

# Rural Road Network in Assam

## Abstract

Despite a broad consensus that high transportation costs are a large barrier to economic development, many of the world's poor live in rural communities without paved roads, impeding their access to outside markets and public services. Hence, the paper aims to analyze the present rural road network in Assam. To find a better picture of rural road in the state, we use four kinds of road development indicator like Rural roads per lakh of rural population, Rural roads per '00 sq km of Rural geographical area, Rural roads as percentage of total roads and Road index. From the data available, we find that availability of rural roads per lakh of rural population is highest in the district N.C.Hills and lowest in Karimganj. The availability of rural roads per hundred square kilometer of the total rural geographical area which ranges from 92.20 km to 22.60 km in the state. We also find that the status of rural road in Assam is better as compared to a number of other developed states.

**Keywords:** Rural Road, Road Network, Road Development and Assam.

## Introduction

Importance of improved road facilities have been recognized by the economist since 18<sup>th</sup> century. According to Adam Smith, Good roads, canals and navigable rivers, by diminishing the expense of carriage, put the remote parts of the country more nearly upon the level with those in neighborhood of the town. Development economist such as Rosenstein-Rodan, Nurkse and Hirschman emphasized more importance in the development of infrastructure. To them infrastructure is an umbrella term for many activities referred to as a 'social overhead capital' which consist of things such as (a) public utilities like power, telecommunication, piped water supply, sanitation and sewerage, solid waste collection and disposal piped gas; (b) other transport sectors such as urban and interurban railways, urban transport, ports and waterways and airports. Hence, to developed economic situation of any country, roads construction should get priority. Therefore, the paper attempts to analysis the present status of rural roads network in Assam.

Road network provides to the arterial network to facilitate trade, transport, social integration and economic development. It facilitates specialization, extension of markets and exploitation of economics of scale. It is used for the smooth conveyance of both people and goods. Transportation by road has the advantage over other means of transport because of its easy accessibility, passenger and freight movement in India over the years have increasingly shifted towards roads vis-à-vis other means of transport. In 2009-10, the road network in the country carried 85.2% of the total passenger movement by roads and railways put together. Similarly, the corresponding figure for freight movement by roads was 62.9%. Therefore, this paper makes an attempt to present a brief description of the existing rural roads network in Assam.

## Objective and methodology

The main objective of the paper is to analysis the present status of rural road network in Assam. The study is completely based on secondary data. Secondary data on quantity and quality of present status of rural roads has been collected from the Directorate of Economics and statistics, Government of Assam. Data on status of rural road infrastructure in other states of the country has been collected from infrastructure statistics, 2013 (available on online) .

The quantity of rural road has been captured in rural roads per lakh of rural population and rural roads per hundred square kilometer of rural geographical area. The district wise analysis of rural road status and their comparison have been made in terms of rural road indices and comparison of rural road status in other states has also been captured in rural roads per thousand of rural population and rural roads per thousand square kilometer of rural geographical area. To get a clearer picture of rural road across the district, the rural road index has been formulated as done by Dr.

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Amoiyo Sharma (2013) following the principles outlined in the UNDP Human Development Report, 2010 for construction of the Human Development Index. The rural road index is consisted of two indicators of rural roads per lakh of rural population and rural roads per hundred square kilometer of rural geographical area of each district. For this purpose, districts are given scores for any attainment out of the scale of difference between the minimum attainment and maximum attainment among the districts recorded in the period 2004 and 2012. During this period the minimum and maximum attainment of rural road per lakh of rural population was 45 km. and 961 km. and rural road per '00 sq.km. of rural geographical area was 16.55 km. and 92.20 km. Then the dimension indices of rural roads per lakh of rural population and rural roads per hundred square kilometer of rural geographical area have been constructed by applying the following equation –

$$\text{Dimension} = \frac{\text{Actual value} - \text{Minimum value}}{\text{Maximum value} - \text{Minimum value}}$$

The geometric mean of these two dimension indices has been taken as the final rural road index. The final rural road index have been captured by using the following equation-

**Road Index**

$$= \sqrt{\frac{\text{Index of Rural Road per Lakh of Rural Population} \times \text{Index of Rural Road per '00 Sq. km. of Rural Geographical Area}}{2}}$$

The recent growth of rural road in Assam has been analysed by using the following growth rate equation –

$$\ln Y = a + bt$$

Where, Y is the Road length and t is the time period.

**The present status of Rural Roads in Assam**

The total geographical area of Assam is 78,438 square kilometers out of which 961.77 square kilometers are urban area while the remaining 77,476.23 square kilometers consists rural areas of the state. As per the provisional estimates of 2011 census, total population of Assam is 3, 11, 69,272 which is around 68.37 percent of the population of the entire North Eastern Region. The construction and maintenance of roads, bridges and culverts in Assam are under the responsibility of the Public Works Department (P.W.D.). Presently, more than 37000 km road network including 1635 km National Highways are under the control of the state P.W.D. The road network in Assam at present is shown in the following table.

**Table :1  
Road Network in Assam**

Sl No	Item	2011-12
1	Surfaced Road	21200
2	Un-Surfaced	24300
3	National Highway	1948
4	State Highway	3134
5	Major District Road	4413
6	Rural Road	36544
7	Urban Road	1409

Source: Office of the chief Engineer.P.W.D. (Roads) Assam.

Excluding the National Highways, 45,500 km road length of State Highways, Major District Roads, Urban Roads, Rural Roads consists of 19252 km is blacktopped roads out of which only 558 km roads are intermediate lane and 132 km are double lane or above. The remaining portion, i.e. 18,562 km blacktopped road length are single lane. Moreover, the large number of submersible stretches and nearly 4000 Semi-permanent timber bridges have hampered all weather road communication in the state. Hence a considerable portion of the speedy development. However, more than 11000 km of road length is under improvement and 1300 nos. of bridges are under the different projects.

Rural road constitutes the highest 77% of the total road length followed by 9% of major district road, 7% of state highway, 4% of national highway and 3% of urban road.

The surfaced road constitutes 44% Of the total road length in the state during the year 2012. This indicates that as against about 58 km per 100 sq. km and about 145 km per lakh of population of total road length available during the year 2012, about 24 km per 100 sq. km of geographical area and about 61 km per lakh of population of surfaced roads are available in the state during the year. On the other hand 56% of unsurfaced (earthen gravel) roads can't be used round the year especially during the rainy season. Therefore, it can be said that the state is now in urgent need of all weather roads.

**Recent Growth of Rural road network in Assam**

Road network in any economy facilitates trade, transport, extension of markets, social integration and economic development. Road network is used for smooth conveyance of people and goods. Transportation by road has many advantages over other means of transport for its easy accessibility, door-to-door service, flexibility of operation and reliability. The rapid increase of the length of rural roads has been observed over the past few years in Assam. Basically, after the construction of the PMGSY scheme, the scenario of the rural road network of Assam has changed. The table: 2 shows the growth of rural road network in Assam.

**Table: 2  
Growth of Rural Road length in Assam**

Year	Rural Roads	Rural Roads Per Lakh of Population	Rural Roads Per '00 Sq. Km of Rural Geographical Area
2004	25148	108.32	32.45
2005	26221	115.82	34.70
2006	26890	115.89	34.72
2007	26907	116.19	34.81
2008	26976	112.94	33.84
2009	27283	117.51	35.21
2010	28753	123.84	37.11
2011	30844	115.17	39.32
2012	36544	136.45	46.58

Source: Statistical Hand Book of Assam, 2004-2012

In the past eight years, from 2004 to 2012, the rural road network in the state increased by 11396 kilometers, from 25148 kilometers in 2004 to 36544 kilometers in 2012. The largest incremental increase

of 5700 was in the year 2012. The growth rate of rural roads over the period was 3.5.

Table: 3 shows district wise availability of roads in the rural areas of Assam. The following table provides the values of road development indicators for

different districts. Here we use four kinds of road development indicator such as rural road length per lakh of rural population, rural road length per '00 sq. km of rural geographical area, percentage of rural road length to the total road length and road index.

**Table : 3**  
**District- wise availability of Rural Roads in Assam, 2012**  
(in km)

District	Rural Roads Per Lakh of Rural Population	Rural Roads Per '00 sq km of Rural Geographical Area	Rural Roads as Percentage of Total Roads	Road Index
Dhubri	69	36.37	87.26 %	0.082
Kokrajhar	193	46.36	88.64 %	0.252
Bongaigaon	148	55.60	88.44 %	0.240
Goalpara	179	75.02	87.35 %	0.336
Barpeta	108	45.53	80.20 %	0.146
Nalbari	155	77.58	80.00 %	0.311
Kamrup	180	71.41	90.00 %	0.326
Darrang	169	69.93	73.63 %	0.309
Sonitpur	141	40.43	80.00 %	0.181
Lakhimpur	100	36.61	75.89 %	0.126
Dhemaji	219	36.24	87.16 %	0.222
Morigaon	123	59.23	79.00 %	0.219
Nagaon	118	61.80	77.21 %	0.218
Golaghat	246	61.40	85.89 %	0.360
Jorhat	207	61.82	83.56 %	0.325
Sibsagar	254	92.20	85.89 %	0.477
Dibrugarh	141	40.74	78.00 %	0.183
Tinsukia	159	39.60	83.79 %	0.194
Karbi Anglong	463	32.13	77.53 %	0.306
N.C.Hills	961	25.42	65.93 %	0.342
Karimgang	57	29.83	57.58 %	0.048
Hailakandi	70	26.66	74.20 %	0.060
Cachar	68	22.60	72.91 %	0.044
Assam	157	47.22	77.49%	0.636

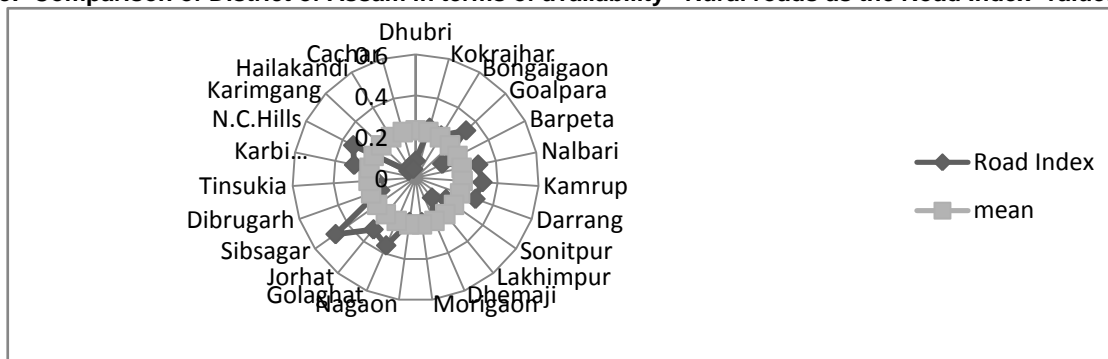
Source: Statistical Hand Book of Assam, 2012  
\*Population and area are as per 2011 census.

Out of total road network, rural road shares 77% in the state. Inter-district differences of rural road length in the state are clearly visible from the table. The availability of rural roads per lakh of population is highest in the district N.C.Hills which is 961 km followed by Karbi-Anglong(463), Sibsagar(254), Golaghat(246) and lowest in Karimganj which is only 57 km. Such differences can also be seen in availability of rural roads per hundred square kilometer of total rural geographical area which ranges from 92.20 km in Sibsagar to 22.60 km in Cachar. Percentage of rural roads to total road length is found the highest in Kamrup district

followed by Kokrajhar, Bongaigaon , Dhemaji and lowest in karimganj district. We can mention here that in the two hill district of Assam where more than 65% roads are rural roads, rural roads per lakh of population are highest but that per hundred kilometer of rural geographical area are very less. This is because of scanty population and existence of areas without roads in the two districts.

Rural road availability, as indicated by the Road Index is the highest in Sibsagar district while the lowest availability is observed in the district of Karimganj. A better comparison of the district in terms of road index may be depicted in figure.

**Figure: Comparison of District of Assam in terms of availability Rural roads as the Road Index values.**



Source: Table 3

As the diagram shows, rural road connectivity in Upper Assam districts are relatively better in except Lakhimpur district. Sibsagar district is occupying higher rural road connecting as indicated by the diagram. Goalpara district is showing a better picture among the lower Assam districts. The rural roads in the two hill districts are in a good position, while the Barak valley district Karimganj, Hailakandi and Cachher are lagging behind than the other district of Assam.

**Rural Roads in Assam and in some other states of India- A Comparison**

The following table- 4 presents rural road availability in Assam and in the other states of India. As evident from the table, the availability of rural roads in Assam is not much discouraging. Rural roads both in terms of per 1000 square kilometre of the total geographical area and per 1000 population. Assam is having 2383.92 kilometer rural roads per 1000 sq. kilometer of total geographical area and 7.25 kilometer per 1000 population in 2008-09 as against the national average of 554.53 kilometer and 0.46 kilometer respectively.

**Table: 4**  
**State-wise availability of Rural Roads in India**

States	Rural Road in 2008-09	
	Per 1000 sq km	Per 1000 population
Andhra Pradesh	520.93	2.34
Arunachal Pradesh	-	5.01
Assam	2383.92	7.25
Bihar	1037.92	1.13
Chhattisgarh	235.36	1.71
Goa	1397.03	6.24
Gujarat	259.30	1.43
Haryana	72.70	0.19
Himachal Pradesh	138.13	1.29
Jammu & Kashmir	15.77	0.42
Jharkhand	38.91	0.13
Karnataka	822.86	4.16
Kerala	4340.24	6.10
Madhya Pradesh	246.02	1.46
Maharashtra	379.80	1.91
Manipur	222.67	2.78
Meghalaya	62.52	0.68
Mizoram	74.02	3.26
Nagaland	1322.74	11.96
Odisha	1120.89	5.12
Punjab	1120.66	3.12
Rajasthan	252.62	1.70
Sikkim	-	4.12
Tamil Nadu	861.51	3.19
Tripura	1494.55	5.38
Uttarakhand	39.78	0.30
Uttar Pradesh	314.49	0.49
West Bengal	1972.09	2.68
Union Territories		
Daman & Diu	1252.26	0.62
Punducherry	3530.19	0.96
All India	554.53	0.46

Source: Infrastructure statistics, 2013

Although the status of rural road in Assam is better as compared to a number of other developed states like Maharashtra, Goa, Gujarat, West Bengal and Punjab, it is lagging behind Kerala and Punducherry. The other states of the North-East are lagging behind Assam.

**Conclusion**

Assam is a state of India which is mostly consisted of rural areas. Out of its total geographical area, 99% of rural areas that are the living place of 86% Of its total population. Therefore, it clearly indicates the importance of improvement of rural roads for the development of rural economy of the state. But the rural roads in some areas of Assam are observed unusable during the rainy season. The wooden bridges constructed decades ago have dilapidated and no efforts have been made to repair or to convert them to concrete bridges. It is observed that there exist differences in terms of availability of rural roads across districts of the state.

Initiatives have been taken by the central and state governments to improve the status of rural road in the state through implementation of a number of projects. Funds have been allocated to develop and create such facility in rural areas under various schemes. Funds have also been allocated for rural road construction under the five year plan. Specially after the implementation of PMGSY (Pradhan Mantri Gram Sadak Yojana), the scenario of rural road has been changed. Despite the implementation of such scheme, there still remains a gap between the rural and urban areas of the state in terms of roads facility.

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