CHAPTER-VII

Infrastructural Provisions and Facilities

7.1 Introduction

Infrastructure plays a pivotal role in expediting the process of country's economic and social development as well as the promotion of balanced regional development. Basic infrastructural development of a region is significant because it facilitates rapid economic growth and reduces the regional disparity in terms of socio-economic development. Infrastructural facilities in the rural areas are necessary in order to improve the sustainability of the provision of basic needs such as water supply, electricity, communication, transport, health and education which accelerates both social and economic growth. Since the aspects of economic and social well-being are essentially associated with the infrastructural development therefore the adequate provision of basic infrastructural facilities for the large section of rural population is of utmost importance.

Infrastructural development has many dimensions. It involves the development related to roads, agriculture, irrigation, power and telecommunications, information technology, market centres, sanitation, and veterinary services in the rural areas of the country. Thus adequate provision of infrastructure is not only significant for the development of an area but also it forms an indicator of the scope of development of an area. Since sustainable rural development has always been one of the major concerns for development of the country therefore it is always necessary to increase investment in rural infrastructure in order to generate new economic aspects, additional employment opportunities and assets creation consequently leading to the improvement of the quality of life of rural masses.

To enhance the existing status of basic infrastructure in the rural areas, Government of India has introduced a number of infrastructural development programmes in the country and Jalpaiguri district of West Bengal is no exception. To achieve this objective major programmes like; Rural Infrastructure Development Fund (RIDF), 1995-96, was formed for the provision of loans to the State Governments for the completion of the rural infrastructural projects, Pradhan Mantra Gram Sadak Yojana (PMGSY), 2000, was implemented to provide road connectivity in the rural areas, Rajib Gandhi Grameen Vidyutikaran Yojana (RGGVY) in 2005, was initiated for rural electricity and household electrification and Bharat Nirman Programme (BNP) in 2005, was launched for the development of rural infrastructure through the provision of all-weather roads in the rural areas, construction of rural houses for the rural poor, provision of water supply to all uncovered rural households, electricity to the villages which are not electrified, creating additional irrigation facilities, and connecting the villages

with public telephone. However in spite of these implemented developmental programmes, inadequate infrastructural provision continues to remain as a constraint to rural development in the sampled villages of Jalpaiguri district as observed during the field survey, 2015-2016. Therefore, the present chapter deals with some of the notable features of different components of infrastructure in the rural areas of Jalpaiguri district.

7.2 Water Supply

Water supply is the matter of the state and the Government of India is responsible for setting the standards of the quality of water for the rural and urban areas. However the state governments have to establish departments or special agencies for the supply of domestic water for the rural and the urban areas. The Central Government increases states efforts through financial and technical support. National Rural Drinking Water Programme (NRDWP) launched on April 2009, Ministry of Drinking Water and Sanitation, was implemented in rural India with the objective of reducing the water crises and ensuring safe drinking water facility to all rural households. The programme was launched after merging the three programmes; Accelerated Rural Water Supply Programme (ARWSP), Swajaldhara and National Rural Water Quality Monitoring & Surveillance. In West Bengal the Zilla Parishad has Public Health & Environment Standing Committee, which works in close coordination with the Public Health Engineering Department (PHE), for the provision of safe and clean rural water supply in the district. In Jalpaiguri district a wide range of activities of rural drinking water supply programme have been initiated for the infrastructural development with the aim of ensuring adequate water supply at the household level in the rural areas.

During the field survey 2015-16, it has been observed that though the PHE of Jalpaiguri district have focused the sustainability of fresh drinking water supply yet there is an acute shortage of water supply observed in the sampled villages of Jalpaiguri district. Out of the seven Community Development blocks of the district, only the sampled villages of Dhupguri and Mal block have access of a single piped water supply available from the tea gardens for the consumption needs of the households. However there are no filtering facilities found in any of the sampled villages of Jalpaiguri district.

7.2.1 Drinking water source

Since there is a scarcity of rural water supply in the district, provision of safe and clean drinking water has emerged as a major challenge in the rural areas of Jalpaiguri district. Hence, it is worthwhile to examine the various sources of drinking water in the households of the sampled villages of the district. It has been observed during the field survey 2015-16, that

there is a complete absence of PHE tap water supply in the sampled villages of Jalpaiguri district.

Table 7.1: Household Sources of Drinking Water (in percentage)

C.D. Blocks	Well (covered/uncovered)	Tube Well	Hand Pump	Others
Rajganj	84.62	4.62	3.08	7.69
Jalpaiguri	83.05	5.08	3.39	8.47
Maynaguri	90.86	1.71	4.00	3.43
Dhupguri	76.08	3.83	3.35	16.75
Mal	80.00	4.00	3.00	13.00
Matiali	90.00	2.50	0.00	7.50
Nagrakata	83.95	3.70	3.70	8.64
Total	82.75	3.50	3.26	10.49

Source- Field Survey, 2015-16

A large part of the rural households depend on their private wells, and hand pumps within their premises. Besides, an increasing use of hand pumps clearly points to the over exploitation of ground water in the sampled villages of the district. Therefore the Government should focus on mapping the different aquifers in order to identify the quantity and quality of ground water resource for the reduction of the declining ground water levels in the rural areas of Jalpaiguri district.

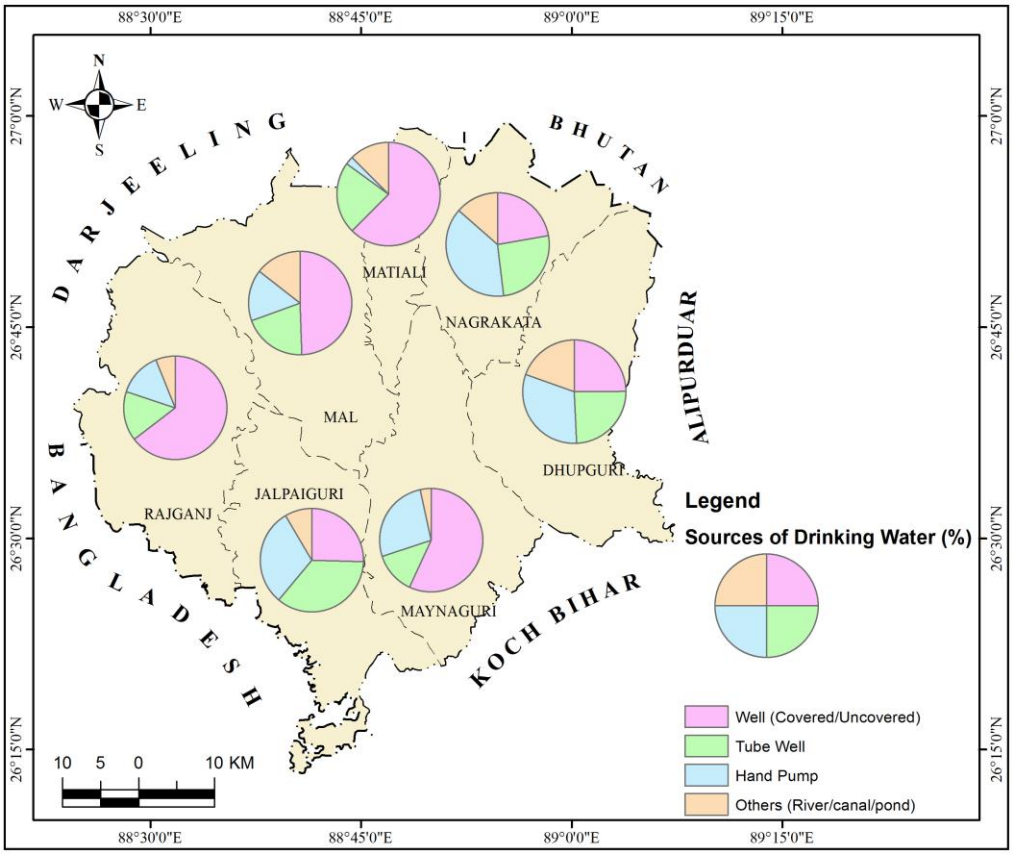

Fig. 7.1: Sources of Drinking Water in Jalpaiguri district

Source- Computed by researcher, 2016

According to the Report of the PHE, there are altogether 9949 ordinary hand pumps available in all the blocks of Jalpaiguri district among which 851 hand pumps needs to be repaired and there are altogether 2808 rig bored hand pumps available in the blocks of the district where 216 hand pumps needs to be repaired. Moreover, 19 numbers of rig bored hand pumps are affected due to the low water level in rural Jalpaiguri district (PHE, Jalpaiguri District, 2016-2017). However, in ordinary hand pumps the water is lifted by atmospheric pressure whereas in rig bored hand pumps the water is lifted through cylinder and it is drawn from the water level between 24 to 28 feet.

It is according to the Government norms, Rural Water Supply Scheme, (RWSS) 2011, that there should be 1 hand pump for 250 persons or 20 households so that every rural person has the facility of safe water for drinking, cooking and other domestic needs throughout the year.

It is evident from Table 7.1 that 82.75% households depend on their privately owned wells for drinking water but since it does not yield pure and filtered water therefore the quality of water varies with the seasons. During rainy season the water becomes muddy and it is hardly suitable for the purpose of drinking. The use of wells is accounted to be highest in Maynaguri block with 90.86% due to the non-availability of piped water supply in the sampled households of the block. Least use of wells is observed in Dhupguri block with 76.08% owing to the use of hand pumps by the households (Fig. 7.1). Further, the wells are cheap to construct and the average annual rainfall is 3000-4000 mm in Jalpaiguri district and it is fairly satisfactory to build wells within the premises of the households.

The consumption of drinking water from the tube wells is 3.50% while 3.26% households in the sampled villages of Jalpaiguri district depend upon their own hand pumps. The use of tube well is well established in all the blocks of Jalpaiguri district. Since the cultivation of food crops is promising in the study area therefore tube well holds an important source for drinking water as well as for the purpose of irrigation. It has been noted that due to the inadequacy of safe drinking water within the premises of the rural households, 10.49% of households have to trudge long distances to fetch drinking water from the government owned hand pumps or tube wells located within the premises of primary schools and primary health centres. The households also fetch drinking water from the river or pond which is untreated water in the study area.

As observed during the survey period 2015-16, that though the presence of tube wells prevents the percolation of contaminating ground water in the sampled villages of the district but the water from tube wells and hand pumps contains iron to an undesirable degree.

However, the PHE department of Jalpaiguri district has tested the quality of rural drinking water supply which includes water samples of the ordinary hand pumps as well as the rig bored hand pumps and the water samples of the rural water supply schemes of Jalpaiguri district.

Table 7.2: Water quality tests of the blocks of Jalpaiguri district

C.D. Blocks	Total tests done	Iron Contaminated	Bacteriological Contamination
Rajganj	1293	662	1082
Jalpaiguri	1588	847	1203
Maynaguri	1640	190	790
Dhupguri	1097	445	825
Mal	1434	94	411
Matiali	1445	60	507
Nagrakata	1982	540	722
Total	10479	2838	5540

Source- PHE, Jalpaiguri District, 2017-18

The PHE department has tested the chemical as well as the bacteriological parameters of the water samples of the rural areas of Jalpaiguri district. It has been observed from Table 7.2 that out of the total tests done of the water samples (10479) of all the seven C.D. blocks, 2017-2018, 2328 tests of the water samples are contaminated by iron and 5540 tests of the water samples have accounted for bacteriological contamination in the rural areas of Jalpaiguri district. Thus, availability of rural drinking water needs further improvement in order to access safe drinking water in all segments of the rural people of Jalpaiguri district.

7.3 Solid Waste Disposal

Solid waste connotes the discarded things which have no value to the owner. Physically the waste is not always limited to solids but also it is the liquid matters that are kept in bins. Solid waste in rural areas of Jalpaiguri district includes domestic waste, agricultural waste like crop residues, animal manures, waste generated from the markets and other commercial units, street sweeping and medical wastes. However, agricultural wastes are degradable but it is an issue of concern for the commercial and medical wastes which are non-biodegradable.

It is according to the Government norms, that there should be provision of 3 baskets or containers per rural households for the disposal of solid wastes, Government of India, Swachh Bharat Mission (Gramin). But, Table 7.3 depicts that 76.74% households dump the solid wastes in open space which become a serious problem of environmental pollution and increases the extent of waste production. During the field survey, 2015-16, it has been

observed that the rural households of the sampled villages of Jalpaiguri district are deprived of the provision of baskets or containers for the disposal of solid wastes.

Table 7.3: Solid waste disposal (in percentage)

C.D. Blocks	Open Space	Others (Rivers/ponds)
Rajganj	78.79	21.21
Jalpaiguri	69.49	30.51
Maynaguri	78.98	21.02
Dhupguri	77.51	22.49
Mal	78.00	22.00
Matiali	82.50	17.50
Nagrakata	67.90	32.10
Total	76.74	23.25

Source- Field Survey, 2015-16

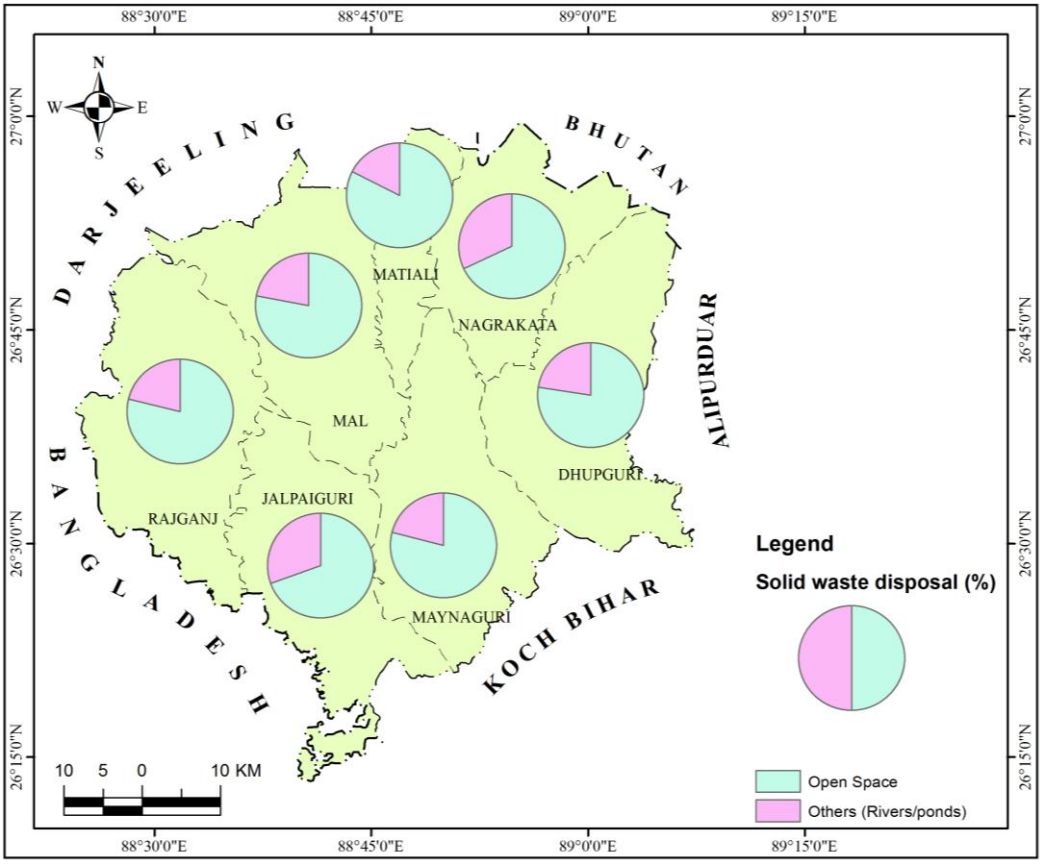

Fig. 7.2: Solid Waste Disposal in Jalpaiguri district

Source- Computed by researcher, 2016

The highest percentage of households disposing the solid wastes in open space is found in Matiali block with 82.50% followed by 78.98% households in Maynaguri block. The prime reasons behind the disposal of solid waste in open spaces is the absence of awareness among the rural population regarding the practice of the appropriate methods of solid waste disposal. Therefore awareness campaigning should be created for the rural masses

in order to impart knowledge regarding the solid waste disposal such as; grinding and discharging the wastes into sewers, sanitary landfills, salvaging and incineration. The non-biodegradable matters are responsible for causing health hazards in the study area as the matters stay for a longer period in the environment. The solid wastes can be managed if it is disposed safely by the process of land application through land filling and burial in the sampled villages of Jalpaiguri district.

Further it has been observed that since there is an absence of community pits, communal bins and domestic pits in the sampled villages of the district, therefore 32.10% households in Nagrakata block followed by 30.51% households in Jalpaiguri block dump their wastes on the rivers or nearby ponds (Fig. 7.2). Therefore for environmental protection there must be the provision of adequate storage facilities for the collection and transportation of solid wastes for the effective implementation of solid waste management system in rural areas of Jalpaiguri district.

7.4 Electricity

Electricity plays a crucial role in the social, infrastructural and economic development of the rural areas. Rural electrification in India is a plan programme which was introduced in the First Five Year Plan and is one of the essential components for the development of different sectors of economy. Therefore, village electrification is treated as Basic Minimum Services under Pradhan Mantra Gramodaya Yojana (PMGY) from the year 2001-02. There is a central assistance to the states for village electrification under MNP (Minimum Needs Programme). Besides, the Indian Government has launched the scheme Deendayal Upadhyaya Gram Jyoti Yojana, 2014, Ministry of Power, Government of India for the provision of the distribution of electricity in the rural households.

The availability of electrification in the sampled villages of Jalpaiguri district will lead to the improvement of economic as well as infrastructural aspects along with the provision of benefits like food security, better health and an improvement in educational sector. Since, Jalpaiguri district has predominant agricultural economy where the pump sets for lifting water are run by electricity; therefore the rural electrification is a promising means of economic well-being in the study area. However, it is according to the Government norms, that there should be 100% coverage of electricity, with a population of 1000 in plains and 500 in tribal and hilly areas, Bharat Nirman, Government of India.

In Jalpaiguri district, the power is generated from the Jaldhaka Hydal Power Project of Darjiling district and then it is supplied from the substation of the West Bengal State Electricity Board. Besides, *it is also supplied from the Chukha project of Bhutan* (District

Census Handbook, Village and Town Directory, Jalpaiguri, 2011). For domestic purpose the total electric consumption in thousand kilowatts are *1,60,064*, again for commercial purpose the total electric consumption is *65,207 thousand kilowatts*, for industrial purpose it is *21,147 thousand kilowatts*, *7,147 thousand kilowatts* for public lighting, the electric consumption is *7,244* for agricultural irrigation and dewatering, again it is *5,487 thousand kilowatts* for public water work and sewage pump and for miscellaneous purpose the electric consumption is *39,497 thousand kilowatts* (District Census Handbook, Village and Town Directory, Jalpaiguri, 2011).

Table 7.4: Household Electricity (in percentage)

C.D. Blocks	Electrified	Not Electrified
Rajganj	98.46	1.54
Jalpaiguri	91.53	8.47
Maynaguri	96.02	3.98
Dhupguri	97.13	2.87
Mal	98.00	2.00
Matiali	87.50	12.50
Nagrakata	96.30	3.70
Total	96.27	3.73

Source- Field Survey, 2015-16

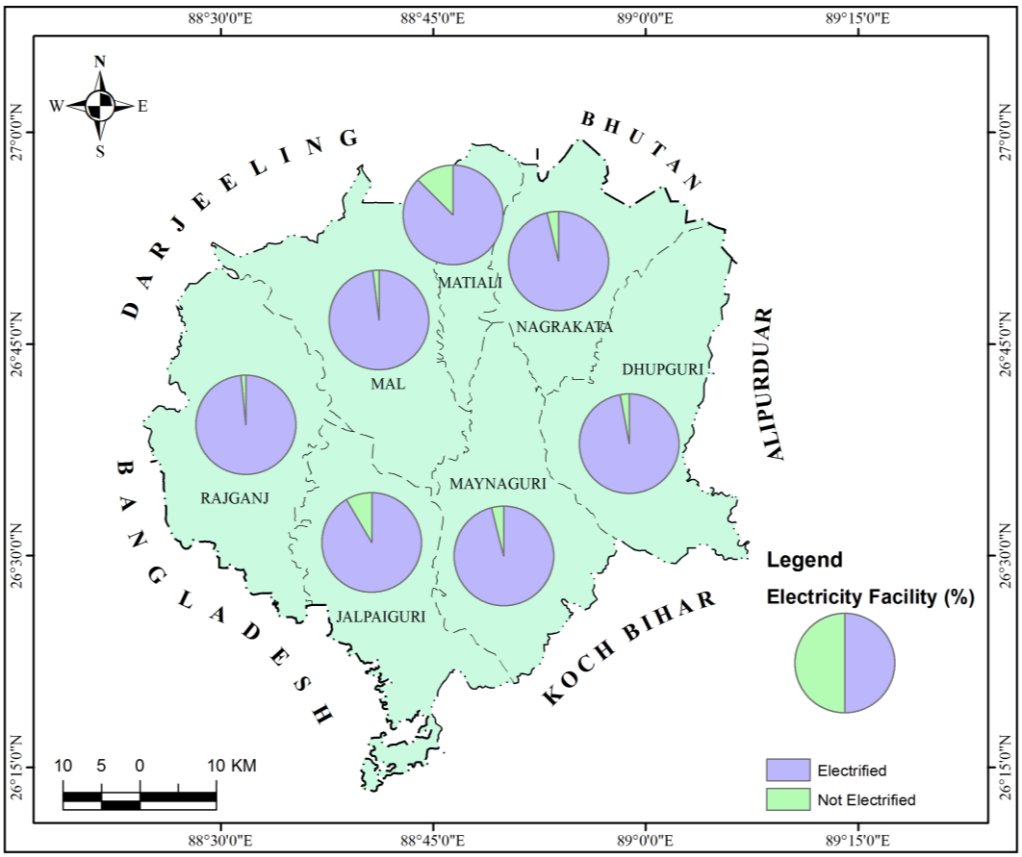

Fig. 7.3: Electricity facility in Jalpaiguri district

Source- Computed by researcher, 2016

Table 7.4 depicts that all the sampled villages of Jalpaiguri district has the facility of domestic electric connections. But during the field study 2015-16, it has been observed that 96.27% households of the sampled villages are electrified. There are 3.73% households in the sampled villages that are yet to get domestic power connections in Jalpaiguri district. However, during the field survey, it has been observed that there is an availability of power supply in 98.46% households of Rajganj block whereas only 87.50% households of Matiali block are electrified (Fig. 7.3). The reasons behind the non-availability of the power supply in the sampled households are the problem of high incidence of poverty among the rural masses. It has been observed during the field visit that the power distribution has been stopped in the rural households due to the non-payment of electric bills at regular intervals.

7.4.1 Load shedding

Transmission losses and erratic voltage has been a major concern in the power sector of the rural areas of Jalpaiguri district for which load shedding or power failure is a common feature of the study area. It is according to Deendayal Upadhyaya Gram Jyoti Yojana, 2014, Ministry of Power, Government of India, that there should be the availability of adequate power supply for 24 hours a day in the rural areas.

Table 7.5: Household Load shedding (in percentage)

C.D. Blocks	Frequent	Infrequent
Rajganj	71.88	28.13
Jalpaiguri	74.07	25.93
Maynaguri	62.72	37.28
Dhupguri	41.38	58.62
Mal	42.86	57.14
Matiali	60.00	40.00
Nagrakata	53.85	46.15
Total	60.69	39.31

Source- Field Survey, 2015-16

However, it has been observed during the field survey 2015-16, that 60.69% households of the sampled villages of the district are facing the trouble of frequent power failure for several days whereas 39.31% households observes infrequent power failure in the study area. Table 7.5 depicts that Jalpaiguri block accounts the highest proportion of households with 74.07% observing frequent power failure. Least has been observed in Dhupguri block which accounts 41.38% of households (Fig. 7.4).

During the field survey 2015-16, the rural population revealed that there is no proper maintenance of the electric lines which ultimately leads to power failure for long hours or even for several days. Moreover, during monsoon period due to heavy downpour there has

been a crisis of power supply and even the existing sub stations are unable to supply the required quantum of energy for domestic and agricultural activities.

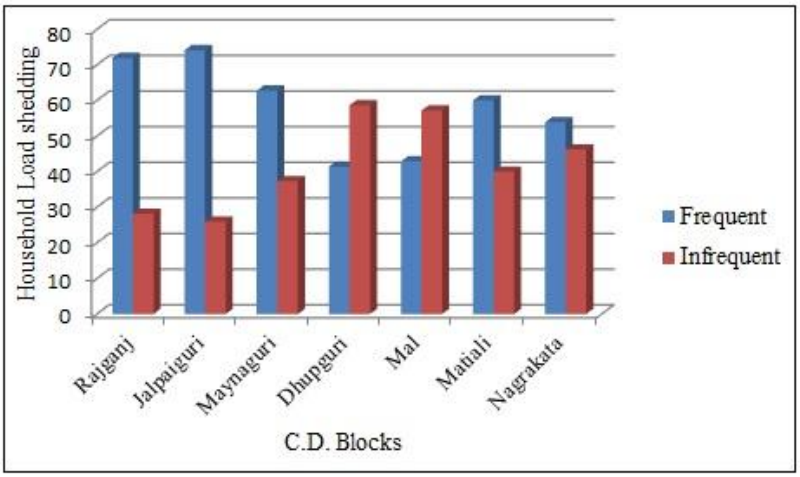

Fig. 7.4: Household Load shedding

Source- Computed by researcher, 2016

Hence the sampled villages of Jalpaiguri district are confronted with the shortage and irregularity of power supply in the domestic, agricultural and transport and communication sectors. Therefore, emphasis should be given on the better distribution of power supply in the sampled villages of Jalpaiguri district.

7.5 Veterinary Facility

Livestock constitute an important component of rural economy. The scenario is same for Jalpaiguri district. For the control and prevention of diseases of the livestock, dispensaries, artificial insemination centres and trained officers are required. It is according to the Government norms, that there should be 1 doctor for 5000 animals, Department of Animal Husbandry, Government of India. But during the field survey, it has been observed that there are no veterinary hospitals or veterinary sub-centres in the sampled villages of the study area.

Table 7.6: Veterinary Doctor (in numbers)

C.D. Blocks	Numbers of Veterinary doctor
Rajganj	3
Jalpaiguri	0
Maynaguri	0
Dhupguri	1
Mal	1
Matiali	0
Nagrakata	0

Source- Field Survey, 2015-16

Hence, as far as veterinary facilities are concerned the provision is inadequate in the study area. During the field survey 2015-16, the rural masses revealed that though there is a complete absence of veterinary dispensaries in their village yet veterinary services are available through the periodic visits of doctors in the sampled villages of the blocks for the protection of livestock.

Table 7.6 represents that veterinary facility is comparatively higher in the sampled villages of Rajganj block with the availability of 3 doctors than in Dhupguri and Mal block where there is a presence of a single doctor in each block. However, no veterinary doctors have been found in Jalpaiguri, Maynaguri, Matiali and Nagrakata blocks of Jalpaiguri district due to the absence of veterinary centres and sub-centres.

7.6 Rural Market

The rural marketing system is associated with the marketing functions and facilities obtained in rural areas for the effective outflow and inflow of agricultural and non-agricultural produce for the usage of the rural people. The markets of the community development blocks of Jalpaiguri district have been classified into regular market and periodic market. Regular market is controlled by normal regulations and is characterized by retail as well as wholesale business. Table 7.7 shows that the rural markets are unevenly distributed in the sampled villages of the district. Only Maynaguri, Dhupguri and Mal blocks have 4 regulated markets whereas there is a complete absence of the regulated market in the sampled villages of Rajganj, Jalpaiguri, Matiali and Nagrakata blocks.

Table 7.7: Rural Market (in numbers)

C.D. Blocks	Regular	Periodic
Rajganj	0	0
Jalpaiguri	0	2
Maynaguri	1	3
Dhupguri	1	3
Mal	2	2
Matiali	0	1
Nagrakata	0	0

Source- Village and Town Directory, Census, 2011

The reasons behind the absence of the regulated market are the inadequate provision of facilities required for the regulated markets such as; concrete sheds and yards, power supply, market link roads, culverts, sewage systems, provision of clean drinking water and sanitation within the market. Hence the existing number of regulated markets is inadequate to serve the marketing facility of the rural population.

Periodic markets or weekly markets in the rural areas of the district locally called as *haats* are comparatively higher than that of the regulated markets. During the course of field survey 2015-16, the respondents revealed that due to the inadequacy of the regulated market the rural masses of the sampled villages unload their farm and non-farm produce particularly at the periodic markets. It is according to the report of Marketing and Research Team (Mart), Ministry of Rural Development (1995), that there should be 1 periodic market for 14 villages. Table 7.7 depicts that there are 2 periodic markets available in Jalpaiguri block, 3 periodic markets available in Maynaguri block, similarly 3 periodic markets in Dhupguri block, 2 periodic markets in Mal block, and an availability of a single periodic market in Matiali block. *Haats* are basically a weekly event and are significant for the village economy where the producers sell their food grains, cash crops, horticulture and agricultural surplus. They are usually held once or twice a week on the roadside.

However, it is observed that there is an urgent need for the reorganization of the entire rural marketing infrastructure and particularly the regulated markets should be organized in the sampled villages of the blocks. It is because periodic market acts as the agencies for satisfying local demand and provides perishable goods to the villagers. But for purchasing valuable goods the rural population depends upon regulated rural market. During the course of field survey 2015-16, the rural population revealed that due to lack of proper regulated marketing facilities, the benefits of the higher prices of the farm productions are usurped by the middlemen and the rural farm producers receive low cost of production for their goods. Therefore adequate numbers of rural markets should be established in all the sampled villages of the blocks of Jalpaiguri district.

It has been observed during the survey 2015-16, that the farmers of the sampled villages do not have the provision of satisfactory storage facilities which results in a considerable wastage of their produce causing an economic loss to the producer.

7.6.1 Accessibility to Market

Inadequate transport facilities in the rural areas largely hamper the movement of the farm and non-farm productions of the villagers to the market. It is according to the recommended norms of National Commission on Agriculture (1976) and National Commission on Farmers (2004) that within a radius of 5 km there should be 1 regulated market. Table 7.8 represents the distance covered by the villagers from their households to the markets. 29.84% households have an easy access to the rural markets covering a distance of 0-3 km in the study area. The highest percentage of households in this category is found in Jalpaiguri block with 45.76% followed by Rajganj block with 44.62%. The reason behind an

easy access of the villagers to the market is the facility of the rural road network which acts as a backbone regarding the easy accessibility of the rural population in the study area.

Table 7.8: Accessibility to Market (in percentage)

C.D. Blocks	0-3 km	3-5 km	>5 km
Rajganj	44.62	50.77	4.62
Jalpaiguri	45.76	28.81	25.42
Maynaguri	21.02	47.73	31.25
Dhupguri	23.92	51.20	24.88
Mal	43.50	45.50	11.00
Matiali	0.00	100.00	0.00
Nagrakata	22.22	43.21	34.57
Total	29.84	48.97	21.18

Source- Field Survey, 2015-16

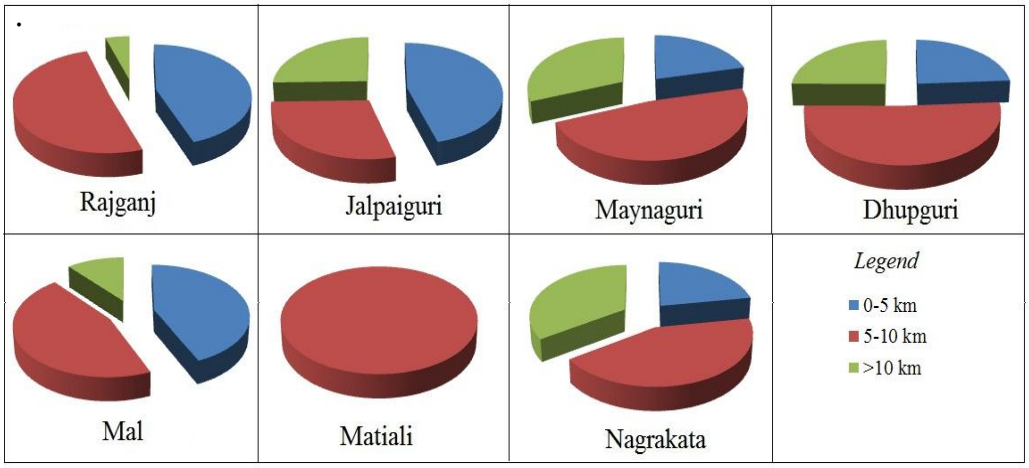

Fig. 7.5: Accessibility to Market in Jalpaiguri district

Source- Computed by researcher, 2016

Moreover, the blocks have a close proximity to the urban areas which improves the marketing efficiency of the villagers reducing the cost of transportation. Besides, the percentage of households having accessibility to market between 3-5 km is 48.97% in the sampled villages of Jalpaiguri district. However, 21.18% households of the sampled villages do not have an easy access to the rural markets as the rural masses travels above 5 km from their households to the rural market. 34.57% households of the sampled villages of Nagrakata block has accessibility to rural market at a distance of above 10 km followed by Maynaguri block with 31.25% owing to the poor road network connectivity (Fig. 7.5).

7.7 Education

Education is the most basic and essential criterion for economic development and social advancement which measures the overall development of an area. Education plays a prominent role in developing the quality of human resources by conveying ideas, thoughts and information and educational institutions acts as an important instrument for conveying

and containing information. According to the norms of RADPFI (Rural Area Development Plan Formulation and Implementation), 2017, there should be 1 primary school for 5000 rural population. However there are 61 government primary schools obtained in the seven blocks of the sampled villages of Jalpaiguri district. 4 primary schools in Rajganj block, 5 primary schools in Jalpaiguri block, 10 primary schools in Maynaguri block, 17 primary schools in Dhupguri block, 15 primary schools in Mal block, 5 primary schools in Matiali block and 5 primary schools in Nagrakata block have been obtained.

7.8 ICDS (Integrated Child Development Scheme)

The ICDS (Integrated Child Development Scheme) is a centrally sponsored scheme by the Ministry of Women and Child Development, Government of India. Through Anganwadi centres the scheme delivers its services with the objective of non-formal pre-school education and provision of supplementary nutrition to the children. According to the norms of RADPFI (Rural Area Development Plan Formulation and Implementation), 2017, there should be 1 Anganwadi centre for 5000 rural population. However there are 79 Anganwadi Centres obtained in the seven blocks of the sampled villages of the district. 4 Anganwadi centres in Rajganj block, 2 Anganwadi centres in Jalpaiguri block, 10 Anganwadi centres in Maynaguri block, 24 Anganwadi centres in Dhupguri block, 26 Anganwadi centres in Mal block, 4 Anganwadi centres in Matiali block and 9 Anganwadi centres in Nagrakata block have been obtained.

7.9 Health Centres

The spatial distribution of medical facilities and their utilization forms an important factor for evaluating the infrastructural provisions in the study area. According to the norms of RADPFI (Rural Area Development Plan Formulation and Implementation), 2017, there should be 1 health centre for 5000 rural population. However from the sampled villages of Jalpaiguri district, 19 Primary Health Sub-Centres (PHSC) has been obtained in the seven blocks of the sampled villages of Jalpaiguri district catering to the needs of the rural people. 1 PHSC in Rajganj block, 3 PHSC in Jalpaiguri block, 3 PHSC Maynaguri block, 7 PHSC in Dhupguri block, 3 PHSC in Mal block, and 1 PHSC in Matiali and 1 PHSC in Nagrakata block has been obtained in the study area.

7.10 Banking Facilities

'*Banks are the vital financial institutions of any economy. Their role in economic development is very crucial as banks act as repositories of the community's savings and as purveyors of credit*' (Rao, 1984). It is according to the norms of RBI, 2017, that there should be 1 bank branch for 5000 rural population in unbanked rural areas. Besides, according to the

norms of All Indian Rural Credit Review Committee there should be 1 agricultural credit society for 3000 rural population.

Table 7.9 represents that, the banking sector of the rural areas of Jalpaiguri district is not satisfactory. According to the field survey 2015-2016, there are 2 mini banks and 2 ultra-small branches of the banks have been accounted in the study area. In order to provide financial assistance to the rural working population 1 mini bank of Central Bank of India has been observed in the sample village of Maynaguri block. In Dhupguri block 1 ultra-small branch of Kshatriya Grameen Bank, 1 Indian Overseas Bank and 1 mini bank of Punjab National Bank have been observed in the sample villages of the block. However the rural population of the sampled villages revealed that the staff is inadequate in the rural outlets of the commercial banks in the study area.

Table 7.9: Banking Facilities (in numbers)

C.D. Blocks	Numbers of Bank*	Agricultural credit society**
Rajganj	0	0
Jalpaiguri	0	0
Maynaguri	1	3
Dhupguri	3	0
Mal	0	0
Matiali	0	0
Nagrakata	0	0

*Source- *Field Survey, 2015-16*
***Village and Town Directory, Census, 2011*

Further it has been observed that there is an absence of banking facility in the sampled villages of Rajganj, Jalpaiguri, Mal, Matiali and Nagrakata blocks of Jalpaiguri district. The reasons behind the absence is the reluctance of the banking authorities to establish banking facility in the sampled villages due to lack of infrastructural facilities, unawareness of the rural population regarding the banking facilities and the problems of repayment of loans at time by the rural population in the study area. Jalpaiguri being agrarian district, three Agricultural credit societies have been accounted in the study area (Fig. 7.6). For the commercial cropping and the increasing use of agricultural inputs in the farm holding, the agricultural credit is highly required to the rural masses of the sampled villages. The farmers revealed that the credit societies saved the villagers from falling into the clutches of the private money lenders charging high rates of interest whereas borrowing from the agricultural credit societies the borrowers pay low interest charges.

However, Table 7.9 depicts that the number of agricultural credit societies available in the study area is inadequate to cater the needs of the rural population and therefore adequate numbers of agricultural credit societies should be established in all the sampled villages of Jalpaiguri district.

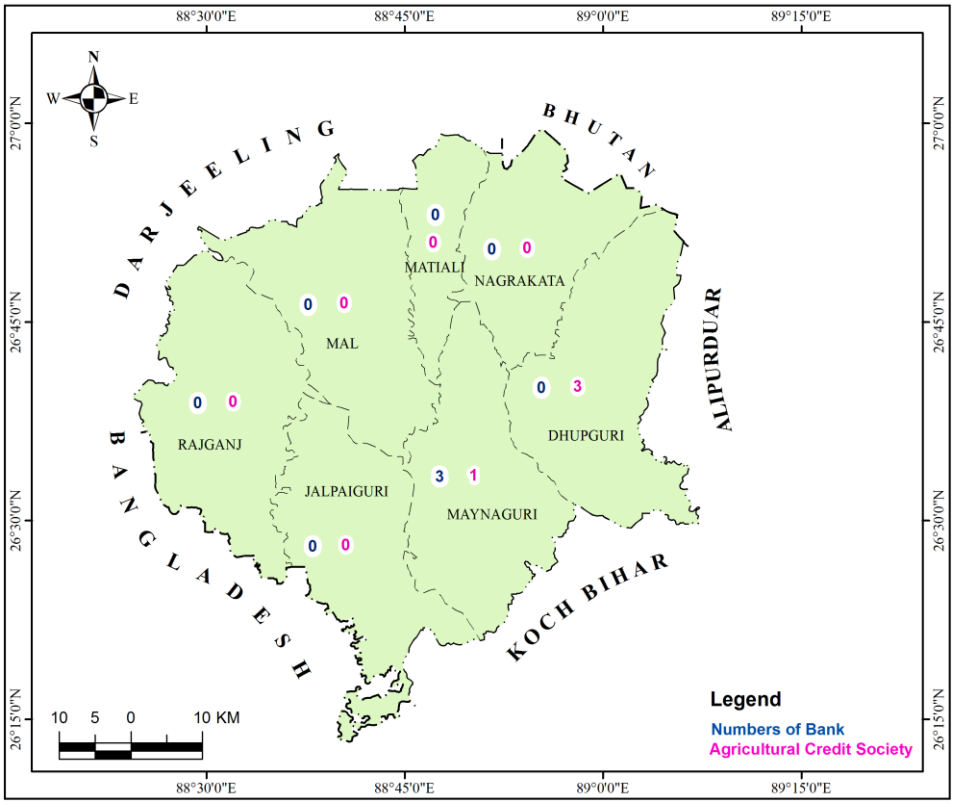

Fig. 7.6: Banking Facilities in Jalpaiguri district

Source- Computed by researcher, 2016

7.11 Rural Communication System

Good and efficient provision of communication system in the rural areas is an important indicator of the infrastructural development. According to the norms of the Ministry of Communication and Information Technology, Government of India, Department of Posts, 2011, there should be the availability of 1 post office for 3000 rural population. The postal facilities along with internet services and circulation of newspaper have been taking into account under rural communication system.

Table 7.10 reveals that there are only 4 sub-post offices obtained in the sampled villages which are inadequate in the study area. However the villagers revealed during the course of field survey 2015-16, that the delivery of letters, sale of stamps, money orders and Savings Bank facilities are available in the sub-post offices of Maynaguri, Dhupguri and Jalpaiguri blocks. As far as infrastructural provisions are concerned letter boxes should be

available and the postal services should be regulated as a daily service to all the villagers in the study area.

Table 7.10: Rural Communication System (in numbers)

C.D. Blocks	Post Office	Internet service centres	Circulation of Newspaper
Rajganj	0	0	2
Jalpaiguri	2	0	2
Maynaguri	1	2	6
Dhupguri	1	1	5
Mal	0	2	10
Matiali	0	0	3
Nagrakata	0	0	3

Source- Village and Town Directory, Census, 2011

Internet service is another indicator of communication development. There are 5 internet service centres or internet cafes, out of which 2 centres have been observed at the sampled villages of Maynaguri block, 1 centre at the sampled village of Dhupguri block and 2 centres has been found at the sampled villages of Mal block (Fig. 7.7).

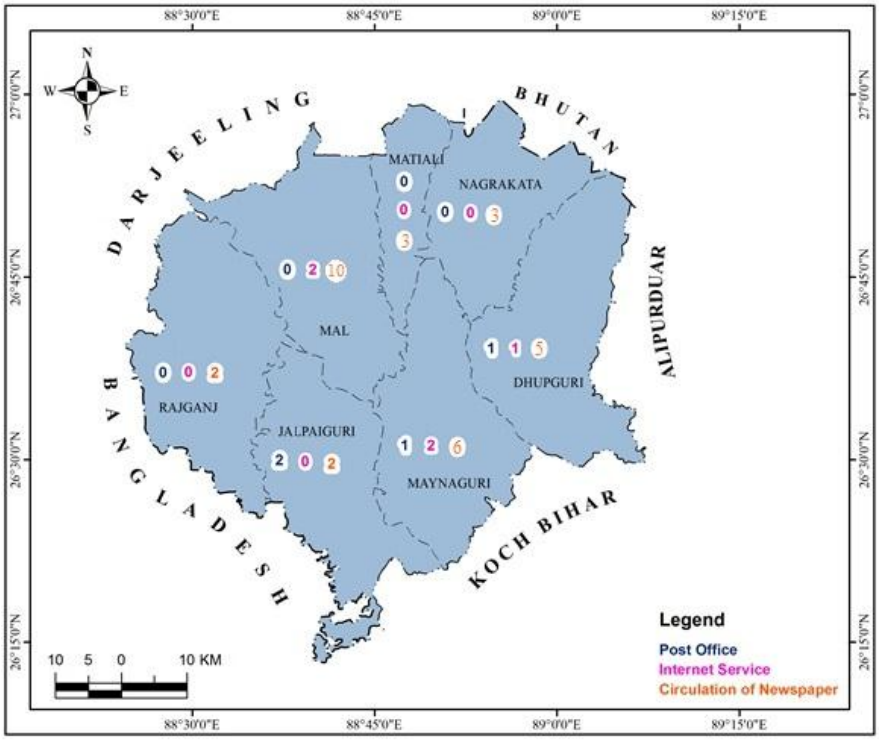

Fig. 7.7: Rural Communication System of Jalpaiguri district

Source- Computed by researcher, 2016

In terms of newspaper, the growth of circulation of newspaper indicates progress in mass communication and development in infrastructural facilities. The circulation of newspaper has been observed in each of the blocks of Jalpaiguri district.

The communication development is restricted to the sampled villages of the blocks which are in close proximity to urban areas. However, the communication facilities in terms

of the sub-post office and internet service centres have not percolated in the northern part of Jalpaiguri district which involves the sampled villages of Matiali and Nagrakata block. It is due to the fact that Matiali block is located at a distance of 60 km and Nagrakata block is 82 km away from the district headquarters. Hence, this part of the study area needs greater attention regarding the dispersal of communication facilities.

7.12 Commercial Establishments

The economy of the rural areas of Jalpaiguri district is predominantly based on agriculture and allied activities and at the same time, various non-agricultural activities also plays a vital role in providing the opportunities of employment and incomes to the growing labour force of both farming and non-farming households. Though the non-agricultural operations have a positive impact upon the progress of infrastructural development as it strengthens the establishments of tea industries, rice mills, pottery units and the number of shops in the sampled villages of the district yet it has been observed during field study 2015-2016 that the access to infrastructure is limited in the sampled villages of Jalpaiguri district.

Table 7.11: Commercial Establishments (in numbers)

C.D. Blocks	Tea factories	Rice mill	Pottery unit	Others	Number of owned shops
Rajganj	0	0	0	0	9
Jalpaiguri	0	2	1	0	4
Maynaguri	1	5	4	1	21
Dhupguri	1	3	4	2	19
Mal	2	17	4	0	22
Matiali	0	1	1	0	4
Nagrakata	0	7	0	0	8
Total	4	35	14	3	87

Source- Field Survey, 2015-16

While analyzing the number of the commercial establishments available in the sampled villages of the blocks, it has been observed that there are 4 tea factories in Maynaguri, Dhupguri and Mal blocks of Jalpaiguri district due to the fact that besides agriculture, tea trade supports the economy of Jalpaiguri district on a large scale. In addition to these, manufacturing of bamboo products and wool knitting unit have been observed in Maynaguri and Dhupguri blocks of Jalpaiguri district. Since paddy occupies a leading position in the study area there are 35 rice mills in the sampled villages of the blocks. Table 7.11 depicts that 17 rice mills are in Mal block, 7 rice mills in Nagrakata block and 5 rice mills in Maynaguri block.

In terms of pottery unit, there are 14 clay pottery units observed in the sampled villages of Jalpaiguri district. Furthermore, Jalpaiguri district has a rich reserve of forest

resources which gives an impetus to the villagers to open saw mills. Thus there are 3 saw mills in the sampled villages of Maynaguri and Dhupguri blocks of Jalpaiguri district.

In addition to these, a total number of 87 shops are recorded in the sampled villages of the district. The highest number of owned shops has been found in Mal block with 22 shops followed by Maynaguri block. Grocery, medicine, tailoring and confectionery shops have been recorded during the field survey, 2015-2016. However, the number of village industries obtained in the sampled villages of Jalpaiguri district is inadequate to serve the infrastructural development of the study area and therefore special attention should be made regarding the quantitative expansion of the village industries.

7.13 Rural Transport

'*Transportation is a measure of the relations between areas and is therefore an essential aspect of geography. It works as a catalyst in bringing about agricultural as well as rural industrial development*' (Gaur, 1985). An efficient rural transportation is significant in the rural areas for the utilization of resources and for the movement of goods as well as passengers. The road network is the base of spatial interaction in the rural areas and it acts as an important factor in terms of accessibility to any region. Owing to this fact road network in the rural areas has always been considered crucial by the development planners.

'Rural connectivity is the key component of rural development and poverty alleviation in India' (Mukundan, 2009). Rural transport efficiently linking all villages is the backbone on which the infrastructural development of a rural area is built. Rural road network is the most significant mode of transport as it provides accessibility to the rural population towards various facility centres. In order to provide all-weather roads accessibility to all villages in India, a rural road programme called Pradhan Mantra Gram Sadak Yojana (PMGSY), a centrally sponsored scheme was initiated in December 2000.

However in Jalpaiguri district, the blocks are served by both National Highways and State Highways. The highways that are connected to the blocks of Jalpaiguri district are; Rajganj block is connected to NH-31 and SH-12-A, Jalpaiguri block is linked with SH-12-A, Maynaguri block is connected to NH-31 and SH-12-A, Dhupguri block is linked with NH-31and NH-31c, Mal block is connected to NH-31 and SH-12, Matiali block is connected to NH-31 and Nagrakata block is linked with NH-31 and SH-12-A.

However, according to the data in District Statistical Handbook, 2012, the total surfaced road length (km) of each block of Jalpaiguri district has been calculated and it is evident from Table 7.12 that the total surfaced road length is significantly low in comparison to the area (km^2) of each block of Jalpaiguri district. The surfaced road length in the rural

areas of Jalpaiguri district is maintained by the P.W.D, Zilla Parishad, Gram Panchayat & Panchayat Samiti and PMGSY.

Table 7.12: Block wise Length of Roads

C.D. Blocks	Rural area km^{2*}	Total Surfaced road length (km)**	Road Density in km/ km^2**	Population/km of road length**
Rajganj	614.82	378.92	0.616	503
Jalpaiguri	500.65	397.66	0.794	658
Maynaguri	530.60	398.85	0.752	730
Dhupguri	565.10	398.95	0.706	953
Mal	545.90	394.79	0.723	698
Matiali	204.90	223.17	1.089	459
Nagrakata	397.48	184.78	0.465	689

*Source- *District Statistical Handbook, 2012*
***Calculated by author*

In rural Jalpaiguri district, 524.4 km surfaced road length are maintained by the PWD, 811.17 km surfaced road length are maintained by the Zilla Parishad, 651.97 km surfaced road length are maintained by the Gram Panchayat and Panchayat Samiti and 389.94 km surfaced road length are maintained by the PMGSY. In order to analyze the infrastructural development in the rural areas, road transport is one of the significant development parameter.

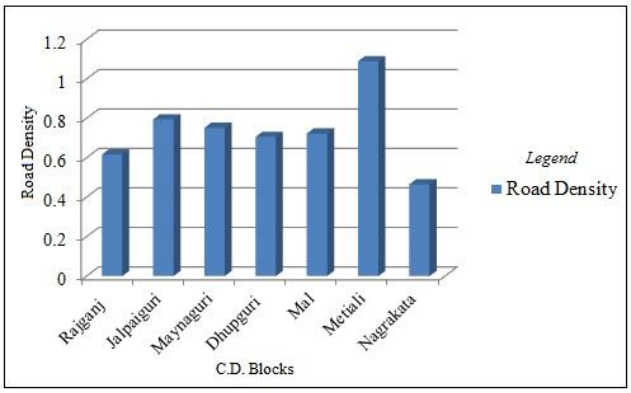

Fig. 7.8: Road Density in km/ km^2

Source- Computed by researcher, 2016

Therefore, road density in km/km^2 and the population served/km road length has been calculated for each block of Jalpaiguri district and it reveals the block-wise variations in rural Jalpaiguri district.

The development of road density of an area is associated with the nature of topography and the development of the provisions of socio-economic amenities in an area. As per the Associated Chamber of Commerce and Industry (ASSOCHAM), 2011-12, all India road density is 1.48 km/km^2. Thus, on the basis of the report, all the blocks of Jalpaiguri district belong to low road density as the road density of the blocks of the district ranges between 0.46 to 1.08 km/km^2 (Fig. 7.8).

Therefore, as far as road density is concerned, construction of surfaced roads and adequate repairing facilities at regular intervals is necessary for an easy accessibility in the rural areas of Jalpaiguri district. Further, the availability of surfaced roads is essential for the rural population commuting to urban areas and utilizing various modes of transport facilities. Moreover, it has been observed that the total length of unsurfaced road is 2045.32 km in rural Jalpaiguri district. The fair weather roads or the unsurfaced roads become miserable and muddy during the monsoon period due to heavy downpour. Hence, the fair weather roads should be converted into all-weather roads in order to promote the level of rural development. Though PMGSY has upgraded the existing surfaced roads in the rural areas yet the data clearly implies that the road density of the rural areas of Jalpaiguri district is lagging in terms of the all India road density, 2011-12. Therefore there should be substantial efforts of the Government authorities in developing the transport infrastructure in the rural areas of Jalpaiguri district.

Table 7.13 reveals the population pressure/km road length in rural Jalpaiguri district. The blocks has been categorized into low, moderate and high category in order to determine the inter-block variations in terms of the population served by per km road length in rural areas of Jalpaiguri district.

Table 7.13: Population/km of road length of rural Jalpaiguri district

Category	Population/km of road length	Name of the Blocks
Low	400-600	Rajganj, Matiali
Moderate	600-800	Jalpaiguri, Mal, Maynaguri, Nagrakata
High	Above 800	Dhupguri

Source- Calculated by Author

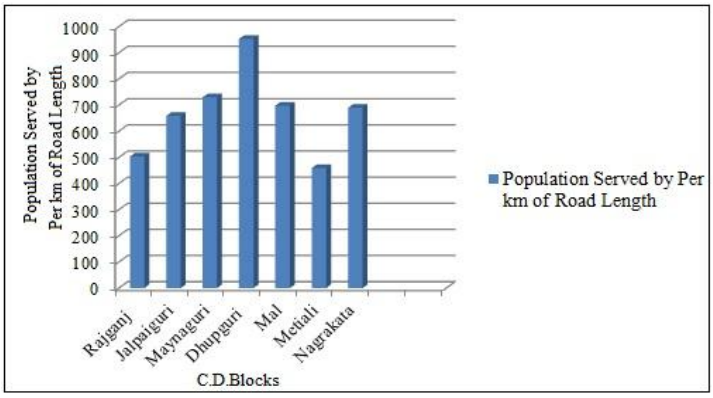

Fig. 7.9: Population/km of road length

Source- Computed by researcher, 2016

The high concentration of population or the pressure of population/km road length has been observed in the eastern part of the district consisting of Dhupguri block whereas the low population/km of road length is observed in Rajganj and Matiali blocks. The higher the road

density, the lesser is the population pressure/km road length in an area. However, Jalpaiguri, Mal, Maynaguri and Nagrakata blocks belongs to moderate category in terms of the population served by per km road length in Jalpaiguri district (Fig.7.9).

7.13.1 Access to Metaled Roads

Development of rural transport particularly connectivity to rural areas provides an impetus to the infrastructural development of the country. Good metalled road network is the pre-requisite for the transport facilities of an area. PMGSY has promoted the connectivity of the rural areas by the construction of all-weather roads in India and Jalpaiguri district is no exception. During the field survey 2015-2016, the percentage of households with close access to metalled roads has been observed.

Table 7.14: Close access to metaled roads (in percentage)

C.D. Blocks	0-3 km	>3 km
Rajganj	86.15	13.85
Jalpaiguri	77.97	22.03
Maynaguri	80.56	19.44
Dhupguri	81.82	18.18
Mal	81.00	19.00
Matiali	57.50	42.50
Nagrakata	92.59	7.41
Total	81.29	18.71

Source- Field Survey, 2015-16

It is evident from Table 7.14 that 81.29% households have accessibility to metalled roads below 3 km from their household premises. It has been observed that there are 18.71% households having accessibility to metalled roads at a distance above 3 km in the study area. However, according to the norms of PMGSY all habitations in a village with population 500 inhabitants should have accessibility to all-weather roads in plain areas.

The highest percentage of households having accessibility to metalled roads below 3 km has been observed in Nagrakata block with 92.59% followed by Rajganj block with 86.15% ensuring the fact that these metalled roads connect the villages with the district roads which are further connected to the state highways. Besides, the metalled roads provide an easy accessibility by way of connecting them with the primary schools, primary health centres, Anganwadi centres, sub-post offices, markets and different facility centres. On the other hand, it has been found that 42.50% households have their accessibility to metalled road at a distance above 3 km in Matiali block followed by Jalpaiguri block with 22.03% households. Though the unmetalled road connect the households with the nearest all-weather

motorable road yet larger distance to metalled roads in the rural areas greatly hamper the mode of transport for short and medium distances.

The ease with which a person can travel from one place to another is an essential aspect of economic and infrastructural development. It has been observed during the course of field survey 2015-16, that though under the programmme of road construction, PMGSY roads are constructed yet the sampled villages of the study area face great inconveniences during monsoon period. This is due to the fact that the unmetalled roads remain unconnected to the metalled road network due to water-logging problems. Therefore there is an urgent need for the construction of surfaced roads and maintenance of the rural roads by periodical repairs in the sampled villages of Jalpaiguri district.

7.13.2 Distance to Bus Stops

Among the different modes of transport facilities in the rural areas of Jalpaiguri district, bus transport facility holds an important place for the rural masses due to its affordable transport cost. Table 7.15 reveals the distance covered by the rural masses from their dwelling houses to bus stops in the sampled villages of Jalpaiguri district. So far the distance to bus stops below 3 km is concerned; it has been observed that 22.65% households have the highest facility of bus transport, where Rajganj block accounts the highest percentage of households with 50.76% followed by Mal block, ensuring an easy accessibility of the rural masses to the urban service centres.

Table 7.15: Distance to bus stops (in percentage)

C.D. Blocks	0-3 km	3-5 km	>5 km
Rajganj	50.76	30.77	18.46
Jalpaiguri	11.86	27.12	61.02
Maynaguri	18.75	47.16	34.09
Dhupguri	19.62	51.67	28.71
Mal	28.00	46.50	25.50
Matiali	0.00	52.50	47.50
Nagrakata	22.22	38.27	39.51
Total	22.65	44.82	32.53

Source- Field Survey, 2015-16

Moreover, Rajganj block lies in close proximity to the urban areas and it is served by NH-31 and SH-12-A in Jalpaiguri district. But it has been observed that, 44.82% households travel 3-5 km for the bus transport facility. Further, 32.53% households are situated at a distance of more than 5 km from their nearest bus stops. The larger distance to bus stops or the lack of terminating bus routes close to the household is due to the kutcha roads or the unmetalled rural roads which hampers the transport facility in the study area (Fig. 7.10).

During the field survey 2015-16, the rural masses revealed that they do not have an easy access to bus transport as the distance to bus stops from their household premises are significantly long and therefore motorcycles, vans or rickshaws became the main mode of transport in the sampled villages of Jalpaiguri district. As far as the distance to bus stops from the rural households is concerned, it should be reduced which will facilitate the rural population to prefer buses as a major means of conveyance.

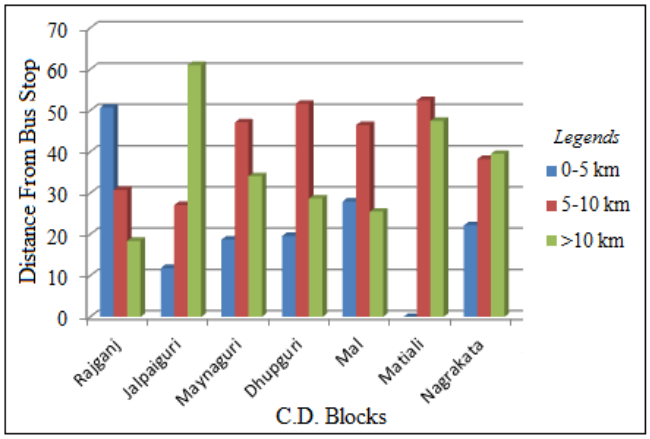

Fig. 7.10: Distance to bus stops (*Source- Computed by researcher, 2016*)

7.14 Recreational Provision

According to the norms of RADPFI (Rural Area Development Plan Formulation and Implementation), 2017, there should be 1 recreational centre for 5000 rural population. According to the data from the government source, there are 20 sports club or recreation centre available in the sampled villages of Jalpaiguri district, Village Directory, Census, 2011. It has been observed that Mal block has the facility of recreational provision with 6 sports club similarly followed by Dhupguri block, with 6 numbers of sports club in the sampled villages of the block.

During the field survey 2015-16, the rural masses revealed that sporting activities sustain the leisure needs of the rural population where football is the most popular game and kabaddi is generally practiced during evening by the rural youths of the sampled villages. 2 sports club has been observed in the sampled villages of Jalpaiguri and similarly 2 sports club in Nagrakata blocks, 3 sports club has been observed in Matiali block and 1 sports club has been obtained in Maynaguri block (Village and Town Directory, Census, 2011). Further, fairs provide another source of recreational facility in the sampled villages of the study area. However regarding the strengthening of infrastructural facilities, the facilities of modern sports and games should be promoted in the study area along with the provision of libraries in order to create awareness among the rural population.

The sustainability of the provision of infrastructure which encompasses drinking water, health care, education, banking, recreation and communication facilities improve the quality of human life. But it has been observed that the provision of infrastructural facilities varies from the recommended standards of the government norms and guidelines in the rural areas of Jalpaiguri district. Hence provision of adequate basic infrastructural facilities is necessary in each and every inhabited village of Jalpaiguri district. On the basis of the norms obtained from government sources it has been observed from Table 7.16 that the availability of the numbers of primary schools, Anganwadi centres and the recreational facilities in terms of sports club are adequate to meet the requirement of the rural population. However, Jalpaiguri district lacks an easy access to the facility of safe drinking water supply. The villagers have to trudge long distances to fetch drinking water due to the inadequacy of hand pumps. Further, lack of healthcare facilities along with inadequate facilities of post offices contribute to poor infrastructure of the study area. Facilities of banking and agricultural credit societies which are important infrastructural facilities in a rural setting are found to be inadequate to meet the requirement of the rural population. Thus, to remove the infrastructural inadequacies it is necessary to formulate strategies to fulfill the requirements of the rural population.

Table 7.16: Infrastructural Facilities Available on the basis of Standard Norms in Jalpaiguri District, (2015-2016)

Norms obtained from the Government Sources	C.D. Blocks	Total Population of the sampled villages of the block*	Infrastructural Facilities (in numbers)**	Adequate/ Inadequate
One **hand pump** for 250 persons/20 households, Rural Water Supply Scheme, 2011	Rajganj	5876	2	Inadequate
	Jalpaiguri	4270	2	Inadequate
	Maynaguri	12135	7	Inadequate
	Dhupguri	17705	7	Inadequate
	Mal	15435	6	Inadequate
	Matiali	1954	0	Inadequate
	Nagrakata	5587	3	Inadequate
One **Bank** branch for 5000 rural population in unbanked rural areas, RBI, 2017	Rajganj	5876	0	Inadequate
	Jalpaiguri	4270	0	Inadequate
	Maynaguri	12135	1	Inadequate
	Dhupguri	17705	3	Inadequate
	Mal	15435	0	Inadequate
	Matiali	1954	0	Inadequate
	Nagrakata	5587	0	Inadequate
One **Agricultural Credit Society** for 3000 rural population, All Indian Rural Credit Review Committee	Rajganj	5876	0	Inadequate
	Jalpaiguri	4270	0	Inadequate
	Maynaguri	12135	3	Inadequate
	Dhupguri	17705	0	Inadequate
	Mal	15435	0	Inadequate
	Matiali	1954	0	Inadequate
	Nagrakata	5587	0	Inadequate

One **Post office** for 3000 population, Ministry of Communication and Information Technology, Department of Posts, 2011	Rajganj	5876	0	Inadequate
	Jalpaiguri	4270	2	Adequate
	Maynaguri	12135	1	Inadequate
	Dhupguri	17705	1	Inadequate
	Mal	15435	0	Inadequate
	Matiali	1954	0	Inadequate
	Nagrakata	5587	0	Inadequate
One **Primary School** for 5000 Population, RADPFI, 2017	Rajganj	5876	4	Adequate
	Jalpaiguri	4270	5	Adequate
	Maynaguri	12135	10	Adequate
	Dhupguri	17705	17	Adequate
	Mal	15435	15	Adequate
	Matiali	1954	5	Adequate
	Nagrakata	5587	5	Adequate
One **Health Centre** for 5000 Population, RADPFI, 2017	Rajganj	5876	1	Inadequate
	Jalpaiguri	4270	3	Adequate
	Maynaguri	12135	3	Adequate
	Dhupguri	17705	7	Adequate
	Mal	15435	3	Inadequate
	Matiali	1954	1	Adequate
	Nagrakata	5587	1	Inadequate
One **Anganwadi Centre** for 5000 Population, RADPFI, 2017	Rajganj	5876	4	Adequate
	Jalpaiguri	4270	2	Adequate
	Maynaguri	12135	10	Adequate
	Dhupguri	17705	24	Adequate
	Mal	15435	26	Adequate
	Matiali	1954	4	Adequate
	Nagrakata	5587	9	Adequate
One **Recreational Centre** for 5000 rural population, RADPFI, 2017	Rajganj	5876	0	Inadequate
	Jalpaiguri	4270	2	Adequate
	Maynaguri	12135	1	Adequate
	Dhupguri	17705	6	Adequate
	Mal	15435	6	Adequate
	Matiali	1954	3	Adequate
	Nagrakata	5587	2	Adequate

*Source- *Census of India, 2011*
***Village and Town Directory, Census, 2011 and Field Survey, 2015-16*

7.15 Level of infrastructural development

Infrastructural facilities play a catalytic role in the process of rural development. Considerable disparity has been noticed in the infrastructural development across the development blocks of Jalpaiguri district. The extent of disparities has been analysed by classifying the blocks into high, moderate and low level of infrastructural development. Z-score and composite score technique has been applied for identifying the level of development based on the infrastructural scores.

For the analysis of the data the following thirteen variables which determine the level of infrastructural development have been taken into account: percentage of household having hand pump as drinking water facility per 20 households (X_1), Percentage of households with electricity (X_2), Number of veterinary doctors per 5000 animals (X_3), Number of regular market per 10,000 of population (X_4), Number of periodic market per 10,000 of population

(X_5), Number of primary school per 5000 of population (X_6), Number of primary health sub-centres per 5000 of population (X_7), Number of Anganwadi centres per 5000 of population (X_8), Number of banking facility per 5000 of population (X_9), Number of agricultural credit society per 3000 of population (X_{10}), Number of post office per 3000 of population (X_{11}), Number of recreational provision per 5000 of population (X_{12}) and Rural road density km/km^2 (X_{13}). Besides, for analyzing the development scenario in the study area as a whole all the indicators are taken collectively, and the values of the composite standard score of variables group have been divided into high, medium and low category which clearly depicts the disparities in the level of infrastructural development in the different blocks of Jalpaiguri district. Table 7.17 depicts the z-score values of the infrastructural development in the blocks of Jalpaiguri district.

Table 7.17: z-score of Infrastructural Development in the blocks of Jalpaiguri district

C.D. Blocks	X_1	X_2	X_3	X_4	X_5	X_6	X_7	X_8	X_9	X_{10}	X_{11}	X_{12}	X_{13}	Composite scores
Rajganj	0.61	0.86	2.55	0.00	0.00	-0.74	-0.84	1.30	-0.54	0.00	0.00	0.00	0.61	0.38
Jalpaiguri	0.67	-0.86	0.00	0.00	4.68	0.03	1.76	2.47	-0.54	0.00	1.40	2.34	0.79	1.27
Maynaguri	0.79	0.25	0.00	0.82	2.47	-0.51	-0.47	0.71	0.69	0.74	0.24	0.41	0.75	0.69
Dhupguri	0.67	0.53	0.28	0.56	1.69	-0.30	0.26	0.06	2.01	0.00	0.17	1.69	0.70	0.83
Mal	0.60	0.75	0.32	1.29	1.29	-0.28	-0.72	0.83	-0.54	0.00	0.00	1.94	0.72	0.62
Matiali	0.00	-1.86	0.00	0.00	5.1	2.21	0.83	2.72	-0.54	0.00	0.00	7.67	1.08	1.72
Nagrakata	0.74	0.32	0.00	0.00	0.00	-0.40	-0.80	0.58	-0.54	0.00	0.00	1.79	0.46	0.21

Source- Calculated by Author

Table 7.18: Level of Infrastructural Development

Category	Z score range	Name of the Blocks
Low	<0.5	Rajganj, Nagrakata
Moderate	0.5 - 1	Maynaguri, Dhupguri, Mal
High	>1	Jalpaiguri, Matiali

Source- Calculated by Author

Table 7.18 depicts that the high level of infrastructural development based on composite standard scores is confined to two contiguous blocks of Jalpaiguri (1.27), and Matiali (1.72) in Jalpaiguri district. An effective rural transportation is necessary in the rural areas for the utilization of resources and for the movability of goods and passengers. Jalpaiguri block is connected to SH-12-A and Matiali block is linked with NH-31 in Jalpaiguri district. The main variables which appear to have influenced the high level of infrastructural development include drinking water facilities, percentage of electrified households, number of veterinary doctors, number of regular markets, number of primary schools, number of primary health sub-centres, number of Anganwadi centres, number of commercial banks and agricultural credit societies, the number of post offices and the

recreational facilities are satisfactory in these blocks contributing to better infrastructural facilities.

However, Maynaguri (0.69), Dhupguri (0.83) and Mal (0.62) blocks displays moderate level of infrastructural development. Availability of banking outlets, numbers of regular and periodic markets along with the number post offices are poor and inadequate in these blocks. Rajganj (0.38) and Nagrakata (0.21) blocks fall in the lowest category in terms of infrastructural development. The variables have negative scores in terms of households with drinking water facilities, electrified households, marketing structure, number of primary schools, health care facilities, banking facilities and the recreational facilities. The blocks lack an easy access to safe drinking water supply. Most of the villagers fetch drinking water from the river or pond or the canal which is untreated water in the study area. Further, lack of veterinary facilities along with inadequate rural communication facilities and recreation facilities contribute to poor infrastructure in these blocks. Commercial banking facility and agricultural credit societies which are important infrastructural facilities in a rural area are inadequate in these blocks of Jalpaiguri district.

Hence, there is a need to promote rural infrastructural development, as it is an important aspect of the process of rural development and therefore development strategies should be formulated in order to accelerate the pace of infrastructural development and to reduce the disparities in the provision of infrastructural facilities in the rural areas of Jalpaiguri district.

7.16 Composite Level of Rural Development

Disparities in the level of development and the formulation of appropriate strategies for a balanced development of a region have always been a significant research problem for the planners, researchers and social thinkers across the country. After the analysis of the demographic, social, economic and infrastructural dimensions of rural development, an attempt has been made to analyze the disparities in the level of overall development amongst the seven Community Development Blocks of Jalpaiguri district.

The analysis of the level of rural development in the previous sections highlighted the fact that by itself each aspect may not have only one dimension of development over different blocks. Some blocks displays high level of social development whereas the other blocks are developed in economic terms while infrastructural development exhibits different results. Therefore for the spatial pattern of the level of development in terms of demographic, social, economic and infrastructural aspects in the rural areas of Jalpaiguri district all the indicators

have been taken collectively and the composite level of rural development have been calculated by combining the data of the thirty five indices.

Z-score technique has been used for the analysis and the summed up z-scores were then divided by the number of variables in order to derive the composite scores of rural development (Table 7.19). The blocks have been categorized into three classes of high, medium and low level of composite rural development.

Table 7.19: Z-Score of the Level of Rural Development

C.D. Blocks	Scores of Demographic Development	Scores of Social Development	Scores of Economic Development	Scores of Infrastructural Development	Composite level of rural development
Rajganj	-0.91	-0.02	0.60	0.38	0.01
Jalpaiguri	0.36	0.45	-0.22	1.27	0.46
Maynaguri	0.78	-0.34	-0.04	0.69	0.27
Dhupguri	0.64	0.27	-0.01	0.83	0.43
Mal	0.02	-0.30	0.12	0.62	0.11
Matiali	-0.49	0.43	-0.26	1.72	0.35
Nagrakata	-0.40	-0.49	-0.19	0.21	-0.21

Source- Calculated by Author

Table 7.20: Composite Level of Rural Development

Category	Z score range	Name of the Blocks
Low	<0	Nagrakata
Moderate	0 – 0.25	Rajganj, Mal
High	>0.25	Jalpaiguri, Maynaguri, Dhupguri, Matiali

Source- Calculated by Author

The above analysis shows inter-block disparities in the level of composite rural development. On the basis of the aggregate score, Table 7.20 depicts that the high level of development is confined in four blocks namely Jalpaiguri (0.46), Maynaguri (0.27) Dhupguri (0.43) and Matiali (0.35) blocks of Jalpaiguri district. These blocks consists of socio-cultural and infrastructural amenities like adequate number of primary schools with respect to total population, middle schools, primary health sub-centres, pucca housing along with sanitation facilities, adequate drinking water facilities, postal facilities, banking and credit facilities, transportation facilities and recreational provisions with respect to total population. Besides, the blocks are developed in terms of literacy rate and sex ratio. The blocks also display development with respect to economy; in terms of the proportion of households with commercial farming activities, crop cultivation and the proportion of earning population. Thus, the blocks located in the northern, southern and eastern part of Jalpaiguri district are developed in terms of demographic, social, economic and infrastructural sectors.

In the moderate category of development two blocks fall with the composite score range of 0 – 0.25 namely, Rajganj (0.01) and Mal (0.11) blocks. These blocks exhibits middle category in composite level of rural development in terms of infrastructural facilities, social and economic provisions.

It has been observed that the western, north-western and north-eastern part of the study area exhibits moderate and low level of development. Nagrakata (-0.21) block falls in the lowest category in terms of composite rural development. The composite score calculated after combining the indices place the block in the low development category in terms of demographic, social and infrastructural aspects. The analysis of the level of rural development exhibits great spatial variations. It has been observed that the social and the infrastructural provisions are unevenly distributed in the study area and the reasons behind this fact are the varying topography, uneven distribution of population, gender disparities in terms of literacy rate, traditional occupational structure and the poor means of transport and communication facilities. Hence, developmental strategies in the blocks are an essential need to mitigate the disparities in the level of development and expedite the pace of rural development. Hence, the hypothesis as mentioned in the introduction chapter '*Infrastructural facilities are inadequate to meet the requirement of the large scale rural population concentration'* has been validated and according to the norms obtained from government sources it has been concluded that apart from the primary schools, Anganwadi centres and the recreational facilities the infrastructural facilities in terms of drinking water, banking facilities, agricultural credit societies, post offices and health centres are inadequate to meet the requirement of the large scale rural population.

7.17 Conclusion

The development of physical as well as social infrastructure plays an important role in accelerating the process of socio-cultural, economic and human development. However it has been observed during the field survey that there is an acute shortage of water supply in the sampled villages of Jalpaiguri district. 82.75% of the rural households have to depend on their private wells owing to the absence of PHE tap water supply in the study area. In regards to the disposal of solid waste, 76.74% households dump the waste production in open space due to the absence of community pits and bins in the study area. Further, it is discouraging to observe that, 3.73% households in the sampled villages are yet to get power connections in Jalpaiguri district. Besides, it has been noticed that the veterinary services for the protection of animal husbandry is inadequate in the study area owing to the complete absence of

livestock dispensaries in the sampled villages. Moreover, with respect to market there is an inadequacy of the regulated marketing facilities in the study area.

Again, the banking infrastructure is unsatisfactory in the sampled villages of the district as only 2 mini banks and 2 ultra-small branches of the banks have been obtained. Apart from these the study area needs greater attention regarding the dispersal of communication facilities in terms of post offices and internet services. In terms of rural establishments, since paddy occupies a leading position in the cropping pattern, there are 35 rice mills observed in the sampled villages of the study area. In addition to these, it has been observed that the major means of conveyance in the rural areas are bicycles or motorcycles but most rural households preferred bus services for commuting to urban areas.

It can be concluded that in the absence of a balanced distribution of infrastructure the social and economic sector of the study area get restrained. In terms of composite rural development Jalpaiguri, Maynaguri, Dhupguri and Matiali blocks of Jalpaiguri district falls in the high category of development, whereas Rajganj and Mal blocks exhibits moderate level of rural development and Nagrakata block displays low level of composite rural development in terms of demographic, social, economic and infrastructural aspects. Hence, there is a need to promote rural infrastructural development, as it is not only a key component of the process of rural development but also an important factor in ensuring the reduction of the vulnerability of the rural poor.

References

Ashokavardhan, C., and Vachhani, A. (ed.), (2011): *Socio-Economic Profile of Rural India* (Series II), Concept Publishing Company Pvt. Ltd. New Delhi. p. 259

Chakraborty, D., (2009): Levels Of Basic Infrastructural Development In Birbhum District, West Bengal, *Hill Geographer*, Vol. XXV, No. 1 & 2, pp. 39-46

Chauhan, I.S & Bias, V.S., (1995): *Social Structure and Rural Development*, Rawat Publications, New Delhi. pp. 22, 26, 28

Dash, B.M. & Roy, S. (ed.), (2012): *New Directions in Rural Development*, Discovery Publishing House Pvt. Ltd., New Delhi. pp. 2-5

Das, K., (2012): 'Drinking Water and Sanitation in Rural Madhya Pradesh: Issues and Challenges for Policy', *Journal of Rural Development*, Vol. 31, No. 3, pp. 287-304

Dey, R., (2014): Changing Face of Rural Areas in The Lower Damodar Basin, Bardhaman District, West Bengal, *Practicing Geographer*, Vol.18, No. 2, pp. 13-27

District Census Handbook, Village and Town Directory, Jalpaiguri, 2011, Government of West Bengal. p. 21

Gaur, A., (1985): *Integrated Rural Area Development: A Case Study of a Tehsil*, B.R. Publishing Corporation, Delhi. pp. 158-159

Kamble, N.D., (1979): *Rural Growth and Decline*, Ashish Publishing House, New Delhi. pp. 74-75

Krishnamurthy, J., (2000): *Rural Development: Challenges and Opportunities*, Rawat Publications, Jaipur and New Delhi. pp. 62-63

Majumdar, P.K., (2013): *India's Demography, Changing Demographic Scenario in India*, Rawat Publications, New Delhi. p. 396-697

Mukundan, N., (2009): *Rural Development and Poverty Eradication in India*, New Century Publications, New Delhi. pp. 152, 85-86

Mehta, G.S., (2003): *Non-Farm Economy and Rural Development*, Anmol Publications, New Delhi. pp. 117-118

Mondal, B.K. and Bhaduri, S., (2013): Role of Rural Transport in Infrastructural Development of Indian Sundarbans, *Geographical Review of India*, Vol. 75, (4), pp. 397-411

Nandi, P. and Saha, P., (2011): The Levels and Amenities in Birbhum and Purulia District- A Comparative Study, *Practicing Geographer*, Vol.13, No. 2, pp. 206-219

Narayana, K.V., (1997): *Health and Development, Inter-sectoral Linkages in India*, Rawat Publications, Jaipur and New Delhi. pp. 105-106

Nayak, K.B., (2008): *Rural Development and Underdevelopment*: *An Interdisciplinary Study*, Sarup & Sons Publications, New Delhi. pp. 367-368

Pant, S.K., and Pandey, J., (2004): *Social Development in Rural India, Study in Uttar Pradesh*, Rawat Publications, Jaipur and New Delhi. pp. 183-184

Pathak, C.R., (2002): *Spatial Structure and Process of Development in India*, Regional Science Association, Kolkata, pp. 178-180

Patra, A., (2010): Inter-Regional Disparities in Infrastructure Services: A Study in Orissa, *Indian Journal of Regional Science*, Vol. XXXXII, No. 1, pp. 49-56

Prabhuswamy, P., (2014): Status of Basic Amenities in Karnataka: An Inter-District Analysis, *Journal of Rural Development*, Vol. 33, No. 3, pp. 291-307

Rahaman, M. And Malik, U.M., (2013): The Levels And Amenities In Birbhum And Purulia District- A Comparative Study, *Practicing Geographer*, Vol.17, No. 2, pp. 111-119

Rai, S.C., (1988*): Spatial Organization and Rural Development*, Seema Publications, Delhi. pp. 116-117

Rao, H., (1984): *Regional Disparities and Development in India*, Ashish Publishing House, New Delhi. pp. 194-195

Rao, P. G., (2006): *Rural Development: sustainable livelihood and security*, Authors Press, Delhi. pp. 219

Raul, R.K., (2003): *Rural development in India (Approaches and Applications)*, Serials Publications, New Delhi, pp. 61-62

Sahu, B.K., (2003): *Rural Development in India*, Anmol Publications, New Delhi. pp. 10-11

Singh, R.B.P., (1986): *Social Welfare for Rural Development: A case study,* Inter-India Publications, New Delhi. pp. 155-156

Singh, R.P., (1992): *Regional Planning In India*, Radha Publications, New Delhi. pp. 161-163

Tiwari, R. and Nayak, S., (2013): Drinking Water and Sanitation in Uttar Pradesh: A Regional Analysis, *Journal of Rural Development*, Vol. 32, No. 1, pp. 61-74

Tripathi, S., (1987): *Development for Rural Poor*, Rawat Publications, Jaipur. pp. 247-249

https://www.greaterkashmir.com accessed on 25.06.2019