



S. R. Sunpower India Pvt. Ltd Assessment on Farmers Perception towards Renewable Energy in Agriculture

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ABSTRACT

The primary purpose of this study was to assess in quantitative terms of farmer's perception of renewable energy in agriculture. It aimed at reviewing the level of renewable energy sources used for agricultural practices, limitations and possible solutions. Renewable sources study include biomass, geothermal, wind, solar, hydropower and fuelwood. Farmers can produce their own energy to become even more self-sufficient by reducing external inputs, not only does renewable energy help the farmer save money, it also helps to reduce the pollution on the air; and combats the effects of global warming. Among the renewable energy sources increasing the use of biomass (agricultural by-products) could be important for both an environmental and especially in developing countries, a large amount of agricultural waste suitable for energy use remains unused. Over the years, renewable energy is becoming an essential factor with an impact on social, economic, and environmental aspects. More than 2.7 billion of people are connected to agriculture worldwide.

Keywords [renewable energy](#); [sustainable rural development](#); [resource management](#); [farm efficiency](#); [sustainable agriculture](#); [green agriculture](#).

INTRODUCTION OF THE TOPIC

This paper shown that when company assess the electricity of renewable energy access in rural area which is made available to a variety of village livelihood activities wherever it is needed, it raises and increases the level of income scopes of rural households. And producing solar renewable energy that will be given to farmers throughout the region for the purpose of energy-efficient irrigation. By producing the renewable energy, it has installed roughly 6000 solar home lighting systems (SHLS) and almost 20,000 integrated domestic energy system (IDES) in every state of India mostly in the states of Rajasthan, Haryana, Gurgaon, etc.

The topic for research study

“S.R. Sunpower India pvt. ltd assessment on farmer's perception towards renewable energy in agriculture”

Renewable energy is become more prevalent around the world as a result of the increased efforts. They are more efficient now and will continue to get better in the future. Around 95% of farmers in India operate on small and marginalized, they frequently lack the funds to buy all the necessary inputs, such as seeds, fertilizer, insecticides, and other things. These farmers find it exceedingly difficult to irrigate their lands due to the rising costs of diesel, pumps, etc. which prevents them from reaching their lands' optimal output. India has made significant efforts to ensure a switch from conventional sources to renewable sources while the rest of the world moves towards sustainable development. this research has shown that how renewable energy raises the income levels of rural households, thereby improving their quality of life and making it possible for them to pay these electricity services. charging, etc.

NEED AND SCOPE OF THE STUDY

Solar energy does not generate waste or contaminate water an extremely important factor given the scarcity of water. Unlike fossil fuels and nuclear power plants, wind energy has one of the lowest water consumption footprints, which makes it a key for conserving hydrological resources. India has witnessed rapid growth in its renewable energy capacity. Solar energy in India has grown about 18 times in the last seven and a half years. Today the Indian renewable sector ranks 4th on the list of the world's most attractive renewable energy sectors. Solar and renewable energy are the most abundant sources of renewable power in the country.

LIMITATIONS OF THE STUDY

There are few limitations such as rural area is not enclosed in terms of the separate houses, restricted sample size in terms of area, so results cannot be generalized to wider area, late initiation of the project by S.R. Sunpower India Pvt. Ltd, sample size is not adequate, hesitation of the respondents.

LITERATURE REVIEW

Step by step the energy request is broadening and in this way the necessities for a manageable source that won't hurt the climate are a prime significance. Several projections express that by 2050 the energy requesting will basically increase. Subordinates yet by the utilization of innocuous to the environment power designs could help in giving the energy request. In general, understand that feasible power is the energy which is either established by the environment or straightforwardly from the sun or from heat conveyed critical inside the Earth. In this review paper the renewable energy power and warmth, which is produce using sun based, win, sea, hydropower, biomass, geothermal assets, bio engages and hydrogen and these resources are known as unlimited resources.so, according to the food and agriculture organization (FAO), a large portion of the various activities in the agriculture and food supply chain (AFSCO are extremely dependent on fossil fuels and contribute to 24% of the total global greenhouse gas (GHG) emissions.

Scarlatt, N., & Banja, M. (2013) utilizing solar energy in agriculture to increase farmer's income a case study of solar tube well in northwestern India. According to the study, using solar energy in agriculture is crucial to achieving the double goals and objectives of tripling farmer's income and producing of 100GW of solar energy by 2022.

Bardi, U., El Asmar, T., & Lavacchi, A. (2013). It says that in India solar powered energy irrigation system the main issue is the small holders' inability to effectively and efficiently use the technique for dryland farmers, India's dryland agriculture has the potential to increase the source of water and distribute it around the field in an efficient and cost-effective manner.

Objective

- To study the factor which attracts for adoption of solar power pump set.
- Manage future electrical cost.
- To enhance the awareness about renewable energy and its utilization in agriculture.
- To reduce some types of chemical air pollution for the farmer's irrigation.
- Improve the nutritional standards and quality of life of the rural people and removal of rural poverty.

Company Profile

S.R. Sunpower India Pvt. Ltd is an independent and non-profit research organization. It has a multidisciplinary function, highly qualified, and experienced team of professionals with backgrounds in energy security, social transformation, environmental and forest management, renewable energy technology, ecology, and biodiversity, and conservation biology. This Company has come under the division of electricity, gas, steam, and hot water supply. As it also has expertise in social sciences, forest economics, GIS, horticulture and energy conservation. teams are therefore formed in accordance with the unique requirements of the clients, demonstrating flexibility of approach and allowing for the contributions of a variety of resource specialists.

History of The Company

S. R Sunpower India Pvt. Ltd is an unlisted private company incorporated on 07 October, 2015. Its registered office is in Hyderabad, Telangana, Gurgaon. This is a private limited Indian non-government company which is incorporated on 7th October 2015. It involved in activities such as (electricity, gas, steam and hot water supply) for farmers in agriculture. This company previously developed and manufactured photovoltaic panels, the company was also previously marketed its products to commercial and industrial customers before agreeing to sell that business line to total energies in February 2021.

Research Methodology

Positivism, realism and interpretivism are the three specific elements that serve as the elemental courses for research methodology. The output of positivistic research gets validated by means of rules and laws. Realistic views follow the context of the existence of reality and are independent of human thoughts. Data collection in a qualitative study is forwarded on the basis of interpretations that are relevantly expressed to derive farmer's perceptions. Quantitative research methodology speculates data from figures and statistical derivations.

Data collection for quantitative is done through the means of questionnaires, interviews, and under the focus of group data base the questionnaire is made up of a series of questions, added by some occasional supplementary questions. Primary data is made applicable to carry out the considered study after

the process of observing the necessity of the data. And these are the experiments surveys, history, and case studies. Sample section is the process through which the participants for the interview are sorted. The act of data analysis follows three consecutive steps.

Research Design

Descriptive research design has been used with the respect to fulfilled research objectives. Research designs aims to methodically resolve a research problem by structuring a roadmap to collect, measure, and analyze relevant data. Company's rely research design to reveal obstructions, opportunities, or both. Alternatively, management can prove a theory they think is valid with verified data and assessment.

Sample size

A sample of 120 farmer people was taken into the study, and their perception data was collected.

Tools used

The measurement and evaluation of the data has been done using statistical tools and techniques such as:

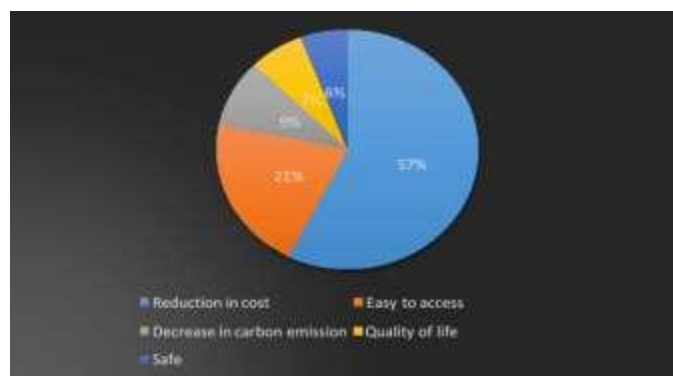
Percentage method a percentage of farmer's perception towards renewable energy in agriculture expressed as a fraction of 100.

Mean graphical representation (pie charts and bar charts) with the help of data code sheet using MS-Word & MS-Excel.

DATA ANALYSIS AND INTERPRETATION

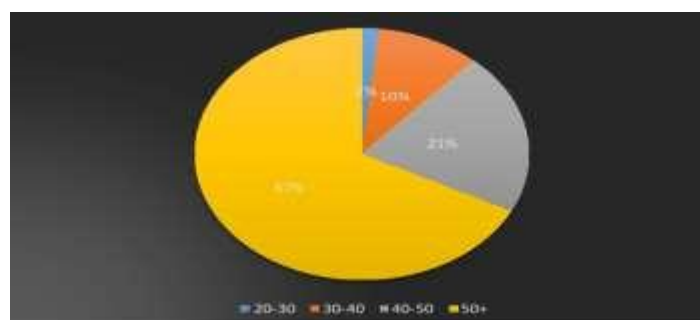
Percentage analysis is one of the most widely used statistical techniques for examine and evaluating primary data. It is concerned with the percentage of the whole population that was selected for the research that received responses to a particular question from respondents. In order to achieve every goal in this report, I used percentage analysis. The bar charts frequently quick and easy to make, and they can be used to show counts of any kind, including proportions or percentages, or means (with appropriate error bars, like in the graph to the right. Majority of the farmers are aware that the solar power pump set I their area will be beneficial to them for variety of reasons, this method reveals the specific percentage of people's opinions regarding the choice, use, and purchase of a company's product or service. The data has been collected directly from the farmers of Gurgaon district of Haryana.

The data has been collected directly from the farmers of Gurgaon District of Haryana. Four Blocks i.e., Gurgaon East, Kasba, jalalgarh, Dagarua, were selected to conduct the survey and 30 farmers were selected from the above-mentioned blocks of Gurgaon District.



ADVANTAGE OF SOLAR PUMP

The operation of the solar pump sets will be hassle free. Some farmers even told us that since diesel pumps emit a high rate of smoke and carbon every time it is operated and they inhale high amount of smoke from that, they face some health issues too, which will be reduced due to solar pump set.



Age of the respondents

Majority of the farmers are elderly by age and very less young farmers was recorded.

FINDINGS

Through the study we found that –

- How to Make efficient use of nutrients on the farm, especially nitrogen fertilizer.
- How to implement the land reforms? For improving the production, land reforms are the first and predominant points.
- How it creates the awareness about renewable energy and its utilization in agriculture.
- How solar-powered help to the farmer's agriculture machinery and farm robots.
- How renewable energy supplying or supplementing many non-farm energy requirements, from water pumping and space heating.
- Farms have long used wind power to pump water and it helps to generate electricity.
- How it makes easier and more affordable for farmers to generate the power they need from renewables.
- Company ranks the solar renewable energy as per the uses of farmers in rural areas.
- How to attract the farmers towards the renewable energy resources?
- How company offers to the farmers use of renewable energy in a lower price of electrical cost.
- Company usually helps to the rural area people, farmers for their growth of harvesting in a lower price.
- How to create strategies to reduce GHG emissions and mitigate the associated destructive impacts.

SUGGESTIONS

- To suggest promotional strategy for selected area solar pump in Gurgaon district.
- Managing whole system of landscape in rural areas.
- Reducing or eliminating tillage from the dryland.
- To suggest environmental damage, need to mitigate by the promotion of renewable resources such as solar, wind, biomass, tidal, geo-thermal, small-scale hydro, biofuels and wave-generated power.

CONCLUSION

The conclusion of the entire research is explained in this chapter along with major findings of the research. Solarization of agriculture in India is very important for the farmers of India. Solarization of agriculture will greatly reduce the agriculture for the small and marginal farmers and also reduce the demand and consumption of non-renewable resources of energy mainly diesel and decrease the carbon emissions in our atmosphere to a great level. And because of some negative and irreversible externalities in conventional energy production, it is necessary to develop and promote renewable energy supply technologies, so, the power generation of using renewable energy sources in rural area for the farmers should be increase in order to decrease the unit cost of generation. In Haryana, there are about 280 to 300 bright days per year, yet very little electricity is produced from solar energy, which cannot be destroyed and is one of the cleanest forms of solar energy. In India around 98% renewable energy capacity has increased, Haryana has one of the largest untapped potentials for solar energy use. This Energy consumption depends several factors including economic problems, population, energy prices, weather, and technology. Therefore, hydroelectric power needs to generate efficiently for the farmers because it has also come under fire from various groups due to adverse effects it imposes upon local aquatic life. So, I detailed survey on renewable energy in agriculture it is clearly visible that, renewable energy resources are the future for us, as it will be a key source to meet our required power for an advanced and healthy lifestyle. This research paper also represents the overview of these sources and a detailed working of solar and wind energy sources.

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