

TRENDS IN GROWTH OF ROADS DEVELOPMENT PROGRAMMES IN INDIA SINCE - 1943

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ABSTRACT

Road is the artery of a nation which enabling living conditions in not only rural areas also whole world. A good road network constitutes the basic infrastructure that propels the development process through connectivity and opening up the backward regions to trade and investment. The distribution of socioeconomic benefits will be distributed equitably between the poor and the nonpoor communities by the road development. In this study investigates the last seventy five years the adopted and introduced various roads development programme by the Government of India. In the rural road projects studied, their ability to affect the distribution of assets and the skills capacity of the poor was limited and largely outside their scope.

Keywords: Propels, Equitably, Ability

Introduction:

Social integration of the nation increases due to easy, safe and efficient road transportation. Road transport has gained higher share of both passenger and freight traffic compared to other modes of transport due to easy accessibility and reliability. To cater the increasing needs of a growing economy like India and increase in demand for transport services, it is required to expand, develop and improve road networks. Rural roads are the primary road system in total road network which provides accessibility for the rural habitations to market and other facility centres. In India, since independence, rural roads are being planned and programmed in the context of overall rural development, and targeted to provide all weather roads with some level of achievement. The long term road development plans for the country provided policy guidelines and priorities for rural roads, while the funds for rural roads were allocated increasingly high in the every Five Year Plans. With an aim to provide connectivity to all unconnected villages, Government of India constituted a National Rural Road Development Committee (NRRDC) during the year 2000. The Committee has also been assigned to identify the road length required

for total connectivity, the detailed specifications for construction of all weather road, fund requirement and suggestions for implementation mechanism. On recommendations of the NRRDC, recently the Government of India has undertaken a dedicated programme known as 'Pradhan Mantri Gram Sadak Yojana (PMGSY)' to provide rural connectivity to all habitations under the Ministry of Rural Development. More recently, a flagship programme of Government of India conceived as time bound business plan to provide rural infrastructures during 2005-06 to 2008- 09. Six major rural infrastructures namely, rural roads, telephone connection, irrigation, water supply, housing and electrification were identified and over Rs. 1,74,000 crore was earmarked for the development.

In addition PMGSY/Bharat Nirman programmes of Government of India focused on future planning and engineering issues for providing, multiple connectivity, intra village road development, performance based design, utilisation of locally available and waste materials in rural road works, research and development needs and resources mobilization.

Aims and Objectives:

The study was limited in its objectives. The objectives of the study are specially emphasized to find out the history of road development in India since pre-independence. Within this the overall objectives are as follows:-

- 1) To show the nature and characteristics of roads
- 2) To show the development of roads in India

Methodology:

The approach of the study is mainly descriptive in nature. Secondary data are collected from all available public documents, reports and published books and articles have been utilized as secondary data.

Concept/ Meaning of Rural Roads and its type:

The term road has a very wide meaning. Any stretch of land joining two termini is a road. It may be quite narrow, muddy and short (as is common within villages). It may be wide, high leveled, metalled and long winding. Streets, highways and such other terms are used to denote different categories of roads. A road may be defined as a convenient pathway over which vehicles and pedestrians can move freely and cover the distance between the starting point and the ultimate destination.

The classification of roads in a country is very essential for their efficient construction, maintenance and development. According to the method of construction, roads can be classified as following;

(1) *Metalled Roads*: Tarred or cemented roads constructed for carrying heavy loads are known as metalled roads.

(2) *Unmetalled Roads*: The lower type of roads without proper surfacing and constructed with Kankar, etc., are known as unmetalled roads. All small towns in India are generally served by such roads which are subject to great wear and tear and have a higher cost of maintenance.

(3) *Earth Roads*: These are Katcha roads, but suited for bullock-cart existing in villages. They are practically unmotorable. Roads are also classified as '*motorable*' and '*unmotorable*' according to their suitability to mechanical transport.

History of Road Development:

Since 1940's the Government of India and the State Government had drawn several policies, programmes and conceived various schemes under the Five Year long-term Plans for the development of rural roads in India and funds were allocated in this rural development programmes/schemes.

Jayakar Committee (1929):

Under the colonial rule, the early British Emperor interest was only in maintaining roads of military and administrative requirements. The advent of the railways, owned and operated by British companies, led to a decline of the road system. The improvement of the roads was confined only to the feeder roads that led to and supported the railways. The Government of India appointed the Jayakar Committee, whose report was a major landmark as it signified the first organised effort at road building at the national level. It was on the recommendation of this committee that the role of the Central Government in regard to development of road system was recognised. The Central Road Fund was created from an additional duty of 2 annas (12.5 paise) per gallon levied on petrol in 1929.

Indian Roads Congress:

As a follow-up to a recommendation of the Jayakar Committee, in the year 1934 the Central Government, after consulting the State governments, convened the first meeting of highway engineers in New Delhi. This event marked the birth of the Indian Roads Congress (IRC). The IRC is a body of engineers from both the government and the private sectors as also academic

and research institutions dealing with roads. The principal objectives of the IRC are: to provide a national forum for projecting the collective opinion of its members on all matters relating to planning, design, construction and maintenance of roads. Besides, the IRC also suggests improved methods of administration, planning operation and use of roads. It has been closely associated with long-term road planning and has formulated the Nagpur Plan (1943-61), Bombay Plan (1961-81), Lucknow Plan (1981-2001) and the recent Road Development Plan: Vision 2021.

Nagpur Plan (1943-61):

In 1943, at Nagpur Chief Engineers-in-charge of roads in the country met to consider requirements of the road system over a twenty-year period, which resulted in the famous Nagpur Plan. This Plan classified the name of various types of roads as national highways, state (or provincial) highways, district roads and village roads, and prescribed standards, norms and targets for road development of various categories. In agriculturally developed areas, the target set was that no village should be more than two miles away from a road or more than five miles from a main road, the average distance from a main road being less than two miles. In nonagricultural and less developed areas, accessibility was to be within five miles from a road and not more than twenty miles from a main road, the average distance being six to seven miles in most cases. A road density of 26 miles per 100 sq miles (16 km per 100 sq km) was the target for 1961.

Bombay Plan (1961-81):

In 1957, Chief Engineers-in-charge of Road and Bridge Development of the Central and State Governments met to introduce a new road plan for long term project in 20 years, starting from 1961, popularly this programme is known as the Bombay Plan. It envisaged that no village should be more than one-and-a half miles from any road in developed agricultural areas, three miles from any road in semi-developed and five miles from any road in underdeveloped and uncultivable area.. The Bombay Plan target was to achieve an overall density of 32 km of roads per 100 sq km of area; (44 km roads developed for agricultural areas; 19 km for semi-developed areas, and 12 km for under-developed areas).

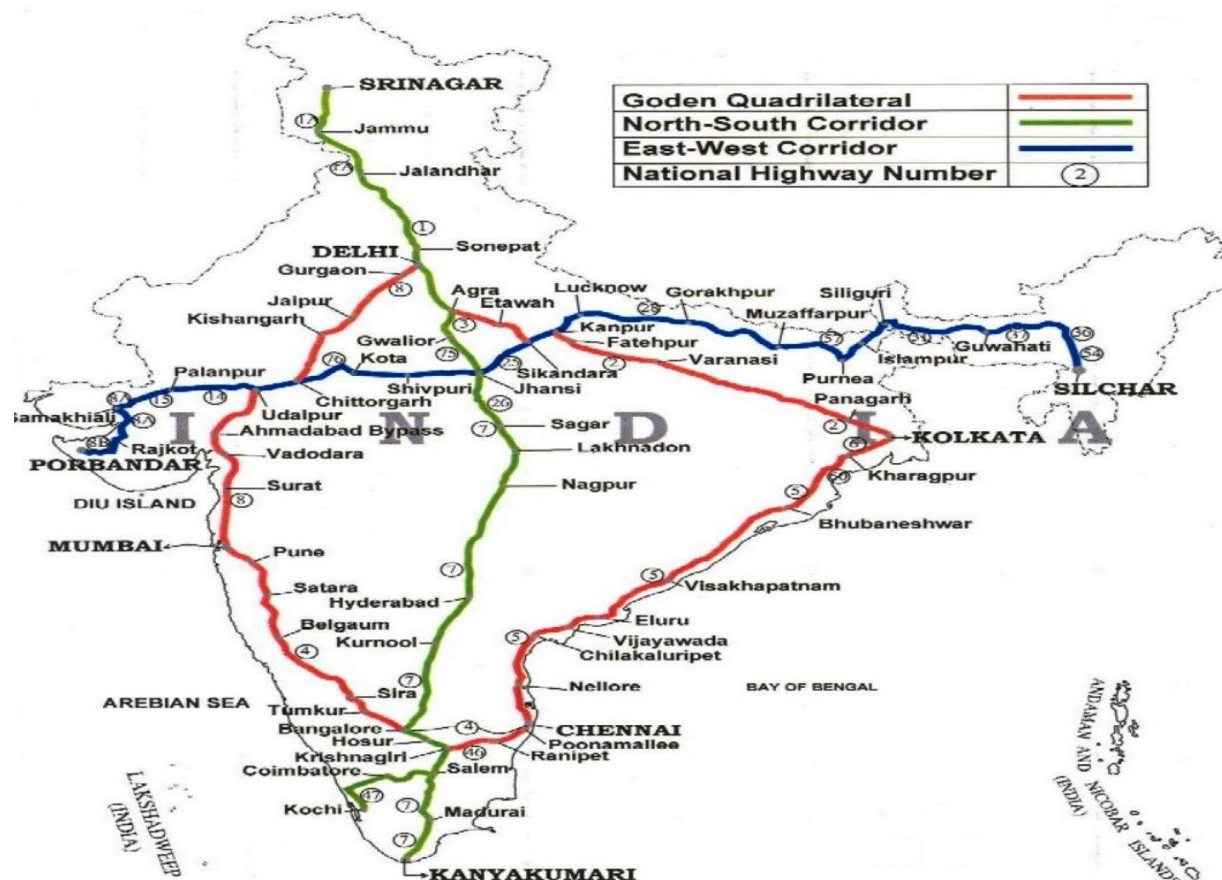
Lucknow Plan (1981-2001):

In this plan, all relevant factors, such as (i) the urgent social need to connect rural, hilly, tribal and backward areas with administrative, market, health and educational centres, (ii) security requirements, (iii) traffic needs (iv) need for effecting fuel economy through provision of good roads, and (v) requirements for non-mechanised traffic, such as that of bicycles, cycle-rickshaws

and bullock carts were given due weightage and competing claims judiciously balanced. The Lucknow Plan laid down an overall target of 27 lakh km road network, a road density of 82 km per 100 sq km of area by the end of year 2001.

Golden Quadrilateral:

The project was launched in 2001 by Prime Minister Atal Bihari Vajpayee under the National Democratic Alliance (NDA) Government and was planned to complete in January, 2012. It is the largest Highways Project in India and the fifth longest in the world at 5846 km with four-six lane express highways. It forms a quadrilateral connecting to India’s four top metropolitan cities Chennai, Mumbai, Delhi and Kolkata. Other major cities are also connected by this network are Ahmedabad, Bengaluru, Bhubaneswar, Jaipur, Kanpur, Pune, Surat, Vijaywada, Ajmir, and Vizag. India's government had initially estimated that the Golden Quadrilateral project would cost 600 billion Rupees (US\$10 billion) at 1999 prices. However, the highway has been built under-budget. As of August 2011, cost incurred by Indian government was about half of initial estimate, at 308.58 billion Rupees (US \$5.1 billion).



Bharatmala project:

August 29, 2017 Bharatmala is an aspirations road and highways project for a Government road construction scheme with total investment estimated at Rs 10 trillion largest ever outlay garlanding the region of India. It focuses on the new initiatives like development of Border and International connectivity roads, Coastal & Port connectivity roads, improving efficiency of National Corridors, Economic Corridors and others. Comprises of Economic corridors Inter Corridor, Feeder Routes, International Connectivity and Coastal Roads special emphasis on connecting far-flung rural area including the tribal and backward areas. This project focus is on economic corridors (9,000 km) is expected to ensure that investments are targeted at economic returns. The ambitious project also plans to create new industrial corridors and urban centres, which should enhance economic activity in the country. In GQ Project 300 districts that are linked to national highways at present, Bharatmala will connect 550 more to the National grid. The government also expects that 70-80 per cent of freight traffic will move on national highways, up from 40 per cent now. Bharatmal is spread over from west to east 5300 Km Gujrat to Mijoram and Rajasthan move to Punjab and string of Himalayan States- Jammu Kashmir, Himachal Pradesh, Uttarakhand and border of Uttarpradesh to West Bengal, Sikim, Assam, Arunachal Pradesh and Indo- Mayanmar boarder in Manipur and Mizoram. The total road length under Bharatmala to be around 51000 Km. In the 1st phase 29000 km will be developed with an outlay of Rs 5.5 trillion.



Road Development Plan Vision: 2021:

The Road Development Plan Vision 2021 was prepared with the full involvement of the highway profession both the government and the private sector and represents an expression of the intent for highway development in the last two decades from 2001. This vision of this plan is (1) (PSP Model) Private Sector Participation is to encouraged to take development of roads by giving some special incentives (2) mobilization of financial funds for road infrastructure which includes increase in road funds, (3) financing of roads by toll plaza, (4) special emphasize to boost up village roads, (5) strengthening the pavement to cope with movement of heavy commercial vehicles, (6) increasing lanes, (7) lastly maintenance of existing roads assets, and road safety have been given special attention.

Table No. 1: Targets and Achievements in the Road Development Plans Length in Km

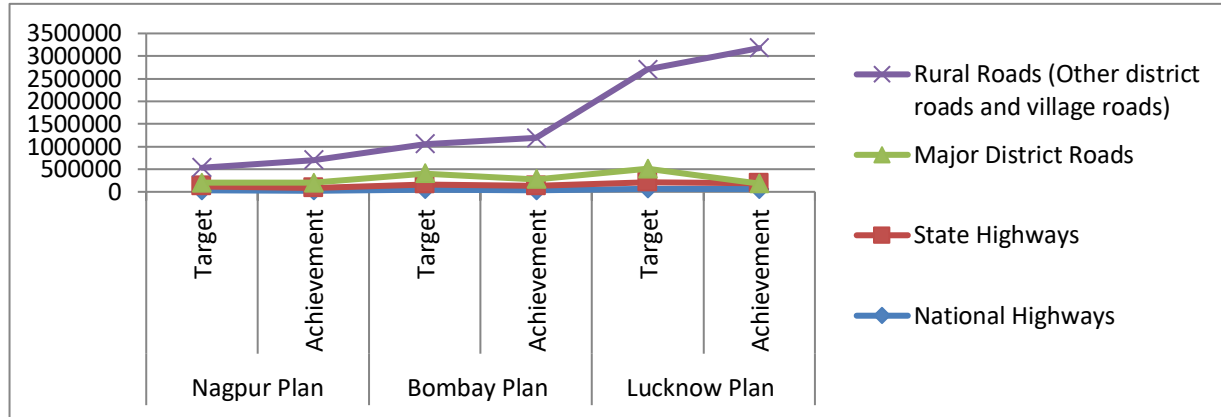
Sl. No	Road Category	Nagpur Plan (1943-1961)			Bombay Plan (1961-1981)			Lucknow Plan (1981-2001)		
		Target	Achievement	% of work	Target	Achievement	% of work	Target	Achievement	% of work
1	National Highways	33395	22636	67.78	51500	31737	61.63	66000	57700*	87.42
2	State Highways	86825	62052	71.47	112650	95491	84.77	145000	124300	85.72
3	Major District Roads	80115	113183	1.41	241400	153000	63.38	300000		
4	Rural Roads (Other district roads and village roads)	332335	500802	1.51	651780	912684	1.40	2189000	2994000*	1.37
	Total	532770	698973	1.31	1057330	1192912	1.13	2700000	3176000	1.18

Source: Rural Road Development Vision 2025 (Draft)

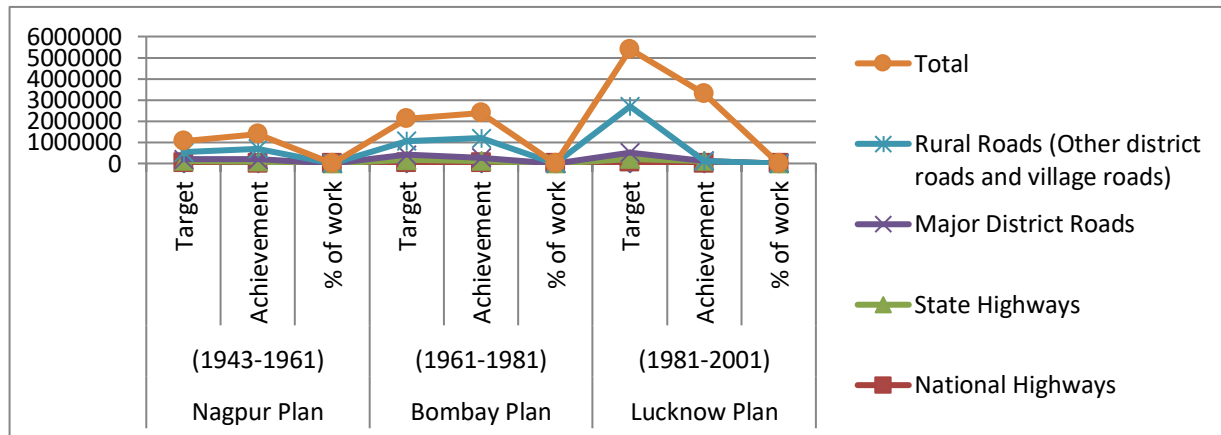
** Currently the length of National Highways is 66590 km (100%)

* includes 1000000 Km of earth tracks, mostly under the employment generations programmes.

Targets and Achievements in the Road Development Plans Length in Km



Targets & Achievements Percentage of work in Road Development Plans Length in Km

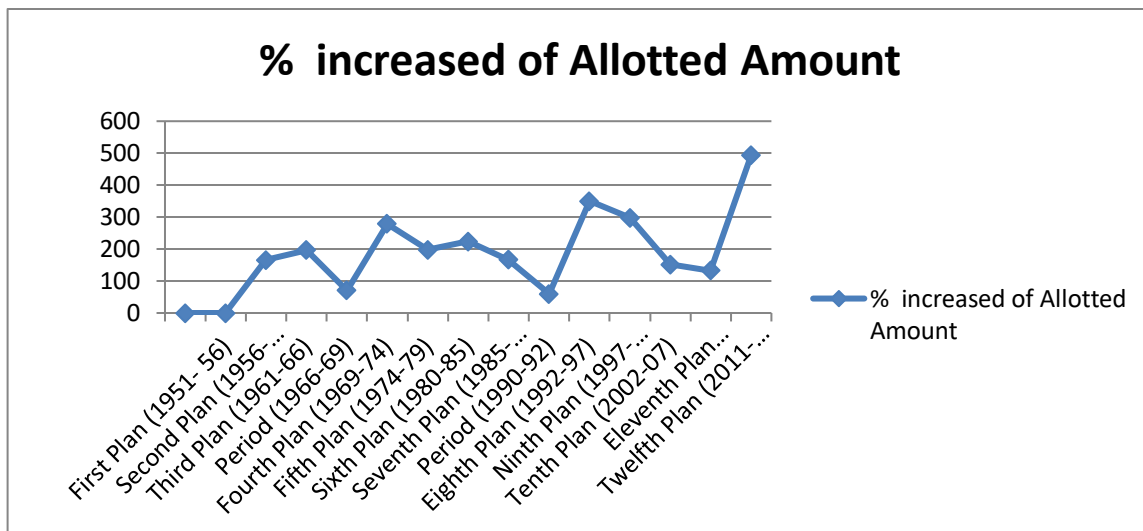


From the above Table No- 1 can infer that targets of National Highways and State Highways were not achieved but at present the National Highways are reached almost in 100% targets where as major district roads are only reached in above targets in Nagpur Plan and rural roads targets were fulfilled throughout Plan period. For that reason targets of rural roads to give more emphasize since pre and post-independence. Following Table No-2 gives a broad profile of road network achieved as a result of investments in the road sector since 1951.

Table No. 2: Investment in Roads (in Crores)

Five Year Plan Period	Allotted Amount (Rs)	% increased of Allotted Amount
First Plan (1951- 56)	135	
Second Plan (1956-61)	224	165.93
Third Plan (1961-66)	440	196.43
Period (1966-69)	309	70.23
Fourth Plan (1969-74)	862	278.96
Fifth Plan (1974-79)	1701	197.33
Sixth Plan (1980-85)	3807	223.81
Seventh Plan (1985-90)	6335	166.40
Period (1990-92)	3779	59.65
Eighth Plan (1992-97)	13210	349.56
Ninth Plan (1997-2002)	39331	297.74
Tenth Plan (2002-07)	59490	151.25
Eleventh Plan (2007-2011)	79000	132.80
Twelfth Plan (2011-2016)	390000	493.67
Average Increased	42789.79	

Source: Planning Commission and IRC Road Development Plan Vision 2021



In this table it is shown that investment of roads throughout Plan period is gradually increasing trend. In Twelfth Plan the allotment of fund is too much high than other plan period whereas in two gap periods 1966-69 and 1990-92 are low allotment of funds. It is inferred that the Government of India always emphasize the development of roads and for that allotment of funds is regularize. In the next Table No-3 it is shown that after investment of funds the progress of roads network is below.

Table No. 3: Progress of Road Network

	('000 km)						
	1950-51	1960-61	1970-71	1980-81	1990-91	2000-01	2005-06
Total Length	400	515	915	1485	2327	3176	3316
Of which Surface Length	156	234	398	684	1090	1600	1700
National High Ways	22	23 (1.05%)	24 (1.04%)	32 (1.33%)	34 (1.06%)	58 (1.71%)	67 (1.16%)
State Highways	45	62 (1.38%)	70 (1.13%)	95 (1.36%)	127 (1.34%)	124 (.98%)	132 (1.06%)
Major District Roads & Rural Roads	333	429 (1.29%)	821 (1.91%)	1358 (1.65%)	2166 (1.59%)	2994 (1.38%)	3117 (1.04%)
Percentages of Villages with population above 1000 connected with all weather roads	32%	36%	40%	46%	73%	90%	92%
Overall village Accessibility	20%	22%	25%	28%	44%	54%	60%

Source: Basic Road Statistics, Planning Commission and Road Development Plan Vision: 2021

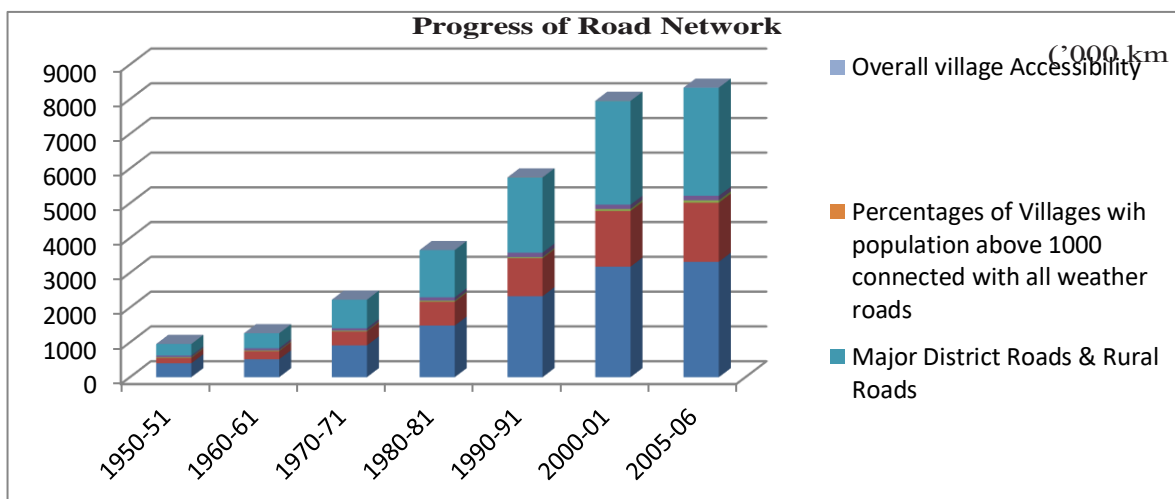
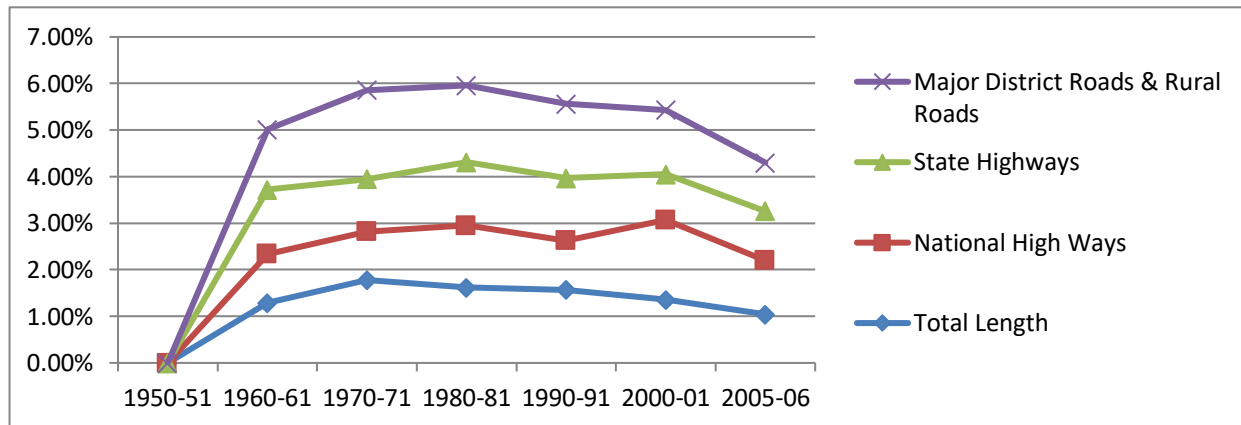


Table No. 4: Progress of Road Network in Percentage

	1950-51	1960-61	1970-71	1980-81	1990-91	2000-01	2005-06	Average Progress
Total Length		1.29%	1.78%	1.62%	1.57%	1.36%	1.04%	1.44%
National High Ways		1.05%	1.04%	1.33%	1.06%	1.71%	1.16%	1.23%
State Highways		1.38%	1.13%	1.36%	1.34%	.98%	1.06%	0.76%
Major District Roads & Rural Roads		1.29%	1.91%	1.65%	1.59%	1.38%	1.04%	1.48%

Progress of Road Network in Percentage



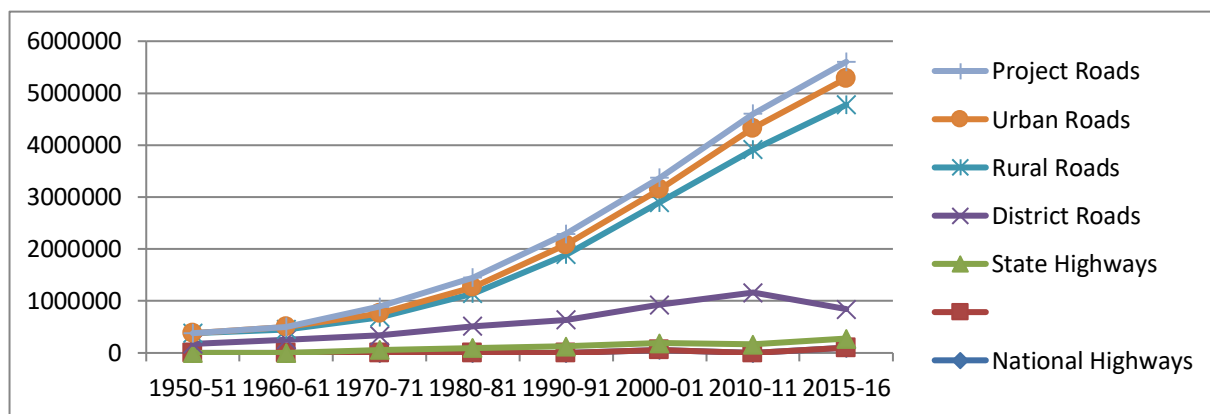
While in some areas, the level of connectivity is quite low, in some other areas it is much better than average. Even in the same area, there are wide variations from another part to other part. From 1950 to 2005 about 55 years the average percentage growth of total roads are 1.44% whereas at the same time the National Highways is 1.23%, State Highways is 0.76% and rural roads is 1.48% which is the higher rate from total growth rate. It must, however, be appreciated that the scenario is not equally bleak all over the country.

Table No. 5: Development of Roads during 1950-51 to 2015-2016 in KM

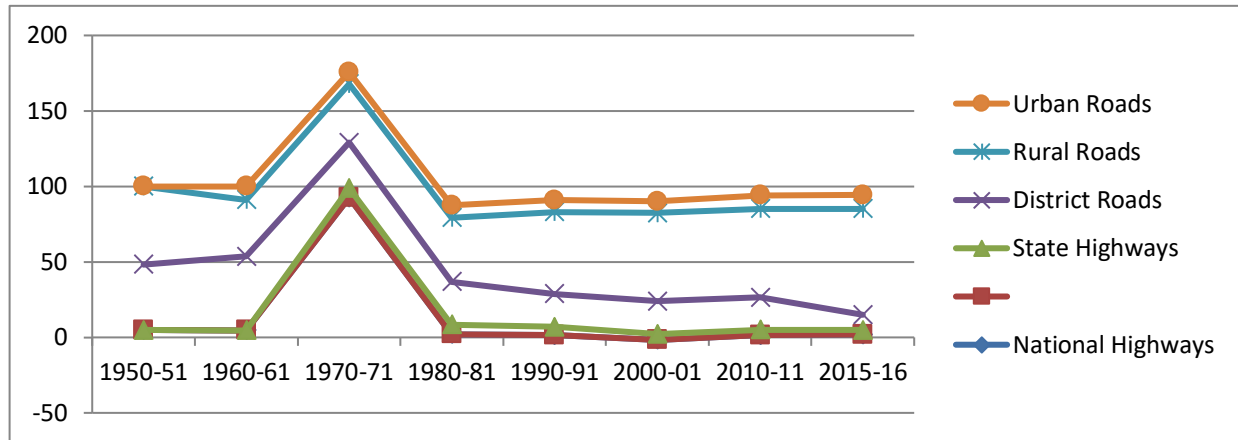
Year \Rightarrow	1950-51	1960-61	1970-71	1980-81	1990-91	2000-01	2010-11	2015-16
Road Category \Downarrow								
National Highways	19811 (4.95)	23798 (4.54)	23838 (92.61)	31671 (2.13)	33650 (1.45)	57737 (1.71)	70934 (1.52)	101011 (1.80)
State Highways			56765 (6.20)	94359 (6.35)	127311 (5.47)	132100 (3.92)	163898 (3.50)	176166 (3.14)
District Roads	173723 (43.44)	257125 (49.02)	276833 (30.26)	421895 (28.40)	509435 (21.89)	736001 (21.82)	998895 (21.36)	561940 (10.03)
Rural Roads	206408 (51.61)	197194 (37.60)	354530 (38.75)	628865 (42.34)	1260430 (54.16)	1972016 (58.46)	2749804 (58.80)	3935337 (70.23)
Urban Roads	0	46361 (8.84)	72120 (7.88)	123120 (8.29)	186799 (8.03)	252001 (7.47)	411679 (8.80)	509730 (9.10)
Project Roads	0	0	130893 (14.31)	185511 (12.49)	209737 (9.01)	223665 (6.63)	281628 (6.02)	319109 (5.70)
Total	399942	524478	914979	1485421	2327362	3373520	4676838	5603293

Source: Basic Road Statistics of India 2015-16 and 2014-15, Ministry of Road Transport & Highways Retrieve January, 2018.

Development of Roads during 1950-51 to 2015-2016 in KM



Development of Roads in Percentage during 1950-51 to 2015-2016 in KM



Conclusion:

In this study it is observed that the developments of roads are the basic parameters to improve a nation. The Government of India in several phases gives more emphasis programme to improvement of Nation by roads. Due to lack of good connectivity like rural communication the following problems faced by the rural people: Daily several pregnant women die, as they cannot reach the health care centres in time from their villages. Lakhs of rural children cannot reach the schools during rainy season. Perishable agricultural product cannot reach the markets in time leading to heavy losses to the farmers. A large number of cattle die in veterinary epidemics especially during rainy season because timely help cannot reach them. Poor connectivity has a high correlation with high levels of illiteracy, unemployment, criminal activities, and poverty. A Nation will be rank first in overall development if the infrastructure like roads improvement is all over the country.

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