

Influence of Rural Electrification for Development & Quality of Life

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Abstract

Evaluating the importance of electricity in one's life is the key to success. The present article brings light on the role of electrification not only for meeting the mere utilities but also on the enhancement of capability of rural people of India. Electrification can play a vital role in accelerating the quality of life of the people. Two villages in Nashik district within the state of Maharashtra have been taken for the qualitative evaluation. The study uncovered the fact that, electricity may be treated as a climacteric means to enhance people's decisions and opportunities within the trailing of quality lives. In addition to this, it also uncovered that the advantages of electricity don't seem to be uniformly benefitted all the families within the villages taken for the survey. Government policies for rural electrification should be backpedalled and the conventional definition of electrification in rural areas must be integrated with the scope of usage of solar photovoltaic. This article additionally suggests that the policies are to be made to increase easy access of electricity by rural people for adding values in their quality of life and enhancing their capabilities in present socio-political environment.

Keyword: Electrification and Quality of Life, Rural India, Safety, Society, Lifestyle Strategies, Tariff,

1. Introduction

Electricity is one of the most important pillars of civilisation. With the advent of science and technology demand of electrification increases day by day. In every corner of society and in many household appliances blessings of electrification is highly needed. Communication, information technology, lighting, air conditioner, refrigerator, food preservation, entertainment services and many other technologies are dependent solely on the supply of electricity. However, all the advantages brought about by electrification are to fulfil people's daily needs. Utilisation of electric appliances does not provide detail understanding of the role of electrification in development of quality of life. A rigorous analysis is being demanded to establish the actual role of electrification in developing capability and quality of life of the rural people of India.

Journal of University of Shanghai for Science and Technology ISSN: 1007-6735 Volume 22, Issue 12, December - 2020 Page-1056 This present analysis augmented the conception of evaluation of electric services from a point of view which highlighted capability development instead of highlighting meagre advantages it offers to rural people [1]. It will be interesting to assess the function of rural electrification from a newer point of view which takes

Into account of capability development of people through electrification [2-3]. Ease of accessing residential electricity in India has been ameliorating since the year of 2001. The data obtained from census report of India depicted in table 1 reveals that between The year of 2001 and 2011, India electrified more than 50 million homes which include rural and urban households (HHs)[4-5].

Table 1. Status of HHs electrified between 2001 & 2011, India [4-5].

Description	2001	2011
Total numbers of HHs	19,19,63,935	24,67,40,228
Total numbers of HHs electrified	10,72,09,054	16,59,35,192
Percentage	55.8	67.25
Total numbers of rural HHs	13,82,71,559	16,78,74,291
Total numbers of rural HHs electrified	6,01,80,658	9,28,45,936
Percentage	43.5	55.31
Total numbers of urban HHs	5,36,92,376	8,08,88,766
Total numbers of urban HHs electrified	4,70,28,369	7,30,89,256
Percentage	87.6	92.68

Besides, table1 conjointly shows for a period of 10 years, the share of household electricity for lighting enlarged from 58% to 67.25% and it may have increased beyond that by the end of March 2020. Although the aim of „National Electricity Policy 2005“ to achieve full electrification in all houses is still embryonic. Almost 81 million households don't have access of electricity and out of which 93% households come under bucolic areas. However per capita electricity consumption has increased from 914.41Kwh to 1122Kwh since 2012.India's headway in rural electrification is credited because of strategically launching of national program namely Rajiv Gandhi Grameen Vidyutikaran Yojana(RGGVY) in 2005[6],later colligated under DeendayalUpadhyaya Gram Jyoti Yojana (DDUGJY) in 2015 6].Pradhan MantriSahaj BijliGhar Yojana also known as Saubhagya launched at 25th September, 2017 to provide free electricity connections to all HHs both in rural and urban regions [7].A village can be privileged for electrification whether its inhabitants are of 100 or more by this program. The government says that there has been a village taken into account that at least 10% have power connections irrespective of the quality of electrification [8]. It highlights when its 1 home from 100 families is electrified a village is known as an electrified village There is a shift in Journal of University of Shanghai for Science and Technology ISSN: 1007-6735 Volume 22, Issue 12, December - 2020 Page-1057 government definition from the preceding that thought of an electrified village is if a village includes electrified pumps used for irrigation purpose. Before 1997, government“s focus was on the development of agriculture using benefits of electricity. At this stage economic benefit of electricity was rest on its use in the field of agriculture. There is an increase of demand of energy per capita with population as shown in figure1.From this figure it is evident that there is a need to increase the rural electrification in the villages[9].Table 2 givesan overview of funding under DDUGJY scheme[10].

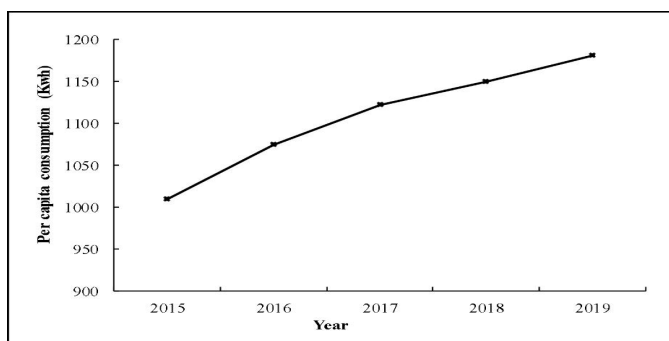


Fig.1Per capita electricity consumption in last 5 years [9].

Table 2. Funding mechanism of DDUGJY [10].

Agency	Nature of support	Quantum of support (Percentage of project cost)	
		Other than Special Category States	Special Category States #
Government of India (GOI)	Grant	60	85
State distribution company contribution	Own Fund	10	5
Lender (Financial Institutions/ Banks)	Loan	30	10
Additional Grant from GOI on achievement of prescribed milestones	Grant	50% of total loan component (30%) i.e. 15%	50% of total loan component (10%) i.e. 5%
Maximum Grant by GOI (including additional grant on achievement of prescribed milestones)	Grant	75%	90%

RESEARCH METHODOLOGY

Maharashtra is based on the western peninsular region of India. Maharashtra is India's third-largest state in size and the second ranked state in population, as per to the Census in 2011[4-5]. Figure 2 shows Nashik, which is a district in Maharashtra for which the study has been done. According to Census in 2011, the district has more than one million populations, & 76% houses are electrified. Given Table 3 illustrates the substantial progress in rural electrification that happened in Nashik [5]. In 2011, the district was having literate population more than 67%. The top two income generating choices were agriculture & animal husbandry which contribute to economy of the district. Beyond this, 62% of rural households were electrified that's 20% less compared to urban family electrification [5]. The duration for research fieldwork was from September 2018 to March 2019for the two villages as shown in figure 2, Jategaon & Talegaon. This research got help by Third year and Fourth year students of Electrical Engineering Department, Sandip Institute of Engineering and Research Centre, Nashik. The initial part includes overall introduction & overview with families and members of those villages. Consents were taken to participate in the research and this point aimed to tell about purpose of the project. Where families, which were prepared to take part, were tentatively identified, it was in this stage, the next phase involved data collection for the research

Table 3.Status of HHs electrified
Description 2011

Total number of HHs	11,80,293
Total number of HHs electrified	9,04,710
Percentage	76.65
Total number of rural HHs	6,61,977
Total number of rural HHs electrified	4,11,152
Percentage	62.11
Total number of urban HHs	5,18,316
Total number of urban HHs electrified	4,93,558
Percentage	95.22

Detailed interviews and observation of participants were used for collecting datas creating a qualitative understanding was the aim of this study. The interviewing version is helpful in understanding values and experience in a certain social context [19]. Participation monitoring allows investigators to understand the daily life of study participants outside interactions [20]. 80 interviews were conducted in every village, after which there was no hope for emerging significant information.

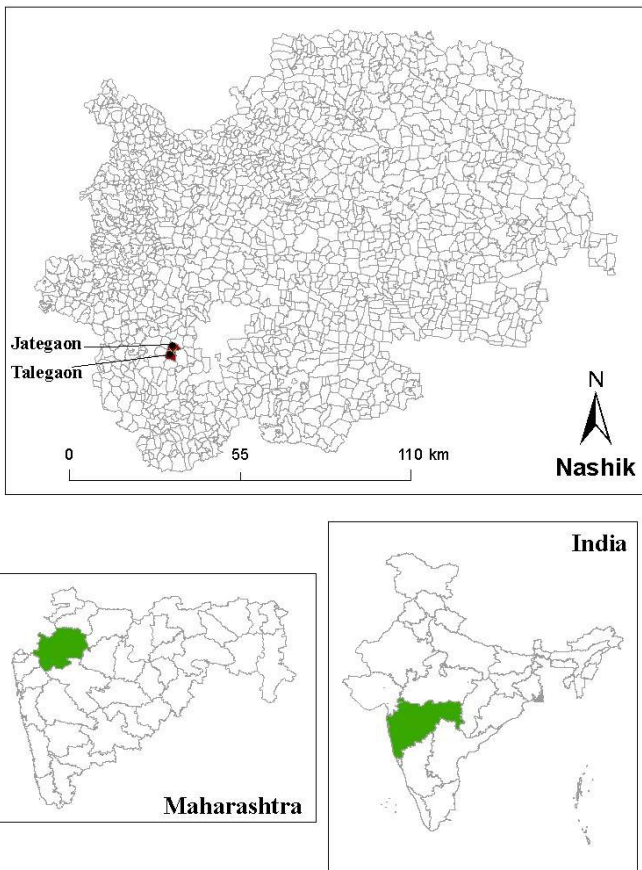


Fig. 2 Map for the study area.

A total of 209 families in Jategaon, 192 families in Talegaon gave interview using interview protocol & during the stay in the villages, causal interaction was with people irrespective of gender biasness. A journal was maintained by researcher to document the details from interaction. The protocol for interview included

questions regarding well-being of people along with also the choices and opportunities expansions connected with family electrification. The interviews lasted about an hour, which were not audio recorded. The cooperation between researcher and interview participants was built greatly as the lodging was in the same village, which allowed them to celebrate livelihood options, community preferences and daily chores. During the survey which lasted for more than 5 months, most of the villagers have access to electricity but the government information on new schemes does not reached to them.

4. Results

There were 292 houses and 985 inhabitants in Jategaon whereas Talegaon has 192 houses with 864 inhabitants. Classification of village houses can be done into two classes based on construction materials utilized, which is called pakka, made from concrete, bricks, steel, and tin roof, and Kutcha, made from timber, mud, thatch and alternative substances having low quality. Both the villages have families belong to Above Poverty Level (APL) and Below Poverty Level (BPL) as categorized by the GoI. The roads, in the villages were unpaved and the market places were more than 8 and 6 km away from Jategaon and Talegaon respectively. Both villages got electricity in 2000 and each home got connected to it. The observed usages of electricity were charging cell phones and emergency light, watching TV and pumping ground water for irrigation. Figure 3 shows key electric appliances used by families who gave interview. When interviewee reactions were placed within the CA, the observation has led to enlarge capacities to realize many valued functioning like improved security, engaging in recreational activities, greater resilience to changing climate, as well as enhanced health.

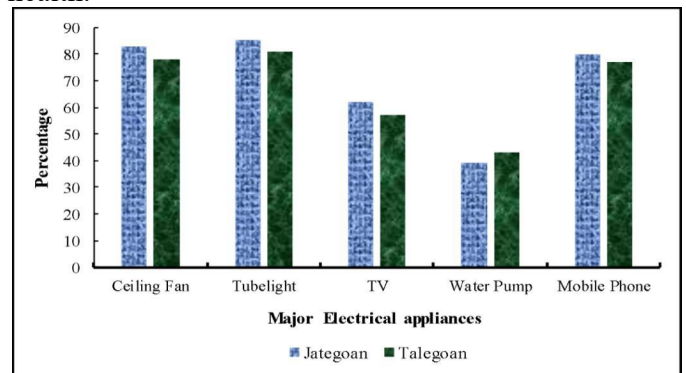


Fig.3 Major Electrical appliances usage [Field Work].

5. Discussion

The observations suggest that electricity access is pivotal in expanding the study participants chances and decisions in the study of the villages. Fig. 3

screens electricity contributions made in attaining basic & secondary abilities. The evidence provided in

the research paper is that critical source for families is power in the study sites not by inquiring who satisfied the power users were or consumed more of this source. It did so by asking interviewees in assisting them to achieve exactly what they wanted to do with the source available. Lighting has enhanced villager's safety and allowed each of the interviewed villagers to sense security against any threat. Research participants pointed out that their lands are far much better sheltered today than before and putting lights has deterred wild animals. Street lights have enhanced liberty of freedom Journal of University of Shanghai for Science and Technology ISSN: 1007-6735 Volume 22, Issue 12, December - 2020 Page-1065 and have reduced the possibility of violence. Most of the women interviewees stressed that before the electrification of the village and after the evening they feel fear to come from their homes while after the street lighting situation is changed and now they can come out from their houses after dinner for a small gathering. Electricity have improved development of involvement of people Table 4 depicts crop cultivation pattern in Talegaon which is quite the same for Talegaon also [Field Work]. Not all the farmers have the liberty of bore-well in their farm as most of them are dependent on seasonal rains and lake water and rest of time work as farm labour. Research participants mentioned that they watch TV to entertain themselves and no to waste time and unwind after hard day of labour and availability of information. Resources provide way to enhance skills of people, but it has to admit that people have different capacity to convert resource into usable form [15]. Not all households can convert resource to usable form. For example, due to legislative and financial limitations, most households could not use an electric pump.

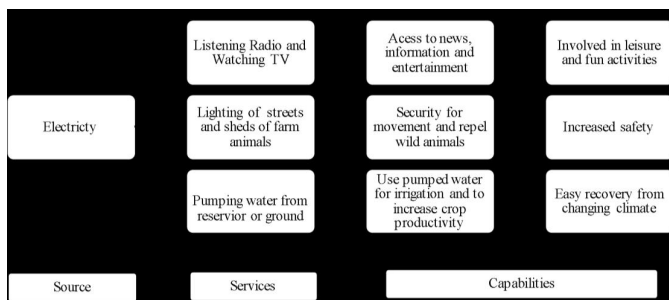


Fig.3 Role of electricity [Field Work].

Conclusion

This paper rejects the concept of having count for total number of houses and understanding the amount

of energy utilized by consumers to find out benefits rural electrification. It sets the possibilities that power access allows families to improve their life quality as

The impact of rural electrification. The observations imply, power is one of the crucial sources which contribute to expand abilities of people to pursue but this lack in some homes from the village. Access to power has not boosted the chances of opportunities to all the villagers. With the help of those findings, this research puts forward two coverage guidelines. This study has determined that power is not the end, but it can give lots of opportunities to boost essential capability. This study came to conclusion that, GoI is more interested in announcing electrification for the villages than providing actual opportunities to improve standard of life for them and promoting use of a standalone solar photovoltaic application.

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Appendix: Household survey

Village: _____ Gram Panchayat: _____
 District: _____ State: _____

Respondent's Profile

Name:	Gender: Male / Female	Age (Yrs.):
Relationship with Head of Household:	Contact Number:	
Identity Card:	Identity Card Number:	

1. General Household Information

Household No:	Name of the Head (Household):	Male / Female
Category: Gen / SC / ST / OBC / EBC	Poverty Status: APL / BPL	
Own House: Yes / No	Type of House: Kutcha / Semi Pucca / Pucca / Homeless	Toilet: Private / Community Open Defecation
Annual Income from all Sources (Approx.): Rs.	Drainage linked to House: Covered / Open / None	

2. Family Member Information

Name (Family Member)	Age (Yrs.)	Sex (M/F)	Marital Status Code	Level of Education Code	Computer Literate Y/N	Major Health Problems, if any

3. Source of Power and Water

Electricity Connection to Household/Farm: Yes / No			
Electricity Availability per day (hours):			
Lighting: Electricity / Solar Power / Batteries			
Mention if Any Other:			
Sr. No.	Appliances	Nos	Duration in hours
1	TV		
2	Ceiling Fan		
3	Radio		
4	Mobile		
5	Water Pump		
6	Tubelight		

4. Source of Water	Distance
Community Water Tap/Private	Yes / No
Hand Pump (Public / Private)	Yes / No
Well(Public / Private)	Yes / No
Any other source (mention)	

5. Information of Government Schemes

Sr. No.	Name	Persons Benefitted (in Numbers)
1	PM Jan Dhan Yojana	
2	Soil Health Card	
3	PM Awas Yojana	
4	Sukanya Samridhi Yojana	
5	Swachh Bharat Mission/Toilet	
6	PM Jivan Jyoti Bima Yojana	
7	PM Suraksha Bima Yojana	
8	Fasal Bima Yojana	
9	Atal pension Yojana	
10	Kaushal Vikas Yojana	
11	Krishik Sinchai Yojana	
12	Jan Atushadi Yojana	
13	Mudra Yojana	
14	PM Ujjwala Yojana	

6. Livestock Numbers
Cows: _____ Goats: _____ Buffalo: _____
Bullocks: _____ Poultry: _____
Others (mention): _____
Shelter for Livestock: Open / Pucca / Kutcha
Production of Milk(Litres) daily: _____

Schedule Filled By (Name & Sign): _____
 Date of Survey: _____