AVAILABILITY OF TRANSPORT SERVICES AND RURAL ACCESSIBILITY PROBLEMS: AN ANALYTICAL STUDY OF BAGNAN-I CD BLOCK, HAORA DISTRICT, WEST BENGAL

[1]Mriganka Dolui, [2]Debabrata Ghosh

[1] Post Graduate Student, [2]Former Post Graduate Student
[1]Department of Geography
[1] Prabhu Jagatbandhu College, Andul, Howrah, India

Abstract: Transport accessibility is referred as the efficiency of any networking system in a region that controls the socio-economic activities which plays an important role in regional development. The availability of transport accessibility is the key element to build up human settlement that led to development of any region. So this paper intends to study the role of available road based transport accessibility provision of Bagnan-I CD Block of Haora district as transport has connected this remote location with its periphery. Considering the developmental aspect of this region several suitable cartographic methods and statistical techniques has been incorporated. Above mentioned methodologies attempt to capture local conditions, status, implementation issues and a few sustainable strategies for development. Also this paper intends to find out how potential positive benefits related to transport accessibility can be recommended.

Keywords: **Accessibility, Medium of Transport, Road Density, Availability of Services, Settlement Hierarchy.**

1. INTRODUCTION:

Accessibility refers to the availability to reach a desire services, activities, the time and the money that people can expense for their purposes. A region encompasses of several aspects which are largely influence the rural development. Roads are the key elements of the transport infrastructure in India. Over 85% of people of India used road as their medium of transport (NITI Aayog, 2017). Also wide varieties of regional activities are directly linked with transportation and are the medium of mobility of any essential aspects to transfer from one place to another physically. "Mobility" means the easiness of movement of any aspect in terms of 'quality', 'quantity', 'frequency' and 'comfort'. The intervening space between two points or destinations, mass transit, quality of accessible facilities and the convenience of fare are the most important parameters of accessibility of transport network system. Thus transportation and its accessibility are intermingled which can be incorporated with the development of a region. The available transport accessibility paces up the social progress and access of services that are foremost enhances the quality of life of local inhabitants. So the availability of transport accessibility and the services are the primary concern of a region. Therefore accessible transport services of a region cannot be considered in isolation and there is need to promote development of region that would ease the access of available services.

1.1. Significance of the study area:

The rural areas are connected with basic accessed roads even are not fully available with each part of that region which is a basic infrastructural necessity. As a result the availability of services are not easily accessible to the people or not available not at al.

The present study area has rail and basic accessible road service facilities which not catered all part of the region. Also people of the peripheral part of the region, have to travel through connected nodes to access the nearest rail station which implies the ineffective distribution of roads. At this point, this study will help to know more the actual status of specific transport accessibility background of villages under Bagnan-I CD block of Haora District of West Bengal.

1.2. Objectives:

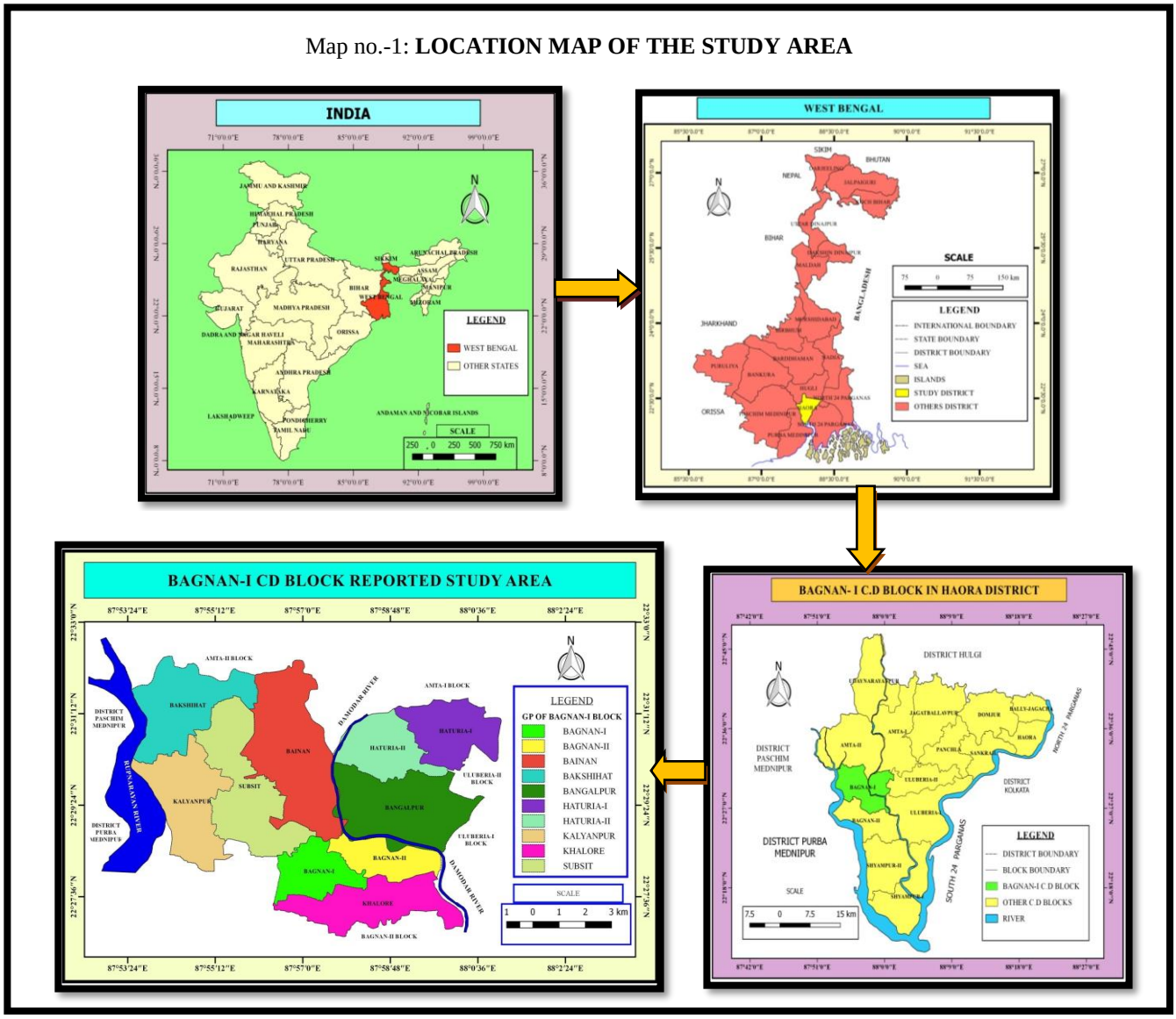
The present study aims at potential aspect which taken as objectives under following strata:

- To investigate the availability of existing road based transport facilities and services in the study area.
- To highlight the road based transport infrastructure and set of amenities in the study area.
- To analyze the infrastructural development of various transport facilities in Bagnan-I CD block in past years.
- To give various suggestions and measures for improvement of transport infrastructure in the study area.

1.3. Location of the study area:

The study area, Bagnan-I C.D Block is located at the confluence of 22°26´N to 22°32´ of latitude and 87°53´E to 88°1´ of longitude. The study area extends about 89.77 Km ^{2}, sharing only 6.12 per cent of the total geographical area of district Haora.

Map no.-1: **LOCATION MAP OF THE STUDY AREA**



Map Source: NATMO and Prepared by the Authors, 2019

1.4. Literature review:

The issue of rural accessibility is related to the various ground aspect of development practices, specialized schemes and factual implementation.

- **Chaturvedi, D. P. (2000),** evaluated in "Impact of Transport System on Regional Development in Bundelkhand Area: A Geographical Analysis" that role of transport in territorial development is incomparable, through the exchange of resources in each field. Backward region as well as in hilly and plateau region needs to extend the roads and the impact of transport mechanism on regional development goes parallel throughout the analysis and proper planning.
- **Baird, A. B. (2005),** mentioned in "Public Infrastructure and Economic Productivity: A Transportation-Focused Review" that road network make a region stronger In terms of infrastructure and its economic activities. Mobility and accessibility which produced transportation infrastructure as the higher potential factor that creates manufacturing opportunities.
- **Firoz, S. (2014)** discussed in "social amenities and regional development in eastern Uttar Pradesh" about distribution and disparity of social amenities and how the regional development influenced by such amenities. The existing social amenities i.e. education facilities, health and transport facilities etc. force the levels of development and lack of these certain amenities area also affected in terms of deprivation.
- **Briceño-Garmendia, C., Moroz, H., and Rozenberg, J. et.al. (2015),** explained in "Road network, Accessibility and Resilience: The cases of Colombia, Ecuador and Peru" that economic activity and mobility of population are largely effects by physical transport infrastructure in terms of quality and quantity. The dominant transportation mode and of mobility of goods and population is roads.
- **Samanta, K. P. (2015)** explained in "Development of Rural Road Infrastructure in India" that road connectivity in rural area reinforce the access to critical services and opportunities. Rural roads linked the people and their agricultural fields to the transport network markets. It is also a tool for sustainability in poverty reduction programs as well as employment generation through industrialization in rural areas. Rural roads needs to link with remote and backward settlement in a region so that the connectivity and accessibility of an area will grow and also helps to profitable in nation.
- **Saxena, H. M. (2016),** stated in "Role of transport in development" that there is a relationship between transport and various economic activities like agriculture, manufacturing, market directly linked with transportation facilities that helps the regional development. The degree of development of transport network in any area plays a significant role in every stage of national and regional development planning.

- **Brovarone, E. V. and Cotella, G (2020),** explained in "Improving Rural Accessibility: A Multilayer Approach" that rural areas are facing the lower accessibility services as compare to urban areas which may reduced by enhancing rural transport that will help to improve the rural accessibility services that only by the multi-level and multi-sector governmental institution.

1.5. Database:

The present study is based on both the primary and secondary database which has been collected from different sources.

1.5.1. Primary Data Source:

The primary data source consists of perception based survey which has been done upon a sample questionnaire that considered the availability of road based transport facilities and people's perception about it.

1.5.2. Secondary Data Source:

The secondary data sources which are been collected from official sources i.e. Block Development data, District Census Handbook of Haora (2011), NATMO, Institutional Strengthening of Gram Panchayats (ISGP) Program II and various print media.

1.6. Methodology:

1.6.1. Primary stage:

The primary stage consists with the collection of basic information about the study and several data from various officials. Also vivid literatures have been reviewed and a questionnaire framed has been prepared for perception survey.

1.6.2. Secondary stage:

Under the secondary stage, location map has been prepared and perception survey has been done in the study area based on prepared questionnaire.

1.6.3. Final Stage:

The final stage is about to processed and analysis of the collected data with suitable techniques. Various cartograms have been prepared with interpreting the status based on processed data. Several thematic maps have been prepared with the help of GIS based software.

II. RESULTS AND DISCUSSIONS:

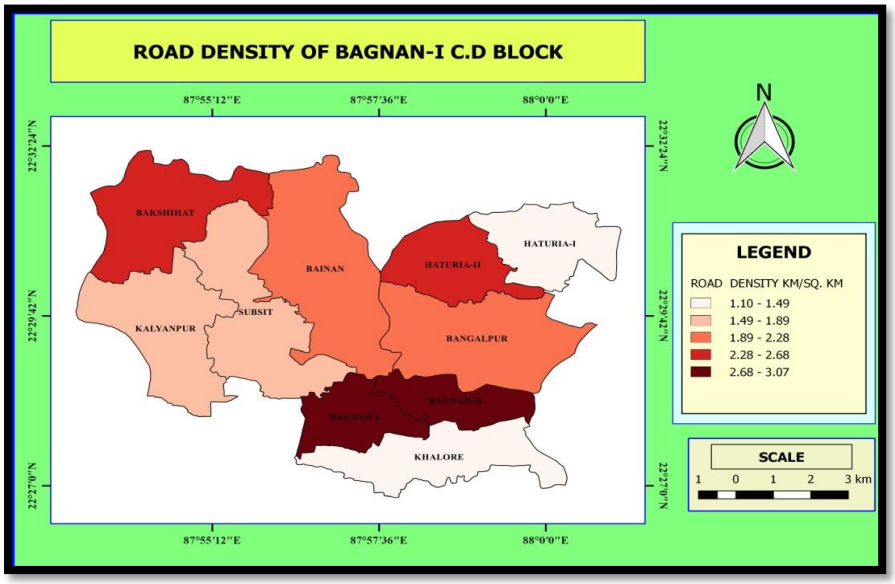
2.1. Road Density (Rd):

Road density indicates the distribution of roads in length per unit area and it shows the development of transport network. In the study area the distribution of various types of road such as-National Highways, State Highways, Black Topped road, concrete roads, earthen roads etc are build. However this research work has only considered national highways, state highways and black topped road for convenience of our study.

Rd = l / a [where, l = length of road in km.; a = area in km^2]

This technique is used to show the span of road per unit area which indicates the affluence of road in the region. The computed road density values have been plotted over Choropleth map (Map no-2).

Map no.-2: Road Density of Bagnan-I Block



Source: Thematic Map prepared by Authors, 2019

The road length per sq. km. for the Bagnan-I C.D Block is 2.11 km/sq. km. In this concern, whereas Bagnan-I GP occupied with highest density of road of 3.07 km/sq. km followed by Bagnan-II GP (2.91 km/sq. km). The least density of road is found in Khalore (1.10 km/sq. km) followed by Haturia-I GP (1.48 km/sq. km), Subsit (1.65 km/sq. km), Kalyanpur (1.82 km/sq. km) and Bainan (1.91 km/sq. km) GP.

Table- 1, Bagnan-I GP: Road Density, 2011.

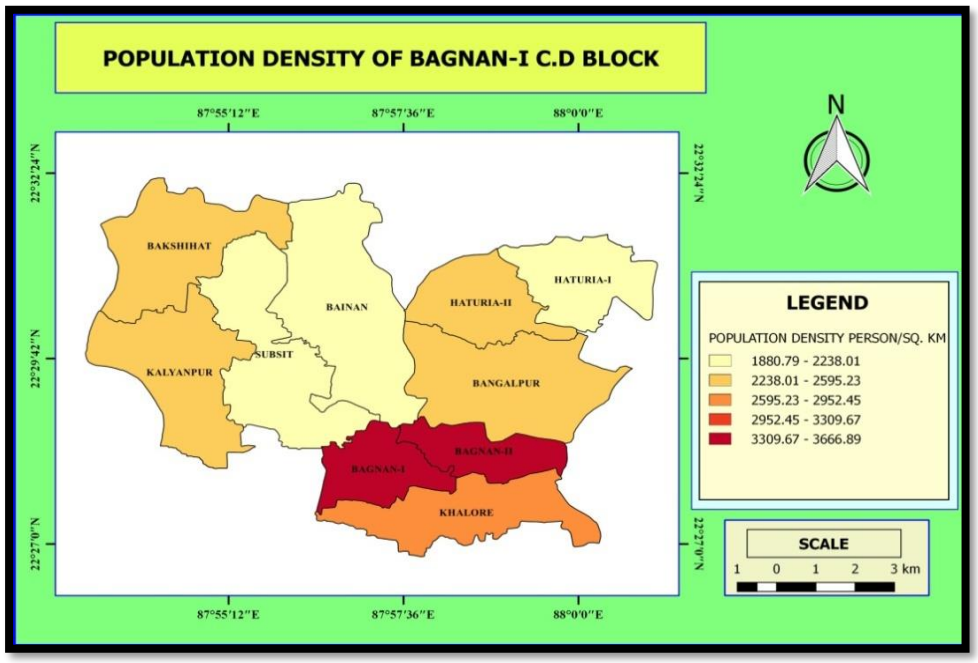
Category	Ranges(km/km^2)	No of GPs	Name of GPs
Very High	2.68-3.07	2	Bagnan-I, Bagnan-II
High	2.28-2.68	2	Hatutia-II , Bakshihat
Medium	1.89-2.28	4	Bainan, Bangalpur
Low	1.49-1.89	2	Kalyanpur, Subsit
Very Low	1.10-1.49	1	Haturia-I, Khalore
Overall	2.11	11	Bagnan-I CD block

Source: Compiled by Authors

2.2. Population Density:

The population density defines the distribution of population per unit area. It is a determinant factor of regional development. This shows the concentration of population in per unit area. The calculated density of population of Bagnan-I CD block has plotted in a map (Map no.-3) which reflects the spatial distribution of population density here.

Map No.-3: Population Density of Bagnan-I C.D. Block



Source: Thematic Map prepared by Authors, 2019

The density of population in Bagnan-I CD block has plotted and divided into five distinct categories as following-

- Very high range of population density found in Bagnan-I and Bagnan-II GP having the range of 3309 to 3666 persons/sq km because of most accessible area of the region and rapid growth of population.
- Next in Khalore GP has high concentration of population density where the range of population is 2952 to 3309 persons/sq km.

Table- 2: Ranges of Population Density, 2011

Category	Ranges (persons/km^2)	No of GPs	Name of GPs
Very High	3309.67-3666.89	2	Bagnan-I, Bagnan-II
High	2952.45-3309.67	1	Khalore
Medium	2595.23-2952.45	4	Bakshihat, Kalyanpur, Bangalpur , Hatutia-II
Low	2238.01-2295.23	2	Bainan and Subsit
Very Low	1880.79-2238.01	1	Haturia-I

Source: Compiled By Authors

- Medium range of population density recorded in Bakshihat, Kalyanpur, Bangalpur and Hatutia-II GP where density is 2595 to 2952 persons/sq km.
- On the contrary to that low density of population noticed in Bainan and Subsit GP, ranges covers of 2238 to 2995 persons/sq km and
- Very low density of population is found in Haturia-I GP that covers the population range between 1880 to 2238 persons/sq km.

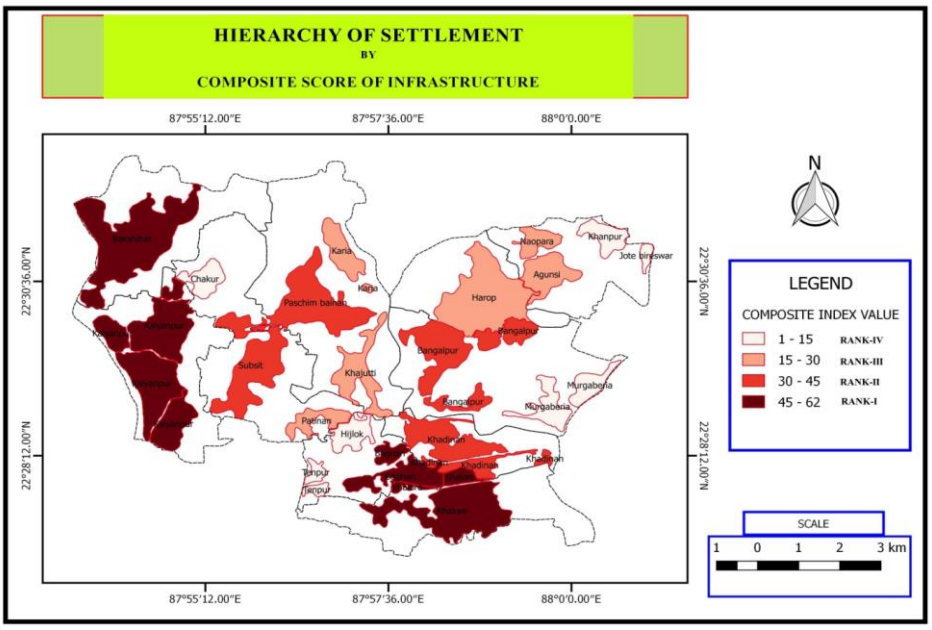
2.3. Hierarchy of Settlements:

The word "Hierarchy" refers to variation in size and functions. Settlements are differing in size and functions based upon physio-historic and socio-economic conditions, but they can be graded and grouped in the hierarchical order in any regional set up. The gradation and grouping the settlement centres into the size of classes is termed as hierarchy.

The hierarchy of rural or urban settlements denotes the ranking of rural or urban centres into successive groups on the basis of size or services they render to their own inhabitants and also to the population of surrounding settlements, i.e., hinterlands. The concept of hierarchy was introduced by Walter Christaller (1933), in his well known Central Place Theory.

From the given table attached to next page composite scores of available infrastructure of various settlements under Bagnan-I CD block have been shown. On the basis of composite score a Choropleth map (Map no. - 4) has been prepared for Bagnan-I C.D. Block.

Map No. - 4: Hierarchy of Settlement



Source: Thematic Map prepared by Authors, 2019

All the calculated values of composite score has classified into four categories on the basis of their ranks such as, RANK-I, RANK-II, RANK-III, RANK-IV based on calculated composite value of infrastructure of various settlement of Bagnan-I CD block and then according to rank all settlement has to categories according to its rank.

The maximum Composite index value with RANK-I is more than 45, these indicates that the settlement patches are well distributed in various infrastructure facilities and services which are easily accessible such as Metalled Road, Sub Centres, Hospitals, ICDS, Cinemas, Shopping Mall, Bank, etc. This score of settlement areas which consists Bagnan, Bakshihat, Khalore, Kalyanpur of Bagnan-I CD block.

Table-3: Composite Score and Rank of Hierarchy of Settlement in Bagnan-I CD Block

Sl. No.	Range	Rank	Name of Settlement
1.	>45	I	Bakshihat, Bagnan, Khalore, Kalyanpur
2.	30-45	II	Subsit, Khadinan, Bangalpur, Paschim Bainan
3.	15-30	III	Patinan, Karia, Khajutti, Haropo, Naopara, Agunshi Bhuinra.
4.	<15	IV	Chakur, Hijlok, Khanpur, Tenpur Nabasan, Murgaberia, Jote Bireswar

Source: Compiled By Authors

The RANK-II settlements which have the range of composite value of 30-45 belongs to the moderately distributed of infrastructures and facilities in the settlement area of Subsit, Khadinan, Bangalpur and Paschim Bainan.

The third RANK of settlements have the low range composite value of 15-30 that is located in Patinan, Karia, Khajutti, Haropo, Naopara and Agunshi Bhuinra settlements area which characterize by the low range of distribution of infrastructure that needs improvement of availability and accessibility of such components.

The RANK-IV have the composite range value of less than 15 which indicates the very low and poor infrastructure services that available in the settlement area which are Chakur, Hijlok, Khanpur, Tenpur Nabasan, Murgaberia and Jote Bireswar of Bagnan-I CD block.

From the above discussions, major of the settlement sunder Bagnan-I CD Block belongs to the low and very low availability of infrastructure area and therefore it is suggested to improve the facilities available for better access in those areas which can make a bridge between the accessible and inaccessible areas in the region.

2.4. Financing of Funds for Roads and other Infrastructure Development from FY April 2017 to March 2019:

The road and road infrastructure of Bagnan-I CD Block has been maintained by the local self government which gets funds by the government of India under various heads such as for land development, road development, improvement and enhancement of electric and health infrastructure development in the financial year (FY) of 2017-2018.

Table-4: Composite facility scores for settlement (Settlement Hierarchy):

Sl. No	Settlement	Type of infrastructure	No of Infrastructure (fi)	Wi*fi	∑Ni*fi	Rank
1	Bakshihat	Metelled Road, S. Centre*, P. School#, ICDS, Bank	3,3,10,4,3	3*1.9+3*1.15+10*4.2+4*2.1+3*0.75	61.8	i
2	Kalyanpur	Metelled Road, S. Centre, P. School, ICDS	3,2,8,3	3*1.9+2*1.15+8*4.2+3*2.1	47.9	i
3	Chakar	P. School, ICDS	1,1	1*4.2+1*2.1	6.3	iv
4	Subsit	Metelled Road, S. Centre, P. School, ICDS, Bank	1,2,6,4,1	1*1.9+2*1.15+6*4.2+4*2.1+1*2.1	38.55	ii
5	Patinan	Metelled Road, S. Centre, P. School, ICDS	3,1,3,1	3*1.9+1*1.15+3*4.2+1*2.1	22.7	ii
6	Paschim bainan	Metelled Road, S. Centre, P. School, ICDS, Bank	2,3,6,2,1	2*1.9+3*1.15+6*4.2+2*2.1+1*0.75	37.4	ii
7	Kharia	Metelled Road, S. Centre, P. School, ICDS	1,1,4,1	1*1.9+1*1.15+4*4.2+1*2.1	21.95	iii
8	Khajitti	Metelled Road, S. Centre, P. School, ICDS	1,1,4,1	1*1.9+1*1.15+4*4.2+1*2.1	21.95	iii
9	Hijlok	Metelled Road, P. School, ICDS	2,1,2	2*1.9+1*4.2+2*2.1	12.2	iv
10	Bagnan	Metelled Road, S. Centre, Hospital, P. School, ICDS, BDO, Cinema, Shopping mall, Bank	6,1,1,8,4,1,1,1,3	6*1.9+1*1.15+1*0.05+8*4.2+4*.1+1*0.05+1*0.1+1*0.15 +3*0.75	57.15	i
11	Khalore	Metelled Road	2	2*1.9	3.8	iv
12	Hauria-ii	Metelled Road, S. Centre, P. School, ICDS, Bank, Cinema, Shopping mall, Bank	5,3,6,5,1,1,1,	5*1.9+3*1.15+6*4.2+5*2.1+1*0.1+1*0.15+1*0.75	49.35	i
13	Naopara	Metelled Road, S. Centre, P. School, ICDS, Bank	2,2,5,1,1	2*1.9+2*1.15+5*4.2+1*2.1+1*0.75	29.95	iii
14	Khanpur	Metelled Road, P. School, ICDS	1,2,3	1*1.9+2*4.2+3*2.1	16.6	iii
15	Jote bireswar	Metelled Road, S. Centre, P. School	1,1,2	1*1.9+1*1.15+2*4.2	11.45	iv
16	Agunsi bhuinra	Metelled Road, P. School	1,1	1*1.9+1*4.2	6.1	iv
17	Bangalpur	S. Centre, P. School, ICDS	1,4,2	1*1.9+4*4.2+2*2.1	22.9	iii
18	Murgaberia	Metelled Road, S. Centre, P. School, ICDS	1,1,5,4	1*1.9+1*1.15+5*4.2+4*2.1	32.45	ii
19	Tenpur nabasan	Metelled Road, P. School	3,2	3*1.9+2*4.2	14.1	iv
20	Khadinan	S. Centre, P. School, ICDS, Shopping mall, Bank	1, 6, 6, 1, 5	1*1.15+6*4.2+6*2.1+1*0.15+5*0.75	42.85	ii

(*S. Centre= Service Centre, #P. School=Primary School) Source: ISGPP & Compiled By Authors, 2019

Table-5: Weighted (w) of settlement

Infrastructure	∑fi	Wi=∑f+N	Infrastructure	∑fi	Wi=∑f+N	Infrastructure	∑fi	Wi=∑f+N	Total
Metelled Road	38	1.9	Primary School	84	4.2	Cinema	2	0.1	
Sub-Centre	23	1.15	ICDS	42	2.1	Shopping mall	3	0.15	
Hospital	1	0.05	B.D.O	1	0.05	Bank	15	0.75	

Source: Compiled By Authors, 2019

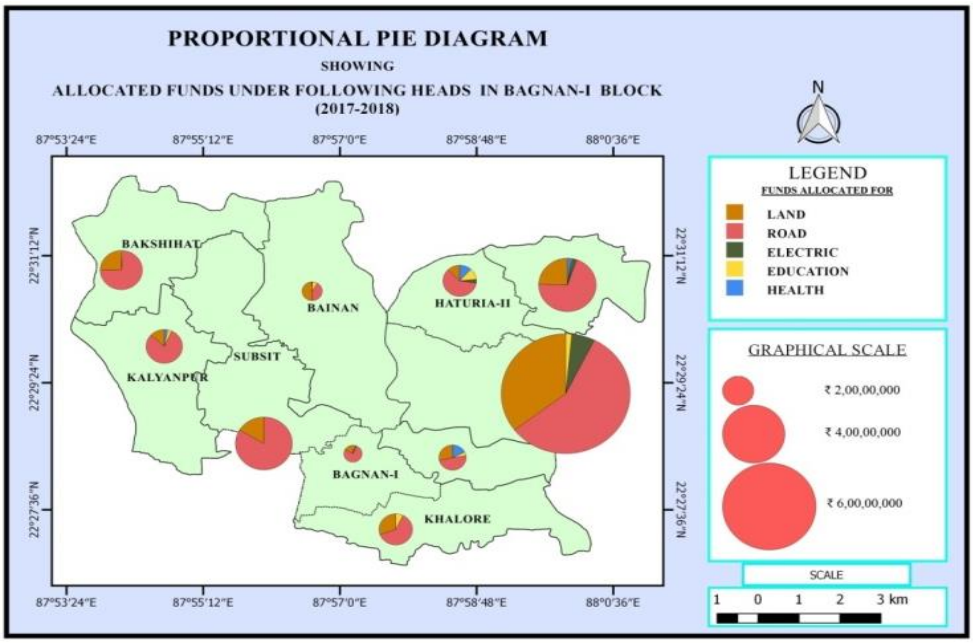
Table-6: Range and Rank of settlement

Range	Rank	SL. No. of Settlements
<15	iv	3,9,11,15,16,19
15-30	iii	5,7,8,13,14,17
30-45	ii	4,6,18,20
>45	i	1,2,10,12

Source: Compiled By Authors, 2019

The allocated funds for Bagnan-I CD Block has represented by proportional pie diagram map (Map no.-5). Among total allocated funds, in Bangalpur GP maximum funds has been allocated in 2017-2018 financial year (FY).

Map No.-5: Allocated funds Bagnan-I Block; 2017-2018



Source: Thematic map prepared by Authors, 2019

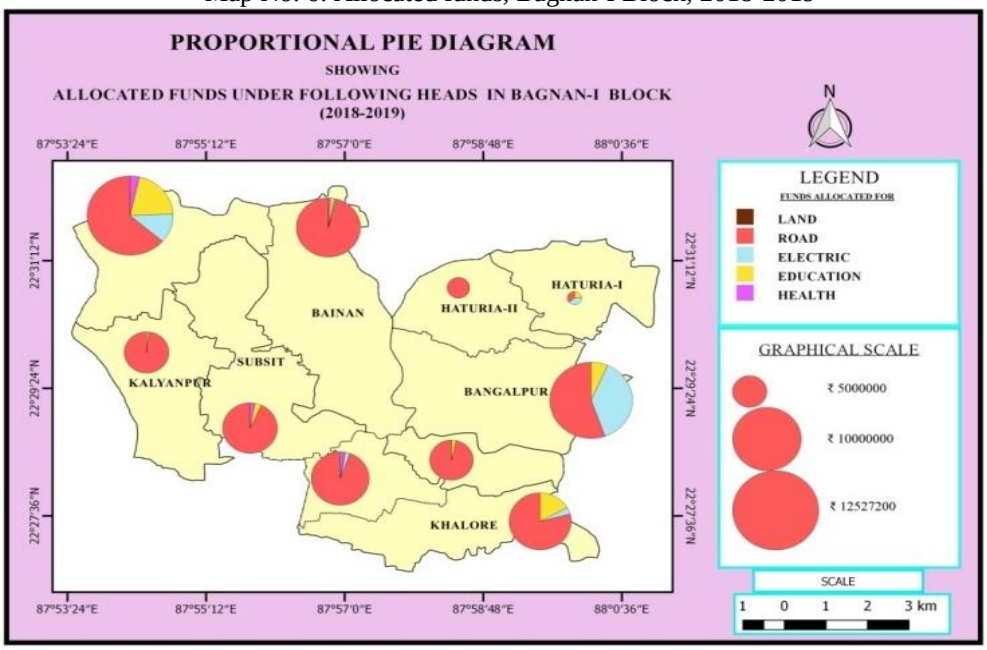
It is to state that the allocated among for all the GP's, maximum amount of funds has been allocated in land development which is found in Bangalpur GP amount of Rs. 2.93 crore (approx) and minimum funds has been allocated in Haturia-II GP for land development purpose in 2017-2018.

For the development of roads in various aspect, maximum funds has allocated in Bangalpur GP amount of Rs. 4.74 crore (approx) followed by Subsit GP and then Haturia-I GP and less funds has allocated in Bainan GP (2017-2018).

For Electricity improvement, 4 GP has funded among the allocated funds and the maximum fund has been allocated in Bangalpur GP amount of Rs. 48.1 lakhs (approx).

In expense of educational infrastructure maximum funds has allocated in Haturia-II GP amount of Rs. 25.64 lakhs (approx) and least in Bakshihat GP.

Map No. 6: Allocated funds, Bagnan-I Block; 2018-2019



Source: Thematic Map prepared by Authors, 2019

The maximum amount of funds has been allocated in Bagnan-II GP and least in Bainan GP. No funds allocated for land development in financial year 2018-2019.

- In road development maximum funds allocated to Bainan GP followed by Bagnan-I and Bakshihat GP.
- In electricity improvement Bangalpur GP has the maximum allocated funds and in Bainan has the least.
- In Educational Improvement in Bakshihat GP get the maximum Funds and least in Bagnan-I GP.
- For health facilities improvement Bakshihat GP get the highest Funds and least found in Bainan GP.

From the current study it also found that in Haturia-II GP got the funds for road development which has been allocated of 60% of its total funds in 2017-2018, whereas 100% funds have been allocated for road development in 2018-2019.

2.5. Available Transport Services and Rural Development:

The poor transport accessibility restricts the commuters to travel further to improve their living conditions. The major impact sighted of developed transport is to increase the income levels by taking products/services to bigger market. A particular region develops only when proper transportation facility is provided. In such way the rural transportation act as agent rural development in shifting rural produces such as agricultural products. As a result the regions develop economically, culturally and above all socially. Hence, road transport leads to overall development of a region in many ways.

Though transport network in Bagnan-I CD Block avails rail-road (NH and SH) interaction facilities but still there are number of villages without proper transportation links or approach roads and hence they are need to heard of. Reviewing the impact of road transport is wide ranging which includes goodness of transport accessibility, time-cost advantages, availability of transport means throughout the year, industry, trade and commerce which cumulatively steps up any locality etc.

2.5.1 Availability of Transport Facilities and Service:

To know about passenger's perception about level of connectivity of different nodes and service delivery of available transport means, a survey has been executed.

2.5.1.1. Accessibility of roads throughout the Year:

About 73 % respondent response the road they used are accessible throughout the year and 27 % people responded that the roads are not accessible throughout the year. The area needs to more attention for the improvement of accessibility in terms of public transport network.

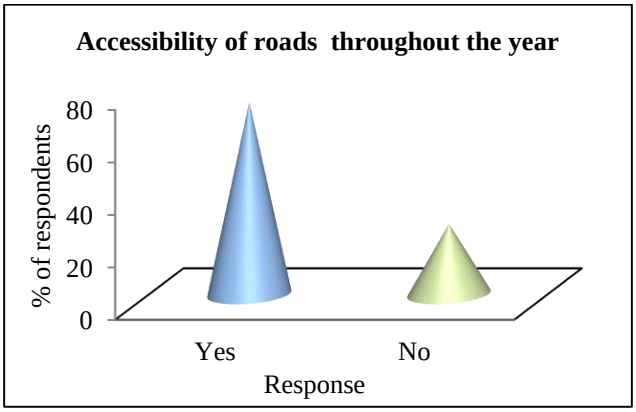


Figure-1; Source: Primary Survey, 2019

2.5.1.2 Transport Availability during Weekend and Holidays:

Fig. no. 2 shows the status of transport availability in weekend days. From all the respondents 45 % people opinioned that transport facilities remain same in weekend and holidays (Saturday/Sunday) days and 55 % people responded that transport facilities are not available during the weekend and Holidays.

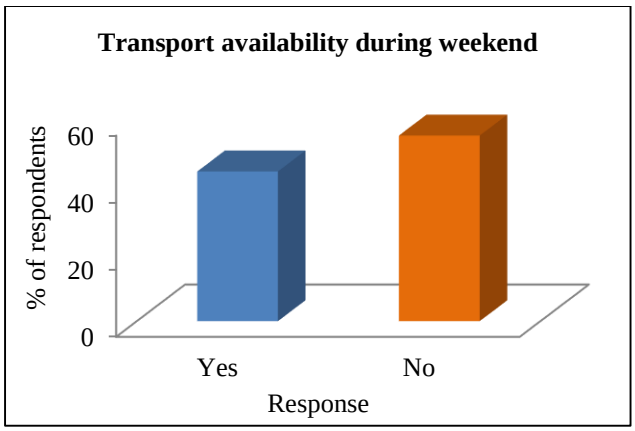


Figure-2; Source: Primary Survey, 2019

2.5.1.3. Availability of Transport Facilities after 6 p.m.:

Fig. no. 3 represents the availability of transport facilities after 6p.m. where 45 % people responded that the transport facilities remain regular after 6p.m by which they can easily travel to their destination but 55 % people stated that the available transport facilities they gets in very low frequency after 6p.m. due to several reasons according to them.

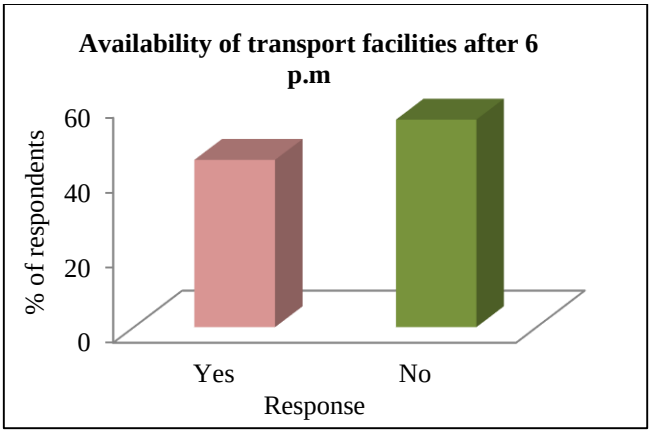
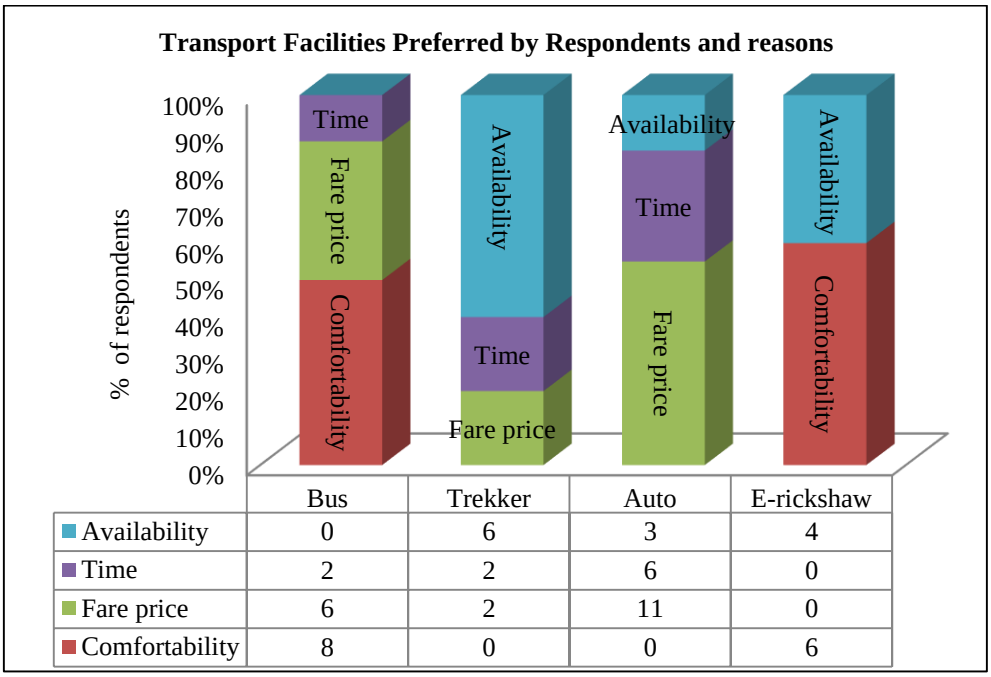


Figure-3; Source: Primary Survey, 2019

2.5.1.4. Transport Facilities Preferred by Respondents:

In the study area major public transport vehicles are- Bus, Trekker, Auto and E-rickshaw which ply in this study area are incorporated in perception study and plotted on fig. no. 4. Fig. no. 4 imprinted that the preference of transport facilities by respondents according to fare and other reasons which are very diverse in nature. Among all the respondents, 28 % prefer bus, 18 % respondents choose trekker, 36% respondents choose auto and rest 18 % of the respondents prefer E- rickshaw services moreover,

- Among the 28 % respondents who choose bus, 50% of them rely up on it because of comfort, 38 % for fare price and 13 % for timely running.
- From 18 % respondents who have chosen trekker, among them 20% people choose because of fare structure, 20 % for time and 60% respondents for availability of trekker services.
- Among the 36% respondents chosen who have chosen auto as preferred transportation medium from them 55 % choose it for fare, 30% for time and 15 % for availability of auto services.
- From 18 % respondents who choose E-rickshaw among them 60 % rely up on it for comfortable journey, 40 % for availability of E-rickshaw.



	Bus	Trekker	Auto	E-rickshaw
Availability	0	6	3	4
Time	2	2	6	0
Fare price	6	2	11	0
Comfortability	8	0	0	6

Figure-4; Source: Primary Survey, 2019

2.5.2. Unavailability of Transport Services, Problems and Alternatives Means:

2.5.2.1: Reasons for Unavailability of Transport Facilities in Weekend days:

Various reasons are been arised behind the unavailability of transport facilities during weekend days which has been incorporated in fig. no. 5 that stated by 55% of the respondents. Among the 55% respondents, 52 % people stated that insufficient number of vehicles is the main reason, 23 % people responded poor management and 26 % people said that it is due to driver's misconducts they are not getting adequate transport facilities in weekend days.

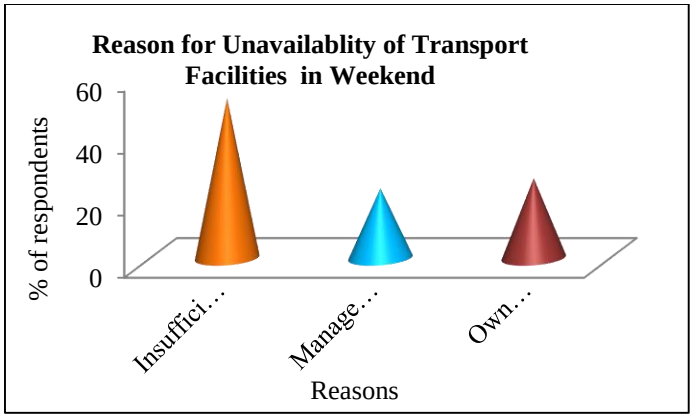


Figure-5; Source: Primary Survey, 2019

2.5.2.2. Reasons for Unavailability of Transport Facilities after 6 P.M:

Fig. no. 6 shows the responsible reasons behind the unavailability of transport facilities after 6 p.m. 55% of total respondents complained about this. Among them all 65% people respond that transportation services became least zero due to last trip at 6 p.m set by the local terminal transport committee after 6 p.m. and rest of the 35 % people of the responds stated that the irregular number of vehicles run after 6 p.m that are insufficient.

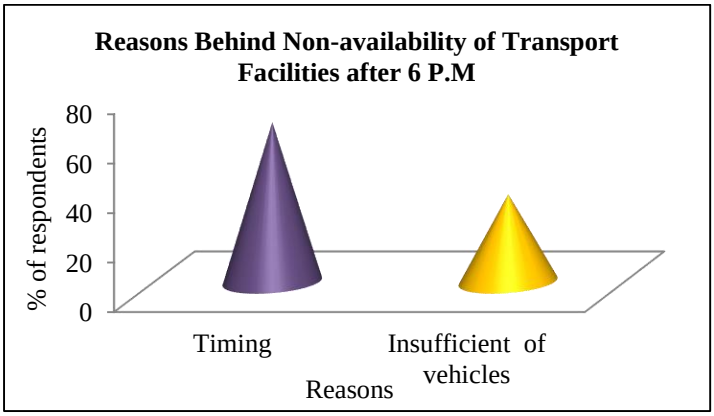


Figure-6; Source: Primary Survey, 2019

2.5.2.3. Types of Problems faced by people during Unavailability of regular Transport Facilities:

Fig. no. 7 shows the several of problems faced by the respondents during unavailability of transport facilities. Among them 35 % respondents had to do break journey, 42 % respondent faced overcrowd situation in vehicles and 23 % said that they wait for lift to come.

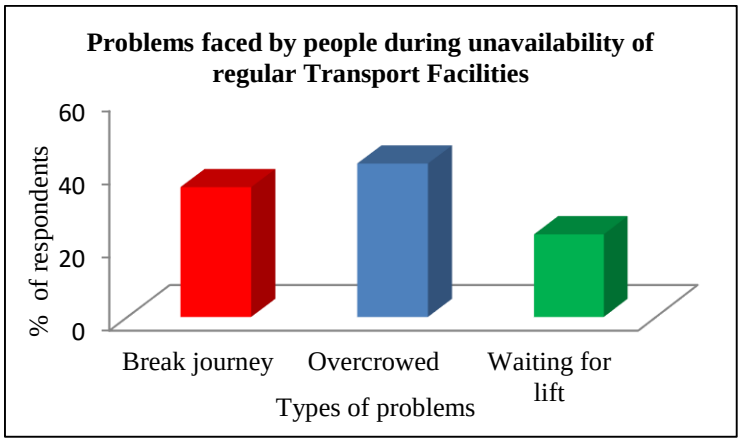


Figure-7; Source: Primary Survey, 2019

2.5.2.4. Alternatives in case of unavailable Transport Means:

Fig. no. 8 shows the alternative means taken by the passengers in case of regular transport facilities get suspended**.** Among the respondents 55 % people stated that they have to do break journey, 23 % people take lift from other vehicles, 6 % people reserve vehicles at higher rate and 16 % people they have other alternatives.

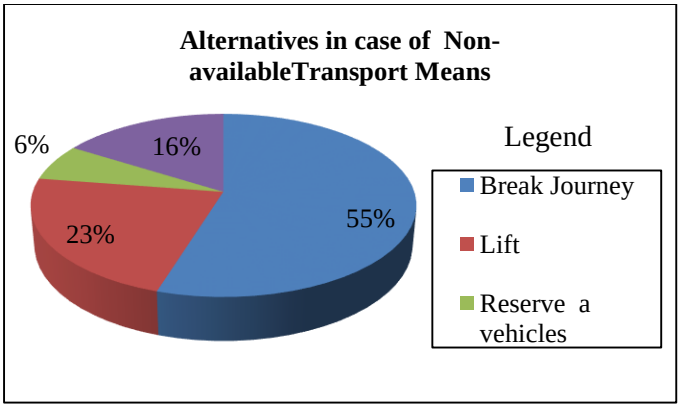


Figure-8; Source: Primary Survey, 2019

2.5.3. Fare of Transportation:

2.5.3.1. Initial Fare of Transportation:

The initial fare of transportation in study area is imbalanced much. Among total respondents 61 % people have stated that the initial fare of transportation is higher and 39 % people opinioned of baring cheap fare of transportation at initial level. That means Mass Transit Routes (MTR) are absent and lack of public transport services to such area.

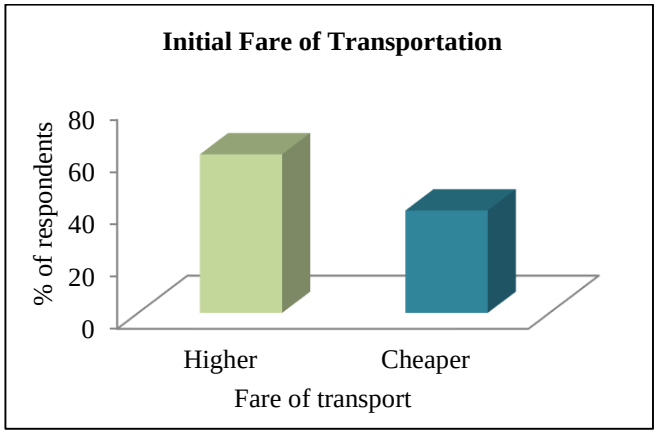


Figure-9; Source: Primary Survey, 2019

2.5.3.2. Standardization of Fare:

Fig no. 10 shows whether any standard fare chart is been followed by transport service providers. Among all respondents 61 % people response that fares are standardized and 39 % respondents complain that the fares are nonstandard which indicate and demanded the standardization of fare.

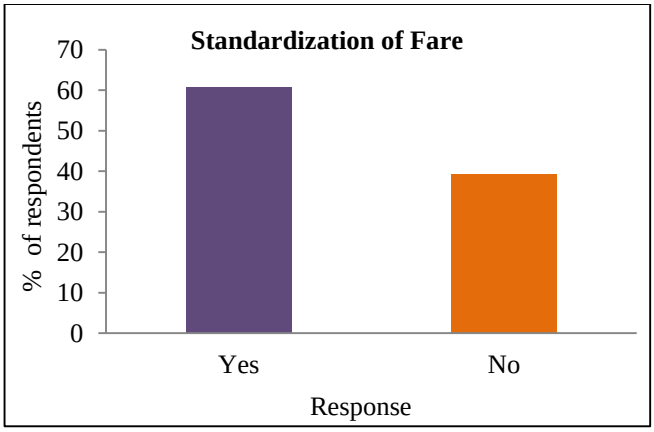


Figure-10; Source: Primary Survey, 2019

2.5.4. Road Qualities in Rainy Season:

The study brings out that the roads condition became poor in rainy season due to heavy rain as some parts of Bagnan-I CD block inundates due to heavy rainfall in monsoon. About 14% of the respondents complained that the road quality degrades sometimes while on the other hand 86 % people response that the quality of road remains same even in heavy rainfall. That means some people got suffer from irregular service or non- available transport means during monsoon which needs to more attention in several places.

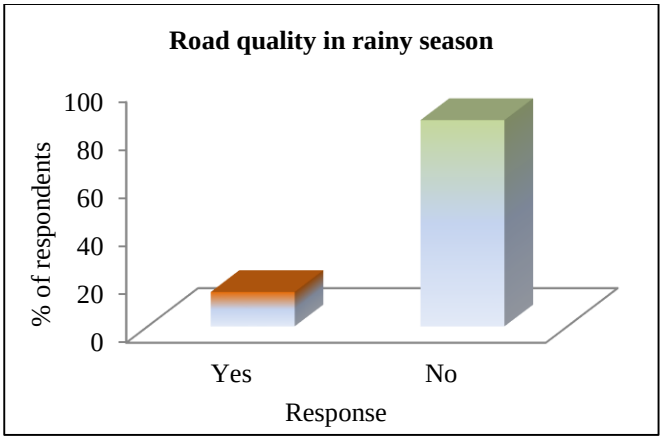


Figure-11; Source: Primary Survey, 2019

2.5.5. Transport Facilities and Rural Development:

2.5.5.1. Satisfactions towards Existing Roads and Transport Facilities:

The status of satisfaction of the respondents regarding existing road transport facilities and transport means imprinted by fig no. 12. About 25 % respondents are satisfied with the existing roads and transport facilities in the area and 75 % of the respondents are not satisfied with the existing roads and transport facilities in the area due to present issues regarding transport facilities.

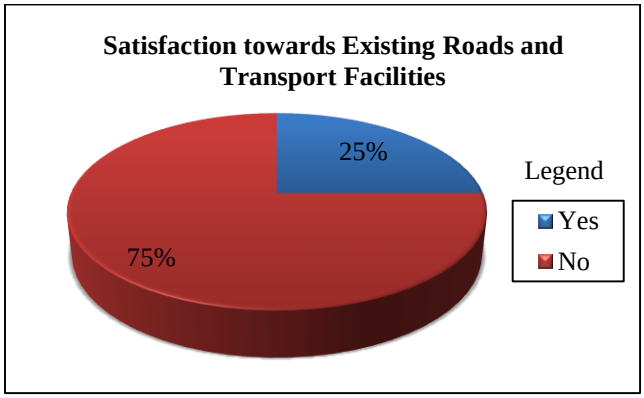


Figure-12; Source: Primary Survey, 2019

2.5.5.2. Constraints of Development of existing Roads and Transport Facilities:

Fig. no.14 shows the problems of development of existing roads and transport facilities by the people. According to all respondents there are several problems related to road and transport facilities. According to 39 % respondents stated that the poor bus facilities is the major issue, 18 % people responded of problems of frequency of transport facilities.

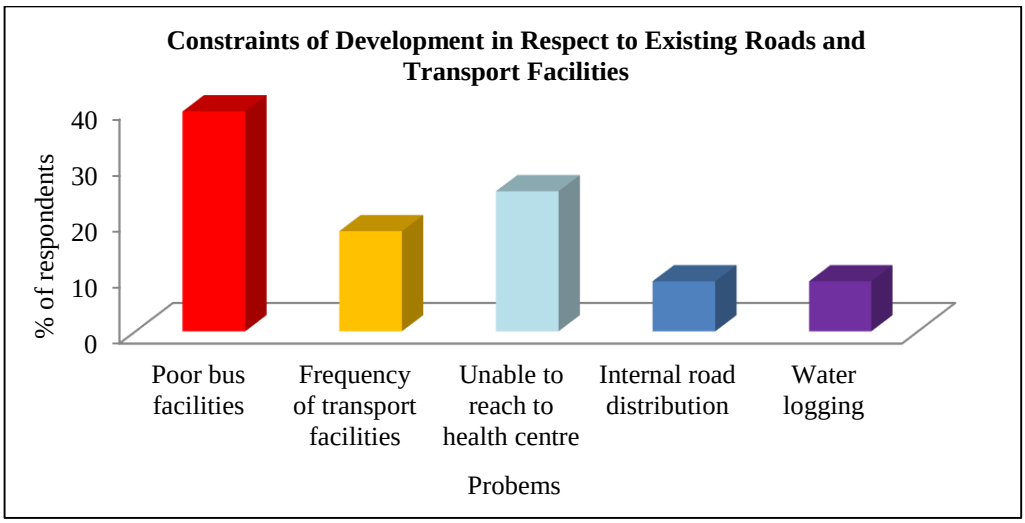


Figure-14; Source: Primary Survey, 2019

About 25 % people comment that unable to reach heath centres due to poor quality of transportation and 9 % respondents stated the of internal distribution of roads are not very well and rest of 9% of the respondents stated that water logging is the major constrain of development.

2.5.5.3. Opinions to Improve Transport Accessibility and its connection with Rural Development:

From the perception survey, among all respondents they shared their opinions about to improvement and development associated with accessibility and means of transport to study area. As per responses rural development will enact if better accessibility and means of transport can be initiated to study area.

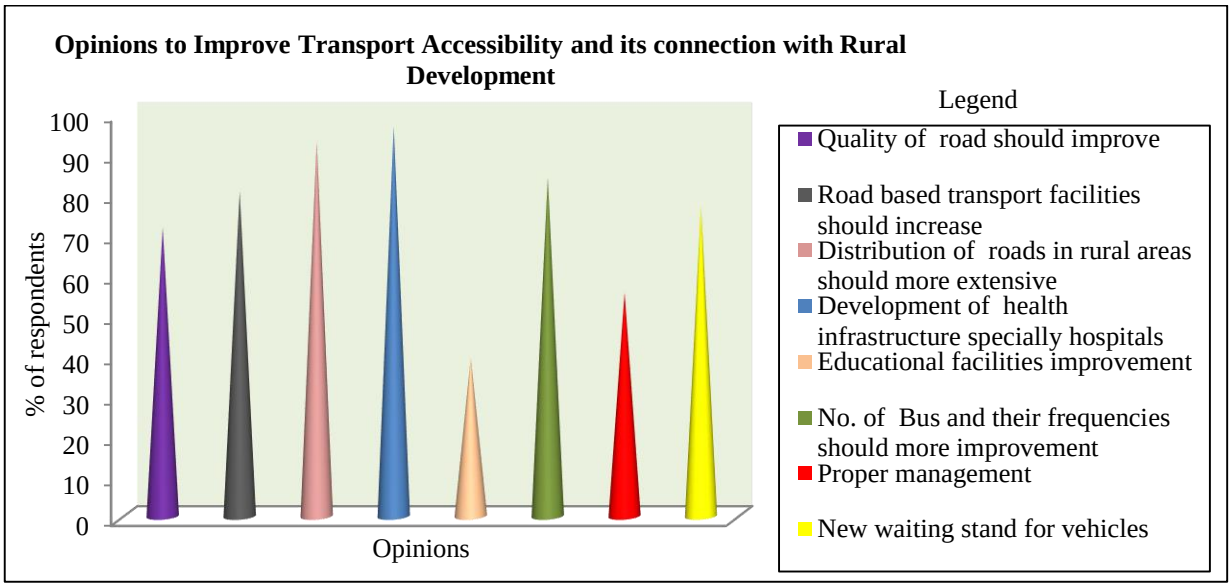


Figure-15; Source: Primary Survey, 2019

About 71 % respondents gave opinion for the improvement of quality of road, 80 % people stated that road based transport facilities should increase, about 93 % respondents said that distribution of roads in rural areas should given more emphasize, about 96 % respondents stated to improve of health infrastructure specially hospitals, according to 39 % respondents educational facilities should improve, about 84 % of respondents opinioned that the number of bus and their frequencies should more improve, 55 % respondents stated that proper management should be initiated and 77 % respondents stated to established new waiting stand for vehicles in individual category.

III. SWOT Analysis:

SWOT refers to Strengths, Weaknesses, Opportunities, and Threats. SWOT Analysis is a technique has been incorporated in the present study to identify all these aspects in the region.

3.1. Strength:

- Transport network very strong in few parts of Bagnan-I CD Block.
- Number of population in the area is very high which may help to contribute for development the region.
- One of the most important Rail Station of south-eastern section of Kharagpur Division is situated in the region named as Bagnan Station which creates Rail-Road interaction in the core part of the region.
- Increasing population tends to urbanize this area in near future.

3.2. Weakness:

- Inadequate Public Transport facilities.
- Qualities of existing roads are in poor conditions in this area.
- Unavailability of transport accessibility throughout the weeks and even after a certain time in a day.
- The whole area is not fully connected by the road.
- Improper management of transport facilities and services.

3.3. Opportunities:

- Enhancement and Extension of Rural Roads to interior remotely located areas.
- Removal of obstacles to Accessibility of public transportation.
- Introduced more comprehensive modes of rapid transportation in minimum fare even after 6p.m.
- Allotments of more funds for roads infrastructure development.
- Removal of uneven distribution of road network.
- Local self government will have to be active to manage and resolve the drawbacks related to transport accessibility of the region.

3.4. Threats:

- The funds which have allocated for total rural development among them the amount for Road Development and road quality improvement are not sufficient to maintain and development.
- The settlement infrastructures within the whole region are in unbalanced condition.
- Mismanagement of funds tends to inappropriate use of funds that lead to poor execution of plans in this region.

IV. CONCLUSION:

Based on present study it is reflects that demographically Bagnan-I C.D block is higher in density of population. But due to uneven distribution of transport network the density of road is highly strikes comparatively low to other regions. Also there is need more investment in hard infrastructure reported especially on expenditure for the road development in the whole region equally. Moreover, there is more expenditure to develop such facility reported from less developed area where the transport facilities lag behind which incur reality of transport networking system is quite uneven throughout the region. The relationship between the development parameters with transport facilities and accessibility of transport is very strong in central part of the region and has a great impact in rural development issues. With increases in transport accessibility the other parameter will also notice a positive change. The connectivity of the region is very low especially in the peripheral part of the region as compare to integral part in the region. The impact of road based public transport is very as larger population depends upon mass transport means. Even though Bagnan-I CD Block reported huge disparity in terms of distribution of various service vehicles and numbers in all the GPs.

REFERENCES:

[1] Chaturvedi, D. P. (2000), "Impact of Transport System on Regional Development in Bundelkhand Area: A Geographical Analysis", 2000.

[2] Baird, A. B. (2005), "Public Infrastructure and Economic Productivity A Transportation-Focused Review", Transportation Research Record: Journal of the Transportation Research Board, 1932(1), pp54–60.

[3] Firoz, S. (2014), "social amenities and regional development in eastern Uttar Pradesh", 2014.

[4] Briceño-Garmendia, C., Moroz, H., and Rozenberg, J. et.al (2015), "Road network, Accessibility and Resilience: The cases of Colombia, Ecuador and Peru", The World Bank, Latin America and the Caribbean region office of the chief economist global practice of transport and ICT.

[5] Samanta, K. Pradeepta. (2015), "Development of Rural Road Infrastructure in India", Pacific Business Review International, (7)11, May 2015.

[6] Saxena, H.M. (2016), "Role of transport in development", Transport Geography, Chapter 8, Rawat Publications, Jaipur, New Delhi, India, 710002.

[7] Brovarone, E. V and Cotella, G (2020), "Improving Rural Accessibility: A Multilayer Approach", Sustainability, Multidisciplinary Digital Publishing Institute, 12(7), pp2876.

[8] Carrel A., Halvorsen, A. and Walker, J. L.(2013), "Passengers' Perception of and Behavioral Adaptation to Unreliability in Public Transportation" Transportation Research Record: Journal of the Transportation Research Board, 2351(1), pp153–162.

[9] Misra, R.P., Sundaram, K.V. and Prakash Rao, V.L.S. (1974), "Regional Development Planning in India - A New Strategy", Vikas, Publishing House, Delhi.

[10] District Census handbook (2011), Haora District, Government of India, 2011

[11] https://bhuvan-panchayat.nrsc.gov.in

[12] https://mis.wbprd.gov.in