

NATIONAL TRANSPORTATION PLANNING AND RESEARCH CENTRE

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EDITORIAL

Rural Transportation encompasses all transport activities, which take place at local government and community levels. It consists of two elements, rural transport services for passengers and freight by non-motorized and motorized means of transport, and rural transport infrastructure, mainly rural roads, tracks, trails, paths and footbridges and in some cases rural waterways. The mission of the Rural Transport is to improve the effectiveness and sustainability of rural transport investments by harnessing the knowledge of transport professionals and exploiting synergies through strategic networking with related groups' professionals.

Rural roads are vital element in rural development which deals with all sectors of economy including agriculture, industry, health, education, forestry, fisheries, manufacturing, cottage industries, trade and commerce that depends on good transport network. This gives shape to the living environment of villagers and are the connectivity elements in our society. Rural road connectivity is not only the key component of rural development in India, but also an effective poverty alleviation programme. An improved accessibility is an indispensable prerequisite for better living conditions in rural areas.

As per the classification of road system in India, rural roads include Other District Roads (ODR) and Village Roads (VR). The country has about six lakh villages spread over an area of 3.28 million square kilometers. Mini bus can be effectively used in the prevailing rural road conditions. There were road development programmes like Minimum Needs Programme (MNP) and Basic Minimum Services programme (BMS) which envisaged provisions of connectivity to all villages and habitations by the end of 2002. According to the recent study by

Planning Commission, only three-fifths of the nearly 6-lakh villages are known to be connected by all weather roads. In 2000, a centrally sponsored scheme called the Pradhan Mantri Gram Sadak Yojana (PMGSY) was launched with the objective of connecting every village with a population of more than 500 persons by the year 2007.

The present scenario in India warrants a serious thought on planning rural road network in a scientific way. Attempts are being made to incorporate the socio-economic parameters, local transport system and transportation cost aspects. Another imbalance is the rural-urban dichotomy. In developing countries, the percentage of population living in rural areas is high. At this juncture, there is an urgent need to develop a scientific methodology for the assessment of rural travel demand, which can promote a road network of hierarchical importance and wider range of connectivity basically from user, system owner and land use planning point of view.

The present issue of “Mobility” focuses on *Rural Roads - Planning and Development issues with specific reference to Kerala State*.

Issues in Rural Connectivity Specific to Kerala State

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Introduction

Conventional planning initiatives towards strengthening rural infrastructure to facilitate conveyance of men and materials aim at the provision of all weather road connectivity to settlements. Considering the extremely diverse geography and settlement pattern prevailing in rural areas of the country, the issue of rural connectivity is quite complex. Development of a universally applicable model for providing rural connectivity is more difficult as can be seen in the case of Central Government initiatives like Pradhan Mantri Gram Sadak Yojana (PMGSY) and Bharath Nirman. Though, national norms on rural connectivity stipulate the provision of an all weather road within 500 metres in plain areas and 1.5 kms. of path distance in hilly regions for settlements, large number of settlements and a sizable share of population are not covered by such initiatives due to the wide spectrum of settlement pattern observed in the country. The hilly regions of Kerala, with limited population settlements and habitats scattered over wider areas are typical examples. Geographic constraints and environmental issues also act as stumbling blocks in the matter of improving existing connectivity. Issues like limited travel needs of tribal communities living in hilly regions leading subsistence levels of life with their peculiar socio- economic outlook also need special attention.

In view of the above situation, the issues specific to connectivity of settlements in Kerala can be summed up as:

- Average size of a typical settlement in the State is much larger compared to limited population settlements observed in other parts of the country. Typical size of a settlement at national level is settlements having population above 1000 on the one hand and settlements having population below 1000 on the other. On the contrary, settlements in the State whether Grama Panchayath or rural Village will have a population size ranging from 15,000 to 40,000 or even more.

- Definition of settlement connectivity is technically difficult due to scattered pattern of habitats observed in the State as against the clustered pattern of habitats observed in other parts of the country. For a typical settlement with a population size 1000 where all the habitats are clustered in a particular location, the provision of an all weather road to the settlement centre ensures connectivity, whereas, in Kerala State, the habitats are throughout the area of the Panchayath or village with hardly any clustering.
- Provision of single connectivity will not address the issue of settlement connectivity comprehensively as it is not possible to locate a settlement centre.
- A comprehensive approach incorporating an optimum road network concept is to be adopted to provide all weather road connectivity beneficial to majority of rural population in Kerala.

Rural Connectivity- Kerala Scenario

Kerala State is regarded as having better rural road penetration as revealed by the higher values of road density indices calculated on the basis of population and area. With a total road availability of 1.61 lakh kilometers of which nearly 68 % (1.09 lakh kms.) are Panchayath roads, it occupies a prime position compared to other states of the country as is evident from **Table 1**.

Table 1

Details of Road Density Indices

Type of Road Density	Road Length (kms.)	
	Kerala	India
Road density/100sq.km.	414	74.9
Road density/lakh population	505.46	259.20

Source: Economic Review, 2006, Kerala State Planning Board.

Though, as per records all the settlements (Grama Panchayaths/Villages) have all weather road connectivity, there are large number of areas without proper all weather road connectivity.

While many serious attempts were made to delineate micro level settlements to suit the national level guidelines developed for connectivity initiatives, difficulties were observed in the way of defining/locating a settlement and more so the settlement centre. While in the past villages were subdivided as desoms/karas for undertaking decennial census operations, the practice was discontinued of late. While, Grama Panchayaths are subdivided into wards, limitations are observed in treating them as micro settlements on a long term basis due to the practice of periodical changes in ward boundaries due to delimitation of wards on the basis of population and area and the inability to locate a specific centre for such micro level settlements. Hence, considering the practical difficulties in following the national guidelines on rural road connectivity, the State has to initiate steps to plan and develop an optimum road network that will provide the benefit of all weather road connectivity to majority of the population for a given cost.

Specific Development Initiatives

Supplementing the all weather road connectivity initiatives, additional efforts aimed at addressing rural poverty through accessibility improvement measures for the marginalized communities living accessibility restricted hilly terrains got crystallised in the Integrated Rural Accessibility Planning (IRAP) initiative developed by the International Funding Agencies like ILO and UNDP. Conventional transport policy and road development programmes aimed mostly at improving access in rural areas by focusing on conventional highway and car solution. As IRAP has better applicability in specific pockets of the State as it addresses the issues of accessibility, mobility and poverty alleviation simultaneously, key factors of this approach are listed as follows:

- Rural Transport Planning has to be based on real transport needs
- The following options to be considered in identifying the interventions aimed at improving rural transport:
 - development of the organised sector road network
 - improvement of village level transport infrastructure in the unorganised sector including paths, tracks and foot bridges

- development of transport network
- increased use of Intermediate Means of Transport (IMT)

Based on various studies carried out to substantiate this approach, the focus of the issue was tuned to developing a decentralised access planning methodology and capacity building for access planning at the local government level.

Keeping in mind the geographical and environmental constraints in case of the tribal settlements located mostly along accessibility restricted hilly areas and the socio economic background of the population covered, following types of interventions can be considered as part of the IRAP:

- General accessibility improvement measures- better road infrastructure organized (motorable roads) and unorganized (tracks, trails, footpaths etc.)
- Mobility improvement measures- low cost transport modes like animal carts, motorable intermediate public transport
- Non transport interventions- make available facilities nearer to settlement through mobile shops, mobile clinics etc., so that the need for travel outside the settlements are minimized.

Connectivity issues specific to the State can thus be addressed effectively by adopting a comprehensive approach to tackle the issues of settlement connectivity, a core network development and taking up the IRAP strategy for specific areas simultaneously.

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Minibus services- a cost effective solution for providing public transport in rural areas.

Sethu Parvathy* & Dr.G.Ravikumar**

Introduction

Roads are like arteries of human body and they facilitate advancement of the economy, especially of its communication sector. The importance of rural sector to the economic and social development of our country is obvious. But even in this transnational scenario, the rural sector in our country faces several bottlenecks. Though massive investment has been made to improve the rural areas, the dismal state of affairs continues in the form of vicious circle of poverty, unemployment, debt trap and suicides.

Mini bus service can be a convenient public transport system in these areas. Only an efficient Rural Transport (RT) system such as mini bus can be used effectively in the prevailing rural road conditions.

A major roadblock that India's rural roads face is financial constraint. "Central funds for building roads have not been increasing at the desired rate, and State Governments have not been able to expand their revenue base to meet the operation and maintenance costs of even the existing roads," notes the India Rural Infrastructure Report, of the NCAER (National Council of Applied Economic Research). Regarding State Governments, "Only around 5 per cent of state PWD (Public Works Department) budget is spent on road maintenance," observed the World Bank a few years ago. Much of the State Governments' funds "are diverted towards looking after state highways and other district roads and paying staff salaries," NCAER finds. A different problem is the poor 'intra-village connectivity', considerable variations in road connectivity and the use of rural transport'.

Gandhiji's dream of a prosperous rural India and the pledges given by successive leaders can be realized only if transport and communications are improved. Other physical and

social infrastructure would follow automatically, paving the way for business and industry to thrive.

Rural Transport-given Low Priority?

Since the reforms began in 1991 in India, infrastructure development has been accorded high priority by the government. Yet, a study conducted by World Bank in 1998(Global Competitiveness Report) reveals that India stood last in a list of 53 countries. Nearly one third of the villages are not connected by Rural Transport System. Provision of a good RT system would act as a catalyst, facilitator and efficient instrument for accelerating rural development and bring about social equity. But RT is now far behind requirements, and therefore, is unable to play this vital role. India's large area size and population, the scattered nature and small size of village settlements, poverty and illiteracy of rural people and low level of commercial activity do not provide sufficient incentive and economic justification for large investments in RT.

Public Transit Situation in Kerala

Kerala has approximately 34,000 buses, of which the State Road Transport Undertaking (STU) owns 5000. With its efficient public transport system, Kerala has shown how all people can enjoy most of the facilities and amenities, available in big cities. Mass transport is the cheapest and safest mode of transport for providing both intra and intercity travel requirements of the public. Kerala State Road Transport Corporation (KSRTC) is the largest public sector undertaking in the state providing bus transport to all segments of population. The Corporation has proved to be successful in providing uninterrupted services in every nook and corner of the state. KSRTC introduced about 350 mini buses in its total bus fleet and they are in operation since 2001.

Minibus as an effective mode in Rural Transport

The primary objective of introducing mini buses in Kerala by KSRTC was to serve the demand of the hinterland routes which are not accessible by large buses due to the limitations of geometrics and carriage way width of roads in such routes. It was also

thought of as an effective tool to curb the menace of parallel services operating from hinterland routes.

Minibus –A Failure in KSRTC?

However, it was found that the mini bus services have not been able to curb the ingress of parallel services and ironically have turned into a loss incurring service to the Corporation. The lack of reliability and passenger aversive operational behaviour of the Corporation force the commuters to depend largely on parallel services even on main arterial and sub arterial routes. It has been found that parallel services cause a loss to the tune of 20-25 lakhs on an average every month to KSRTC in Thiruvananthapuram district alone. The Corporation is now thinking to stop such services in a phased manner.

Measures to enhance Operational Efficiency

The existing mini bus operational system in KSRTC has been found to be deficient on many accounts. The performance per bus/staff/day is very low due to frequent cancellation of schedules on the ground of lower Earning Per Km (EPKm) (*NATPAC 2007*). The provision of certain alternate routes and extension of present routes in the hinterland would enhance the area coverage and passenger patronage. This can generate more revenue per bus/day and increase the accessibility to remote nodes. This can be done by rearranging the existing schedules and operating staff itself. Additionally, the mini buses that are currently not operational due to break down can be serviced and allocated to the suggested new routes with an optimum time scheduling. As fixed costs are higher, any addition in load factor and bus performance tend to lower the over all operating cost of buses. Whenever load factor falls below the minimum, differential pricing system can be thought of. Inaccessible areas under the existing bus routing system in rural areas should be identified. Efforts should be done to identify missing links/zones. The zones that are inaccessible with the present bus transport system in rural areas can be found out using Proximity Analysis of existing road network system. The

zones that have an unbalanced distribution of public transport services should also be identified. The bus transport demand of those zones should be assessed and possible alternate routes should be identified using GIS Network Analysis employing a Best Route Algorithm. Minibus may be introduced in such inaccessible routes with minimum reliability and punctuality. This would ensure at least average occupancy of 20 passengers even during lean period. The minimum average passenger load on routes inaccessible by large buses may be fixed at 20 persons per bus/trip and the existing passenger fare on such routes may be fixed at the rate of Rs.1/passenger/km. This will wipe out all cumulative loss incurred by KSRTC by operating mini bus services. Mini bus may be withdrawn from routes which are covered by large bus even if this will entail high average passenger load of 30 persons per bus/trip. Alternatively cost reduction policies such as bus hiring system as adopted by BMTC can divert major burden on capital and operating cost of buses and reduce high staff/bus ratio of KSRTC.

Conclusion

The objective of social equity suggests the need for enhancing public transport services in rural areas. However this must not be compensated with the efficiency of the transport services. Introduction of mini bus services on rural hinterland routes would provide the much needed rural mobility. The existing mini bus operational system carried out by KSRTC suffers many deficiencies. Mini bus may be withdrawn from routes which are covered by large bus even if this will entail high average passenger load of above 20 persons per bus/trip. Alternatively cost reduction policies and bus route privatization policies may be adopted. New hinterland routes may be opened up for minibus services and such services should be operationalised even if the average occupancy rate is below 20 person per trip.

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Pradhan Mantri Gram Sadak Yojana-A Central Intervention in the State Sector

Pradhan Mantri Gram Sadak Yojana (PMGSY) was launched in December, 2000 to increase rural road connectivity with a view to promote greater access to economic and social services and thereby generate increased economic and social opportunities in rural India. Government of India is endeavoring to set high and uniform technical and management standards and facilitating policy development and planning at State level in order to ensure sustainable management of the rural roads network. In the first phase, habitations (hamlets) of population of 1000 (500 in the case of Hill States, tribal and Desert areas) and above will be covered. In the second phase habitations of population of 500 (250 in the case of Hill States, tribal and Desert areas) will be covered. About 368,000 km of new road construction and 370,000 km of upgradation/renewal is expected to be done at a cost of about \$26 billion.

Roads perform two basic functions. One, which is most traditional, is to provide access to the people and the other is to provide mobility. Access is provided by Rural Roads, Major District Roads, etc. while mobility is broadly provided by National Highways. Pradhan Mantri Gram Sadak Yojana (PMGSY) thus addresses the basic access needs of the people, while National Highway Development Project addresses the mobility concerns. The Government has launched a time-bound business plan under Bharat Nirman for building rural infrastructure in partnership with State Governments and Panchayati Raj Institutions, in the areas of irrigation, roads, housing, water supply, electrification and telecommunication connectivity. Bharat Nirman targets have been set under PMGSY, which is a programme for connectivity of all habitations having more than 500 population (250 and above for hilly, desert and tribal areas). Outlay of rural roads is 28 percent of the total outlay of Rs.1, 74,000 crore for Bharat Nirman. PMGSY is for the social upliftment of rural India, while NHDP is for industrialized India. Both these Mega Projects are thus essential for the development of the country. Accordingly, Govt. of India is presently implementing a number of mega projects for upgradation of

not only the National Highways under the NHDP but also of the Rural Roads under PMGSY. NHDP Phase-I envisages four-laning of highways, providing connectivity to the four metros of Delhi, Mumbai, Chennai and Kolkata. NHDP Phase-II, involves widening to four lanes of the North-South and East-West Corridors.

Under PMGSY, upgradation of nearly 3, 71,000 km of existing roads at an estimated cost of Rs.1, 32,000 crore has been envisaged for the next 10 years. With the assistance of IRC, the Ministry of Rural Development has formulated a **Rural Roads Plan Vision - 2025** which lays down time bound targets for achieving connectivity of not only the villages eligible under PMGSY, but of other villages of smaller population, so that benefits of access are available to the remote areas also. Besides this, a Quality Assurance Handbook has also been prepared by IRC as a sequel to the three tier quality control system, instituted by the National Rural Road Development Agency (NRDA) for PMGSY works.

Status of Rural Roads in India

- India has a rural road network of about 2.70 million km with Rs.35, 000 crore investment (Rs.180,000 crore of replacement value). 1 crore= 10 million
- Constitutes over 80% of total road network.
- More than 10,00,000 km are tracks and roads not meeting the required technical standard.
- Rural roads sector suffer from lack of systematic planning, quality and sustained maintenance.
- It was a myth that rural roads do not require planning/design/quality assurance.
- More than 45% of the habitations still to have all-weather road connectivity.

Salient features of the Pradhan Mantri Gram Sadak Yojana

Planning: The preparation of the District Rural Roads Plan as well as the Core Network helps in the identification of the roads required to connect the unconnected Habitations as well as the network of roads to assure Basic access (single all-weather road connectivity) to all the Habitations. These plans are to be placed before the Panchayati Raj Institutions for approval.

Project approach: The road works proposed each year are identified and are executed in a time bound manner.

Technical standards: The roads under the PMGSY are designed and executed as per the standards laid down by the Indian Roads Congress.

Tendering: The road works are tendered in packages of Rs. 1 to 5 crore, to attract competent contractors with requisite equipment.

Quality control: A 3-tier Quality Control System has been designed to ensure the quality of the road works. While the concerned Executive Engineer is the first tier, all the states have been requested to enlist the services of a State level independent Agency to verify the quality of the roads. On its part, the National Rural Roads Development Agency, an agency set up by the Ministry of Rural development, engages senior technical personnel as National Quality Monitors to inspect the road works.

Maintenance: The roads constructed under the PMGSY are to be maintained by the Panchayati Raj Institutions.

News

Wide Variations in Rural Transport Cost

A major roadblock that India's rural roads face is financial constraints. "Central funds for building roads have not been increasing at the desired rate, and State Governments have not been able to expand their revenue base to meet the operation and maintenance costs

of even the existing roads," notes the *India Rural Infrastructure Report*, of the NCAER (National Council of Applied Economic Research), published by Sage (www.indiasage.com).

It is not as if the Budget allocation from the Centre didn't grow. The amount almost tripled during the 1990s; yet, the increase was not adequate. The total rural road length increased during 1990-97 was only 15 per cent, says the Report.

What about the State Governments? "Only around 5 per cent of state PWD (Public Works Department) budget is spent on road maintenance," observed the World Bank a few years ago. Much of the State Governments' funds "are diverted towards looking after state highways and other district roads and paying staff salaries," NCAER finds.

A different problem is the poor 'intra-village connectivity'. This arises owing to the Central Government's approach to building roads, one learns. How so? Roads are built based on population density, and so roads have been laid 'to the main settlements of most villages, but not to the hamlets of these villages'.

The Council's field studies have discovered 'considerable variations in road connectivity and the use of rural transport'. While villagers in Kerala have 'an enviable accessibility to all-weather roads,' their counterparts in West Bengal and Madhya Pradesh aren't so lucky; for they must travel 'on average more than 3 km to reach all-weather roads'.

Interesting statistics are that "about 42 per cent of village households have at least one member commuting daily, who travels an average distance of 3-4 km, pays a flat tariff and spends a daily average of Rs.6-20 per trip, depending on the mode of transport."

Kerala, again, boasts of the lowest passenger costs, at Rs.2 per passenger trip. Next is Tamil Nadu, at Rs.3, but in Punjab, the cost is more than seven times that much, at Rs 21.49! Reason for this wide variation is due to the relative popularity of public and private transport, says the Report. In goods transport, too, the range is broad. "Tamil Nadu has the lowest cost per goods trip of Rs.6.86, which is around 8 per cent of the corresponding figure in Punjab."

Usefully, the Report suggests 'a new approach' to tackle the rural road problem, based on field studies, estimates of required investment, and data on consumer profile from the 'Indian Market Demographics Report', a 2003 publication of the NCAER.

*Source: Business Line
Business Daily from THE HINDU group of publications
ePaper*

PM Inaugurates National Conference on Rural Roads

INRnews

The Prime Minister, Dr. Manmohan Singh, while inaugurating the National Conference on Rural Roads, here today, organized by the National Rural Roads Development Agency (NRRDA), an autonomous agency under the Ministry of Rural Development and the Construction Industry Development Council (CIDC), has said that rural roads connectivity is a critical component of the overall strategy for rural development as it promotes access to economic and social services and facilitates the growth processes in the rural economy.

He further said that expansion of rural network will have wider positive impact on development, well-being and welfare of the people. Dr. Singh stressed the need for quality benchmarks and quality assurance for rural roads like National Highways and evolving cost effective technologies that are low cost and use locally available materials for construction of rural roads. For this, there is a need for a policy and strong institutional framework for mainstreaming these alternatives to the maximum possible extent for expansion and development of rural roads, he opined. He also underscored the requirement of making road construction as labour intensive as possible with the help of labour based methods without compromising on the quality in order to increase employment potential in road construction by at least five times. This can create a synergy between the Bharat Nirman and the National Rural Employment Guarantee Programme (NREGP), he remarked. He further outlined the importance of regular

maintenance and upkeep of rural roads as a necessary pre-condition for sustaining the benefits of rural road connectivity and promoting decentralized systems for maintenance and management of rural road network.

Dr. Montek Singh Ahluwalia, Dy. Chairman, Planning Commission, while speaking on the occasion, has said that rural roads are critical elements to build rural infrastructure and for inclusive growth in the country. Rural road connectivity is the single most determinant to remove poverty because of its direct effect on income generation.

Eleventh Plan strategy focuses on rural roads and has set clear target for rural connectivity under PMGSY and Bharat Nirman and funds have been made available for both the programmes. He hoped that the Conference will be able to come out with specific policies on contract management and standardization of contract documents and deliberate on maintenance of rural roads, formulation of district plans and district road network and impact of rural road connectivity on economic activities.

Dr. Raghuvansh Prasad Singh, Rural Development Minister, in his welcome and introductory speech has said that under PMGSY and Bharat Nirman, time-bound and targeted programmes are in progress to ensure rural road connectivity. He also stated that more than 1,22,000 km. of roads have been completed under PMGSY so far and that work is in progress in respect of projects covering another one lakh km. States are taking steps to overcome various constraints in the implementation of the programme like contractor shortage, material shortage, etc. He hoped that the Conference, which is first of its kind, will be able to set a new direction for the future development of rural roads in the country.

Source: www.inrnews.com

Short articles upto 500 words in length on transportation and related subjects, extract of research and consultancy studies, conference/seminar, news etc. are invited. Materials may kindly be sent to:

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Next issue will focus on:

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