Development of Village with Green Energy

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Abstract— In that the concept of "development of Village with green energy" will address the multiple challenges faced for sustainable development of rural India. In smart village project that the biggest benefit and also to the environment is that the use of the natural sources so, in villages use of the solar energy & wind energy then energy is produced in that village itself. In this project the main purpose is to convert the village in to the smart village with green energy.

Key words: Sustainable Development, Solar Energy & Wind Energy, Green Energy

I. INTRODUCTION

A Small community or Group of houses in a rural area larger than a hamlet and usually smaller than a town is known as village and villages equipped with all the modern technologies without destroying the nature is known as the smart village.

In earlier days, villages were furnished or developed based on the requirement sufficient to the current needs of that time. In those times, the trial and error method was practiced in most of the cases. Today if we want to decide new schemes and design a new village or develop a smart village we have an ample number of case studies through which we can get the idea of the efficiency of earlier plans; based on which we can modify it as per future requirements. Even, a completely new scheme can be implemented.

Smart village is a concept adopted by national state and local government of Indian as an initiative focused on holistic rural development derived from Mahatma Gandhi's version of ideal village and village self-rule.

A. Aim of Study

In India there are around 6,00,000 villages out of them around 1,00,000 villages are backward so there is need for designing and building the villages as a smart village. By survey now a day's villages are growing but not in smart village by definition of the smart village so if really convert the village in smart village there must be include the development by natural sources.

Now days mostly everyone has the smart mobile or a television at their home by that we will aware with natural energy sources like the solar energy. In our country there are many develop villages but they are not adopting the solar energy because they are not know what is the actually benefits of that so first of all show them the real benefits of use of solar energy.

B. Scope of Work

Generation of solar energy has tremendous scope in India. The geographical location of the country stands to its benefit for generating solar energy. The reason being India is a tropical country and it receives solar radiation almost throughout the year, which amounts to 3,000 hours of sunshine. This is equal to more than 5,000 trillion kWh. Almost, all parts of India receive 4-7 kWh of solar radiation per sq meters. This is equivalent to 2,300–3,200 sunshine hours per year. States like Andhra Pradesh, Bihar, Gujarat, Haryana, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan, and West Bengal have great potential for tapping solar energy due to their location. Since majority of the population live in rural areas, there is much scope for solar energy being promoted in these areas. Use of solar energy can reduce the use of firewood and dung cakes by rural household. Many large projects have been proposed in India, some of them are given below

C. Objective

- Desire to use renewable energy - environmentally safe, pollution free.
- Available storage and back-up options.
- Aware people to the green energy and the benefit of the green energy or solar energy.
- No overhead wires- no transmission loss.
- By using green energy support to the environment.
- Development of village without harm to the environment.

II. PRIMARY SURVEY

We are surveying the Saurashtra region of Gujarat, specifically Kunkavav and Vadiya town of Amreli.

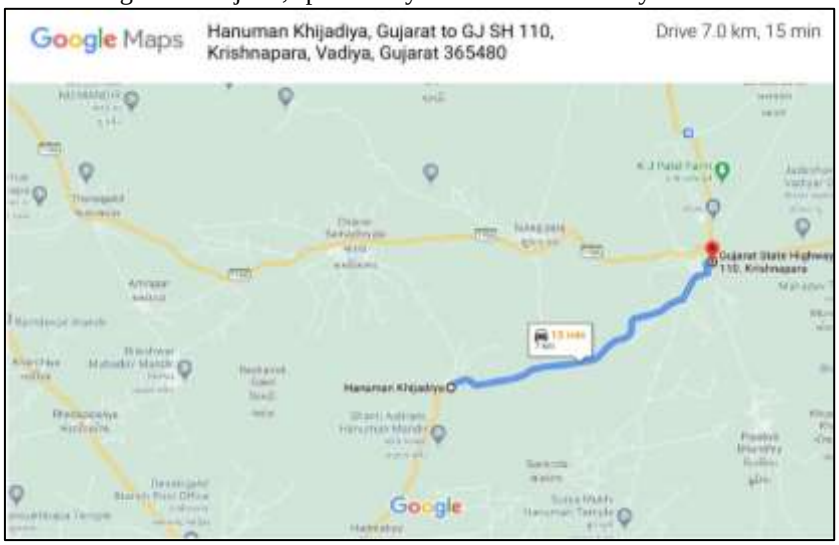

Fig. 1: Distance between hanuman khijadiya and vadiya

A. Study area (Hanuman Khijadiya)

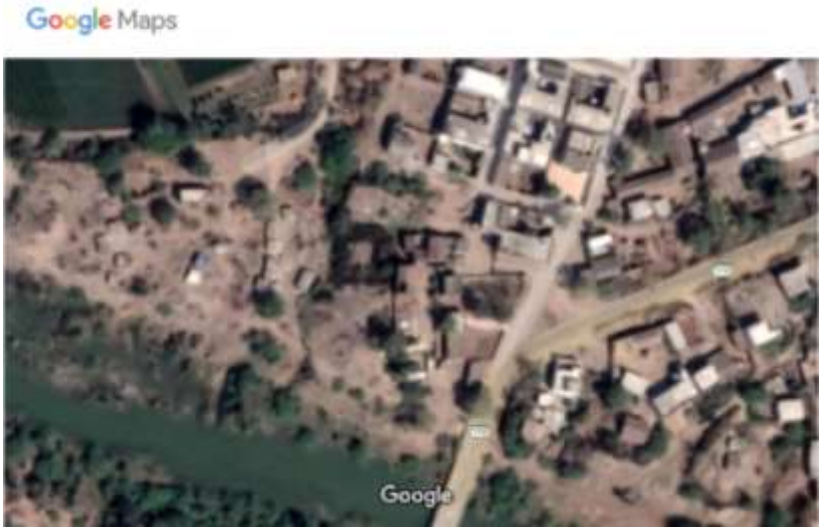

Fig. 2: hanuman khijadiya grampanchayat

B. Brief related work

We took 10+ villages. We started survey of villages as per our sheet. In the sheet data of the basic human need fulfill in the last 10+ year, government scheme applied, roads, street light, availability of water supply, availability of solar(green) energy and wind energy. After we will take project on solar (green) energy on villages and we will be working on it. And more data collection from P.G.V.C.L. (Paschim Gujarat Vij company Ltd.). After collection of data and 7 days training in P.G.V.C.L. we go ahead to work on it.

Sr. no.	Name of village	Roads and Infrastructure up to 70%	Water Supply	Sanitization	Primary Education	Population As per 2011	Solar Energy used in %
1	Moti kunkavav	√	√	√	√	10,789	7
2	Khan khijadiya	√	√	√	√	1,126	1
3	Human khijadiya	√	√	√	√	1,862	12
4	Dhundhiyapipaliya	√	√	√	√	3,017	
5	Vadia	√	√	√	√	10,464	6
6	Khadkhad	√	√	√	√	1,758	
7	Baravalabaval	√	√	√	√	2,585	
8	Targhri	√	√	√	√	1,264	
9	Rampur	√	√	√	√	2,571	
10	Arjanshukh	√	-	√	√	1,884	

11	Morvada	√	√	√	√	982	
12	Tori	√	-	√	√	3,540	7

1) Why implementation of solar energy?

Because before 7 years ago 1 person is using 1100 units power/year and now a day's 2250 units power/year. 6kg coals are bran and generate only 1-unit power.

2) Urban or Ruler?

In the urban area the people are living in flats or densely populated area so the solar roof top is not possible which is concluded after studying the area.

In the beginning maybe it is not possible to convince all the villagers but we can convince the Sarpanch or Panchayat committee to do the work for solar implementation.

To make a green environment for a village and by using green energy we are putting step towards the GDP growth rate.

We required 3.96kw system, because our power consumption is 814 units per 2 month so for safety we take 3.96kw system which produced 900 units per 2 month. So by the solar power rate chart which is given by the government the total cost is Rs.105270.

Today if we want to decide new schemes and design a new village or develop a village we have an ample number of case studies through which we can get the idea of the efficiency of earlier plans; based on which we can modify it as per future requirements. Even, a completely new scheme can be implemented.

1) First survey for the project, take 10+ villages, and take a solar user data and connection of solar power.
2) Check suitability for village.
3) Selected one village. And implement solar power on gram panchayat
4) Take a data of use power from p.g.v.c.l.
5) Calculate average power of consumption and decided to put solar penal
6) Estimated cost

III. CONCLUSION

Providing electricity for meeting lighting needs of households and rural markets can bring several positive impacts including improvement of quality of life and increasing in income and employment opportunities. So, rural electrification through solar energy is a model to the users is that they are free from the responsibility of maintaining the system. Demonstration of solar energy system has been successful to create interest among the rural people and demand from other location also observed.

ACKNOWLEDGMENT

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