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**USE OF ELECTRICITY FOR DIFFERENT ACTIVITIES IN AGRICULTURAL
DEVELOPMENT**

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Introduction:

Electricity plays a vital role in the development of agriculture sector as well as rural economy. It is one of the basic infrastructure facilities necessary for changing rural life. Electricity plays an essential role in the shifting cropping pattern and increasing agricultural production and productivity. Electrification has helped in changing the agrarian economy in a significant manner. Electricity brings about a change in cropping pattern also. Farmers can shift crops from low value to high value, which in turn helps to increase in the level of output and income also. Generally, development of a country depends upon rural development and it mostly depends on agricultural development. In recent year, modern agriculture requires electric power to make use of modern technology. In most of the cases for the purpose of irrigation, electric pumps are being used, instead of manpower, animal power and diesel engine. Therefore, electricity is more convenient as compared to the other sources. Use of electricity leads to expansion of irrigated area and ultimately it leads to more output and more employment opportunities. The use of electricity brings about changes in entertainment facilities like radio, television, which are quite effective media for educating masses.

In this research work an attempt has been made to analysis the role of electricity in the development of rural sector with reference to Western Maharashtra and Vidarbha region of Maharashtra State. In this reasons electrification for the development of agriculture is one of the essential requirements. It changes traditional pattern of agriculture and helps in improving the economic condition of the farmers. Use of electricity in farming activities can be considered as



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an indication of the modernization in rural sector of the economy. In this chapter research methodology has been studied in detailed.

Research Design and Sampling:

The study covers the period of 2001 to 2015; during this period the government introduces many changes. The privatization of electricity is one of them this will bring a change in the various sectors of the economy. The period under consideration for this study covers the major changes made by the government through its economic policy at national and state as well as local level. The present study is limited to the survey of sample farmers of selected villages from sample Tahasils of selected Districts particularly.

In Maharashtra State, Western Maharashtra and Vidarbha have been selected for the study. For the purpose of this study, the survey method has been used. The Western Maharashtra region comprises of 6 districts and Vidarbha region consists of 11 Districts. For the purpose of this study the Western Maharashtra region has been divided into two groups. The first group consists of 3 Districts i.e. Kolhapur, Satara and Sangli and second group consists of 3 Districts i.e. Pune, Amhadnagar and Solapur. Out of which 2 Districts have been selected. Similarly regarding to the Vidarbha region, it has been divided into two groups. The first group comprises of 6 Districts i.e. Nagpur, Wardha, Bhandara, Gondia, Chandrapur and Gadchiroli and second group consists of 5 Districts i.e. Amaravati, Yavatmal, Vasim, Akola and Buldhana. Out of which 2 Districts have been selected. The study covers selected Districts from the Western Maharashtra viz; Kolhapur and Solapur and from Vidarbha viz; Nagpur and Yavatmal.

For the purpose of selecting Tahasils from sample Districts Random Sampling Method has been used. Three (03) Tahasils have been selected from each selected District of Western Maharashtra and Vidarbha. The study covers selected Tahasils from the Kolhapur District viz; Karveer, Ajra and Hatkanagale and from Solapur District viz; Akkalkot, Pandharpur and Barshi. The study also covers from the Nagpur District viz; Narkhed, Hingna & Kalmeshwar and from Yavatmal District; Arni, Digras and Pusad. For the purpose of selecting villages, Stratified Random Sampling Method has been used. From the selected Tahasils five (5) Villages from each Tahasils have been taken as sample i.e. 60 Villages.



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In order to study the impact of regular supply of electricity on agricultural development, 10% farmers out of total farmers available in the respective villages have been selected. Only those farmers have been selected who have electric pump sets. The data collected from the farmers is based on the pre-structured questionnaire and information collected from the sample farmers.

Analysis of Data:

The analysis presented in this study is mainly based on primary as well as secondary sources of data. The statistical data and relevant information is collected from the farmers with the help of pre-structured questionnaire. The data collected from all groups of sample farmers for the year 2001 and 2015. The methodology used for this study has been categorized as Multistage Stratified Random Sampling Technique and for selecting villages Cluster Sampling Technique used.

Secondary data and additional information have been collected from the Agricultural Census Report, District Census Handbook, Districts Gazetteers, and Government Reports Relating to Rural Electrification, Government Publications Library, Patwarie's / Talathi's Handbook and Internet etc.

Keeping in view the objectives of the study, some appropriate statistical techniques such as percentages, average, etc. have been used in this study. To analyzed the impact of regular supply of electricity on agricultural development Component Principal Method has been used for this study.

Use of Electricity by Farmers for different Activities in Agriculture:

The sample farmers make use of electricity for different kinds of agricultural activities such as irrigation, green house, cattle-shed, poultry house etc. The use of electricity for different purposes in the agricultural sector has contributed significantly for the overall development of the primary sector. Due to utilization of electricity for irrigation activities, area under irrigation has increased. Therefore, farmers have started cultivating crops twice or even thrice in a year. Regarding the poultry houses and poultry products, the use of electricity has increased for their development. In the following table the use of electricity for different kinds of agricultural activities has been presented.

Use of Electricity by Farmers for Different Activities in Agriculture

Sr. No.	District/ Region	Size of Land Holding	No. of Farmers	Machinery	Green House	Poultry Product	Cattle Shed	Farm House
1	Kolhapur	Marginal	54	21 (38.89)	6 (11.11)	3 (5.56)	9 (16.67)	9 (16.67)
		Small	50	19 (38.00)	8 (16.00)	5 (10.00)	8 (16.00)	10 (20.00)
		Medium	43	17 (39.53)	11 (25.58)	2 (4.65)	6 (13.95)	5 (11.63)
		Large	23	14 (60.87)	12 (52.17)	4 (17.39)	5 (21.74)	6 (26.09)
		Total	170	71 (41.76)	37 (21.76)	14 (8.24)	28 (16.47)	30 (17.65)
2	Solapur	Marginal	64	19 (29.69)	4 (6.25)	7 (10.94)	13 (20.31)	4 (6.25)
		Small	48	21 (43.75)	7 (14.58)	9 (18.75)	19 (39.58)	7 (14.58)
		Medium	39	25 (64.10)	9 (23.08)	7 (17.95)	15 (38.46)	9 (23.08)
		Large	19	15 (78.95)	6 (31.58)	4 (21.05)	13 (68.42)	8 (42.11)
		Total	170	80 (47.06)	26 (15.29)	27 (15.88)	60 (35.29)	28 (16.47)
	Western Maharashtra		340	151 (44.41)	63 (18.53)	41 (12.06)	88 (25.88)	58 (17.06)
3	Nagpur	Marginal	58	28 (48.28)	7 (12.07)	8 (13.79)	11 (18.97)	6 (10.34)
		Small	49	29 (59.18)	6 (12.24)	11 (22.45)	16 (32.65)	8 (16.33)
		Medium	38	29 (76.32)	11 (28.95)	9 (23.68)	9 (23.68)	11 (28.95)
		Large	25	21 (84.00)	5 (20.00)	6 (24.00)	8 (32.00)	6 (24.00)
		Total	170	107 (62.94)	29 (17.06)	34 (20.00)	44 (25.88)	31 (18.24)



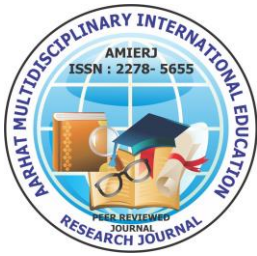
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4	Yavatmal	Marginal	57	23 (40.35)	8 (14.04)	13 (22.81)	27 (47.37)	3 (5.26)
		Small	51	21 (41.18)	9 (17.65)	11 (21.57)	25 (49.02)	7 (13.73)
		Medium	34	19 (55.88)	6 (17.65)	9 (26.47)	19 (55.88)	9 (26.47)
		Large	28	16 (57.14)	11 (39.29)	7 (25.00)	15 (53.57)	13 (46.43)
		Total	170	79 (46.47)	34 (20.00)	40 (23.53)	86 (50.59)	32 (18.82)
	Vidarbha	340	186 (54.71)	63 (18.53)	74 (21.76)	130 (38.24)	63 (18.53)	
	Total	680	337 (49.56)	126 (18.53)	115 (16.91)	218 (32.06)	121 (17.79)	

Note: (1) Total sample farmers are 680 (2) Figure into bracket shows percentage of total and figure outside bracket shows total number of farmers.

The use of electricity by sample farmers for different kinds of agricultural activities has been presented in the above table. All different kinds of agricultural activities are analyzed considering the total sample size. All sample farmers used electricity for the purpose of irrigation. Sample farmers have started making use of electricity for irrigation activities in farm. Regular supply of water provided for their crops by electric pumps. Electric pump sets are also helpful for lifting water from wells and other sources of irrigation. Therefore, it is helpful for increasing production and improving productivity. Out of total selected sample farmers (680), 18.53% of them have used electricity for the purpose of green house. In recent times electricity has proved to be helpful in development of green house. Electricity has also helped in lighting the green house, supply of water for their crops and also for maintaining temperature of the green house. Out of the total sample farmers, 16.91% of them have started making use of electricity for poultry product or poultry house. Electricity can also be helpful for the poultry and poultry product such as lighting, cooling, incubates of eggs, hitting etc. Out of total selected sample farmers, 32.06% of farmers make use of electricity for the purpose of cattle shed. Sample farmers also use of electricity for lighting purpose in the cattle shad. Out of the total selected



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farmers, 17.79% of farmers make use of electricity for the purpose of farm house. Out of total sample farmers 49.56% of farmers make use of electricity for the purpose of machinery in their farm. The large number of sample farmers is making use of electricity for irrigating their own area of land as well as machinery. The farmers are using electricity for electric pump sets, lifting water from wells, canals, ponds, tanks, lakes, rivers etc. this has contributed in increasing the total area under irrigation. It is helpful in increasing production and improving productivity. Therefore, it automatically improves the level of income and standard of living of farmers.

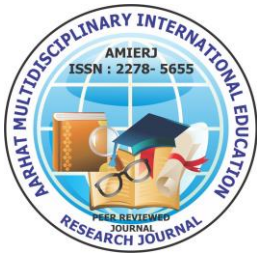
The use of electricity depends on the size of landholding. The requirement of electricity is more for the land, which is bigger in size and it, reduces as the size of land reduces. The use of electricity depends on the type of crops undertaken by the sample farmers. The sugarcane, wheat, flowers, orange, cotton, vegetables etc. require more amount of water this obviously require more electricity. Contrary to this pulses do not need water in large amount therefore; the use of electricity is less for the production of pulses. The existing charges of electricity for energized agricultural pump sets are shown in the following paragraph.

Conclusion:

In this paper, use of electricity by farmers for different activities in agriculture has been explained. All different kinds of agricultural activities are analyzed considering the total sample size. All sample farmers used electricity for the purpose of irrigation. Sample farmers have started making use of electricity for irrigation activities in farm. Regular supply of water provided for their crops by electric pumps. Electric pump sets are also helpful for lifting water from wells and other sources of irrigation. Therefore, it is helpful for increasing production and improving productivity.

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