the designed shape) and pasted with Aluminium foils to form the reflective surface.

(ii) Out of the above-mentioned three models, the simpler box type cooker design with one reflector (made of mirror) on the back side was the only model identified for mass popularisation by the nodal ministry of the GOI. Therefore at present is the only type available to the promotional agencies and the end users. This reason for the popularity of box type cookers was due to simplicity, lighter weight, and least cost amongst the three models and to a large extent due the support extended by DNES (now MNES) for its promotion.

(iii) The history of systematic development and promotion of Solar Cookers in India however is just over one and half-decade-old. A large number of solar cookers were sold, backed by the government subsidy by the DNES (now MNES). This showed a sudden spurt in the number of solar cookers from the mid 1980's till almost the beginning of 1990; however, now there appears to be a downward trend, in spite of a large potential existing in the country.

(iv) Even the well designed & well constructed Solar Cookers still had some of the limitations such as - (1) Cooking of meals during the cloudy weather and rainy seasons, and (2) Cooking in the night etc. In spite of these limitations wherever the Solar Cookers were launched with appropriate demonstration backed by proper awareness & supply of users manual with recipe booklets, the people accepted this technology whole-heartily, knowing very well their limitation in cooking, which gave a very good initial boost to this program.

c). Problems and constraints in low acceptance of Solar Box Types Cookers

Problems and Constraints in Box Type solar Cookers

(i) In spite of Solar Box Cookers being promoted for over 15 years, backed by Central Government subsidy yet the people, especially in rural areas have not accepted them. Some of the reasons for this has been summarised below, based on discussions with the individuals and agencies intensively involved in the promotion, designing, manufacturing, marketing and follow-up of the Solar Cooker program:

(ii) Even though the Solar Box Cookers is a simple device/gadget, even a best cooker are not able to raise the temperature above 120 ^{0}C. However, majority of cookers are found to give an average peak temperature of around or slightly above 100 ^{0}C inside the cooking box, under field conditions. This temperature is just sufficient to do cooking, therefore, this design of solar cooker has to be efficient to raise the temperature inside its insulated cooking box to a level the cooking of all the items of the daily meals could be easily done.

- Defects in the designs during the initial stages of implementation, due to lack of technical knowledge by field level promoters and manufacturers.
- Inferior quality and no proper quality control.
- Due to subsidy only approved manufacturers could sell on subsidy rates- they became a privileged group who were able to get away with supplying inferior quality of cookers.
- The subsidy component was not appropriately backed by a strategy for converting the Solar Cooker program in to a viable loan based program.
- Though design and specifications were laid down by (MNES), Govt. of India, there were no systematic checks and monitoring to see that manufacturers adhere to them strictly. For example, the outer dimensions of the Box Cookers would normally be kept as per the specifications, but the construction & fabrication of interior; the absorber tray and the double glass cover were often compromised with. The smaller tray and glass cover/reflector if reduced by even a couple of inches would greatly affect the performance.
- The most important component of the solar cooker is the insulation and its proper sealing, which is a costly component and remains concealed. Therefore, in order to save on cost and earn maximum possible profit, often the manufactures have been providing inferior insulating materials, loose wool instead of padded wool and in much lesser quantity than what is specified for it's efficient functioning. The reason for this is that the majority of manufactures look at only short-term gains from this government-sponsored programme.
- The Solar Cookers are either made of Fibre Reinforced Plastic (FRP) or Metal (Mild Steel or Aluminium). The metal bodies are less efficient and are also not much in demand- the FRP is an expensive material. A specified thickness is prescribed for the FRP body of the cooker and to achieve this fibreglass mat and resins have to be used in specified quantities. The padded glass wool used for the insulation is costly. These two components (FRP Body and the Glass Wool Insulation) are most expensive and contribute to nearly 80% of the total cost (total FRP components, at present rates work out to about 60% of the total cost of solar cooker). To reduce the cost one can easily reduce the quantity of fibreglass and resin and supplement it with filters (chalk powder), thus reducing between 20 - 25% in the FRP portion of the Solar Cookers.

- Use of other poor quality parts, such as Hinges, Screws, Caster Wheels, Gaskets and poor quality black paints used for painting the utensils for absorbing heat etc. adds to the overall quality, maintenance cost to users and reducing life of solar cookers.
- No effective promotional thrusts have been provided to create the demand at the grassroots level.
- No entrepreneurs have been developed to take up promotion, fabrication and post-selling support at the doorstep of the people at a minimal cost to the end users.
- There is no effective and viable back-up and feed back system has been developed to provide support, monitoring as well as to get views of 'End Users' in particular and objective response of 'Rural people' in general to review them. The analysis of such feedback data & information from a wider coverage would have helped the planners and policy makers to decide on appropriately re-designing of the existing solar cookers or bring in new types of cookers as well as helped to modify the implementation strategy.

(iii) Another factor contributing to the present state of affairs, is the inefficiency, as the simpler box type cookers design, though cheaper, were neither found to be durable nor could achieve the desired temperature inside the cooker for cooking the meals (under field conditions), as mentioned in the users manuals & guides. Due to this the people, especially in the rural areas are still not fully convinced about the utility of this product (all types & designs of box type solar cookers in general), are apprehensive about its advantages and quality.

(iv) In recent years, hybrid box type solar cookers have been designed & approved by MNES. These cookers have electrical heating element, to keep the cooker in operation in cloudy conditions and in evenings & nights. Such designs are not practical in rural situation and remote & far-flung regions of the country, as either the electrical power are not available or the supply is erratic. In any case this option is not a viable solution for meeting cooking energy needs in rural areas.

(v) The solar cooker promotion program was not consciously integrated with other affordable renewable energy activities, like efficient smokeless chulhas & cooking stoves etc. so that the limitation of cooking during early morning, evening and night as well as during cloudy weather could be supplemented.

Low Acceptance of Box Type Solar Cookers

(i) Wherever the Solar Cookers were launched with appropriate demonstration etc., the people accepted this technology whole-heartily, knowing very well their limitation in cooking, which gave a very good initial boost to this program.

(ii) However, the people, especially in the rural areas are still not fully convinced about the utility of RET gadgets, are apprehensive about their advantages and quality. This has resulted in solar cookers not becoming that popular and acceptable as it should have been, based on the potential in the Country, which is enormous.

(iii) All the above-mentioned factors have led to investing in a product (box type solar cookers), which in due course of time proved to be ineffective and hence the mass scale adoption of the technology could not take place, especially in rural areas of the country.

d). Approach for Promotion and Diffusion of Solar Cookers

Existing Approach

(i) So far two approaches have been followed for the promotion of Solar Cookers, as given below:

- The development approach followed by demonstration and backed by subsidy
- Marketing approaches by manufacturers & dealers and supported by subsidy.

(ii) In the first case the State Government (through District & Block) and some of the NGOs took up promotion using demonstration of appropriate designs of solar cookers. Most of the grassroots NGOs have no funds to set up manufacturing units to fabricate solar cookers and had to depend on companies based in cities. Therefore NGOs have had no means to ascertain the quality of products especially the type, thickness and quality of insulating materials, very essential to maintain the heat inside the box cookers. The NGOs, except perhaps in a few cases, also didn't have separate funds for providing adequate training, education and back up support to 'End Users' as well as for the supply of even essential spare parts and for extending maintenance and repair facilities. More over so far the rural based NGOs have taken up the promotion of solar cookers only as a fraction of the major activities of their entire RE program, giving more importance to only biogas & smokeless chulha. Vulnerability of the existing designs of box type solar cookers (recognised for central and in some case state subsidy) because of mirror type reflector in villages has discouraged majority of NGOs to whole heartily support this model.

(iii) The recognised and approved manufacturers of solar cookers once sell their products have no commitment towards the post-installation services, especially in rural, remote and far-flung regions, perhaps due to smaller margin of profit and lesser volume of business at present.

Future Approach for Promotion of Solar Cookers should broadly look in to following aspects

(i) Identification and selection of a New Design of Solar Cookers based on ascertaining that it has had the least problems and require low maintenance at the field level. The new model should eliminate the use of mirror and glass altogether for its fabrication, high efficiency, higher temperature, easy shifting from place to place, easy installing, dismantling and re-installing possibilities, have longer useful working life and flexibility of cooking all types of meal with least training, and easy adaptability.

(ii) Follow an extension-cum-semi market approach, backed by initial subsidy for a few years with loaning system for long-term repayment plan and affordable instalment not pinching their pockets.

(iii) Establishment of Renewal Energy Production-cum-Extension-cum-Marketing Resource Centre (RE-PEM-RC)- The RE-PEM-RCs could be more effective if established with grassroots NGOs as they had been working in the regions for number of years and have implemented various developmental programs, due to which have built good rapport and credibility with the local people. Even then, only those NGOs should be selected who agree to co-operate in the promotion of Solar Cooker implementation as per the agreed activity plan. The size and capacity of the RE-PEM-RC would depend upon the potential of cookers and area of operation of NGOs. The NGOs having more potential in a given state or/and region could qualify to be given Regional Level RE-PEM-RCs to operate effectively in two to three States.

The Regional Level RE-PEM-RCs could also acting as the resource-cum-facilitating centres for the District Level RE-PEM-RCs. The NGOs operating in one District in a State could be given District level RE-PEM-RCs. On the other hand NGOs either operating in a comparatively less potential regions or states or in a block, could be given Block Level RE-PEM-RCs for covering lesser area, say a Block or Taluka Level, in an intensive manner. Finally there would be need for establishing Village Level Centres to be owned & operated by trained bare foot technicians, under the umbrella and overall guidance of either District or Block level Centres. Looking at the size of the country and the distance covered, it would be necessary to establish two Zonal RE-PEM-RCs (one in the Northern Zone and the second in the Southern Zone of the country) to provide support to the Regional, District and Block level Centres.

(iv) Individual entrepreneurs identified, trained and qualified could be attached with these resource Centres (RE-PEM-RCs) which should provide all the necessary support to them for promotion of Solar Cookers on incentive basis. They could be designated as the Barefoot Solar Cooker Technician-cum-Entrepreneurs. One such person could easily cover 25 villages in a radius of 20 KM. They should be provided tool kits and bicycle by the RE-PEM-RCs to ensure effective implementation, follow-up and post-solar cooker installation support, within their area of operations.

(v) Promotional effort should be adequately backed by adult & functional education, technical literacy program, supported by development of large number of rural enterprises, especially involving unemployed rural youth and artisans. This should be backed by assurance of adequate & timely supply of fabrication materials, low cost reliable and timely post installation services at the local levels to build confidence of rural people in Solar Cookers, which would eventually lead to accepting this technology by the masses.

(vi) The INSEDA would be in a better position to perform the role for the systematic dissemination, popularisation & diffusion of Solar Cooker Technology, using the above approach and RE-PEM-RC concept for promotion. This is due to the practical experience of successful implementation of one rural energy technology, namely biogas plant, for the past 20 years, as a NGO Network.

Linkages between the previous activities, on-going and planned activities

a). The NGOs Network has played a very important and crucial role in promotion, transfer, popularisation and diffusion of Fixed Dome Model Biogas Plants throughout the country. This process was initiated in 1980, for decentralised implementation of biogas program by grassroots NGOs, with financial support of several Overseas & Indian funding agencies as well as the nodal Ministry of the Govt. of India. In order to ensure systematic & effective involvement of these loosely knitted grassroots NGOs with varied background, vision and mission, spread throughout the country agreed to work on common theme of biogas development program. This involved promotion, extension and dissemination of low cost biogas units throughout India under the aegis of NPBD. A master proposal was prepared for strengthening and developing, both, the individual NGO (agreeing to join the network) and the NETWORK itself. This network had grown from an informal FORUM of a few loosely knitted NGOs in 1980 to a strong and stable NETWORK of over 70 grassroots level NGOs, operating over 90 Biogas Extension Centres (BECs), throughout the length and breadth of the country. As network members the NGOs had constructed about 100,000 rural household biogas plants by the end of 1995. The members, hitherto operating informally for about 15 years, decided to organise themselves into a formal body by the name INSEDA. This was to give the Network credibility and its own identity for systematic promotion of renewable energy and ecological development programs for the benefit of rural people, through its member

organisations and other NGO partners. Subsequently, the INSEDA (INTEGRATED SUSTAINABLE ENERGY AND ECOLOGICAL DEVELOPMENT ASSOCIATION) was registered as an autonomous national association under Indian Societies Registration Act in December 1995, with registered office and headquarters at New Delhi.

b). The INSEDA since its formation has continued its involvement in the promotion of Renewable Energy in Rural Areas through its member agencies. It is now ready to implementing programs related to other renewable energy gadgets for rural application.

c). The proposed project entitled "Promotion of Parabolic Solar Cookers by NGO Network through Micro Level People's Institutions- MLPI" is the continuation of activities being carried by it in the last almost two-decades. Through this program it is proposed to systematically promote an efficient Solar Cooker in Rural Areas f the country by involving its member agencies, who have practical field level experience related to successfully implementing one single RE Technology- the Biogas Plant.

d). This project proposes to implement the Solar Cookers (which in spite of being promoted for over 15 years has not been diffused) by using a new strategy for implementation. Based on experience gained and lesson learned and analysis done, the new strategy is based on "Extension-cum-Semi-Market Approach", as against purely extension approach followed by NGOs and the purely market approach followed by the Manufacturers.

Relationship between the Proposed Project and National and State Level Development

a). Both the Central as well as the State government in India gives the renewable energy great importance. This is amply demonstrated by the fact that there is a full-fledged Ministry of Non-conventional Sources of Energy (MNES), which is a central nodal Ministry directly under the charge of the Prime Minister. At the same time at the State level, all the states have the nodal departments to promote Renewal Energy Programs. In addition to this IREDA was established in 1987 by the GOI for the commercialisation of RETs.

b). All the above-mentioned three agencies have recognised the role of NGOs in the promotion of RETs, especially the small-scale RETs, more so their applications in rural areas because of the socio-cultural diversity requiring decentralised nature of implementation.

c). Because of the involvement of NGO network in the promotion of rural household BGPs and smokeless chulha in the last about 20 years, the government at each level, central, state, district and block levels have recognised the enormous potential for promoting RETs.

d). While the government has been able to successfully implement large scale RETs, they are still looking for viable strategy for involving NGOs in the promotion of RETs. The copy of Report/Proceedings- "Awareness Workshop on Renewal Energy Technology for NGOs" and the copy of Report/Proceedings- "Awareness Camps on RETs for End Users" are attached as Annexure- D and E, respectively, would support these views. The Workshop on RET as well as the RET Camps for End Users, conducted by NGOs were sponsored by IREDA and organised and funds channelled by INSEDA in 1997.

f). The above two examples amply demonstrate the relation between the proposed project national and the state level development are complementary & supplementary.

Complementarity of Activities of the Proposed Project with Government Program

a). The above-mentioned workshop and camps have opened doors for NGOs to take advantage of IREDA loans for implementing RET programs. Some of the more enterprising NGOs have initiated dialogue with IREDA for working out proposal for loan application, especially for

implementation of solar voltaic, biomass gasification and micro-hydro programs. At the same time, the majority of NGOs would like to follow a cautious approach, by first, following a mid-way approach, with gradual transition towards implementing RET programs, before undertaking the loan channelling role by them. As they feel that it requires implementation of some concrete pathfinder project with lesser risks to learn and prepare themselves as well as the end users to evolve a practical methodology and develop full confidence. The proposed project is a step in that direction to gradually evolve a system for effectively involving NGOs in applying for loans from IREDA for other programs of RETs, therefore the implementation strategy for this project is innovative in nature.

b). Therefore, the proposed project will ensure the complementarity of activities of the government programs both at national and state level. It will also demonstrate a new approach, to not only involve INSEDA Members but also other NGOs/Agencies to promote other RET programs in rural areas.

8. GOALS AND PURPOSE (S) THE PROJECT INTENDS TO ADDRESS

GOAL OF THE PROJECT

The goal of the proposed project is to systematically promote eco-friendly and environmentally sound renewal energy to meet the rural energy needs by efficiently harnessing solar energy for cooking with a view to reduce the drudgery of women in fire wood collection, storing and cooking.

PURPOSE (S) OF THE PROJECT

a). The main purpose of the proposed project is to show an effective approach to systematically promote an efficient Parabolic Solar Cookers as one of the viable solution for meeting at least 60% of the domestic rural household fuel needs by efficiently harnessing solar energy for cooking purpose. The secondary purpose is to demonstrate the best way to meet the balance of 40% of cooking energy needs through the efficient use of locally available surplus biomass in an affordable manner.

b). The other purpose, partly by default and partly by design is to promote:

- Making of biomass briquettes with the project families for supplementary income
- To demonstrate the use of biomass gasifier for household power generation for utilising for irrigation, drinking water, lighting and village industries by the efficient use of locally available and grown biomass, mainly using biomass briquettes for its operation.

Broad Objectives of the Proposed Project

The proposed project has the following broad objectives to realise the over all goal of the project:

a). To systematic promote an efficient parabolic solar cooker for meeting the domestic cooking fuel needs of rural families.

b). To encourage beneficiary families to undertake briquette making by utilising the locally available surplus biomass saved by them by switching over to Solar Cooking.

c). To demonstrate the use of gasifier based power generation for pumping water for irrigation & drinking water, lighting and/or operating village industries in rural areas, either by individual rural household or by village level power generation, using locally available biomass.

d). To demonstrate a new strategy for effective and viable implementation of renewal energy technology in rural areas for wider replication.

e). To demonstrate a new method of financing for effective implementation of RE programs in rural areas, especially for the benefit of the poorest groups/communities in remote and far-flung regions of the country.

f). To build and strengthen the capacity of different stakeholders involved in the promotion, extension, implementation, manufacturing, maintenance, repairs, management, adoption, use, and socio-technical back-up support of Parabolic Concentrated Solar Cooker (PCSC) and other RET Programs in an effective and systematic manner.

9. STRATEGY FOR PROMOTION OF PARABOLIC CONCENTRATED SOLAR COOKER

a). INSEDA will follow the following strategy for the promotion of Parabolic Concentrated Solar Cookers (PCSC) involving Micro-level Institution through NGOs:

(i) Extension-cum-Semi-marketing approach, which would include the following:

- Establishing of Resource Centres at the project level with each of the participating NGOs for Production-cum-Training-cum-Backup Support;
- Undertaking capacity building of NGOs, CBOs, Self-help Groups and the Barefoot technicians for involving them in the implementation of Solar Cookers;
- Strengthening of Micro-level Institutions (MLI)- such as CBOs, Self-help Groups and Mahila Mandals (Women's Group) etc., for facilitating implementation of Solar Cookers and other RET with peoples participation;
- Working out a Financial Package which would include subsidy, easy credit on the balance amount after subsidy as well as providing incentives to efficient groups and imposing penalties to defaulters;
- Working out a *minimum loan repayment amount* and the repayment schedule in such a way that it would cover the weakest sections of the community in the poorest states as well as the remotest region within the country;
- Providing financial incentives to those people who are in a position to repay their loan instalments in bigger amounts and as per the repayment schedule. This way the loan components (funds) can be revolved and re-used, thus over-reaching the target set and benefiting more rural people;
- Incorporating incentives for NGOs and their staff so that the efficient groups cab be rewarded, which will also bring about accountability,
- Establishing a computer based performance budgeting for performance appraisal, achievement against target set for each NGO and feedback & retrieval system for effective implementation, monitoring & evaluation and reporting,
- Using appropriate custom made computer software for creating data bank and financial package for monitoring of output and subsidy & loan disbursement, repayment schedule, timely repayments and for evaluating incentives to be given to NGOs, their staff, micro-level institutions and barefoot technicians for qualitative achievements of target etc., and
- Establishing and strengthening a Management System for efficient delivery, feedback, monitoring, reporting and mid course correction,

(ii) Organising Trainers Training Programs in Solar Cookers and other RETs;

(iii) Developing package of materials, which will contain printed matters related to awareness, promotion & publicity, cooking, education and operational & service manual for End Users in simple & local languages;

(iv) Organising Workshops and Meetings at National, Regional, State and NGOs level;

(v) Developing and strengthening linkages with nodal agencies at the national, state and district levels, through meetings, liaison, organising their visits to the projects, so that their inputs could be incorporated during the ongoing project stage. The sharing of information and the lessons learned from the project based could be incorporated in the future planning documents of the nodal agency. This process could also facilitate advocacy at all levels, which could lead to appropriate policy changes in favour of effective RET implementation strategy for applications in rural areas;

(vi) Promoting efficiency of solar cookers and energy conservation for meeting all the cooking fuel needs by the following interventions amongst the ***End Users***:

- By encouraging meeting the cooking needs in the night, early mornings and in cloudy weathers using efficient cook stoves and smokeless chulha,
- By encouraging the solar cooker users to purchase *Pressure Cookers,*
- By motivating and encouraging the end users to use the biomass in an efficient manner using smoke-free briquettes from locally available surplus biomass, and
- By training the users in energy conservation appropriate cooking methods as well as by supplying pamphlets and users manual in simple local languages for conserving energy while cooking,

(vii) Providing built-in provision for making the Parabolic Solar Cookers implementation program of NGOs self-supporting in due course, by undertaking some of the activities/programs given as under:

- Encouraging the local people, especially those purchasing the cookers under this project, to convert their surplus biomass in to briquettes, and facilitate marketing. Thus their age-old perception of "Zero Cost" as value attached to the 'Collected Biomass' by them would get converted in to some 'Cash Value'. This understanding would make the local people realise that there is nothing that is either free or waste. Moreover, all the stakeholders involved in the solar Cooker project would be able to earn some revenue by marketing the briquettes;
- Initiating other renewal energy program with the support of MNES and IREDA and integrating them with this program,
- Marketing of briquettes made by local people. This will also help in the recovery/adjustment of loans taken by people for the purchase of solar cookers,
- By taking service charges for loan and the back-up support provided to solar cooker owners/end users,
- By charging fees for conducting training from local entrepreneurs, other NGOs, government and manufactures,
- Undertake marketing of other RET gadgets by negotiating with manufacturers to give good discount etc. or acting as their distributors or dealers in their regions,
- Keeping spare parts for all types of popular RET gadgets,
- By taking advantage of government funds for promotion of RET programs, in which service charges and turnkey fees etc. are already built-in,
- By acting as intermediate resource agency for assisting local NGOs, CBOs and Panchayats for preparation of feasibility reports and resource persons-cum-facilitating agency as well as acting as trainers etc.,

(viii) Liaise, dialogue and co-ordinate with Indian manufactures to indigenously manufacture these highly efficient reflective sheets for fabricating parabolic surface so that the overall cost of these cookers could come down substantially;

(ix) Liaise, interact and give feedback from the field to Indian R&D Institutions so that they could make appropriate changes in the design of existing parabolic cookers for cutting down in the cost of cookers without compromising on the quality of materials, useful working life and the efficiency; and

(x) Collect case studies and bring out publication for sharing with by NGOs and other implementing agencies for improving their performance.

10. TARGET GROUPS AND PROJECT BENEFICIERIES

The main target groups of the proposed project are rural women, covering the entire village community. However, the loan component is designed in such a way that it would include the poorest group from the poorest state/region of the country. As this project is not designed to tackle the rural poverty, it is expected that in the initial years of implementation comparatively well off and progressive groups would take up solar cookers, but as the implementation progresses, more and more poor groups are expected to take up solar cookers. The financial package (loaning, repayment schedule and mode of repayment) has been deliberately worked out in such a way that it is heavily biased respond to in favour of the poorest group. It provides flexibility to implementing agencies to adequately respond to meeting the cooking needs of the poorest group, therefore, this project can very well get integrated with any on going or new program whose goal is poverty alleviation. Thus even though it is essential a sustainable energy development program, it keeps in to sharp focus the vision & mission of the partner NGOs and their developmental philosophy & thrust as well as their overall commitment of serving the poor in view.

PROJECT OUTPUTS AND ACTIVITIES

11. OUTPUTS

SL. No.	Identification of Output	Year Wise Realisation of Outputs					Total Output
		First	Second	Third	Fourth	Fifth	**5 years**
(a)	(b)	©	(d)	(e)	(f)	(g)	(h)
1.	**Planning and Inception Workshops**						
a).	Planning Workshop at the National Level (NGO & ICEF Participation)	50 NGOs Plus 10 Others	-	-	-	-	60 persons attended the Workshop
b).	Project Inception Workshop at the National Level (NGO and ICEF Participation)	50 NGOs Plus 10 Others	-	-	-	-	60 persons attended the Workshop
2.	**Establishment of NCU and RE-PEM-RCs**						
a).	Establishment of 1 National Co-ordinating Unit (NCU) at Delhi	1 NCU	-	-	-	-	1 NCU in Operation
b).	Establishment of 2 Zonal Level RE-PEM-RC Complex in two Zones (Northern and Southern)	2 Zonal RE-PEM-RC Complex	-	-	-	-	2 Zonal RE-PEM-RC in Operation
c).	Establishment of 7 Regional Level RE-PEM-RC Complex	5 Regional RE-PEM-RC Complex	2 Regional RE-PEM-RC Complex	-	-	-	7 Regional RE-PEM-RC in Operation
d).	Establishment of 31 District Level RE-PEM-RC Complex	-	16 District RE-PEM-RC Complex	15 District RE-PEM-RC Complex	-	-	31 District RE-PEM-RC in Operation
e).	Establishment of 10 Block Level RE-PEM-RC Complex	-	5 Block RE-PEM-RC Complex	5 Block RE-PEM-RC Complex	-	-	10 Block RE-PEM-RC in Operation
f).	Establishment of 250 Village Level Centres (VLCs) to be established by the barefoot PCSC Technicians trained by 50 RE-PEM-RCs	10 Village level Centres (VLCs)	65 Village level Centres (VLCs)	125 Village level Centres (VLCs)	50 Village level Centres (VLCs)	-	250 Village Level Centres (VLCs) in operation
3.	**Training, Camps, Meetings, Workshop and Seminars**						
a).	Construction Training for technical staff of NGOs (@ 5 technical trainees per training)	25 Technical Personals trained	40 Technical Personals trained	60 Technical Personals trained	25 Technical Personals trained	-	150 Technical Persons trained thru 30 trainings
b).	Training in Assembling of Cookers, Maintenance and Promotion (@ 5 persons per training) in 50 training	45 Persons trained	125 Persons trained	80 Persons trained	-	-	250 Persons Trained at 50 Centres
c).	Refreshers Training of Bare foot Technicians (BFT) on all RETs {3 trainee each per centre selected out of those trained under 3 (b)}	30 BFTs trained	60 BFTs trained	45 BFTs trained	15 BFTs trained	-	150 Barefoot Tech. trained at 50 Centres

d).	Trainer's Training (NGO Staff) on SK-14 PCSC and different types of Solar Cookers and Promotional aspects for 50 RE-PEM-RCs (Zonal, Reg., Dist & Block Centre)	-	20 Persons trained	30 Persons trained	20 Persons trained	-	70 Trainers Trained (50 for 50 Centres plus 20 additional for bigger centres)
e).	Training of Master Trainers (NGO Staff) on all aspects of Solar Cooker & other RETs, Ext. and Market aspects. These Trainers will be with 1 National Nodal Agency (INSEDA), 2 Zonal & 7 Regional Centres (RE-PEM-RCs).	-	10 Master Trainers on RETs trained	-	-	-	10 Master Trainers Trained on Sol Cookers & RETs. One each attached with 10 Major RE-PEM-RCs
f).	Distant Education on Renewal Energy Technology (DIERET) for the Project Directors/ Managers/ Chief Functionaries of NGO. It will be conducted by INSEDA	-	50 participants	50 Participants	-	-	100 persons trained
g).	Training for Micro Level Institutions (MLIs). The MLIs could either be MMs- Mahila Mandals (Women's Groups) or SHGs (Self Help Groups) or MCG (Micro Credit Groups or CBOs. Each RE-PEM-RC will establish 50 MLIs & each MLI will have ave. of 20 members	500 Member trained from 25 MLPIs	1,000 Member trained from 50 MLPIs	1,500 Member trained from 75 MLPIs	2,000 Member trained from 100 MLPIs	-	5,000 members trained- from 250 MMs/SHGs/ MCGs/CBOs established by 50 NGOs for promotion of PCSCs
h).	Training on all aspects of Gasifiers (For training of 50 technical and managerial staff of 50 NGOs at two zonal (North & South) Centres	10 Persons trained	20 Persons trained	20 Persons trained	-	-	50 Persons trained through 4 trainings at the 2 Zonal Centres
i).	End Users Training Camps (One day practical training on cookers and briquettes making and their efficient utilisation for cooking)	500 End Users trained in groups of 5	2,500 End Users trained in groups of 5	4,000 End Users trained in groups of 5	5,000 End Users trained in groups of 5	3,000 End Users trained in groups of 5	15, 000 End Users in groups of 5 at 50 NGO Centres
j).	Meetings of Micro Level People's Institutions (MLPI)-250 SHGs/ MM/ MCGs/ CBOs established by 50 NGOs (persons/ meeting /mo. First year 6 meetings per RE-PEM-RCs)	800 Persons participated in meetings	7,200 Persons participated in meetings	12,000 Persons participated in meetings	12,000 Persons participated in meetings	12,000 Persons participated in meetings	44,000 Persons participated in 6690 meetings of MLI organised by 50 Centres
k).	Participatory Meeting-cum-Inform. Sharing Camps (@1 camp/ three month/ Centre with 50 participants in each. First year only 2 Camps each at 2 Zonal & 5 Reg. Centres)	700 Persons attended the Camps	6,000 Persons attended the Camps	10,000 Persons attended the Camps	10,000 Persons attended the Camps	10,000 Persons attended the Camps	36,700 Persons through 734 Info. Camps at 50 Centres (RE-PEM-RCs)
l).	Annual Exhibition on RET Demo, Group Discussions, Competitions. One Exhibition of 2 days duration at each centre. Average of 200 people would visit each Exhibition	1,400 Persons attended the Annual RET Exhibition	6,000 Persons attended the Annual RET Exhibition	10,000 Persons attended the Annual RET Exhibition	10,000 Persons attended the Annual RET Exhibition	10,000 Persons attended An. RET Exhibition	36,700 Persons attended 187 Annual RET Exhibitions at 50 RE-PEM-RCs
m).	Regional Workshops (RWs) at 7 Regions)- 3 RWS per Region/ Year- for Participatory Appraisal, Monitoring and Reporting	-	300 persons participated in the WS	300 persons participated in the WS	300 persons participated in the WS	300 @ persons participated in the WS	1,200 persons to participate in the 84 Regional Workshops

n).	Zonal Workshops (North & South)- 2 ZWS/Zone/Year for Participatory Appraisal, Monitoring & Reporting (1 WS for each Zone in first year)	80 people @ 40 per Zone for 1 ZWS/ Zone	320 people @ 80 per Zone for 2 ZWS/ Zone	400 people @ 100 per Zone for 2 ZWS/ Zone	400 people @ 100 per Zone for 2 ZWS/ Zone	400 people @ 100 per Zone for 2 ZWS/ Zone	1,600 persons to participate in 18 Zonal Workshops
o).	Half Yearly NGO National Workshops (NWS) for review of progress, half yearly Report and Activity Planning for next six month	120 persons participated in 2 National Workshop	120 persons participated in 2 National Workshop	120 persons participated in 2 National Workshop	120 persons participated in 2 National Workshop	120 participated in 2 Nat. Workshop	600 persons participated in 18 Half Yearly National WS
p).	Annual National Seminar (ANS) on RETs with special reference to Parabolic Cookers One of the two Half Yearly NGO National Workshops {item 3 (o) Review of Report & specific Activity Planning for the next six month & 1 year} will be combined with ANS	75 persons participated in National Annual Seminar of NGOs	75 persons participated in National Annual Seminar of NGOs	75 persons participated in National Annual Seminar of NGOs	75 persons participated in National Annual Seminar of NGOs	75 persons participated in National Annual Seminar of NGOs	375 persons participated in 5 National Annual Seminars of NGOs
4.	Preparation of Package of printed material, slides and video etc. (for awareness, capacity building, skills training, publicity users-cum-operational manual and booklet on Recipes for Solar Cooking etc.)	500 copies of Cons., Operation and Maint. Manual prepared	500 copies of Training Materials, 100 Slides sets & 5000 Poster made	500 Recipe Booklets & 100 sets of Video on PCSC made	5 Case Studies on cooking with PCSC prepared	10 Case Studies on cooking with PCSC prepared	Package of Printed Material, Slides and Video etc. in use
5.	Demonstration Parabolic Solar Cookers (PCSC)- Model-SK-14 (2 Constructed as training-cum-demonstration PSCS for Zonal Centres in advance. Balance 300 PSCS to be built by the technical trainees and at 50 RE-PEM-RC	32	100	120	50	-	Built 302 Model-SK-14 PCSC during Training as well as Installation by 50 RE-PEM-RC
6.	Installation of Parabolic Solar Cookers (PCSCs)- Constructed during Training-cum-Demo as well as Installation by 50 RE-PEM-RC	50 (@ 5 per Village Centre x 10 VCs)	750 (@ 10 per Village Centre x 75 VCs)	3,000 (@ 15 per Village Centre x 200 VCs)	5,000 (@ 20 per Village Centre x 250 VCs)	6,200 (@ 25 per Village Centre x 250 VCs)	Built 15,000 PCSC during Training as well as Installation by 50 RE-PEM-RC
7.	Demonstration of Household Briquetting Drums. Built 2 Drums as Training-cum-demonstration Units for Zonal Centres in advance. Balance 300 Briquetting Drums built by trainees (technical staff of NGOs) and at 50 RE-PEM-RC	32	100	120	50	-	Built 302 Model-Household Briquetting Units during training by NGO Staff and by 50 Centres
8.	Installation of Household Briquetting Drums	50 (@ 5 per Village Centre x 10 VCs)	750 (@ 10 per Village Centre x 75 VCs)	3,000 (@ 15 per Village Centre x 200 VCs)	5,000 (@ 20 per Village Centre x 250 VCs)	6,200 (@ 25 per Village Centre x 250 VCs)	Built 15,000 Briquetting Drums during Train-cum-Demo as well as Installation by 50 RE-PEM-RC
9.	Midway Evaluation and Mid Course Correction in the project to realise the goal in an effective manner	-	-	Midway Eval after 2.5 years of project impl-ementation	-	-	Midway Eval. Rep. Discussed in the 3rd. years National WS and Mid Course done

10	Final Evaluation of the project and suggestions and recommendations for follow-up	-	-	-	-	Do Final Evaluation by External Consultant beginning of 5th year of proj. Impl	The Final Evaluation completed and report for 5 years of project implementation submitted
11.	Submission of Project Completion Report	-	-	-	-	Compile & submission of Project Completion Report at the end of the 5 years proj. period	Compiled & submitted the Project Completion Report at the end of Project

12. MAJOR ACTIVITIES REQUIRED TO ACHIEVE THE PROJECT OUTPUTS

SL. No.	Identification of Major Activities Required to Achieve the Project Output	Year Wise Activities to Achieve the Project Outputs					Summary of All Activities for Achieving Project Output
		First	Second	Third	Fourth	Fifth	**5 years**
(a)	(b)	©	(d)	(e)	(f)	(g)	(h)
1.	**Planning and Inception Workshops**						
a).	Planning Workshop (NGO & ICEF Participation). During this WS the important aspects of the proposal will be presented and discussed threadbare. Strategy, methodology and agreement will be discussed & feedback sought. Based on this the planning document will be fine tuned and sent to NGOs for study and signing the agreement.	The first Workshop conducted soon after approval of the project	-	-	-	-	50 selected NGOs participated in the WS along with INSEDA & ICEF representatives & Others. Agreement signed & the NGO implementation plan finalised & received by INSEDA within 3 months of the WS
b).	Project Inception Workshop (NGO and ICEF Participation). The NGOs will come prepared after doing initial spadework to implement the project within one month of this WS. Detail plan for the next six-month and broad plan for the one-year period will be discussed. The establishing of the 2 Zonal and 7 Regional RE-PEM-RCs would be finalised. The hiring staff etc. and their training and other trainings during the first year finalised. The establishing of District and Block level RE-PEM-RCs by NGOs and the Village level RE-PEM-RCs by the trained Barefoot Technicians worked out. Finalisation of details of strengthening of Micro Level Institutions including how to involve them, their roles & responsibilities. Performance Budgeting, Appraisal & Monitoring Plan, as well as the Financial & Loaning Plan prepared by each NGO, as per 'Sample Proforma' and handed to INSEDA.	Conducted within the 3 months of Planning Workshop	-	-	-	-	Finalisation of 2 Zonal Centres with 2 NGOs & 7 Regional Centres with 7 NGOs in the 7 Geographical Regions. Finalising the phasing for the establishment of balance of 41 RE-PEM-RCs as well as various training, setting up of PCSC demonstration units. The implementation Strategy, details and methodology finalised. Chart for participatory appraisal & monitoring as well as reporting system finalised.
2.	**Establishment of NCU and RE-PEM-RCs**						
a).	Establishing of 1 National Co-ordinating Unit (NCU) and hiring of Project Staff etc. at INSEDA National Secretariat, Delhi	1 NCU	-	-	-	-	1 NCU established and in full Operation

b).	Establishing of 2 Zonal Level RE-PEM-RC Complex (Finalisation of design and Sites for building construction, installation of machinery and Gasifiers)	1 NCU & Cons. Of 2 Zonal RE-PEM-RC Complex	-	-	-	-	2 Zonal RE-PEM-RC Completed, Machinery Commissioned and in full Operation
c).	Establishing of 7 Regional Level RE-PEM-RC Complex (Finalisation of design and Site, constructions of building, installation of machinery and Gasifiers and commissioning)	Cons. Of 5 Regional RE-PEM-RC Complex	Cons. Of 2 Regional RE-PEM-RC Complex	-	-	-	7 Regional RE-PEM-RC Completed and in full Operation
d).	Establishing of 31 District Level RE-PEM-RC Complex (Finalisation of design and Site, constructions of building, installation of machinery and Gasifiers and commissioning)	-	Cons. Of 16 District RE-PEM-RC Complex	Cons. Of 15 District RE-PEM-RC Complex	-	-	31 District RE-PEM-RC Completed and in full Operation
e).	Establishing of 10 Block Level (Mini) RE-PEM-RC (Finalisation of design and Site, constructions of building, installation of machinery and Gasifiers and commissioning)	-	Cons. Of 5 Block RE-PEM-RC Complex	Cons. Of 5 Block RE-PEM-RC Complex	-	-	10 Block RE-PEM-RC Completed and in full Operation
f).	Establishing of 250 Village Level (Micro)- This is to be established by the barefoot PCSC Technicians trained by 50 RE-PEM-RCs	10 Village level Centres (VLCs)	65 Village level Centres (VLCs)	125 Village level Centres (VLCs)	50 Village level Centres (VLCs)	-	250 Village Level Centres (VLCs) in operation
3.	**Training, Camps, Meetings, Workshop and Seminars**						
a).	Construction Training for technical staff of NGOs (Persons trained through Training Programs)	25 Persons trained at the 2 Zonal Centres	40 Persons trained at the 2 Zonal and the 9 Regional Centres	60 Persons trained at 2 Zonal & 7 Regional Centres	25 Persons trained at 2 Zonal & 9 Regional Centres	-	150 Persons trained through 30 training at 9 Centres (two Zonal and seven Regional RE-PEM-RCs)- 150 PCSCs Built by trainees during construction
b).	Training in Assembling of Cookers, Maintenance and Promotion (Persons trained through Training Programmes at RE-PEM-RCs)	45 Persons trained at 9 Centres (2 Zonal and 7 Regional RE-PEM-RCs)	125 Person trained at 25 Centres (2 Zonal 7 Regional, 16 District & Block Centres	80 Persons trained at 16 Centres (2 Zonal 7 Regional, 7 District and Block Centres	-	-	250 Persons trained in the assembly of PCSCs at the 50 RE-PEM-RCs (2 Zonal, 7 Regional, District & Block Level Centres) in phases during the first 3 Years
c).	Refreshers Training of Bare foot RET Technicians {3 trainee each per centre selected out those trained under 3 (b)}	30 Persons trained thru 10 trg at 10 Centres	60 Persons trained thru 20 training at 15 Centres	45 Persons through 15 training at 10 Centres	15 Persons through 5 training at 5 Centres	-	150 Barefoot Technicians trained at 50 Centres (RE-PEM-RCs)
d).	Trainer's Training (NGO Staff) on different types of Solar Cookers, comparison and all aspects of Parabolic Solar Cooker, Extension & Marketing aspects. One Trainer/		20 Persons through 2 training at 2 Zonal Centres	30 Persons through 3 training at 2 Zonal Centres	Additional 20 Persons trained through 2 training at 2		70 Trainers Trained (@ 1 per centre for 50 RE-PEM-RCs Centres plus 20 trainers to meet the needs of the

	Centre – 50 RE-PEM-RCs (Zonal, Regional, District & Block Centres) plus 20 additional trainers to meet higher demands of some centres				Zonal Centres		centres with higher potential & work load through 2 Zonal & 7 Regional Centres
e).	Training of Master Trainers (NGO Staff) on all aspects of Solar Cooker and other RETs, Extension and Marketing aspects. These Trainers will be attached with INSEDA, 2 Zonal & 7 Regional Centres (RE-PEM-RCs). Master Trainers will visit the different Project Implementing Centres (41 NGOs) and provide the guidance to their trainers in conducting training programs at their Centres	-	10 Persons through 2 trainings (@ 5 trainees per training at the 2 Zonal Centres)	-	-	-	10 Master Trainers Trained and one each attached with the National Nodal Agency, 2 Zonal and 7 Regional Centres.
f).	Distant Training Program on Renewal Energy Technology (DIERET) for the Project Directors/ Managers/ Chief Functionaries of NGO (This program is being developed to meet the needs of the senior Functionaries of NGOs who can't attend residential programs)	-	50 participants	50 Participants	-	-	100 persons trained
g).	Training for Micro Level Institutions (MLIs). The MLIs could either MMs- Mahila Mandals (Women's Groups) or SHGs (Self Help Groups) or MCG (Micro Credit Groups or CBOs. Each RE-PEM-RC will establish 50 MLIs and each MLI will have ave. of 20 members	500 Member trained- from 25 MLI from 25 NGO Centres	1,000 Member trained- from 50 MLI from 50 NGO Centres	1,500 Member trained- from 75 MLI from 50 NGO Centres	2,000 Member trained- from 100 MLI from 50 NGO Centres	-	5,000 member trained- from 250 SHGs/MMs/ MCGs/CBOs, which are established by 50 NGOs Centres (RE-PEM-RCs)
h).	Training on all aspects of Gasifiers (for Northern and Southern Zone)- Training of 50 technical/managerial staff of 50 NGOs at the two zonal (Northern and Southern) Centres	10 Persons through 1 trainings at 1 Zonal Centres	20 Persons through 2 trainings at 2 Zonal Centres	20 Persons through 2 trainings at 2 Zonal Centres	-	-	50 Persons through 5 trainings at the 2 Zonal Centres
i).	End Users Training Camps (One day practical training on cookers and briquettes making and their efficient utilisation for cooking)	500 End Users in group of 5 through 100 Camps	2,500 End Users in group of 5 through 500 Camps	4,000 End Users in group of 5 through 800 Camps	5,000 End Users in-group of 5 thru. 1000 Camps	3,000 End Users in group of 5 through 600 Camps	15, 000 End Users in group of 5 at 50 NGO Centres
j).	Meetings of Micro Level People's Institutions (MLPI)-250 SHGs/MMs / MCGs/CBOs established by 50 NGOs (@ average of 1 meeting per month/ Centre with 20 participants per WS. First year only 6 meetings per RE-PEM-RCs)	840 (say 800) Persons through 42 meetings at 7 Centres	7,200 Persons through 360 meetings at 30 Centres	12,000 Persons through 600 meetings at 50 Centres	12,000 Persons through 600 meetings at 50 Centres	12,000 Persons through 600 meetings at 50 Centres	44,000 Persons through 6690 trainings at 50 Centres
k).	Participatory Meeting –cum-Information Sharing Training Workshop/Camps (@ average of 1 workshop/ meeting every three	700 Persons through 14 Camps at 7	6,000 Persons through 120 Camps at 30	10,000 Persons through 200 Camps	10,000 Persons through 200 Camps	10,000 Persons through 200 Camps	36,700 Persons through 734 Info. Camps at 50 Centres (RE-PEM-RCs)

	month/ Centre with 50 participants per Training WS. First year only 2 Camps each at 7 Centres (2 Zonal & 5 Regional RE-PEM-RCs)	Centres	Centres	at 50 Centres	at 50 Centres	at 50 Centres	
l).	Annual Exhibition on RETs Gadgets/ Devices/ Equipment Demonstration, Posters, Video, Group Discussions, Competitions etc. and Prize Distributions One Exhibition of 2 days duration at each centre. Average of 200 people would visit each Exhibition	1,400 Persons through 7 Annual Exhibition at 7 Centres	6,000 Persons through 30 Annual Exhibition at 30 Centres	10,000 Persons through 50 Annual Exhibition at 50 Centres	10,000 Persons through 50 Annual Exhibition at 50 Centres	10,000 Persons through 50 Annual Exhibition at 50 Centres	36,700 Persons through 187 Annual Exhibition at 50 Centres (RE-PEM-RCs)
m).	Regional Workshops (RWs) at 7 Regions)- 3 RWS per Region/ Year- for Participatory Appraisal, Monitoring and Reporting	-	300 persons @ 12-15 per Region for 3 RWS per Region x 7 Regions	300 persons @ 12- 15 per Region for 3 RWS per Region x 7 Regions	300 persons @ 12- 15 per Region for 3 RWS per Region x 7 Regions	300 @ persons 12- 15 per Region for 3 RWS per Region x 7 Regions	1,200 persons to participate in 84 Regional Workshops
n).	Zonal Workshops (North and South Zones)- 2 ZWS per Zone/ Year- for Participatory Appraisal, Monitoring and Reporting (Only 1 Zonal WS for each Zone in the first year)	80 persons @ 40 per Zone for 1 ZWS per Zone	320 persons @ 80 per Zone for 2 ZWS per Zone	400 persons @ 100 per Zone for 2 ZWS/ Zone	400 persons @ 100 per Zone for 2 ZWS/ Zone	400 persons @ 100 per Zone for 2 ZWS/ Zone	1,600 persons to participate in 18 Zonal Workshops
o).	Half Yearly NGO National Workshops (NWS) for review and Participatory Appraisal of half yearly Report and Activity Planning for the next six month period	120 persons @ 60 per Workshop for 2 NWS	120 persons @ 60 per Workshop for 2 NWS	120 persons @ 60 per Workshop for 2 NWS	120 persons @ 60 per Workshop for 2 NWS	120 persons @ 60 per Workshop for 2 NWS	600 persons to participate in 18 Half Yearly National WS
p).	Annual National Seminar (ANS) on RETs with special reference to Parabolic Cookers One of the two Half Yearly NGO National Workshops {item No. 3 (o) for review and Participatory Appraisal of half yearly Report and Broad Activity Planning (AP) for the next one year and specific AP for the next six month period} will be combined with ANS of NGOs	75 persons @ 75 per Annual National Seminar of NGOs	75 persons @ 75 per Annual National Seminar of NGOs	75 persons @ 75 per Annual National Seminar of NGOs	75 persons @ 75 per Annual National Seminar of NGOs	75 persons @ 75 per Annual National Seminar of NGOs	375 persons to participate in 5 Annual National Seminars of NGOs
4.	Preparation of Package of printed material, slides and video etc. (for awareness, capacity building, skills training, publicity users-cum-operational manual and booklet on Recipes for Solar Cooking etc.)	500 copies of Cons., Operation and Maint. Manual prepared	500 copies of Training Materials, 100 Slides sets & 5000 Poster made	500 Recipe Booklets & 100 sets of Video on PCSC made	5 Case Studies on cooking with PCSC prepared	10 Case Studies on cooking with PCSC prepared	Package of Printed Material, Slides and Video etc. in use
5.	Demonstration Parabolic Solar Cookers (PCSC)- Model-SK-14 (2 Constructed as training-cum-demonstration PCSC for Zonal Centres in advance). The 50 trained persons (technical staff of NGOs) will take back the 50	32	100	120	50	-	Built 302 Parabolic Concentrated Solar Cookers (PCSC) (Model- SK-14) Demonstration Units by the trainees during the training programs

	PCSCs (Cookers) built by them during training, which will act as Training-cum-demonstration PCSCs at their Centres (50 RE-PEM-RCs established by NGOs under the proposed project). The balance 250 PSCS would be constructed by trained technical staff of NGOs and supplied to 250 MLI for demonstration and use for developing local recipes for the effective use of PCSCs.						conducted at the different RE-PEM-RCs Centres
6.	Installation of Parabolic Solar Cookers (PCSCs)- During On the job Training-cum-Fabrication for Installation by 50 RE-PEM-RC	50 (@ 5 per Village Centre x 10 VCs)	750 (@ 10 per Village Centre x 75 VCs)	3,000 (@ 15 per Village Centre x 200 VCs)	5,000 (@ 20 per Village Centre x 250 VCs)	6,200 (@ 25 per Village Centre x 250 VCs)	Built 15,000 PSC during On the job Training-cum-Fabrication of PCSCs by 50 RE-PEM-RC
7.	Demonstration Household Briquetting Units- BUs (2 Built as training-cum-demonstration BUs for Zonal Centres in advance). The 50 technical staff trained will take back the 50 Briquetting Units (BUs) built by them during training, will act as Demo Units at their Centres. Balance 250 BUs would be built & sold to 250 MLI for demonstration	32	100	120	50	-	Built 302 Model-Household Demonstration Briquetting Units by the trainees during the training programs conducted at the different RE-PEM-RCs Centres
8.	Installation of Household Briquetting Drums	50 (@ 5 per Village Centre x 10 VCs)	750 (@ 10 per Village Centre x 75 VCs)	3,000 (@ 15 per Village Centre x 200 VCs)	5,000 (@ 20 per Village Centre x 250 VCs)	6,200 (@ 25 per Village Centre x 250 VCs)	Built 15,000 Household Briquetting Units for supplying by 50 RE-PEM-RC
9.	Midway Evaluation and Mid Course Correction in the project to realise the goal in an effective manner (To be done by a team of internal and external resource persons after 2.5 years of project period)	-	-	Mid way Evaluation after 2.5 years of project period	-	-	Mid way Evaluation Report and discussed in the 3rd. years National Seminar/ Workshop and Mid Course done
10.	Final Evaluation of the project and suggestions and recommendations for follow-up (To be carried out by team of External Consultant/ Resource persons, beginning of 5th year of Project Implementation)	-	-	-	-	Final Evaluation beginning of 5th year of proj. Impl	The Final Evaluation completed and the Evaluation Report of project implementation submitted to ICEF
11.	Submission of Project Completion Report (To be compiled and submitted within six months of the completion of proposed five year project)	-	-	-	-	Compile & submission of Project Completion Report at the end of 5 years	Compiled & submitted Project Completion Report within the six month of termination of the Project

PRE-CONDITIONS TO PROJECT IMPLEMENTATION

13. REQUIREMENTS FROM OTHER ORGANISATIONS/ INSTITUTIONS

The preconditions for project implementation are as follows:

a). Getting the right technology for promotion. As far as this aspect is concerned, the INSEDA has recently entered in to partnership with EG Solar, a Non Governmental Organisation based in Germany promoting the Parabolic Solar Cooker designed by them, for promoting it in India. The device designed by EG Solar is parabolic reflector concentrator. It is named as SK-14 Solar Cooker. The cooker has been manufactured on trial basis in India and got tested in leading Research Institutions and Universities. The cooker also has been demonstrated in villages and tested for cooking. The results have been found to be very satisfactory. The temperature achieved on a domestic cooking device is something around 300-400 ^{0}C. It can cook 5 to 8 Kg of food in 2 to 2.5 hours. A comparable Solar-cooking device is not available any where in the world at this low price and high efficiency.

b). It is understood that ICEF has to get the clearance and approval of this project from the concerned Central Government Department and Ministries, before the project is approved. As it fits in to both, the priority areas of the Central Government and the ICEF, it is envisaged that this NGO Network Project will get the support of the Nodal Ministry of the Govt. of India.

c). The INSEDA has already got a letter from the representative of EG Solar, agreeing to transfer this technology through INSEDA in INDIA- photocopy of the letter is attached as Annexure- F.

14. POSSIBLE POTENTIAL LINKAGES

The possible potential linkages with the following organisations, Institutions etc. which may help to make this project create wider impact and mass replication is given below:

a). Ministry of Non-Conventional Sources of Energy (MNES), Government of India.

b). Indian Renewal Energy Development Agency (IREDA), a Government of India enterprise for commercialisation of Renewal Energy Technologies in India.

c). Indian Institute of technology, Delhi.

d). Linkages with Indian Manufacturers for developing an efficient reflective material for making concentrator during the project period, so that the cooker cost could be further reduced.

PROPOSED BUDGET

15. The budget for the proposed project is given under Appendix –I of this Project Proposal.

ROLES AND RESPONSIBILITIES OF VARIOUDS STAKE-HOLDRES INVOLVED IN PCSC PROMOTION

16. The role and responsibilities of various Centres (National, Zonal, Regional, District, Block Level RE-PEM-RCs operated by 50 NGOs) and the Village level Centres (operated by barefoot technicians) and the MLIs (SHGs/MMs/ MCGs/CBOs) is given under Appendix- II of this Project Proposal.

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