

Clean energy business models for Indian villages

*Renewable energy technologies
create new sources of income
for village women*



Commercializing Renewable Energy in India



UNDESA



MV Foundation



Commercializing Renewable Energy in India (CREI) is an innovative project that focuses on providing reliable and viable energy services to rural communities through renewable energy (RE) technologies. The project, which runs through early 2006, is funded by the UN Foundation. It is jointly implemented by Winrock International India, Winrock International and the United Nations Department of Economic and Social Affairs (UNDESA).

CREI identifies RE services that generate incomes and increase the buying power of communities, thus enabling RE markets to develop. A major outcome of the project is the development of rural enterprises out of such institutions as women's self-help groups (SHGs), livelihood committees and thrift committees.

After assessing the market in seven districts in the state of Andhra Pradesh, the project selected two – Mahbubnagar and Rangareddy – for implementation. In collaboration with M. Venkatarangaiya Foundation, an NGO over 20 specific business plans were developed, and technical assistance in capacity building, awareness creation and entrepreneur incubation was provided. Financial mechanisms were also designed to create access for the rural poor.

The CREI approach

- ◆ *RE for productive end uses*
- ◆ *Technology-neutral, demand-driven intervention*
- ◆ *Location-specific institutional design*
- ◆ *Market development through local entrepreneurs*

CREI's objectives

- ◆ *Income augmentation and rural poverty alleviation through RE services*
- ◆ *Generation of local employment*
- ◆ *Local capacity building*
- ◆ *Market development*
- ◆ *Local and global environmental benefits*

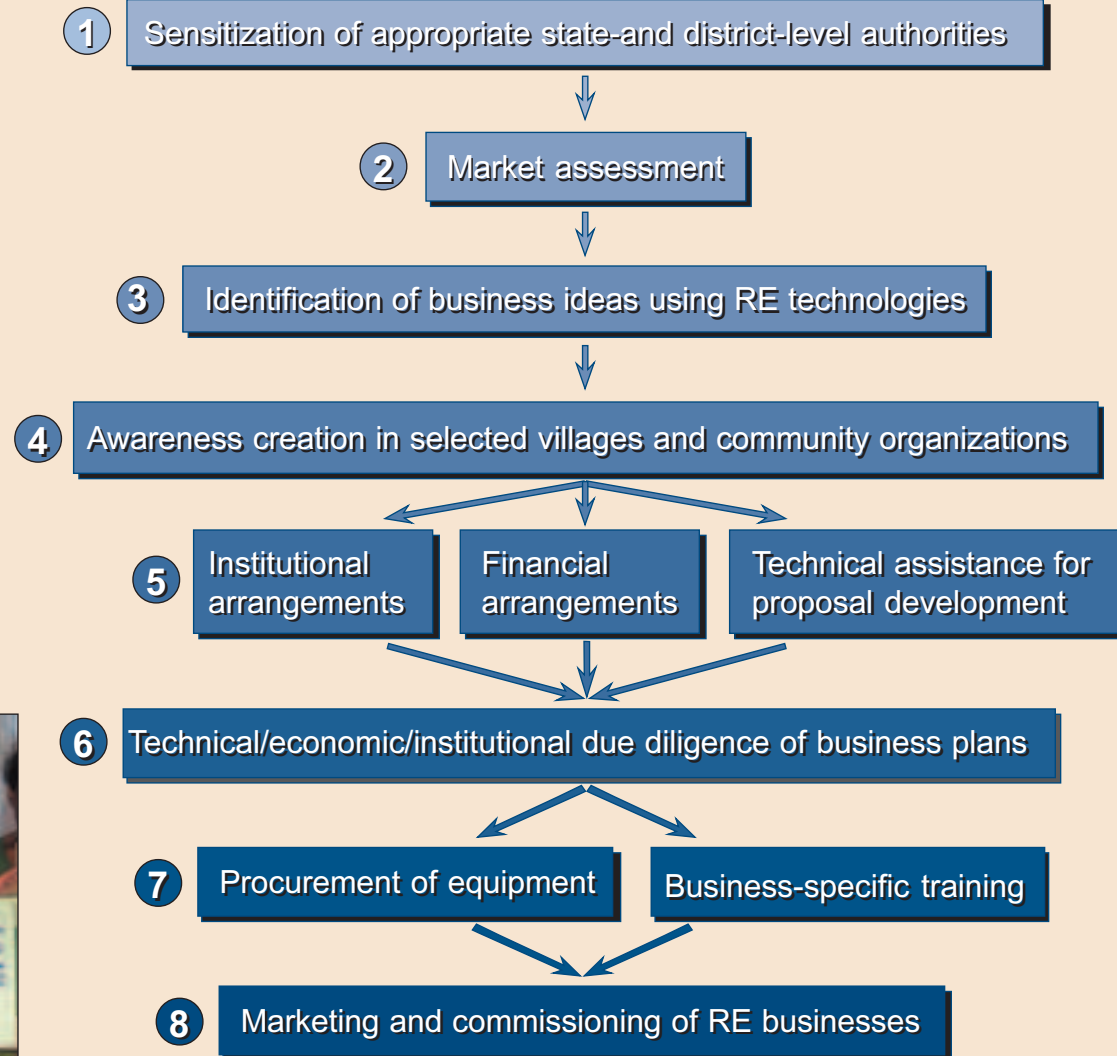
Project Components

- ◆ *Entrepreneur incubation*
- ◆ *Institutional and human capacity building*
- ◆ *Sustainable financial mechanisms*
- ◆ *RE business resource centre*
- ◆ *Pilot demonstration of business plans*




***Empowerment
through
participation.***



Project activities



Businesses initiated by the CREI project

Business	Description	Implementation	Impact
<p>Solar lanterns</p> 	<p>Women's sangams invest in solar lanterns and rent them to others.</p> <p>Twofold advantage:</p> <ul style="list-style-type: none"> • Beneficiaries make money from the outset • Repayment initiated right away 	<p>Training for both CREI team and beneficiaries to learn about the lanterns.</p> <p>Maintenance personnel (TV, radio repairmen) identified and trained.</p> <p>Lanterns purchased on loan by sangams.</p>	<p>16 SHGs in operation.</p> <p>Sangams registered as cooperative societies.</p> <p>Beneficiaries learned to deal with bank accounts, tax issues, accounting procedures.</p> <p>Sangams earning Rs 6000-8000/year (\$150-200).</p>
<p>Solar dryers</p> 	<p>Used to dry variety of crops – ginger, coriander, chillies, tomatoes, curry leaves, etc. Dried foods sold at strategic times according to demand. Food that might have been wasted now generates income.</p>	<p>Local entrepreneurs contracted to fabricate the driers. Cost is Rs 40,000 (\$900).</p> <p>Training given in hygiene, maintenance, marketing.</p> <p>Links to supermarkets.</p> <p>Follow-up is key – processing, quality control, operations, management and marketing.</p>	<p>Village women provide dry foods for specific functions.</p> <p>Self-reliance, cooperation, transparency, long-term vision.</p> <p>Sangam is making Rs 40,000-50,000/year (\$900-1200).</p> 

Business model

Description

Implementation

Impact

Oilseed plantations



Farmers cultivate previously unused 'wastelands' with jatropha and pongamia oilseed saplings.

These plants require little or no inputs, and will yield oil which can be sold as input to biofuel production and by-products marketable as pesticides.

Unused lands identified.

Nurseries developed to supply saplings.

Saplings planted on unused lands as well as in villages and schools.

Intercrops sown for harvest while trees mature.

Awareness that 'forgotten' oilseed trees (jatropha and pongamia) are of value.

Relationships developed to *sangams* involved in oil expelling business.

Intercrops provide cash earnings to farmers while trees mature.

Expected income of Rs 20,000 (\$450) per hectare by 4th year of plantation.

Oil expeller

Oilseeds collected by the sangams and oil expelled for sale. Residue sold as fertilizer or pesticide.



Expeller purchased for Rs 150,000 (\$3500).

Strategic location selected at apex of three districts.

Andhra Pradesh Social Forestry Department provided seeds of jatropha.

Male worker recruited to run the expeller.

Employment generation.

Rural infrastructure enhanced.

Business can operate nearly year-round because different plants mature at different times.

Sangam is making Rs 60,000 - 70,000/year (\$1400-1600).

Migration for urban employment curtailed (men stay in the villages).



Accomplishments so far ...

1. Entrepreneur development

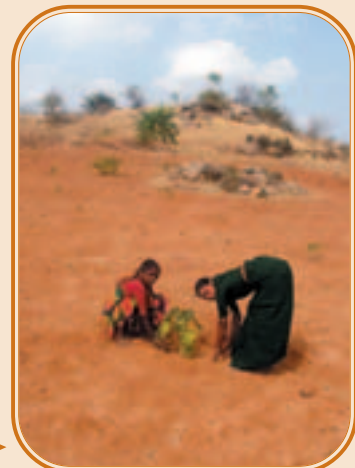
- ◆ *Business plans made: 6-8 overall plans, 22 rural plans, 4 plans for service providers*
- ◆ *1500 rural families benefited*
- ◆ *30 enterprises utilizing RE for income generation*



▲ *The solar dryer is an unqualified success story. These women can sell when demand is greatest.*

◀ *A satisfied customer purchasing oilseed residue for use as pesticide.*

▶ *Planting jatropha – energy bounty from the wasteland.*





Weighing oilseeds for sale.

2. Financial and credit support

- ◆ *Negotiations made with 8 financial institutions and donors*
- ◆ *\$225,000 secured from USAID and the Swiss Agency for Development and Cooperation (SDC)*

3. Capacity building

- ◆ *35 training programs/workshops programs undertaken*
- ◆ *Enterprise kits for entrepreneurs under preparation*
- ◆ *24 trainers from 3 NGOs trained*
- ◆ *5 entrepreneurs assisted with business plans*

Village women have found new life from renewable energy technologies.



*Planting oilseed crops like
jatropha yields both natural
pesticide and biodiesel.*



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