Astronomically, Damoh region lies between 23°09' and 24°26' north latitude and 79°03' and 79°57' east longitude. Damoh has a central location in the country with 1.64 percent of the state's total area. Administratively, the region is divided into seven tehsils i.e., Damoh, Hatta, Patera, Batiyagarh, Pathariya, Jabera and Tendukheda and is further divided into seven blocks. The region has 1212 villages. According to the 2001 census region has 1083949 inhabitants out of which 570220 are males while 513720 are females, hence the density of population comes to 148 persons per sq. kms.

Geologically, Damoh region is the eastern most part of the great Vindhyan plateau, consisting of the valley of river Sonar in the centre of the region. The Sonar valley is the principal agricultural area of the region which is completely devoid of forests. The climate of the region is generally pleasant. The forest in the region are mainly Tropical Dry Deciduous type but mixed forests and teak forest are also found in the region.

The region under study enjoys the direct accessibility through transport network with different parts of the state as well as of the country. The region is accessible by rail and is traversed by state highways which connect it to all important towns like Jabalpur on the east, Jhansi and Gwalior on the north and Bhopal on southwest. Damoh railway station lies on the Bina-Katni section of the central railways and provide direct accessibility to Delhi Mumbai and Howrah.

In the recent times, development has assumed the role of the “leading sector” in economic development. This is due to the fact that other sectors have not been able to support it integratively. The task of rural development as a process is manifold. It has to place a sizeable proportion of population above the poverty line. It has to emphasize on the underdeveloped sub-sectors of our rural system. Above all it has to bring in an awareness among policy-makers, institutional agencies and the people in large proportion so as to the immediacy of abating poverty, inequality and inefficiency.

This study purposefully to highlights the role played by a specific rural sector. Effective development and intelligent utilization of power is
essential for sound and multidimensional development of the region. Development of industrial activities and agricultural sector in a region is inextricably linked with the development of power. Electricity is much more geographically mobile than water and steam power, since it can be transmitted from one place to another at a relatively less cost. Electricity is a powerful instrument in the socio-economic development of rural areas. The economic development largely depends on adequate infrastructural facilities. Village electrification (Rural electrification) has been a crucial component in the strategy for achieving a balanced development of rural India.

To maintain the momentum required to extend the development on national basis the time has come, if it is not already passed to be included in the development plans to initiate the process of modernization for own rural areas. Pressures from different parts of the world and different regions of the country are mounting that rural electrification must be considered as an essential element for rural development.

American writer C.T. Ellis in his book “A Giant Step” emphasizing the role of electricity in villages has said that our experiences have confirmed that once a dependable supply of electricity is assured to the rural masses at a reasonable cost, the users of electricity are found rapidly progressing regardless of the stages of development, which already exists and has successfully been multiplied many times. The intangible benefits include better lighting, more efficient management of commercial activities, household chores with better recreation and improving the recreational habits and ultimately improving the standard of living with improved quality of life style.

Indian economy is predominantly a rural type as about three fourth i.e. 5.6 per cent of the total population since 2001 are living in villages and about 70.2 per cent are engaged in agriculture. The region under study is not an exception to this. Electric power successfully serves not only the agricultural, agro-industrial, industrial, commercial and domestic activities but also helps to improve the standard of living. Electricity is also used for maximizing the use of underground water for irrigation which in turn boosts the agricultural production. Electrification of rural areas has been playing an important role in the shifting from dry crops to irrigated crops, and from low yielding to high yielding crops on the other, resulting in remunerative
cropping pattern enabling the farmers to use thrashing machines for grain, shellers, dryers, incubators, cream separators, etc.

All India Rural Credit Review Committee, set up by the chairmanship of Shri S. Venkatpipah, examined the question of accelerating the plan programme to increase the agricultural production. The committee was of the view that more extensive use of electric pumpsets for irrigation was essential and need for greatly accelerated rural electrification programme has to be ensured.

Recommendations of the committee were accepted by the Government of India & Rural Electrification Corporation was registered as a government owned company on 25th July, 1969. This was the first process of rural electrification programme.

Policy objectives stated in various five years plans clearly indicated that emphasis on rural electrification (RE) and considering the growing needs and experiences shifts have been noticed from one plan to the other.

Rural electrification has been a relatively recent undertaking on the part of the Central and State Government. There was no policy related with rural electrification to ensure the systematic planning and execution of rural schemes prior to independence. Of course, efforts have been made by certain erstwhile princely states but most of them were ad hoc in nature and needed systematization. As compared to urban areas, the job was more difficult for the rural areas, were number of load use points are widely scattered. Not only the execution of the rural electrification programme but its day to day operation and maintenance too becomes difficult in the wider areas of the study region.

Rural electrification has been considered as a vital factor in stimulating multidimensional changes in the rural areas. After independence the attention was given towards rural electrification. Considering the goals and objectives of various plans, policies and programmes were formulated and needful alterations and additions too were made in various five year plans on the basis of the experiences.

Impact of rural electrification can be observed and determined at the household and the village level. Rural electrification has significantly contributed in boosting the farm production which became possible with the
changes in the irrigated area with the use of electric power and lift irrigation changes in the cropping pattern, introduction of new crops, changes in the production cost, through lift irrigation. Not only the better utilization of the available water was assured but animal power and muscle power was also released and finally this all has helped in improving the agricultural efficiency of the available cultivable land.

Process of electrification in our country was started 95 years ago with the installation of the first electricity generating plant at Darjeeling under the Holipara electricity project in the later part of nineteenth century i.e. 1898. Similarly, the first hydro-electric project with the name of Shivsamudram Hydro Power Project was started with an installed capacity of 4300 KW. This was the major power project setup by the government in the public sector.

Electrification of the rural areas in the country remained unblended. On the eve of independence in 1947 there were only 500 villages in the country which were enjoying the facility of electrification that too for lighting purposes only.

Process of electrification in the study region was initiated with establishment of thermal power station at Damoh city in the year 1950 when a steam plant with an installed capacity of 2500 kwh.

Another diesel power station was commissioned at Bina in the year 1957 with an installed capacity of 314 kws. Power station was equipped with three diesel Generator with a capacity of 150 kw each at an investment of one lakh especially to cater to the power requirements of Railways.

Electrification of the rural areas in the study region started during the second five year plan as per the objectives of the plan. The process of rural electrification in the district remained very slow upto the third five year plan. The food shortage during 1965 and 1966 led to the reorientation of the rural electrification programme during the three annual plans and in the fourth five year plans. During the fourth five year plans in 108 villages. (11.05 per cent) 2248 electric pumps were energized.

During the ninth five year plan the importance of rural electrification for socio-economic development of rural areas as an essential infrastructure for the development of backward areas was recognized. Minimum need
programme (MNP) was introduced in 2002-2007 307 village were added in the list of electrified villages. Number of electrified villages by the year 2007 went up to 65.5 per cent and at the same time 15409 pumps were electrified to boost the irrigational capacity and to ensure the enhanced agricultural production. During the same plan, Rural Electricity Cooperative Society Ltd. was formed for Hatt block and Damoh block 31 August 2007 to cater to the power needs of this area and to involve the local people in the process of development.

Geographical location of the sample villages significantly has favoured the development of electrification and its impact on village economy can be seen.

For the present study, household was the actual unit. In view of the field work limitation 140 households from the selected sample villages were interviewed. About 2 per cent households representing various categories have been randomly selected from the sample villages. However considering the requirement of the subject some selectivity was introduced. Among the sample households, Hindus swell the number with 90.0 per cent followed by Jain and Muslims. Caste is a significant socio-economic factor in rural areas as many economic activities are identified with one of the other 42.0 per cent of the total sample households belonging to OBC followed by SC and general category.

The age of the respondents is very important since degree of awareness and age are very closely associated. The age of the respondents vary from 25 to 60 years. About 60.0 per cent respondents from the region are literates leaving the remaining 40.0 per cent illiterates. More than 39.0 per cent of the total literates have completed their primary education. The analysis clearly shows that more than 95.0 per cent respondents are owning the land and 70.5 per cent of the total cultivators belong to the big farmers category and are the land-holders owning with 01 to 15 Hectares. On the other hand only 5.5 per cent are landless.

Among the socio-economic characteristics of the respondents income also has a direct bearing on the living standards and the adoption of innovation. More than 22.5 per cent households among the sample respondents belong to the very high income group of households above the poverty line with an annual income of more than 35,000.00 followed by high
income group 18.5 per cent and middle income group with 10.0 per cent 60 per cent of the sample respondents are below the poverty line.

CONCLUSION

The consumption of electricity in rural area is a recent phenomenon and most of this power is consumed by agricultural sector and has provided a relief to farmers from the gamble of monsoon. During the First Five Year Plan process of rural electrification in region could not start and same trend continued till the end of the Third Plan. It was the annual plan and Fourth Plan from when it made a rapid progress and by 2009 around in 90.0 percent (1212) villages the regional electrification was completed. Attempts have been made to ensure that before the end of Eight 11th Plan all the villages in the region could be electrified to achieve the hundred percent electrification. In the same plan efforts have also been made to provide the regular power supply with any power unit to the villages.

There is scope for further improvement since rural electrification alone will not be able to deliver the required goods unless other development programme and scheme also cove the same villages for exploring the potentials for future development created by electrification programme.

The majority of scheduled caste and scheduled tribes who form one-third of the population are below the poverty line and face special problem peculiar to them. The Rural Electrification Corporation is also operating a special programme to electrify the Harijan Bastis all over the region. However, more efforts are needed on the part of the State Government to provide regular electricity to villages where scheduled caste and scheduled tribes population live in majority and also to give more incentives to the Weaker sections so that benefits of electricity are available to them.

Due to long and cumbersome procedure there was delay in getting connections by the consumers and thereby they were put in a lot of difficulties and hardships. It is suggested that efforts should be made to reduce the time lag to the minimum so that the costly equipment does not remain unutilized and the users are not put to any hardship due to the delay in getting connections.

Bill collection centres in number of villages particularly in Bamanpura, Bakayan, Jhalon Bhilampur and Chandora are at a distance of
15 km from the villages. It is suggested that there should be a sufficient number of bill collection centres located within a block electricity sub-station in such a way that the rural consumers not have to travel long distances to pay electricity bills. This would also help in reducing the arrears with the consumers towards the payment of electricity bills and this may improve financial position of the state electricity boards.

It was observed that every village had reported about twice or thrice interruptions per day. It is essential that the electricity department should make concerted efforts to reduce the number of interruptions as it affects planning of operations, production and also causes discomfort to the consumers of electricity.

For large number of sample villages, irrespective of their sizes, repairing facilities are available beyond 15 km from the villages. If repairing facilities are located away from the villages, the equipment remains unoperated for long time even for minor faults. It is, therefore, suggested that repairing facilities have to be made available within a reasonable distances from the villages. A repair crew for three or four villages would be ideal so that the consumers of electricity need not travel long distances for repair facilities. This would require an adequate number of trained persons for carrying out repair works in the villages. Rural electrification corporation had also sanctioned a number of schemes during 1977-79 in almost all the parts of the country for training the line-men. More such training facilities are needed in rural areas for the training of repair crew.

The number of diesel pumpsets after electrification of the sample villages had increased the region as farmers prefer to go in for diesel set in order to get an assured supply of water for the crops as and when required. Nevertheless at the overall level the share of electric pumpsets in total is much more than that of diesel pumpsets, and if the uninterrupted supply of electricity is assured, dependency on the diesel pumpset can be reduced.

**ELECTRIFICATION AND AGRICULTURE**

Respondents owning electric pumpsets reported that they faced problems in submission of application for getting electric connections, procuring pumpsets and other electric materials, electric fitting, etc. Some of the respondents reported difficulties even at the stage of the submission of
application for getting connection. These difficulties were in the nature of application forms not easily available and too much technical details were required in the forms. Such problems, to a large extent, can be mitigated if state electricity board could adopt more helpful attitude towards applicants and prospective consumers. The official procedure, it is recommended, should be simplified and watchful eye kept on licensed contractors who appeared to be exploiting the situation, so that their services are made available to the consumers at reasonable rates.

Motors of about 9 percent pumpsets were replaced either for higher or lower horsepower. In deciding the horsepower of the motor, 40.5 per cent pumpset owners had taken the decision based on their own experience and other 39.5 per cent were consulting progressing cultivators and only 11.0 per cent had consulted state electricity board’s officials. It is suggested that the respective state electricity board may make suitable arrangements for providing advice to the farmers on technical matters regarding the horsepower of the motor, etc. So that the farmers may invest their meagre resource available to them optimally.

Respondents of pumpset (21.0 percent) had switched over from diesel to electricity. The reasons for changing over electrically operated sets were more economically 85.0 per cent, convenient to operate 65.0 per cent, and scarcity of diesel 40.0 per cent.

After electrification the net area irrigation in 2001 by the respondents was reported to have increased by 160.0 per cent. Also, it was observed that there was decrease in area irrigated by diesel pumpsets and by the other traditional methods as rahots or charas.

Of the 69 respondents 50.0 per cent respondents have availed the loans for installation of electric pumpsets. Such respondents availing loans were mainly from Bakayan Jhalon Bamanpura Kuwanpur and Hanshraj Majhgawan villages. Over 65.0 per cent loans were taken from cooperative institutions and these institution were instrumental in providing 65 percent of total amount of loan.

It was observed that 20.0 percent of the respondent reporting irrigation in Kharif and 80.0 percent in Rabi stated that untimely and inadequate supply of power had adversely affected the yield 90.0 percent
respondents reported interruptions in the power supply. These interruptions caused damage to the agricultural production, labourers remained either ideal or were diverted to other operations and some could not be employed. Similarly 95.0 per cent respondents reported fluctuations in voltage. None of the respondents reported that they were detecting fluctuations in voltage by the use of voltmeters. Motors of pumpsets 42.0 per cent got damaged due to voltage fluctuations. Out of these 60.0 per cent were damaged once, 35.5 percent twice and 12.0 per cent three times during 2001-2002. It was also observed that the percentage of break downs lasted over three to four days was about 75.0 per cent due to defects in electrical fittings, motors and the operation of pumpsets as the service and the repair facilities were not available in the vicinity.

Two systems of power tariff are in the villages. It was observed that 95.0 per cent or more respondents in most of the villages were in the favour of meter rate of billing. However flat rot system was not preferred by any respondent in the sample villages.

Water is one of the essential inputs to be used with high yielding variety crops which require a scientific water managements. With the availability of adequate irrigation facilities, the farmers are expected to use fertilizers and take other measures for improving agricultural productivity. pumpsets had adopted HYV seeds. The area covered under HYV seeds showed a substantial increase after electrification. In the 15 villages of the region there was almost no or negligible area under HYV seeds before electrification but adopted HYV seeds after electrification. Similarly, the increase in area under improved seeds after electrification in 2001-2002 it was observed to be 71.9 percent at the aggregate level. The balanced dosage of chemical fertilizers is another important input in agriculture. The percentage increase in area under chemical fertilizers– Urea, DAP, Super Phosphate and their various combination after energization of pumpsets – was reported in all the villages.

**Rural Industries**

Electricity plays a crucial role in the growth of rural industries. Not only that it permits the growth of new industries but also allows that existing unit which are using conventional source of energy, to switch over to the electric power thereby, resulting in overall reduction in the operating
costs and increasing productivity. The industrial units that had come up in rural areas are mostly agro-based, besides a few non-ago-based and service units. These units are mainly atta-chakkies, rice hullers and a few oil expellers.

There was no industrial unit found in 10 villages of the region at the time of field survey. The percentage distribution of the various components of investment per industrial unit at the aggregate level is as follows: Machinery and tools 73.0 per cent and remaining 20.0 per cent towards installation charges against electric materials fitting charges, etc. Not any owner of the industrial unit had received the formal training in institutions. There are (10) flour-mills (attachakkies) in region. They are concentrated in eight sample villages.

Diesel was widely used as main power prior to electrification. The reasons for change over to electric power were mainly stated as electricity being economical, convenient to operate and scarcity of diesel. At the aggregate level 55.0 per cent units had motors of 7.5 horsepower and 35.0 per cent unit had motors of 10.0 horsepower or above.

The owners of the industrial units were of the opinion that due to interruptions in power supply the industrial production as well as employment of labour was affected. Due to fluctuations in voltage, the motors of 35.8 per cent unit got damaged. These difficulties resulted in underutilization of the production capacity of the units. The other reasons for underutilization were inadequate the nearby areas, besides financial difficulties.

Almost all the unit selected had reported that the tariff rates were on the higher side. Meter system of billing has been preferred by 96.0 per cent of the units as the payment of charges is based on actual consumption of power.

Out of the total units in the region 85.0 per cent had started after electrification of the villages where these units were located. Employment per unit at the aggregate level, showed a slight decrease in the wholetime employment after electrification and it was attributed to the growth of similar and smaller units employing only a few persons and their limited coverage. However, the part time employment per unit remained constant ever after electrification.
Street Lighting:

People in the villages are interested in street lighting as it provides safety, free and easy movement in the night; however, it was observed that they were seldom willing to pay their share of energy consumption charges.

In most of the villages, street-lighting was provided at the request of Gram Panchayat, however, the main problem was the financial inability of the local bodies to meet the “recurring expenditure on electricity consumption”. The other problem was theft and breaking of bulbs by throwing stones.

In the sample villages street lighting was available in the villages or 60.0 per cent villages. There was no street-lighting in ten sample villages of the region.

Out of 140 respondents (75) 49.0 per cent belong to the villages which had street lights and the remaining 40 to the villages which had no street lighting. Out of 100 respondents 60.0 per cent reported that the streets where they lived had street lights and the remaining 20.0 per cent had no street lights in the street inhabited by them.

From the above discussion it can be stated that the working of M.P.E.B. have to be improved on one hand and supply of electric power has to be made regular to a great extent to achieve the success of rural planning on the other.

It is suggested that the State Government should augment the resources of the local bodies for meeting expenditure on street lighting. Keeping in view the importance of social and cultural changes that it extends to the villagers.