



An analysis of Development of roads in North East India

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India has the second largest road network in the world, spanning a total of 58.98 lakh kms. In the World after the USA which has a road network of 66.45 lakh kms. as on 31.03.2017. This road network transports 64.5 % of all goods in the country and 90% of India's total passenger traffic uses road network to commute¹. Road transportation has gradually increased over the years with improvement in connectivity between cities, towns and villages in the country. In India, sale of automobiles and movement of freight by roads is growing at a rapid rate.

Development and maintenance of roads are undertaken by various agencies of both Central and State Government. The Ministry of Road Transport & Highways is primarily responsible for development and maintenance of National highways, which has increased from a length of 70934 km in 2010-11 to 114158 km as on 31.03.2017². The classification of road network is given in Table 1.1

Table 1.1- Road Network by Categories (in kms) - 1950-51 to 2016-17

Road Category	1950-51	1960-61	1970-71	1980-81	1990-91	2000-01	2010-11	2013-14	2016-17
National Highway	19811 (4.95)	23798 (4.54)	23838 (2.61)	31671 (2.13)	33650 (1.45)	57737 (1.71)	70934 (1.52)	91287 (1.69)	114158 (1.94)
State Highway	^	^	56765 (6.20)	94359 (6.35)	127311 (5.47)	132100 (3.92)	163898 (3.50)	170818 (3.16)	175036 (2.97)
District Roads	173723 (43.44)	257125 (49.02)	276833 (30.26)	421895 (28.40)	509435 (21.89)	736001 (21.82)	998895 (21.36)	1082267 (20.03)	586181 (9.94)
Rural Roads (*)	206408 (51.61)	197194 (37.60)	354530 (38.75)	628865 (42.34)	1260430 (54.16)	1972016 (58.46)	2749804 (58.80)	3304328 (61.16)	4166916 (70.65)

Urban Roads	0	46361 (8.84)	72120 (7.88)	123120 (8.29)	186799 (8.03)	252001 (7.47)	411679 (8.80)	457467 (8.47)	526483 (8.93)
Project Roads	0	0	130893 (14.31)	185511 (12.49)	209737 (9.01)	223665 (6.63)	281628 (6.02)	296319 (5.48)	328897 (5.58)
Total	399942	524478	914979	1485421	2327362	3373520	4676838	5402486	5897671

Source: Basic Statistics of India, 2016-17

Note: Figure in parenthesis indicate percent to total road length.

(*)- Total includes 9 lakh km of Rural roads constructed under Jawahar Rozgar Yojana.

The Table 1.1 shows that the total road length of the country increased from 3.99 lakh km to 58.98 lakh km from 1951 to 2017 with compound annual growth rate of 4.2%. It shows the development in country's road network.

The table also clear that the length of road network in all categories has increased from 1950-51 to 2016-17 but growth rate of National Highways, State Highways, District Roads and Project Roads has decreased from 1950-51 to 2016-17. On the other hand, the growth rate of Rural Roads has increased, while there is not much changes in the growth rate of Urban Roads.

When it is compared with the road network of North East India, it is found that the development of road network is still not up to the mark in North East Indian States. Total road length (in kms) in North East India (excluding JRY roads) is given in Table 1.2.

Table 1.2- Road Length in North East India States with percentage

S. No.	North East States	Total road length	Percentage share of total
1	Arunachal Pradesh	37025	0.74
2	Assam	337777	6.78
3	Manipur	27612	0.55
4	Meghalaya	22939	0.46
5	Mizoram	11012	0.22
6	Nagaland	36239	0.725
7	Tripura	42925	0.86

Source: Basic Statistics of India, 2016-17

The table 1.2 shows that the percentage share of road length of North East states to the total road length in India is low, only Assam state showed satisfactory percentage share with 6.78% in the year 2017, whereas Mizoram showed a very less percentage share of total road length that is 0.22%. Thus, the development of roads in North East States is still a very demanding aspect.

State wise length National Highways:

National Highways are the principal arterial routes connecting the Union capital with the State capitals, major ports and various highways and meet the strategic needs of the defense of the country. The Ministry of Road Transport & Highways is primarily responsible for development and maintenance of National highways. On the basis of National Highways length comparison, it is found that Uttar Pradesh has the maximum length of NH followed by Rajasthan and Andhra Pradesh which was 7863 kms, 7806.2 kms and 7068.15 kms respectively in the year 2014 which has increased in the year 2017 but still not up to the mark³. The North East States wise length of National Highways (in kms) as on 31.03.2017 is given in table 1.3

Table 1.3- State Wise length of National Highways (in kms):

S. No.	North East States	Length of NH	Percentage share of NH
1	Arunachal Pradesh	2513	2.2
2	Assam	3844	3.4
3	Manipur	1745	1.5
4	Meghalaya	1203	1.1
5	Mizoram	1382	1.2
6	Nagaland	1173	1.0
7	Tripura	806	0.7

Source: Basic Statistics of India, 2016-17

The table shows that the length of National Highways is the highest in Assam followed by Arunachal Pradesh and Manipur which is 3.4%, 2.2% and 1.5% respectively and the lowest in Tripura that is 0.7%. As it is known that National Highways comprise of 1.94% of total road network in India, so the connectivity through National Highways is very less in Tripura and other North East States also.

State wise length of State Highways:

State Highways Connect State capitals with district headquarters and important cities and towns within the State, the National Highway and the highway of the adjacent States and meet the needs of the traffic to and from the districts. The total length of State Highways as on 31.03.2017 is 175036 kms⁴. The North East States wise length of State Highways (in kms) as on 31.03.2017 is given in table 1.4

Table 1.4- State Wise length of State Highways (in kms):

S. No.	North East States	Length of SH	Percentage share of SH
1	Arunachal Pradesh \$	8123	4.64
2	Assam	2530	1.45
3	Manipur	715	0.41
4	Meghalaya	772	0.44
5	Mizoram	170	0.097
6	Nagaland	722	0.41
7	Tripura	329	0.19

Source: Basic Statistics of India, 2016-17

State Highways are constructed by State PWD/ Roads & Bridges Deptt.

Note: \$ Figure for Arunachal Pradesh pertain to roads under State PWD. Arunachal Pradesh has not met yet official classification of State Roads into State Highways, Major District Roads (MDR) and Other District Roads (ODR).

The table shows that Arunachal Pradesh showed the highest length of State Highways followed by Assam, whereas Mizoram showed the lowest length. Manipur and Nagaland showed almost equal percentage share of length of State Highways that is 0.41%.

State wise length of Districts Roads:

Major District Roads: take the traffic the main roads to the interior of each district and rural area and to smaller units. They connect the areas of production and markets with each other as well as with the other highways and railways. These are metalloid roads and have a higher standard and specification.

Other District Roads: They are relatively lower specification and design.

State highways and major district roads are important as they constitute the secondary system of road transportation and contribute to the rural economy and industrial growth of the country.

The table 1.5 shows length of district roads of North East States of India.

Table 1.5- **State wise length of Districts Roads**

S. No.	North East States	Length of DR	Percentage share of DR
1	Arunachal Pradesh \$	5345	0.91
2	Assam	4379	0.75
3	Manipur	9467	1.62
4	Meghalaya	5095	0.87
5	Mizoram	1750	0.3
6	Nagaland	6467	1.10
7	Tripura	1189	0.20

Source: Basic Statistics of India, 2016-17

Note: \$ Figure for Arunachal Pradesh pertain to roads under State PWD. Arunachal Pradesh has not met yet official classification of State Roads into State Highways, Major District Roads (MDR) and Other District Roads (ODR).

The table shows that Manipur state showed the highest length of District Roads followed by Nagaland and Arunachal Pradesh which is 1.62%, 1.10% and 0.91% while Tripura showed the lowest length of District Roads that is 0.20%.

State wise length of Rural Roads:

Rural Roads: Connect villages or groups of villages with each other and the nearest district roads and other main highways, railway stations and river ghats. These roads form the basic infrastructure in the matter of linkages to villages and rural areas.

Table 1.6- State wise length of Rural Roads:

S. No.	North East States	Length of RR	Percentage share of RR
1	Arunachal Pradesh	15872	0.49
2	Assam	300123	9.19
3	Manipur	14642	0.45
4	Meghalaya	14640	0.45
5	Mizoram	6369	0.19
6	Nagaland	26886	0.82
7	Tripura	38560	1.18

Source: Basic Statistics of India, 2016-17

Note: The Rural Roads comprise of PMGSY, rural roads built by State PWD/ RWD & those constructed by Panchayati Raj Roads.

The table shows that Assam State showed the highest length of Rural Roads that is 300123 kms with percentage share of 9.19% followed by Tripura (1.18%) and Nagaland (0.82%) while the lowest percentage share showed in Mizoram with only 0.19% share.

State wise length of Urban Roads:

Table 1.6- State wise length of Urban Roads:

S. No.	North East States	Length of UR	Percentage share of UR
1	Arunachal Pradesh \$	576	0.11
2	Assam	6319	1.20
3	Manipur	151	0.029
4	Meghalaya	170	0.03
5	Mizoram	312	0.06
6	Nagaland	100	0.02
7	Tripura	602	0.11

Source: Basic Statistics of India, 2016-17

Note: The Urban Roads comprise of Municipal Roads, Military Engineering Service Roads; Major and Minor Port roads in Railway Zones.

The table shows that the length of Urban Roads was very less in all North East States like: Nagaland, Manipur and Mizoram.

The length of Urban Roads was only 100kms in Nagaland, 151 kms in Manipur and 170 kms in Meghalaya with percentage share of only 0.02%, 0.029% and 0.03% respectively. Thus, there is very less urban roads in these states. So for the development and improving connectivity with other states of India, it is very compulsory to develop roads in these states.

State wise length of Project Roads:**Table 1.6- State wise length of Project Roads:**

S. No.	North East States	Length of PR	Percentage share of PR
1	Arunachal Pradesh \$	4597	1.4
2	Assam	20582	6.26
3	Manipur	891	0.27
4	Meghalaya	1058	0.32
5	Mizoram	1030	0.31
6	Nagaland	890	0.27
7	Tripura	1439	0.44

Source: Basic Statistics of India, 2016-17

Note: The Project Roads comprise at Forest Roads, roads of Border Roads Organisation, Coal Department, Electricity, Irrigation, Sugarcane Department and Steel Authority of India Limited and National Mineral Development Corporation.

The table shows that length of Project Roads is the highest in Assam (20582) with percentage share of 6.26% followed by Arunachal Pradesh (1.4%) while the lowest percentage share in Manipur i.e. 0.27%

Road Accidents in India:

The third Global Ministerial Conference on Road Safety was held in Stockholm, Sweden on 19 and 20 February, 2020. At this conference, all the participants including India reaffirmed their strong commitment for achieving the goals of reducing road accident related deaths by at least 50% by 2030.

Road traffic continues to be major developmental issues, a public health concern and s a leading cause of death and injury across the World killing more than 1.35 million globally as reported in the Global Status report on Road Safety 2018with 90% of these casualties taking place in the developing countries.

Road accidents in India kill almost 1.5 lakh people annually. Accordingly, India accounts for almost 11% of the accident related deaths in the World⁵.

There are many factors that cause road accidents like: human error, road environment and vehicular condition. These factors act in an interactive manner to cause road accidents.

The position in respect of road accidents, number of persons killed and injured in the last five years given in the Table 1.7.

Table 1.7: Road accidents, Number of persons killed and injured in the last five years 2015-2019

Year	Total Number of Road accidents (in numbers)	% change	Total Number of persons killed (in numbers)	% change	Total Number of persons injured (in numbers)	% change
2015	501423		146133		500279	
2016	480652	-4.14	150785	3.18	494624	-1.13
2017	464910	-3.28	147913	-1.90	470975	-4.78
2018	467044	0.46	151417	2.37	469418	-0.33
2019	449002	-3.86	151113	-0.20	451361	-3.85

Source: Road accidents in India, 2019

It is clear that in 2019 a total of 449002 road accidents were reported in the country killing 151113 people and causing injury to 451361 persons. It translates into an average of 1230 accidents and 414 deaths everyday and nearly 51 accidents and 17 deaths every hour.

As far as North East is concerned, it may be seen that North East States accounted for about 2.4 % of accidents, 2.6 % of killing and 2.3 % of the injured.

Table 1.8: Road accidents, Number of persons killed and injured in North East States during the year 2019

S. No.	North East States	Accidents	% Share	Killed	% Share	Injured	% Share
1	Arunachal Pradesh	237	0.1	127	0.1	309	0.1
2	Assam	8350	1.9	3208	2.1	7473	1.7
3	Manipur	672	0.1	156	0.1	1055	0.2
4	Meghalaya	482	0.1	179	0.1	222	0.0
5	Mizoram	62	0.0	48	0.0	56	0.0
6	Nagaland	358	0.1	26	0.0	246	0.1
7	Tripura	655	0.1	239	0.2	816	0.2
Total North East		10816	2.4	3983	2.6	10177	2.3

Source: Road accidents in India, 2019

The table shows that the value and percentage share in total road accidents, no. of persons killed and injured was less in North East States as compared to other states of India.

Conclusion:

The analysis of the paper revealed that infrastructure is the foundation for development of any country. It serves as a support system to all production activity in the economy.

The length of National Highways, State Highways and Major District Roads have increased in absolute terms but their growth rate have been decreased from 1950-51 to 2017 and sometimes there was fluctuations in the growth rate.

It is also clear from the above analysis that the length of National Highways, State Highways, Major District Roads, Rural Roads, Urban Roads and Project Roads was very less in all North East States and also their percentage share was also low. On the other hand, number of Road accidents, Number of persons killed and injured in North East States during the year 2019 was also less.

Thus, we can conclude that for the development of all North East States, there should be proper planning and management. The suggestions for the improvement of roads and road transport system are:

- a. The Government should design a definite policy for the improvement of road sector. Sufficient amount of fund should be earmarked for the construction and maintenance of roads.
- b. Considering the present requirement, private sector participation in the road sector in Built-Operate-Transfer basis should be encouraged.
- c. Steps should be taken for proper maintenance of the existing roads within the shortest possible time.
- d. Steps should be taken for technical improvement of the road transport sector. The means for road transport such as motor vehicles, trucks, buses, cars etc. should adopt full efficiency technology.
- e. The state transport corporation should be made autonomous so that they can manage their affairs freely without any interference from the Government.
- f. Steps should be taken for improving the quality of roads.
- g. Steps should be taken for increasing connectivity in rural areas. For this, rural roads must be constructed and maintained time to time.
- h. The Government should make higher attention for the development of road and road transport sector and there should be high investment for their development.
- i. Surfaced roads should be increased.
- j. Efforts to increase the State Highways should be made.
- k. Efforts should be made to connect scattered areas with roads and opportunities for road transport should also be made available therein.
- l. Roads should be developed in such a manner that there will be no deforestation and loss of agriculture land.

REFERENCE:

1. Basic Statistics of India, 2016-17, pg.1
2. Basic Statistics of India, 2016-17, pg.2
3. Basic Statistics of India, 2016-17, pg.8, 35
4. Basic Statistics of India, 2016-17, pg.11, 37
5. Road accidents in India, 2019, pg.11,12

