

World's biggest solar cooking program based on concentrating dish cookers.

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Inspired with success of SK-14 for domestic applications author designed bigger concentrator of 2.3 m diameter with aperture area of 4 sqm. First installation was made at one old age home 'Matoshri Vridhashram' in Dhule. With feedback from the cooks design corrections regarding the shape of paraboloid, provision for steps, minor alteration in clutch and wheels etc. were made. The new design was tested at School of Energy Studies, Pune University. Few installations were made for charitable organizations and commercial organizations as well.

Following are salient features of the new design.

- i. Extremely simple in design and construction: Simple workshop set up with welding and drilling machine could suffice for manufacturing. Very simple in operation and maintenance.
 - ii. Manual tracking: Tracking is required every 20 minutes.
 - iii. Concentrator is mounted on industrial grade heavy-duty wheels. These can be used for tracking and also for shifting the system from one place to other. At few locations Sun is available at different places in morning and evening time and also in winter-summer
 - iv. Intellectual property rights with author¹.
 - v. Installation is easy and can be done within a day. Many installations in short time are possible.
 - vi. These systems enjoy big cost advantage over other community solar systems.
- Major limitations as compared to Scheffler concentrators are: Manual tracking every 20 minutes and one has to work out in Sun.

ADOPTION OF TECHNOLOGY BY TRIBAL MINISTRY IN MAHARASHTRA.

With test certificates from authentic test centers and based on field performance reported from the users, state nodal agency (MEDA) published success story on this new product in their news bulletin. It was possible to motivate tribal ministry authorities on this background to adopt for this technology. MEDA proposed utilization of this technology for residential tribal schools and a trial order for 60 cookers was placed in Feb. 2006. This project was completed in March 2006. After encouraging feedbacks from the users, this year tribal ministry made provision for 300 community cookers. Because of some administrative issues at the state nodal agency, there was a delay in placing the order. Order was placed by MEDA on Feb. 2007 for 300 community cookers to be installed at 100 residential tribal schools. Order was placed with M/s Essential Equipments of Dhule. Mr. Rahul Kulkarni of Essential Equipments was one of the trainees of PRINCE and technology regarding the 2.3 m dia. Community cooker was transferred to him. With 300 community solar cookers, comprising of 1200 sqm. aperture area, this was the single largest order for

concentrating solar dish cookers in the world. This project was executed in record time of 45 days.

Challenges during the execution of the project were:

- a. Strict time frame: Only 45 days were permitted to carryout all functions of material procurement, manufacturing, transportation to sites of tribal schools, installation, commissioning and test and trial at the schools and collecting feedbacks regarding 7 day tests.
- b. Conducting inspection of the installed systems by MEDA authorities during the same time frame.
- c. All hundred installation sites being tribal residential schools, scattered all over Maharashtra, reaching these schools itself was a big challenge. Almost all such tribal sites had very bad road connections and at few sites the cookers had to be transported by head load.
- d. Many sites in ‘Gadchiroli’ district have naxalite problems. Installation teams were not permitted to travel at night and stay at any tribal schools. There was lot of interference from the Police authorities. At one site bridge was blasted by naxalites and it was not possible to reach the site. The authorities gave alternative site.
- e. It was impracticable to get any payments during execution of the project and hence organising all finance of worth more than Rs. 65 lakhs in 20-25 days was a challenge.

Authors accepted the opportunity as a challenge and could complete the project in record time. Following were some of the key issues adopted to overcome different challenges.

- i. Author took over as the project coordinator from day one and all activities were meticulously planned for next 40 days. Adequate provision was made for uncertainties in naxalite prone areas.
- ii. Finance was raised from all possible sources, especially from friends and relatives. Credit purchase was obtained from routine suppliers.
- iii. All purchases were organized within first 15 days. Procurement of reflectors (being imported stuff), 15-liter capacity pressure cookers and industrial grade wheels were bottlenecks.
- iv. Three workshops in the city were hired apart from the manufacturing set up of M/s Essential Equipments
- v. Twenty-five teams were formed with many temporary appointments. During the initial production time these team leaders were given training for installation, commissioning and test and trial of the system. Special daredevil teams were chosen to work in naxalite prone areas and these teams did not let us down.
- vi. Special supervisory staff was trained and appointed for taking MEDA staff around for inspection of the systems.

With all valiant efforts it was possible to complete the assignment within stipulated time and some sort of record was set.

This project gave confidence to the authors that projects of bigger magnitude with tight time frames can be accepted and executed.