Users' View of Rural Road Network: A Comparative Analysis

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Abstract: Physical connectivity should be efficient in order to maximise socio and economic benefits. It is endorsed that adequate rural road transportation enhances mobility and abate the isolation of rural people. Road transportation in rural regions is considered as an instrument which interconnecting the all business to all major markets, driving the trade, creating employment, ensuring a better life. In rural based Indian economy, increasing investment on rural road transport is essential for efficient interchange of goods, people and innovative ideas from one place to another. In this paper, attempt is made to analyse, comparatively, the users' views about the status of rural road transportation in the study areas of Gulbarga and Mysore districts of Karnataka State. Attempt is also made to find out the preference of travel and distance travel for getting basics of rural households in the study regions. The present study is depended on both the primary and secondary data for its analysis.

Index Terms - Rural Road Network, Gulbarga, Mysore, Households, Connectivity,

1. Introduction

Road transportation is the one of the stimulants of economic development. As on 2015-2016, India has registered 4.7 million kilometers of road network and stood at second place in terms of highest road network in the world. Above said period, density of India's road network was 1.70 km which was higher than that of Japan, USA, China, Brazil and Russia. On the other hand, qualitatively India's road networks are mix of highways, narrow roads, and unpaved roads. As on March 2016, about 62.5 per cent of Indian roads were paved this means that considerable of 37.5 per cent of road network was unpaved in nature. As on March 2016, rural road network share was about 70.23 per cent of the total road network of India. Further, during the above said period, the percentage of un-surfaced rural road network to the total rural road network was 60.97 per cent. As on 2016-17, Karnataka's total road network was about 2.61 lakh kilometers in which rural road network share was 70.05 per cent. It is really agony to say that of the total rural road network huge of about 42.92 per cent of the rural road network even today un-surfaced in condition in Karnataka in above said period and which is not in usable condition during rainy seasons[1].

Road transportation in rural regions is considered as an instrument which interconnecting the all business to all major markets, driving the trade, creating employment, ensuring a better distribution of wealth, better living standard and uniting mankind. In Indian context, increasing investment on rural road transport is essential for efficient interchange of goods, people and innovative ideas from one place to another. Deprived nature of rural road network is distressing the quality of life of rural people and farmers' ability to transfer produce to market post-harvest. Over 30 percent of Indian farmers' harvests spoil post-harvest because of the poor infrastructure. Many rural roads are of poor quality, potholed, and unable to withstand the loads of heavy farm equipment. For the development of these rural roads, Pradhan Mantri Gram Sadak Yojana was launched in December 2000 by the Indian government to provide connectivity to unconnected rural habitations. The scheme envisions that these roads will be constructed and maintained by the village panchayats. This program has succeeded in connecting isolated areas and there can be seen changes over 17 years, in either the quality or quantity of rural road network in some regions of rural India.

2. REVIEW OF LITERATURE

Infrastructure development can play key role in poverty reduction and economic growth. Insufficient investments in rural infrastructure will make an insult (mockery) of efforts to achieve the Millennium Development Goals in developing countries (Tarique M.D. 2009)[2]. A study revealed (L.P. Singh, 2009) that a rupee spent on maintenance does save two to three rupees in vehicle operating cost. Financing of rural roads can, basically, carry a traffic volume of up to 25-40 vehicles per day and normal roads can carry between 100 and 1000 vehicles per day in general[3]. Development of the rural road infrastructure increased agricultural output and income of rural household in Delta State of Nigeria. The study also evidenced that 10 per cent increase in on road investment caused a 12 and 2.2 per cent of agricultural output and rural income increase respectively (Inoni O.E and Qmotor D.G 2009)[4].

Construction of rural roads in India automatically raises rural incomes and improves people's access to health and education services (Amith Sharma, 2009)[5]. Construction of new roads will increase the household wage sector employment and their ownership of vehicles. Further, they have also found that construction of new roads in rural areas may help increase the self-employment in agricultural sector and minimize the rate of rural-urban migration (Randall Akee *et al.*, 2006)[6]. There is a Linkage between rural infrastructures which are essential for poverty reduction and improved livelihoods. Further, the study made some recommendations to promote increased impact of infrastructure investment (Stephen Brushett and Indu John Abraham, 2006)[7].

Economic isolation is positively associated with the size of transaction costs. Finally they econometrically indicated that on an average the Ad Valorem Tax equivalent of fixed transactions costs for households in their sample is 15 per cent (Renkow *et al.*, 2004)[8]. Development of Rural Road Infrastructure will not only attract economic, industrial and tourism development activities but also enhance the quality of people's life by better connectivity (Biplab Moitra 2001)[9]. The State Transport Units (STUs) operated inefficiently and loss making is common in most of the Indian States. The STUs in India have failed to meet rural transport requirement. Quoting the example of Kerala, the author states that of the total 34,000 buses in 1996, only 2000 buses were found operating under the STUs (Biplab Moitra 2001)[10]. The road development will result in socio-economic benefits in the rural areas. With expansion of road communication in Bihar state, the agricultural, non-agricultural and allied activates have been considerably encouraged. The author also observed that rural road network could generate a better schooling, health, banking, and postal service benefiting the rural people in the study area (Manohar Lal 1989)[11].

3. OBJECTIVES

Objectives of the study are presented as follows

1) To analyse, comparatively, the users view about rural road network in Gulbarga and Mysore districts.
2) To find out the problems of Rural Road Network in the Study regions and offer remedial measures

4. HYPOTHESES

H_o: Dissatisfaction level of the respondents of Gulbarga district about quality of rural road network is high as compared to the respondents of Mysore district.

H_o: Respondents of Gulbarga have highly dissatisfied about over all conditions of rural road transportation with the respondents of Mysore Districts.

H_o: LPVs and Buses are the important means of transport in the study region.

5. METHODOLOGY

The present study has been geographically restricted to Karnataka State, focusing to one district each in the Northern and Southern parts of the State. For a comparative analysis of the users' view about Rural road network, one backward district viz., Gulbarga in the northern part and one relatively developed district viz., Mysore in the southern part of Karnataka state have been chosen for the study.

The rationale behind choosing Gulbarga, as backward, district for study in north Karnataka has been the indicators of roads accessibility in terms of proportion of villages, in the above mentioned district, accessed by All Weather Roads. The same analogy holds well in the selection of Mysore district, as relatively developed district, in south Karnataka for the present study. Further, attention has also given in choosing two taluks in each of the above said districts. The taluks of Jewargi and Chittapur in Gulbarga district and H.D. Kote and Nanjangud taluks in Mysore district have been chosen for the study. The proportion of All Weather Roads in Jewargi and Chittapur taluks of Gulbarga district (after neutralizing considering the state average of 60.09 per cent of villages accessed with all weather roads as equivalent to 1) respectively stood at 0.84 and 0.62 on the one hand and on the other hand in Mysore district, the taluks of H.D. Kote and Nanjangudu, under survey, stood proportion-wise with respect to accessed with all weather roads, respectively at 0.67 and 1.63.

In the sample taluks of Gulbarga and Mysore districts have been clustered as 1000+, 500 to 999, and below 500 population villages. As per the above, in each cluster about 15 per cent of the villages have been chosen for the study. All the three categories accounting of 12 and 14 villages have been chosen in the sample taluks Jewargi and Chittapur in Gulbarga for the study (15% of total). Likewise, 15 and 13 villages have been chosen respectively in the sample taluks of H.D. Kote and Nanjangudu in Mysore district for the present study. In study region, the sample villages in each cluster have been selected with the using of lottery method. Four taluks comprised of 54 villages have been chosen in the sample taluks of Gulbarga and Mysore districts in the present study.

For avoiding repetition in same family members at the time of field survey and making the sample representative one, the researcher had trusted in households' respondents survey in the sample villages of the study taluks in Gulbarga (Jewargi and Chittapur Taluks) and Mysore (H.D.Kote and Nanjangudu Taluks) districts. Household Respondent Samples have been chosen on the basis of number of households in each sample villages. In each cluster of villages about 05 per cent of the households have been chosen by using Tippets Random table as the household respondent sample and used for primary survey.

With the above reasoning in mind, exactly 212 and 236 household have been randomly selected, respectively, from the sample taluks of Gulbarga and Mysore Districts. Totally, in the sample taluks of Gulbarga and Mysore together 448 household respondents had been interviewed, selected at random, with well structured interview schedules. The data collected from primary sources have analyzed with the help of using appropriate tables, figures and simple statistical tools like average, percentage. Further, finding out the relationship between two variables, researcher applied inferential statistics like Chi-square test used for analyzing the data.

6. RESEARCH RESULTS, DISCUSSION AND INTERPREATION

6.1. OCCUPATION

Table-01: Occupation of Respondents

Occupation of the Respondents			
Occupation	**Gulbarga Total (%)**	**Mysore Total (%)**	**Grand Total (%)**
(01)	**(02)**	**(03)**	**(4)**
Agriculture	113**(53.33)**	98 **(41.54)**	211**(47.10)**
Agri.Labour	39 **(18.39)**	27**(11.44)**	66 **(14.73)**
Employment in Office	10 **(04.71)**	19**(08.05)**	29**(06.47)**
Self Employment	16 **(07.54)**	31**(13.13)**	47**(10.50)**
Student	13 **(06.13)**	15**(06.35)**	28**(06.25)**
Other	21**(09.90)**	46**(19.49)**	67**(14.95)**
Total	**212 (100.00)**	**236(100.00)**	**448 (100)**

Note: 1) Figures in bracket are percentage to total.
2) Gulbarga District: Jewargi and Chittapur, Mysore District: H.D. Kote and Nanjangudu
Source : Data gathered through Primary Investigation,

In Table-01 finds data on the respondents engaged in different occupations in the study region. Obviously, in rural India, people largely depend on the agricultural sector. It is proved once again from the field that of the total interviewed about 71.72

per cent and 52.98 per cent of respondents were relied on agricultural sector (cultivation/ agri-labourers) in the sample taluks of Gulbarga and Mysore districts respectively, together two districts comprised of about 47 per cent of respondents were belonged to agriculture sector. Here, in this respect, Gulbarga district has show larger share dependency on agriculture than that of Mysore district. Further, other professionals like businesses, self employees their share in the total is very less in Gulbarga District as compared to Mysore district.

6.2. QUALITY OF ROAD NETWORK

The quality of the road network is an important factor which facilitating smooth operation of transport thereby in reducing the cost and time of users. The rural people mainly depend on road transport, the latter being pathetically poor, causes concern of all the users in the region. The users' opinion about the quality of the rural roads in their region is provided in of Table-02.

Table-02: Rural Road Quality of Rural Road Network in the Study Region

Rural Road Quality in the Study Region			
Road Quality	**Gulbarga Total (%)**	**Mysore Total (%)**	**Grand Total(%)**
(01)	**(02)**	**(03)**	**(04)**
Good	43 **(20.28)**	**92 (38.15)**	**135 (30.15)**
Fairly Satisfactory	80 **(37.74)**	63 **(26.69)**	**143 (31.90)**
Poor	89 **(41.98)**	81 **(35.16)**	**170(37.95)**
Total	**212 (100.00)**	**236 (100.00)**	**448 (100)**
		$\chi_c^2 = \sum \frac{(O_i - E_i)^2}{E_i}$	**17.54**

Note: 1) Figures in bracket are percentage to total.
2) Gulbarga District: Jewargi and Chittapur, Mysore District: H.D. Kote and Nanjangudu
3) X^2 test= Manually Calculated

Source : Data gathered through Primary Investigation,

Based on the field study, it is found that about 41.98 (in Gulbarga district) and 35.16 per cent (in Mysore district) of users move towards heavily on poor quality of roads in the region in order. In the sample taluks of Mysore district about 38.15 per cent of respondents viewed that the quality of roads in their region is good, compared with about 20.28 per cent in the sample taluks of Gulbarga district. Further, a total of 80 (37.73%) and 63 (26.69%) respondents, among the total, respectively in Gulbarga and Mysore, opined that the road quality is fairly satisfactory; from which it can be interpreted that attention is to be paid towards this problem so as to facilitate easy transport in the countryside.

Here researcher used the X^2 test to test the significance level of set null hypothesis. Research has 3x2 contingency table and degree of freedom (3-1) x (2-1) = 2. Since the calculated value of X^2 test is (17.54) much greater than tabulated value for 2 degree of freedom at both 1 % (9.210) and 5 % (5.991) level of significance. Hence, researcher has rejected the null Hypothesis at 1 % and 5% level of Significance and concluded that Dissatisfaction level of the respondents of Gulbarga district about quality of rural road network is high as compared to the respondents of Mysore district.

6.3. USER'S VIEWS ON OVERALL CONDITION OF RURAL ROAD TRANSPORTATION AND TRAVEL FREQUENCY

Usually, for the daily activities users in rural regions have to depend more on taluk rural roads; it does not mean that users do not travel outside the taluk. Keeping this in mind, the researcher asked the users about the overall conditions of taluk rural road network in the study region. The views gathered are presented in Table-03.

Table-03: Users' Satisfaction Index of Overall Rural Road transportation and Travel Frequency of Users

Users' Views	Section-A: Satisfaction Index of Rural Road Conditions of Overall Taluk (%)			Section-B: Travel Frequency of Users (%)			
	Gulbarga Total	**Mysore Total**	**Grand Total**	**User Travel Frequency**	**Gulbarga Total**	**Mysore Total**	**Grand Total**
(01)	**(02)**	**(03)**	**(04)**	**(05)**	**(06)**	**(07)**	**(08)**
Satisfied	**17(8.0)**	**37 (15.67)**	**54(12.05)**	Daily	28**(13.20)**	50**(21.18)**	**78(17.41)**
Fairly Satisfied	83- 66 (**31.13**)	103(**43.64)**	**169(37.72)**	1-2 days in a week	113**(53.33)**	137**(58.04)**	**250(55.80)**
Dissatisfied	129 **(60.85)**	96**(40.68)**	**225(50.33)**	3 - 4 Days in a Week	20**(09.42)**	30**(12.71)**	**50(11.16)**
Total	212 **(100.00)**	236**(100.00)**	**448(100)**	Occasionally	51**(24.05)**	19**(08.07)**	70(15.63)
				Total	212**(100.00)**	236**(100.00)**	**448(100)**
$\chi_c^2 = \sum \frac{(O_i - E_i)^2}{E_i}$			**19.1**				

Note : 1) Figures in bracket are percentage to total.
2) X^2 test= Manually Calculated
Source : Data gathered through Primary Investigation,

I two regions comprised of only 12 per cent of respondents satisfied with the overall conditions of rural road transportation (See, Section-A in Table-03). Also, it is revealed from the study that about 31.13 per cent and 43.64 per cent of users in that order in the sample taluks of Gulbarga and Mysore districts, respectively, were found fairly satisfied with the overall conditions of the rural road transportation. A large proportion of 61 per cent of users in Gulbarga and nearly 41 per cent of users in Mysore district were dissatisfied with conditions of roads transportation in their area respectively.

Here researcher used the X^2 test to test the significance level of set null hypothesis say Respondents of Gulbarga have highly dissatisfied about over all conditions of rural road transportation with the respondents of Mysore Districts. Researched availed data in the form of a 3x2 contingency table, the degree of freedom (3-1) x (2-1) = 2. Since the calculated value of X^2 is (19.1) much greater than tabulated value for 2 degree of freedom at both 1 % (9.210) and 5 % (5.991) level of significance. Hence, researcher has rejected the null hypothesis at 1 % and 5% level of Significance and concluded that Respondents of Gulbarga have highly dissatisfied about over all conditions of rural road transportation with the respondents of Mysore Districts.

Travel Frequency

The respondents' travel frequency details in the study region are provided in Section-B of Table-03. It is found in the study that the number of daily commuters, among the respondents, is not sizable; and relatively larger proportion is found travelling one to two days in a week in these two districts, the percentage being 53.33 per cent and 58.04, respectively, in Gulbarga and Mysore districts. Thus, it can be inferred that mobility of people in North Karnataka is relatively lesser compared to the southern part of the state.

6.4. MEANS OF TRANSPORT AND DISTANCE TRAVELLED

Modes of transport and means of transport are the interdependent ones in transport sector in any region for that matter. Development of roads receives the increasing volume of traffic and also provides for smooth operation of vehicles. The HPVs and LPVs are the major means of passenger road transport and play dominant role in the countryside. Keeping this in mind, the data gathered as regards the accessibility of means of passenger road transport in study region are provided in Section-A of Table-04.

Table-04: Means of Transport and Distance Travelled (Average km.)

Means of Transport Used	Section-A: Means of Transport (%)			Section-B: Distance Travelled for accessing Services		
	Gulbarga Total	Mysore Total	Grand Total	Services	Gulbarga Total	Mysore Total
(01)	(02)	(03)	(04)	(05)	(06)	(07)
Only Buses	31(**14.62**)	68(**28.84**)	99(**22.10**)	PUC	9.11	8.07
Only LPVs	22(**10.37**)	32(**13.55**)	54(**12.05**)	UG	19.03	17.96
LPVs & Buses	112(**52.84**)	91(**38.55**)	203(**45.33**)	Taluk office & Hospital	34.87	24.43
Walking & Buses	39(**18.40**)	22(**9.32**)	61(**13.61**)	Agri-Marketing Canters	30.50	22.04
Own Vehicles & Buses	08(**3.77**)	23(**9.74**)	31(**6.91**)	For Agri-Inputs	16.76	17.85
Total	**212(100.00)**	**236(100.00)**	**448(100)**			

Note: Figures in bracket are percentage to total.
Source: Data gathered through Primary Investigation,

Based on the field survey data, it can be inferred that the respondents in large number the sample taluks of Gulbarga and Mysore districts depend both on the LPVs (Auto rickshaws, Jeeps etc.) and HPVs (buses) to meet their road transport needs. It is also found in the study that due to inconvenient bus services, the users in the taluks of Gulbarga district (about 11%) were found dependent only on LPV service[12]. From the point of view of benefit accruing to the transport users, the role of LPVs is justified; but the cost of such means of transport, being relatively higher, pinches the users, particularly the lower income group in the study region. From the above, it can be strongly argued that the department concerned should pay attention towards providing public transport services though the HPVs in these two districts, particularly in Gulbarga district. The hypothesis, LPVs and Buses are the important means of transport important in the study region, set for the study has been verified and found correct.

Distance of Travel

People are found to move out from their origin to get the services of different kinds in their region. In many instances, rural people are unlucky compared to the urban ones as they are to travel away for meeting their demands such as health, education, marketing and others. Here, providing statistical information as regards to the distance travelled by the respondents to meet their requirements in the study region is thought desirable; data are provided in Section-B of Table-04. It is observed in the field that the respondents are made to cover a distance nearly of 9 to 10 kms on an average to get accessibility for secondary (particularly PU education) education in their locality. Further, it is also found that they are to perform a journey of 20 to 37 kms (thought not in all cases) to reach taluka head quarters. As well, in case of accessibility to other services, the respondents interviewed are to cover selectively longer distance. However, the researcher observed the provision for primary education for which the children walk one to two kms. Therefore, it can be argued for efficient and dependable passenger transport in the rural areas of Karnataka, with more emphasis on the northern part of the state.

6.5. PURPOSE OF TRAVEL

It is not easy to find out as for what purpose people travel in particular in any region for that matter. Because, people do travel from one place to another for different purposes of: marketing, health services, education, official work, business, personal works and so forth. Here, again, the researcher used Weight Point Method to find out how users priorities their travel purposes from one place to another in the study region. The weight points are accorded to the (05 in all) priorities in descending order of 5, 4, 3, 2, and 1 and then by calculations, the travel priorities of users from one place to another are ranked in accordance with the total weight points scored by each priority among the five identified. In Table-05, the calculations made are presented.

Table- 05: Travelling Priority of Road Users

Respondents and Weight Points (WP)												
Purpose of Travel	**No. of Resp.**	**WP 5**	**No. of Resp.**	**WP 4**	**No. of Resp.**	**WP 3**	**No. of Resp.**	**WP 2**	**No. of Resp.**	**WP 1**	**Total Weight Points**	**Rank**
(01)	**(02)**	**(03)**	**(04)**	**(05)**	**(06)**	**(07)**	**(08)**	**(09)**	**(10)**	**(11)**	**(12)**	**(13)**
Health and Education	36	36X5 **180**	16	16X4 **64**	234	234X3 **702**	122	152X2 **304**	39	39X1 **39**	**1289**	**III**
Marketing	267	267X5 **1335**	103	103X4 **412**	34	34X3 **102**	17	17X2 **34**	27	27X1 **27**	**1910**	**I**
Personal	173	173X5 **865**	197	197X4 **788**	78	78 X3 **234**	--	**--**	--	**--**	**1887**	**II**
Office work	29	29X5 **145**	--	**--**	215	215X3 **645**	96	96X2 **192**	140	140X 1 **140**	**1122**	**IV**
Other Work*	31	31X5 **155**	59	59X4 **236**	09	09X3 **27**	23	23X2 **46**	326	326X1 **326**	**790**	**V**

**Note : ***Business and Manual Work (Factory, Mechanic Work, Labour Work, etc)
Source: Data gathered through Primary Investigation,

Health and Education: Health and education are the two fundamental requirements of human life. Lack of or absence of sophisticated health care and education facilities in the countryside put people in jeopardy. Based on the calculations, this, being the third priority scored 1289 points.

Marketing: The marketing activity may take the forms from rural to rural marketing, rural to urban marketing and urban to rural markets. For the purpose of selling Agri-produces and buying Agri-inputs and other necessities, the people in rural area are bound to move to another destination/s. Here, on calculations a score of 1910 points is found with respect to marketing and topped the list of cause for which the users travel in the study region.

Personal: India is a traditional country. The people in this country have been assigning much importance, ever, to visiting the relatives, celebrating festivals, happy occasions, temple visits and so forth. All these may be attributed to the personal reason of peoples' travel which accrued to the second highest score of 1887 points; regarded as another priority of travel.

Office Work and Other Purposes: It is found in the study that for the users in the study region travel for official work and other purposes has been the fourth and the fifth priority in order which, respectively, scored 1122 and 970 weight points. However, the respondents agreed that they do often visit to the district offices, taluk offices and other offices as well to the courts of law as the case may be.

7. FINDINGS

In above, both with the help of secondary and primary data, various dimensions of the rural road transportation in Karnataka state have been appropriately analysed. The major findings, based on both the primary information, have been presented in below:

- Primary level study has found registered that more than half of the rural population, even today, has relied on traditional occupation (agricultural) and the share of self employed in total respondents' interviewed is only 10 per cent.
- Two districts comprised of high of about 37.95 per cent of rural people have unsatisfied with the existing quality of rural road network in their villages. As compared between two districts, unsatisfactory level of the rural people in the sample taluks of Gulbarga district is high as compared to the sample taluks of Mysore district in this respect.
- In the sample taluks of Gulbarga district huge percentage of about 60 per cent of the rural people have dissatisfied with the quality of overall taluk rural road network which has been only 40 per cent in the sample taluks of Mysore district.

- It is extracted from the study that, even today about 18.40 per cent and 9.32 per cent of people in the sample districts of Gulbaraga and Mysore districts have been reaching bus terminals by walk for getting buss facilities to move one place to another.

8. SUGGESTIONS

Based on the findings of the study, the researcher has proposed the following suggestions to improve the rural road network and better implementation of the PMGSY program in the study region in general. It is believed that the suggestions made may go a long way in the development of rural roads in general

1. Road networks in the district of Gulbarga (North region)are poor in Quality compared with the Mysore (South region) district, it may be suggested for the governments and also concerned authorities to give more emphasis to north Karnataka regions to improve the quality of rural road networks through announcing special grants, particularly Gulbarga district.
2. Particularly, there found a need for increased inter-village connectivity by way of roads in Gulbarga district which may well be extended to the entire state. The researcher himself experienced, during the time of field survey, the pains of lack of inter village connectivity in this part of the state. Hence, this suggestion is made with all concern to the rural parts of Karnataka.
3. Even today, both regions comprised of about 13 per cent of people in the study region walking for 1 or 2 kilometres for accessing bus facilities to take busses for desired journey. In this regard, government has to provide buss facilities to places where bus facility, even today, is not being offered.

9. CONCLUSION

India remains a developing country, challenges have been many. In India, huge population is located in rural region. Massive human resource in the rural regions has not exposed at all. We are required to make use of that resource effectively by way of ensuring equal distribution of infrastructure facilities to the nook and corner of the country. Providing Urban Amenities to Rural Areas (PURA) is the broad thought of, former president of India, A P J Abdul Kalam which helps achieve the socioeconomic development of rural India. Provision for connectivity of different type has to be continuously prioritized in our plans. Introduction and implementation of any new development programme would add to the already existing ones. The PMGSY connecting the habitations, with roads, across the Nation, of varied sizes of populations residing in the villages can be considered a desirable strategy of development. Though, it has been proved from the present study that the respondents in the study region were unsatisfied with the quality of rural road network and overall conditions of the rural road transportation at huge level. This is more so required in the present days of globalised regime to equip the Nation to face the global challenges in all fronts.

Notes:

1. Un-surfaced road in adjoining states was 44.26 % in Andhra Pradesh, 36.47 % in Kerala, 23.59 % in Maharastra, 27.29 % in Tamilnadu , transport research wing, ministry of road transport and highways, government of India.
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12. Some respondents said that in emergency cases (sudden health problems, unexpected calls from someone and other times), they were paying at Rs. 150 to 200 for LPVs particularly Auto Rickshaws, due less frequent bus services in the region.

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