



UTILITY PERCEPTION OF NON CONVENTIONAL ENERGY SOURCES FOR HOUSEHOLDS

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ABSTRACT

India is endowed with a wealth of rich natural resources, Especially non conventional energy sources has a great potential for tapping for household use. A survey was carried out to know the utility perception of non conventional energy sources for household use. A purposive sample of 80 solar energy users was selected by systematic random sampling technique and data were collected from five localities of Amravati city. 51 per cent respondents were above 46 yrs. Most of respondents, 56 per cent were graduates and 62 per cent were business man. The average monthly income was Rs. 50,000 per month, 56.25 per cent respondent were living with 5-7 family members and 80 per cent had own house. All of the respondents were aware about solar energy while 40 per cent of them also know about wind and bio energy, and only few were aware about geo thermal and wave power. 43.75 per cent had medium level of knowledge, while 31.25 per cent were highly aware pertaining to utilization of non conventional energy sources. 47.5 per cent of the respondents stated that higher rates of electricity and non-availability of LPG are the main reasons for installation of solar devices. Only 27.5 per cent were aware about environmental issues. Purpose of use of solar water heater was observed that, maximum were using for bathing along with cleaning utensils and clothes. More than fifty per cent of respondent installed units of the capacity of 150 lit. Maximum (92%) respondent had satisfaction while using these devices while 7.5 per cent had problems like congestion of air, blockage and cleaning problems hence it can be concluded that the non conventional devices can be successfully utilized for household use and will help in fighting energy crises. Therefore there is urgent need to aware maximum number of people pertaining to use of non conventional energy sources for households.

Energy is an important input for development. Science and technology helped the intervention and refinement of devices for converting energy from naturally

available forms into usable form. India is endowed with a wealth of rich natural resources and sources of Energy. These can be appropriately and optimally



utilized to make available reliable supply of electricity to each and every household (Anonymous, 2009)Sunis power house of the universe. It is the initial and ultimate source of global energy: the only energy which can be directly utilized without disturbing the natures cycle. Our mission is to harness this divine source of energy for well being of mankind. Renewable energy expected to play a central role in the quest towards a sustainable society in the next century. It has enormous potential to meet the growing need of energy of increasing population and offering sustainable solution to the global threats of climate change. In 2011, the International Energy Agency said that "the development of affordable, inexhaustible and clean solar energy technologies will have huge longer-term benefits. It will increase countries' energy security through reliance on an indigenous, inexhaustible and mostly import-independent resource, enhance sustainability, reduce pollution, lower the costs of mitigating global warming, and

keep fossil fuel prices lower than otherwise. These advantages are global. Hence the additional costs of the incentives for early deployment should be considered learning investments; they must be wisely spent and need to be widely shared"

Vidarbha is blessed with abundant the natural resources such as solar, wind and biomass including agriculture waste, etc., and has a great potential for tapping these resources. Even if one per cent of solar energy is tapped the energy problem of this region will be solved. To maintain the present growth rate and need of energy it is necessary to fulfill it and to become a global economic entity we have to produce additional power of 1.5 Lakh MW for this conventional and nuclear energy (Muttemwar,2007). Harnessing these resources in best suited to meet the energy requirement of rural as well as urban areas .present study is confined with specific objectives as To focus on the scenario regarding sources of non-conventional energy



sources, and utilization of non-conventional energy sources.

METHODOLOGY

Utility was operationalised as usefulness of non conventional energy sources to users. The study was carried out in five localities of Amravati city of Maharashtra state namely Mudholkarpeth, Ashiyad Colony, Dastur Nagar, Mangilal Plot, and Sai Nagar. For selection of sample list of the users were obtained from distributors of non conventional energy devices. The proportionate sample of 80 solar energy users was selected by systematic random sampling technique. The survey was carried out in September 2014. The data personal attributes and availability of solar devices were collected with questionnaire. Knowledge test was administered to test knowledge regarding utility of non-conventional energy sources for households from home managers.

RESULT AND DISCUSSION

Personal and socio-economic characteristics

The personal and socio economic attributes of family has important role in adoption of any

technology ,hence these characteristics were studied and observed that age of fifty one per cent respondent were above forty six years ,while 8.75 per cent were young age between 25-35 years. Most of the respondents (56 %)were graduate,12.5 per cent were educated up to SSC, while 18.75 per cent were post graduates. Maximum of the respondents (62%) were business man and it was noteworthy that 2 per cent of farmers were adopted the solar energy sources for their household use. Income of the family is considered 56.25 per cent respondent had their monthly income up to Rs. 20,000. Nearly 25 per cent reported monthly income between Rs.21, 000 to 30,000 and 18.75 per cent had income above Rs. 30,000 while observing above data it can be stated that as higher income is not key factor to take decision to adopt new technology. The need of energy is proportionate to size of family, 31.25 per cent was living with family of 2-4 members while 56.25 per cent were living with 5-7 members and 12.5



per cent had large family. House possession is the crucial factor in utilization of non conventional energy devices hence considered and observed that 80 per cent respondent had their own house while 20 per cent were living in rented house.

Awareness about Non Conventional Energy Sources:

Awareness of respondents about sources of non conventional energy was examined and observed data presented in following table 1.

All respondents were aware about solar energy followed by wind and bio- fuel, few knew about geothermal and wave power as non-conventional energy sources.

Extent of awareness were studied and observed 43.75 per cent had medium level of awareness, 31.25per cent had high level of awareness while 25per cent had low awareness about sources and utilization of non-conventional energy sources for household use. The entire respondent had utilized solar energy devices for their household use (Table 1).

Reasons for Installation Solar Devices for House:

The respondents are users of solar energy devices. Why they turned to use these equipment were enquired and reported the following reasons (Table 2).

Maximum users were adopted solar devices due to the cost and non availability of LPG, but it is noteworthy that few of them were aware about the environment protection and indirectly helping to conserve the electricity.

Utilization of solar energy for household purposes:

Hundred per cent of respondent had exploited solar energy for their household need of energy amongst them maximum (95%) were installed solar the solar water heater provides hot water which is utilized for various household purposes details

Maximum respondent were using hot water from solar heater for bathing purpose, while other uses were cleaning utensils, washing clothes and multipurpose as washing vegetables and fruits,



cooking, drinking etc. at household level (Table 3).

Capacity and cost of installed solar water heaters for household use:

The capacity of water heater was determined on the basis of need of the family for hot water and cost is dependent on the capacity of the water heater. The respondents were installed water heaters of different capacity and cost were as follows (Table 4).

Maximum families of the respondents were small families hence need of hot water were low so more than half of the respondent were installed water heaters of low storage capacity and spent up to Rs.20,000.

Problems in utilization of non conventional energy sources:

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problems while use of solar equipments were noticed and reported that only 7.5 per cent users had problems in utilization solar devices. Congestion of air, blockage, cleaning problems, flat position of panel was the prominently recorded by the respondent.

Conclusion

Perusal of above data can be concluded that the non conventional energy devices are successfully utilized for households. Awareness regarding this will help in fighting energy crises. Therefore there is urgent need to aware and motivate more number of people pertaining to use of non-conventional energy sources for households.

Table1: Distribution of respondent according to awareness of non conventional energy sources

Sr.No.	Non-Conventional sources	Respondents	
		Number	Percentage
1.	Wind energy	40	47.05
2.	Solar energy	100	100
3.	Geothermal	12	14.11
4.	Bio- fuel	40	47.05
5.	Wave power	10	11.76

(Percentage is more than hundred due to multiple responses)



Table2:Reasons for installation of solar devices

Sr.No.	Reasons	Respondents	
		Number	Percentage
1.	Power problem	20	25.00
2.	Expensive and non-availability of LPG	38	47.50
3.	Saveelectricity, non polluting source and eco-friendly	22	27.50
	Total	80	100.00

Table 3: Purpose of use of solar water heater

S.N.	Purpose	Respondents	
		Number	Percentage
1	Bathing	80	100
2	Cleaning utensils	40	50
3	Washing clothes	30	37.5
4	Multipurpose	70	87.5

(Percentage is more than hundred due to multiple responses)

Table 4: Distribution of respondent according to capacity and cost of installed solar water heaters

S.N.	Category	Respondent	
		Number	Percentage
1	Capacity of water heater		
	Up to 150 lit.	44	55
	Up to 250 lit.	30	37.50
	Above 300lit.	06	07.50
	Total	80	100
2	Cost (Rs.)		
	Up to 20,000	58	72.50
	21,000 – 40,000	20	25.00
	Above 41,000	02	02.50
	Total	80	100

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