

## **Domestic Solar Water Heater: Market Analysis of Satara District**

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### **INTRODUCTION:**

Solar energy has been used since prehistoric times but in a most primitive manner before 1970. Some research and development was carried out in a few countries to exploit solar energy more efficiently but most of this work remained mainly academic. After the dramatic rise in oil prices in the 1970's several countries began to formulate extensive research and development programmes to exploit solar energy. India receives solar energy equivalent to over 5000 trillion kiwi/year, which is far more than the total energy consumption of the country. Solar product is very profitable to Consumers. It saves their time and money as well as national resources. When consumers buy this product that means he invest in capital goods. Once he invests he gets profit for long time.

Solar water heaters run on solar energy. It is used for making hot water. Hot water used in every Indian home. For hot water there is required to much energy .For conservation of non renewable energy solar water heater is very good tool. In India solar water heaters use increased but there is requirement to develop solar water heaters market. For promoting solar water heater the role of Government, manufacturing companies and society is very important. Major research done on technical side but there lack in research in marketing side. Solar water heaters market will developed if proper research will carried out. There is most urgent need to do study solar water heaters market.

### **OBJECTIVES :**

1. To identify the strengths, weaknesses, opportunities and threats (SWOT analysis) of market of solar water heaters in Satara District.
2. To put forth the suggestion if any

## **RESEARCH METHODOLOGY:**

In order to study the above mentioned objectives, researcher collected the reliable information pertaining to the solar water heating systems.

For accomplishing the above objectives collected both primary and secondary data. Primary data collected through survey method by administering a separate structured interview schedule to the identified sample respondents of the user and non user of solar equipments in Satara district. Secondary data collected through documentary research method. Secondary data collected from Books, journals, newspaper and magazines, annual reports of companies etc. Researcher visits various Govt. offices to collect related information.

## **SAMPLING:**

For any research study, a scientific sampling method should be adopted. Only when the sample is representative of the total population, valid inferences can be drawn from the sample. In the present study the geographical scope of the population includes 11 talukas of the Satara District. Observing the spread of the population in the talukas, it can be seen that population is not evenly spread out in the district. In order to get a true representative sample for the study, the following methodology adopted. By considering the spread of the study, it will be decided to use the population of the respective taluka as the base for selecting the sample size.

- **Domestic user** – A household which uses solar water heating system for individual or family consumption.

**QUOTA SAMPLING:** Initially a quota of 500 sample units decided.

## **PROPORTIONATE SAMPLING:**

To ensure that weightage give to the sample units according to the strength of the population of the taluka, the method of proportionate sampling adopted at the taluka level.

For example in case of Karad Taluka, the population of taluka is 5,43,424. The proportionate sample size to be drawn from Karad taluka calculated by the following formula.

$$\begin{aligned} \text{Sample size for Karad} &= \frac{\text{Total population of the taluka}}{\text{Total population of Satara}} \times \text{X (Quota sample)} \\ &= \frac{5,43,424}{28,08,994} \times 500 = 97 \end{aligned}$$

Therefore, 97 respondents select in the sample from Karad taluka of Satara district. This sample method adopted to get the figures of sample size drawn from other talukas of the district. The distribution of the sample units obtained by the above method presents in following table.

### Distribution of sample over different Taluka in the district.

Sr. No.	Taluka	*Population of Taluka	Sample size Domestic solar User and Non User
1	Mahabaleshwar	54,546	10
2	Wai	1,89,336	34
3	Khandala	1,19,819	21
4	Phalton	3,13,627	56
5	Maan	1,99,598	36
6	Khatav	2,60,951	46
7	Koregaon	2,53,128	45
8	Satara	4,51,870	80

9	Jawali	1,24,600	22
10	Patan	2,98,095	53
11	Karad	5,43,424	97
	<b>Total</b>	<b>28,08,994</b>	<b>500</b>

\*Socio Economic Abstract Of Satara District, 2005-2006

## CONVENIENCE SAMPLING:

Within taluka the method of convenience sampling adopted to select the respondents. **CARE** taken to include the respondents from all type, (i.e. self employed, Industrial, Traders, Employees, Govt. servant etc).

## LIMITATIONS:

- 1) Conclusions drawn from the surveys are limited for Satara district only.
- 2) The researcher has selected random sample so as to cover the representative samples in given time period.
- 3) The study is limited to market analysis which is part of marketing, special reference to domestic solar water heating systems.

## Solar water heater :

Solar water heaters currently available the economic and environmental benefits of owning a system. This could be helpful in selecting a system for your home or industry. Solar water heaters are cost competitive in many applications when you account for the total energy costs over the life of the system. Although the initial cost of solar water heater is higher than that of conventional water heaters, the fuel (sunshine) is free plus, they are environmentally friendly. To take advantage of these heaters, you must have an unshaded south facing location (a roof, for example) on your property.

These systems use the sun to heat either water or a heat transfer fluid, such as a water glycol antifreeze mixture, in collectors generally mounted on a roof. The heated water is then stored in a tank similar to a conventional gas or electric pump to circulate the fluid through the

collectors. Solar water heaters can operate in any climate. Performance varies depending in part on how much solar energy is available at the site, but also on how could the water coming into the system is. The older the water heater more efficiently the system operates. In almost all climates, you will need a conventional backup system. In fact, many building codes require you to have a conventional water heater as the backup.

To identify strengths, weaknesses, opportunities and threats (SWOT analysis) of market of solar water heaters in Satara District.

## **Strength –**

- 1) Researcher came to know through discussion that there are 24 dealers supplying solar water heaters of various companies in satara district.
- 2) Majority of the users and non users agreed that solar water heaters are very useful and also agreed that solar water heaters are economical compared to non renewable energy.
- 3) Solar water heaters are durable; they almost provide benefits for one generation i.e. 20 to 30 years.
- 4) Majority users agreed solar water heater have very low maintenance cost.
- 5) Majority users realized that benefits of solar water heaters, they suggest others to use solar water heaters.

## **Weaknesses -**

- 1) Researcher comes to know that solar water heaters are durable. Users are looking at technicians for maintenance but there is less number of technicians available.
- 2) Majority of the non users are not aware of solar water heaters. It indicates that proper publicity is not done. There is a lack of awareness caused by low level of promotional activity.
- 3) Majority of the non users agreed that the prices of solar water heaters are very high it is very big hurdle in solar water heaters market.

## **Opportunities –**

- 1) Majority users and non users are aware of solar energy and they are looking for alternative energy such as solar e. g. solar water heaters.
- 2) Majority of respondents felt that non renewable energy is costly so there is scope for promoting solar water heaters to save money and energy.
- 3) Majority of users and non users respondents are unhappy on present non renewable energy supply it is very good opportunity for promotion of solar water heaters.
- 4) Majority of non users are highly interested in purchasing solar water heaters and there scope of market for solar water heaters.

### **Threats –**

- 1) As solar water heaters are capital investment and required own house, people who do not have their own houses are not interested in solar water heaters.
- 2) The geographical condition in Satara district is such as there is a heavy rainfall; nearly about 3-4 months and solar water heaters do not work satisfactorily during rainy season.

### **SUGGESTIONS:**

#### **1) Suggestion to the Government-**

1. Government should provide more subsidy to consumers of solar water heater.
2. Government must advertise solar water heaters for their promotion and awareness among the people.
3. Government must think to introduce laws for use of solar water heaters in domestic purpose.
4. Government must provide zero interest loan facility to potential users of solar water heaters through banks.

#### **2) Suggestion to manufacturing companies-**

1. Manufacturing companies must introduce low cost solar water heaters.

2. Manufacturing companies must carry out research to develop new models of solar water heaters.
3. Manufacturing companies must provide better after sale service whenever necessary.

### 3) Suggestion to society

- 1) Sun is the powerhouse of universe. It is the initial and ultimate source of global energy, the only energy which can be directly utilized without disturbing the nature's cycle. This source of energy for well being of mankind so go for it.
- 2) Maximum use of solar water heaters saves non renewable energy so use solar water heater.

### CONCLUSION :

When researcher interview various users of solar water heaters. He came to know solar water heaters are economical, hazard free, maintenance free, no recurring cost requires, give hot water near about full year, government subsidy available, pollution free, nature saving and more benefits so using solar water heaters is national mission so use more and more solar water heaters.

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