REVIEW OF RESEARCH

STRENGHTS AND WEAKNESSES OF HOUSEHOLD SOLAR EQUIPMENTS MARKET IN SATARA DISTRICT

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ABSTRACT:

Today, power has become almost as important as air and water. From industry and agriculture, education and research to simple everyday activities, virtually everything depends on power. It is in this scenario that demand for outstrips supply. In fact, one of the challenges before India's journey to the future is to ensure the adequate supply of power.

KEYWORDS: *industry and agriculture, education.*

INTRODUCTION:

Solar energy is a gift for mankind. The sun is the largest source of renewable energy. This energy is abundantly available in all parts of the earth. The sun is the powerhouse of universe. It is the initial and ultimate source of global energy. It is the only energy, which can be directly utilized without disturbing the nature's cycles. Now you will have to forget the old days of wood, coal, oil fired boilers, electric geysers etc. and use solar energy which is comparatively beneficial to human being in all respect. Let us reveal the magic of this solar energy.

Satara is leading district in economic, social and industrial development in western Maharashtra. As it is located on Deccan Platue, solar energy is available on large scale. For overall economic development of district, solar energy should be used to the utmost. So researcher Select the topic for study which is STRENGHTS AND WEAKNESSES OF HOUSEHOLD SOLAR EQUIPMENTS MARKET IN SATARA DISTRICT

OBJECTIVES:

1) To identify the energy consumption pattern in Satara district.
2) To identify the strengths of household solar equipments market in Satara district.
3) To identify the weaknesses of household solar equipments market in Satara district.

DATA AND METHODOLOGY:

Primary Data:

Primary data were collected through direct discussion and structured questionnaires method. Observing the spread of the population in the talukas, it was seen that population was not evenly spread out in the district. In order to get a true representative sample for the study, the following methodology was adopted.

By considering the spread of the study, the researcher decided to use the population of the respective taluka as the base for selecting the sample size.

- ***Quota sampling*** – *Initially a quota of 500 sample units was decided which was divided equal among in domestic user and non-user category. (Domestic user – A household which uses solar equipment for individual or family consumption)*

- ***Proportionate sampling –*** *To ensure that weightage will give to the sample units according to the strength of the population of taluka, the method of proportionate sampling was adopted at taluka level. Sample size calculated by following formula.*

$$\text{Sample size of taluka} = \frac{\text{Total population of the taluka}}{\text{Total population of Satara district}} \times \text{Quota sample}$$

- **Convenience sampling –** Within taluka the method of convenience sampling was adopted to select the respondents.

Secondary Data:

Secondary data were collected from Books, journals, newspaper and magazines, annual reports of companies etc. Researcher has visited various Govt. offices to collect related information.

ANALYSIS AND INTERPATION OF DATA:

Using the collected data primary analysis has been done to identify the strengths, weaknesses, opportunities and threats of market for solar equipments in Satara district.

Table-1: Use of various energy sources

Energy type	Non-user	%	User	%
Kerosene	115	46	72	28.8
Coal	10	4	0	0
Wood	73	29.2	38	15.2
Electricity	250	100	250	100
Bio-gas	3	1.2	1	0.4
LPG	235	94	250	100
Solar	0	0	250	100

Source: Primary survey

In order to meet daily energy requirements people use different types of sources available with them. These sources are kerosene, coal, wood, electricity, biogas, LPG and solar energy. From the above table it is clear that apart from solar as an energy source, the majority of solar users use LPG as alternative energy source followed by electric power, kerosene. On the other hand majority of non users of solar energy are using electricity as energy source followed by LPG. and Kerosene.

For the preparation of food majority of the users as well as non-users use LPG. Non-users of solar equipments are using wood, kerosene and coal as other sources of energy for preparing food. Only 12.4 % of users use solar cooker for making food. This indicates that use of solar cooker among user category is also at lower level.

In order to get the hot water, the different energy sources used are kerosene, gas, wood/ coal, electricity. Majority of the non-users (47.6%) use gas, where as 66% of users use solar heater. However 47% non-users and 11.6% users use gas; 20.4% non-users and 13.2% users use kerosene. There is significant difference in terms of percentage respondents using kerosene or gas for heating water. Especially users of solar equipment depend on kerosene, gas, wood and electricity. Electricity use is lower as compared to other energy sources in user category.

Table-2: Solar equipments used by Users

Equipments	No. of Respondents	%
Solar cooker	56	22.4
Solar lantern	74	29.6
Solar home lighting	27	10.8
Solar pump	0	0
Solar cap	1	0.4
Solar water heater	164	65.6
Solar mobile charger	0	0
Any other	0	0

Source: Primary survey

From the above table it is observed that majority 65.6% of users are using solar water heater, and 29.6% of them use solar lantern and 22.4% are using solar cooker. There are no users of solar mobile charger, solar pump and other products. Out of 250 there is only one user of solar cap.

It is observed that among both category respondents the awareness level about usefulness of solar equipment is quite high. Since majority agreed that solar equipments are very useful, there is scope to promote solar equipments. Solar equipments are economical in the sense that maximum benefit at minimum recurring expenditure. It is observed that majority 98.8%, of users agreed that solar equipments are very economical compared to conventional energy. Recurring expenditure pinches their pockets.

The study shows that the 53.6% users of solar cookers agreed that the life time of solar cooker is 21 to 30 years. In the case of solar lantern 62.2 % of users agreed that the life time is 6 to 10 years. 51.9% of users of solar home lighting agreed that the life time of solar home lighting is 11 to 20 years, where as in the case of solar water heater, 65.2% of users agreed that its life time is 21-30 years. This table clearly explains that even though initial investment is high, service provided by the solar equipments is very high. It almost provides you benefit for one generation i.e. 20-30 years.

In order to maintain the solar equipments, some cost is to be incurred. From the study, it is observed that only on solar lantern, solar home lighting and solar water heater, maintenance cost is incurred. Solar cooker and solar cap are not incurring any maintenance cost. But this cost is not high at all in a year. For 31.1% of solar lantern users maintenance cost is between Rs.1 to 100, this shows that solar equipments are maintenance free.

Time and money are important in life of a person. Saving is the main factor in solar equipments. Saving by solar equipments depends upon that equipment. Uses of solar equipments are different. Solar equipments are used for preparing food, getting light, drying agricultural products, making hot water etc. Each solar equipment helps saving. Some equipments give maximum saving in terms of money and time. Finally solar equipments help saving and it is very important. From the study, it is seen that 43.2% of the users are saving an amount which is less than or equal to Rs.100 and 21.6% of users saving between Rs.101-Rs.200. However, the average saving is Rs.186.1 per month.

Many countries are facing energy problems; it is the duty of the government to promote solar equipments since it is a renewable energy. Important suggestions to government are subsidy to consumers, advertisement, legal compulsions and lower interest on bank loans. These all suggestions are in the government schemes but not promoted by the faciliters of the product such as banks. From the analysis, it is observed that, the cost of solar equipments are high, majority of the users suggests manufacturing companies to introduce low cost product. This is possible by proper research and development. Also they are requiring better after sales service whenever necessary.

FINDINGS

1] Consumption pattern:

1) Majority of respondents in Satara district are using electricity, LPG, Kerosene and solar equipments.
2) In order to prepare food, 94% non users and 100% users are using LPG. Only 12.4% users are using solar cooker.
3) For making hot water, 47.6% non users and 11.6% users using LPG whereas 28% non users are using wood/ coal, 66% users are using solar water heaters.

2] Strengths:

1) Researcher came to know through discussion that there are 15 dealers supplying entire range of solar equipments in Satara District.
2) There are 65.6% users using solar water heaters, 29.6% of solar lantern, 22.4% users of solar cooker.
3) Majority of the users and non users agreed that solar equipments are very useful and also agreed that equipments are economical compared to conventional energy.
4) Solar equipments are durable, they almost provide benefits for one generation i.e. 20 to 30 years.
5) Solar lantern, solar home lighting, solar water heater have maintenance cost which is less than Rs.200/- per year.
6) As for government schemes to promote solar equipments, 75% of respondents are aware of these schemes.
7) Since the users realized the benefits of the solar equipments, they suggest others to use solar equipments.
8) Users are having very high satisfaction about solar cooker, solar lantern, solar home light and solar water heater.
9) Users are saving, on an average Rs.186.1 per month, after using solar equipments.

3] Weaknesses:

1) Researcher came to know that solar equipments are durable. Users are looking at technicians for maintenance but there is less number of technicians available.
2) Majority of the users and non users are not aware of solar pump, solar cap, solar mobile charger and other products. It indicates that proper publicity is not done.
3) There are no users of solar pump, solar mobile charger and other solar products. There is only one user of solar cap. There is a lack of awareness caused by low level of promotional activity.
4) Majority of both users and non users think that prices of solar equipments are very high.

SUGGESTIONS:

A) Suggestions to the Government:

1) Government should provide subsidy to consumers of solar equipments.
2) Government must advertise solar equipments for their promotion and awareness among the people.
3) Government must think to introduce laws for use of solar equipments in commercial as well as domestic purposes.
4) Government must provide zero interest loan facility to potential users of solar equipments through banks.

B) Suggestion to manufacturing companies:

1) Manufacturing companies must introduce low cost solar equipments.
2) Manufacturing companies must carry out research to minimize the production cost.
3) Manufacturing companies must provide better after sales service whenever necessary.

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