

CHAPTER 1

INTRODUCTION

1.1 BACKGROUND

The Highways Department is responsible for the planning, design, construction and maintenance of state highways, major district roads, other district roads, bridges and the construction and maintenance of National highways, on behalf of the Government of India (GOI). In order to manage and maintain the road network effectively and to meet the transport demands of a modernising economy, the Highway Department desires to improve its efficiency and develop a system that would motivate the core staff.

The Road User Satisfaction Survey 2007 (RUSS) measures awareness and satisfaction with the Highway Department's services in Tamil Nadu and other aspects of road users' experiences and perceptions. The purpose of this survey is to:

- Monitor trends in customer satisfaction in order to drive improvements; and
- Develop an ever greater understanding of customers and their needs

This report is the second in a series that began in 2004. It contains the analysis of 7855 face to face interviews and 40 in-depth interviews carried out between May 2007 and the end of June 2007. It provides the main findings of the survey and compares them with the previous RUSS where appropriate.

1.2 OBJECTIVES OF THE SURVEY

The specific objectives of the Second Road User Satisfaction Survey are:

- To elicit views on public perception of current sector outcomes, Highway Department's performance and government policies
- To document the views in a comprehensible format suitable for comparison over time and
- To present the findings of the survey to senior decision-makers in GoTN and the general public.

1.3 RESEARCH APPROACH AND METHODOLOGY

TNS was contracted to carry out the second round of RUSS. The RUSS is both quantitative and qualitative in nature. The quantitative research method involved face-to-face interviews with different road users using a structured questionnaire. The qualitative capsule included 40 in-depth interviews among various stakeholders and road users across the State of Tamil Nadu.

1.4 QUANTITATIVE SURVEY

The purpose of this study is to facilitate comparison on key indicators with the earlier as well as future studies so as to assess the impact. In terms of design robustness, the latter requirement (changes) demands attention in view of the need for statistical rigour so that conclusions are valid. This governs the design of the baseline, and concomitantly, the design of the tracking studies (mid term and end line).

Hence, as in the first round of RUSS (2004-05), a large scale quantitative survey among general population was carried out. The quantitative study that contributes measurable data on the key indicators was carried out. The quantitative data with a robust sampling design yields representative and comparable findings over time.

In the second round of RUSS (2006-07), additional target groups were included. The target groups covered in this round are listed in Table 1.4a

Table 1.4a: Target Groups Covered in RUSS 2

Target group	Target group
Truckers/Tanker Driver	Households adjacent to main roads
Private Bus Drivers	Public Transport commuters
State Transport Drivers	Tourists
Taxi Drivers	Pedestrians
Hired car/Travels Drivers	Cyclists
Wagon Drivers	BPO/Call Center Taxi Drivers*
Auto rickshaw Drivers	Bullock cart riders*
Private Car Drivers	School students*
Owner driven cars	College Bus Drivers*
Two wheelers (Owner driven)	Ambulance Drivers*
Farmers/Agricultural commodity producers	

* New target groups added in RUSS II

The questionnaire used in 2007 addresses different aspects of services rendered by the Highways Department, as well as other issues. A substantial part of the questionnaire used in 2007 is same as the one used in 2004, enabling us to study the trends. A copy of the questionnaire is appended (Annexure 3).

1.5 SAMPLING DESIGN

The total sample size for each of the target group is distributed across the 30 districts. Thirty towns across the state were selected, by ensuring representation to towns of different sizes and the different highways/roads. In all 172 villages (i.e. 1% of the total number of 17,244 revenue villages in the state, according to Census of India, 2001) were selected randomly across the state for the household and farmer interviews by ensuring representation to all taluks and different types of roads viz., National Highways (NH), State Highways (SH), Major District Roads (MDR), Other District Roads (ODR) and Village Roads (VR).

The total sample size was distributed to the different types of roads, viz., NH, SH, MDR, ODR and VR in the proportion of 25%, 35%, 20%, 10% and 10% respectively. Specific roads and NH, SH and MDR were selected covering the entire length and breadth of the state. On each of the type of roads selected, a few halting points like dhaba, petrol filling station etc. were selected for conducting the interviews.

The Gender factor and socio-economic status were included in case of target groups such as Households (HHs) adjacent to main roads, owner driven cars, two wheeler drivers, farmers/Agriculturists/Agricultural marketing agents, public transport commuters and tourists.

Table 1.4b: Sample Size by Gender for Structured Interviews

Target group	Sample size	
	Men	Women
Truckers/Tanker Drivers	413	-
Private Bus Drivers	408	-
State Transport Drivers	400	-
Taxi Drivers	301	-
Hired car/Travels Drivers	207	-
Wagon Drivers	108	-
Auto rickshaw Drivers	245	-
Private Car Drivers	302	2
College Bus Drivers	85	-
Ambulance Drivers	85	-
BPO/Call Center Taxi Drivers	78	-
Owner driven cars*	516	247
Two wheelers (Owner driven) *	311	144
Farmers/Agricultural commodity producers*	411	204
Public Transport commuters*	418	406
Tourists*	205	96
Bullock cart riders	104	1
School students	121	105
Households adjacent to main roads*	403	398
Pedestrians	434	387
Cyclists	224	86
Total	5779	2076

* SEC - Socio Economic Classification available

In the second round of RUSS, the road users were broadly categorised into three groups namely, main users, vulnerable users and school students so as to understand the specific problem and needs of each group.

Vulnerable users are defined as road users having little choice to walk or travel or live along roads in close proximity to fast moving vehicles such as bullock cart riders, pedestrians, cyclists and households living adjacent to main road. Compared to the main users they occupy very less road space, often pushed to the side of the road and are unprotected by an outside shield. The households living adjacent to the main road are

subject to heavy noise and air pollution and often have to cope with complex traffic and road problems like road construction, repairs etc.

Main users are those with dominant access and greater choice in road use excluding vulnerable users and school students.

1.6 SOCIO ECONOMIC CLASSIFICATION

The conventional market research in India employs Socio-Economic Classification (SECs) used by the National Readership Survey and the Indian Readership Survey (NRS; IRS 1998-1999), and ratified by the Market Research Society of India (MRSI). Socio-Economic Classification (SEC) categorises the urban households into five groups, namely A, B, C, D and E, on the basis of education and occupation of the main wage earner and categorises rural households into R1, R2, R3 and R4 on the basis of education and type of house. It is used by most marketing professionals as an indicator of the propensity of urban consumers to purchase different items. Better SEC rating (such as A) suggests that the household has a high propensity to purchase high value items.

Table 1.6a gives the classification of the Indian urban population by educational attainment and occupational status arranged along the 'X' and 'Y' axes respectively. Alphabets from 'A' to 'E' denote respective segments of people, while numbers 1 and 2 indicate the sub-segments.

It is noteworthy from the table that extraordinarily diverse segments of the population often have the same classification. For instance, a junior officer with a high-school degree and an entrepreneur with no formal schooling will both be classified as B2. Moreover, other extremes of the classificatory scheme appear nonsensical or null sets, for example an unskilled worker with a graduate or professional degree (D) or an illiterate senior executive (B1).

Table 1.6a: Urban SEC Grid

EDUCATION \ OCCUPATION	Illite rate	Literate but not formal schooling	School upto 4 years	School 5-9 yrs	SSC/ HSC	Some college (incl. Dip.) but not graduate	Graduate/ Post graduate	Graduate/ Post graduate
							General	professional
Unskilled worker	E2	E2	E2	E1	D	D	D	D
Skilled worker	E2	E1	E1	D	C	C	B2	B2
Petty Trader	E2	D	D	D	C	C	B2	B2
Shop Owner	D	D	D	C	B2	B1	A2	A2
Businessman/Industrialist with no of employees : None	D	C	C	B2	B1	A2	A2	A1
1-9	C	B2	B2	B2	B1	A2	A1	A1
10+	B1	B1	B1	A2	A2	A1	A1	A1
Self employed	D	D	D	D	B2	B1	A2	A1
Clerical/Salesmen	D	D	D	D	C	B2	B1	B1
Supervisory Level	D	D	D	C	C	B2	B1	A2
Officer/Executive Junior	C	C	C	C	B2	B1	A2	A2
Officer/Exec Mid/Sr.	B1	B1	B1	B1	B1	A2	A1	A1

Table 1.6b gives the Rural SEC of the population based on their education and type of house (namely, pucca, semi pucca and kuchha). Like the hierarchy segmented in urban SEC, rural SEC suggests that the R1 household has a high propensity to purchase high value items.

Table 1.6b: Rural SEC Grid

EDUCATION	TYPE OF HOUSE		
	PUCCA	SEMI PUCCA	KUCHHA
Illiterate	R4	R4	R4
Literate but no formal school	R3	R4	R4
Upto 4 th std	R3	R3	R4
5 th to 9 th std	R3	R3	R4
SSC/HSC	R2	R3	R3
Some college but not graduate	R1	R2	R3
Graduate/Post graduate (General)	R1	R2	R3
Graduate/Post graduate (Professional)	R1	R2	R3

1.7 QUALITATIVE STUDY

In the second round of RUSS (2007), Qualitative study was carried out among the different stakeholders/ road users, through in-depth interviews. . This technique was basically used, with a view, to explore topics in their own right, to provide more in depth understanding about a subject or individual case than a quantitative survey, or to complement the quantitative information. Also, the in-depth interviews help in explaining topics and getting more in depth understanding of the issues that can substantiate the quantitative survey findings.

As done in the first round of RUSS, the in-depth interviews were conducted to explore conceptual issues, importantly, at an early stage in the development of a questionnaire. This helped in observing how respondents answer to the questions related to their actual experiences. The interviewers used in-depth interview guide that had open-ended questions to elicit information in depth. Hence the interviewer did not have to rely on a structured questions set. Probing techniques were used to encourage the respondents to give complete and detailed answer possible.

Table 1.7a gives the details pertaining to coverage for the qualitative study through in-depth interviews to understand their perceptions about road safety, development on various types of roads, and various types of roads. Further they were asked about the factors that are satisfactory and the aspects that need improvement. Also they were asked about their contribution to road safety and improvement in the capacity of stakeholders / users.

The interviews were content analysed to substantiate the quantitative findings. An attempt has been made to illustrate the outcome of qualitative study and added in the subsequent chapters.

In all, 40 in-depth interviews were conducted among different categories of respondents.

Table 1.7a: Coverage for In-depth Interviews

S.No	Target Group	Coverage
1	Truck, Tanker operators and drivers	2
2	Bus Service operator/driver-Pvt.	2
3	Bus drivers – Government	2
4	Auto, Taxi, Hired car operators and Drivers	2
5	Households living adjacent to main road	2
6	Pvt. Car owner association	2
7	Chamber of Commerce/Trader/ Manufacturer	2
8	Fright Forward shipping agents	2
9	Insurance, Industry, Rep.	2
10	Emergency services Rep/ Trauma Care staff/ Doctors	2
11	Ambulance provider/drivers	2
12	NGOs involved in Social Environmental issues related to roads and vulnerable groups	2
13	Academicians	2
14	Journalists/Media Rep.	2
15	Pedestrians	2
16	Traffic Police	2
17	Revenue Department Officials/ Advocates	2
18	Vehicle manufacturers (including bicycles) and repair workshop representatives	2
19	Trade Unions/ Federation of unions in Transport Sector	2
20	Transport Undertakings and Industries Department	2
Total		40

In view of the qualitative nature of the study, the coverage would suffice.

1.8 Survey implementation and analysis

All the field interviewers and supervisors were trained at Chennai during April 26-27, 2007. The methods used to impart training include lectures by experts, group discussion, and explanation of questionnaires, demonstration interviews, mock interviews and field practice interviews. Senior research and field professionals of TNS imparted the training.

The field work was carried out by 12 teams with each team comprising 1 supervisor and 14 interviewers during May 7- June 27, 2007. The field operations were carried out as per the ISO 9001:2000 norms/field standards. Senior research and field professionals made field visits to monitor the quality of data.

All the filled in questionnaires were sent to the head quarters after field editing for office editing and post coding work. The data entry and data processing of the quantitative data were carried out with the help of tailor made programs.

The analysis was carried out by the type of road (NH, SH, MDR, ODR and VR), SEC, gender, age and target group. In the case of the qualitative data, transcriptions of the in-depth interviews were prepared and content analysis of the same by in house analysts followed.

1.9 ORGANISATION OF THE REPORT

This report has been designed as per Task 1 para 4.2 and contains six chapters including this chapter.

Chapter 2 provides the profile of the road users interviewed in terms of socio economic and demographic characteristics.

Chapter 3 gives the details relating to journey characteristics including the journey purposes, reliability and the expectations and perceptions of road travel among different road users. It also deals with the measures of customer satisfaction of road network outcomes and attributes through a set of a few major indicators, each with a number of sub-indicators.

Chapter 4 gives the findings of the study among vulnerable users and school students.

Chapter 5 compares selected key indicators of both the rounds of RUSS and deals with the measures of customer perceptions on Highways Department performance through a set of a few major indicators including value for money achieved by way of road infrastructure in comparison with levels of road related taxation and user charges in the State.

Chapter 6 compares selected key indicators RUSS 2 and deals with the measures of customer perceptions on various types of roads and Highways Department performance through a set of a few major indicators.

Chapter 7 provides suggestions on improving the road networks.

CHAPTER 2 PROFILE OF RESPONDENTS

2.1 DEMOGRAPHIC PROFILE

Table 2.1a gives the gender distribution of the respondents. The respondents included both men and women road users. Of the total respondents, 73% were men while 27% were women.

Table 2.1a Distribution of Respondents by Gender (%)

Respondent group	Men	Women
Truck/tanker driver	100	00
Private bus driver	100	00
State transport driver	100	00
Taxi driver	100	00
Hired car travels/travels driver	100	00
Auto driver	100	00
Four wheeler owner / user	68	32
Two wheeler owner/user	68	32
Wagon driver	100	00
Private car drivers	100	00
College bus drivers	100	00
Ambulance drivers	100	00
BPO/ Call centre cab drivers	100	00
Public transport commuters	51	49
Tourist	68	32
Farmers/Agricultural producers	67	33
Bullock cart riders	99	01
Pedestrians	53	47
Cyclists	72	28
Households living adjacent to main road	50	50
School students	53	47
All	73	27
<i>Base</i>	<i>5779</i>	<i>2076</i>

Table 2.1b gives the distribution of respondents by type of road user and age. Majority of the respondents are from economically productive age group. The mean age of main users is 36 years, while that of vulnerable users is 35 years.

Table 2.1b: Distribution of Road Users by Age (%)

Age(Years)	Road Users	
	Main users	Vulnerable users
18-19	1	4
20-24	9	14
25-34	37	35
35-44	34	28
45-54	14	13
55-59	3	3
60-64	1	2
65 Above	1	1
Mean age	36	35
<i>Base</i>	<i>5592</i>	<i>2037</i>

2.2 SOCIO ECONOMIC PROFILE

Among the main users two and four wheeler owners, public bus commuters, tourists, and farmers/agricultural producers and among vulnerable users, households living adjacent to highway were grouped using the urban and rural Socio-Economic Classification (SEC).

Table 2.2a: Distribution of Main Users by SEC (%)

Respondent Groups→	FWO		TWO		PTC		Tou		F/A	
	M	W	M	W	M	W	M	W	M	W
Urban SEC										
SEC A	52	62	15	28	12	14	16	12	2	1
SEC B	30	25	34	42	27	30	32	30	7	3
SEC C	10	6	34	16	48	41	37	37	10	9
SEC D	1	0	0	0	0	0	0	0	0	0
Rural SEC										
R1	4	5	4	8	2	2	3	6	5	4
R2	3	3	6	6	6	6	7	9	18	19
R3	1	0	8	1	5	7	5	6	57	64
R4	0	0	0	0	0	0	0	0	1	1
<i>Base</i>	<i>516</i>	<i>247</i>	<i>311</i>	<i>144</i>	<i>418</i>	<i>406</i>	<i>205</i>	<i>96</i>	<i>411</i>	<i>204</i>

M= Men; W = Women

Table 2.2a shows consistent result trend as majority of the four-wheeler owner/ users (FWO) are from the urban SEC. The same consistency is noticed in the rural SEC around 90 percent of the farmers and agricultural producers (F/A) are from the rural SEC.

This perhaps indicates the consistency in association of standard of living of the different population groups and possession of two and four wheelers among them.

Table 2.2b gives the distribution of vulnerable users by different Socio-Economic Classifications. More than half of the households belong to rural SEC while 46% belong to urban SEC.

Table 2.2b: Distribution of Vulnerable Users by SEC (%)

Respondent Groups→	HHs staying adjacent to main road		
	All	Men	Women
Urban SEC			
SEC A	7	8	6
SEC B	12	12	12
SEC C	20	25	15
SEC D	5	5	5
SEC E	2	2	1
Rural SEC			
R1	5	6	5
R2	15	13	17
R3	33	28	38
R4	1	1	1
<i>Base</i>	<i>801</i>	<i>403</i>	<i>398</i>

Table 2.2c: Distribution Of Road Users By Education (%)

Education	Road Users	
	Main users	Vulnerable users
Illiterate	1	2
Literate but no formal education	1	2
School upto 4 Years	3	5
School upto 9 Years	29	35
SSLC/HSC/+2	44	36
Some College but not Graduate	5	7
Graduate/PG-General	14	11
Graduate/PG-Professional	3	2
<i>Base</i>	<i>5592</i>	<i>2037</i>

Table 2.2c gives the distribution of road users by education status. Almost all the respondents are literates and most of them have completed at least 9 years of schooling.

Among the main users, 14% are skilled workers and 13% are shop owners, while 18% are housewives. One-fourth of the vulnerable users are skilled workers (24%) while one-tenth are unskilled workers (Table 2.2d).

Table 2.2d: Distribution Of Road Users By Occupation (%)

Occupation	Road Users	
	Main users	Vulnerable users
Unskilled Worker	1	11
Skilled Worker	14	24
Petty Trader	4	10
Shop Owner	13	10
Businessman/Industrialist with no employees	8	1
Businessman/Industrialist with 1-9 employees	3	1
Businessman/Industrialist with 10 or above employees	1	0
Self Employed Professional	4	1
Clerical Sales Man	8	5
Supervisor Level	6	3
Officers/Executive-Junior	5	2
Officers/Executive-Middle /Senior	3	0
Student	7	6
Housewife	18	21
Unemployed	3	5
<i>Base</i>	<i>5592</i>	<i>2037</i>

Table 2.2e: Distribution of road users by ownership of durables (%)

Durables	Road Users	
	Main users	Vulnerable users
Radio	62	69
Black and White TV	14	21
Colour TV	78	72
Tape Recorder/CD Player	28	24
VCD Player	33	25
Bicycle	63	72
Mobile Phone	61	36
Two Wheeler	45	30
Car	14	1
None of the Above	2	1
Any of the Above	98	99
<i>Base</i>	5592	2037

Note: Total exceeds 100 due to multiple responses

Table 2.2e gives the ownership of durables by type of road users. Television, radio and bicycle are owned by majority of the main and vulnerable users. Mobile phones are used by three-fifth (61%) of the main users and more than one-third (36%) of the vulnerable users. Two-wheeler is owned by more than two-fifth (45%) of main users and more than one-fourth (30%) of vulnerable users, while Car is owned by more than one-tenth (14%) of main users. Of all the durables,

TV ownership was reported highest among Main users (78%) as well as among Vulnerable user (72%)

Table 2.2f: Distribution of road users by mass media exposure (%)

Main users	Never	Rarely	Sometime	Mostly	Daily	No Response
Reading a Newspaper	6	6	15	16	57	0
Reading a Magazine	25	23	28	26	8	0
Listening to Radio	13	15	25	22	25	0
Watching TV	3	6	29	26	46	0
Vulnerable users	Never	Rarely	Sometime	Mostly	Daily	No Response
Reading a Newspaper	13	8	17	16	46	0
Reading a Magazine	34	20	22	17	5	2
Listening to Radio	12	12	27	22	25	2
Watching TV	3	2	9	21	63	2

Note: Total exceeds 100 due to multiple responses

Exposure to newspaper and magazine is higher among the main users, compared to vulnerable users. Exposure to radio is same among main and vulnerable users while the proportion of users watching TV everyday is higher among vulnerable users (63%) than main users (46%) (Table 2.2f).

CHAPTER 3

JOURNEY CHARACTERISTICS

This chapter presents results relating to journey characteristics of road users such as awareness and use of different types of roads, frequency and purpose of travel, roadside amenities available, observation of roadside medical facilities available, roadside signs, safety aspects etc. It also provides information on the users' perceptions about their journey characteristics. Different measures of scales such as three-point, four-point, five-point and ten-point were used to measure various ratings with respect to journey characteristics.

3.1 AWARENESS AND USE OF DIFFERENT ROADS

Table 3.1a shows that almost all the main users are aware of NH, SH, MDR, ODR and VR. While almost all the vulnerable users are aware of the National Highways and Village Roads, most are aware of Major District Roads, State Highways and ODR.

Table 3.1a: Awareness of different type of roads (%)

Road/Highway	Road Users	
	Main users	Vulnerable users
National Highway	100	99
State Highway	100	91
Major District Road	99	93
Other District Road	99	86
Village Road	99	97
<i>Base</i>	5592	1236

Note: Total exceeds 100 due to multiple responses

Majority of the main users reported to have used all the roads while majority (94%) of the vulnerable users used the NH followed by village road (87%) (Table 3.1b).

Table 3.1b: Use of different type of roads (%)

Roads	Road Users	
	Main users	Vulnerable users
National Highway	97	94
State Highway	97	81
Major District Road	98	86
Other District Road	95	77
Village Road	92	87
<i>Base</i>	5592	1236

Note: Total exceeds 100 due to multiple responses

3.2 TRAVEL DETAILS

Frequency of Travel

Proportion of main users who travel more frequently (5 or more days a week) is highest (50%) in NH, followed by MDR (46%) and SH (42%). More than three-fifth (64%) of the main users travel along the ODR (33%) and VR (31%), 5 or more days a week. The travel details of vulnerable users and school students are provided in separate chapter.

Table 3.2a: Frequency of travel in last 12 months by main users (%)

Frequency	Main Users				
	NH	SH	MDR	ODR	VR
5 or More Days a Week	50	42	46	33	31
2-4 Days a week	19	30	24	26	16
Once a week	14	14	18	17	15
Less than once a week but more than once a month	6	6	6	12	12
Once a month	6	4	3	7	12
Less than once a month	4	2	2	4	12
Not Stated	1	1	1	1	2
<i>Base: Those used the NH/SH/MDR/ODR/VR</i>	<i>5435</i>	<i>5423</i>	<i>5494</i>	<i>5302</i>	<i>5143</i>

Purpose of Travel

Table 3.2b gives the purpose of travel among different road users by sex. Majority of the four wheeler owners/users, two-wheeler owners/users, public transport commuters and farmers/agricultural producers stated that the recent trip was for leisure purpose followed by business related trips. More men than women reported to have taken up business related trips and vice versa in case of leisure trips.

Table 3.2b: Trip purpose among men and women road users (%)

Trip purpose	FWO		TWO		WD		PTC		F/A	
	M	W	M	W	M	W	M	W	M	W
Business related	47	24	44	24	75	0	31	15	30	10
Leisure	51	69	47	64	1	0	63	78	52	77
Commute to college/ educational institutions	0	1	1	3	0	0	1	1	0	0
Others	2	6	8	8	24	0	5	6	18	13
<i>Base:</i>	<i>516</i>	<i>247</i>	<i>311</i>	<i>144</i>	<i>108</i>	<i>0</i>	<i>418</i>	<i>406</i>	<i>411</i>	<i>204</i>

Familiarity of Journey

Table 3.2c: Journey familiarity among men and women road users (%)

Whether familiar	FWO		TWO		WD		PTC		F/A	
	M	W	M	W	M	W	M	W	M	W
Familiar	85	81	87	85	93	0	93	88	53	84
New	12	16	12	13	7	0	7	12	40	13
No Response	2	3	2	2	0	0	0	0	7	2
<i>Base:</i>	<i>516</i>	<i>247</i>	<i>311</i>	<i>144</i>	<i>108</i>	<i>0</i>	<i>418</i>	<i>406</i>	<i>411</i>	<i>204</i>

Almost all the road users state that the recent trip had been a familiar trip. A maximum of 40% farmer/agricultural producer men stated that it was a new journey (Table 3.2c).

Roadside amenities

Table 3.2d provides results on usage of roadside amenities/facilities by road users in their most recent trip from RUSS 2 and 1.

Table 3.2d: Roadside amenities/facilities used during the most recent trip (%)

Roadside amenities	RUSS 2					RUSS 1				
	NH	SH	MDR	ODR	VR	NH	SH	MDR	ODR	VR
Tea/Coffee	43	22	15	4	5	76	47	23	14	9
Eating Food/Drinks at Restaurant/ Shops	27	16	11	3	2	55	25	8	4	2
Public Toilets	18	10	6	2	1	43	12	5	2	0
PCO	12	8	7	2	2	16	5	4	4	0
Service station/ workshop/ mechanics	15	9	4	1	0	0	0	0	0	0
Health Facility	3	2	2	1	0	0	0	0	0	0
Overnight accommodation	2	1	1	0	0	0	0	0	0	0
Parking Facility	3	1	1	1	0	0	0	0	0	0
Not used Any	9	7	6	5	6	19	43	67	76	82
No Facility available	18	21	26	20	17	0	0	0	3	0
No Facility noticed	0	0	0	1	1	0	0	0	0	0
<i>Base: Those who used the particular road</i>	6597	6424	6557	6253	6218	4002	4060	3535	2857	3438

Note: Total exceeds 100 due to multiple response; - Not reported

On being asked about the roadside amenities or facilities utilised during the most recent trip, majority of the road users reported about have tea/coffee, followed by food. The road users also used parking facilities. The road users reported to have also used public toilets and PCO during their recent journey.

In Round 1, amenities/ facilities were used mostly on the NH and this trend follows in Round 2 also. Tea/Coffee, eating Food/Drinks at Restaurant/ Shop, public toilets and PCO are the main amenities/ facilities used by the respondents used both in Round 1 as well as II.

Qualitative Study Responses

Utilisation of roadside amenities

All the participants of the qualitative study were asked about the roadside amenities they are aware of, the types of roads the amenities are available and the amenities required in each type of roads.

The responses of the participants indicate that NH followed by SH is well equipped with roadside amenities compared to other roads. The availability of basic amenities on NH and SH such as eateries and toilets are reported by almost all the participants. However, lack of

availability of important facilities such as PCOs, petrol stations, and vehicle service stations is voiced strongly.

The perceptions of the qualitative study respondents regarding the roadside amenities are summarised below.

Perception regarding amenities	Acad.	Jou.	ESR	COC	NGO	AD	Taxi /CD	TD	PBO /D
Tea / coffee shop are available on NH and SH	✓	✓	✓	✓	✓	✓	✓	✓	✓
No amenities are available on MDR	✓	✓	✓	✓	✓		✓	✓	✓
Hotels are available on NH and SH	✓	✓	✓	✓	✓		✓	✓	✓
Very less PCOs, petrol stations on all roads	✓	✓	✓	✓	✓		✓	✓	
Not many of the amenities are available on MDR		✓	✓	✓	✓	✓	✓	✓	✓
Amenities need to be improved in SH and MDR	✓	✓	✓	✓	✓	✓	✓	✓	
Help lines should be provided for every 100 kms on all roads	✓	✓	✓	✓	✓				

Some of the responses on the facilities available on NH, SH and MDR are quoted below for a better understanding.

NH

“Eateries, hotels, coffee / tea bunks are available on NH” *(Acad., Jou., COC, NGO, ESR)*

“Improve roadside facilities so that we have some or the other facility for every 100 kms” *(COC, NGO)*

“Facilities are there but roadside signs should be there for every 50-60 kms. Boards with emergency service numbers should there, as this will be useful in case of accidents. Police station / cell for every 100 kms and night time Police patrol are also necessary” *(NGO)*

“Petrol bunk and toilet facilities are available” *(Jou.)*

“Petrol bunk, hotels, STD and toilet facilities are available on NH” *(Jou.)*

SH

- “Facilities are improving on SH also” (Jou.)
- “Except hotels, nothing is available, but hotels are not clean and quality is poor though expensive” (Jou., NGO)
- “Only facilities like small hotels and fuel pumps are available” (COC)
- “Facilities are there but not up to the mark” (NGO)

MDR

- “No facilities are available on MDR” (Almost all participants)
- “On MDR Tea, Coffee and Telephone facility are available. No other facility is available” (NGO)
- “Telephone and water facility exist” (Acad.)
- “Roadside facilities are not available on MDR, ODR. Only Mileage stone can be seen” (NGO)

Roadside amenities required

The participants were asked about the facilities required on each of the road based on their experience on these roads. The COC, academicians, journalists and truck drivers felt health care facilities such as ambulance services, first aid centres, mobile hospitals need to be provided irrespective of type of roads. Availability of these facilities is felt more in rainy season as SH, MDRs and ODR are damaged due to heavy rains. Often the potholes formed due to heavy rains are cause of accidents on SH. Water stagnation due to improper drainage facilities was observed as reason for short life of the roads. The responses are quoted below:

NH

- “On NH, help lines need to be provided for every 100 kms. More service stations should be made available on all roads so that when a vehicle breaks down it will be easy for the driver to find a place to repair it. ” (COC)
- “Drainage facility is hardly found and the rain water stays on road itself, which reduces the life of road and creates potholes, resulting in accidents” (COC)
- “Need hospital/health care facilities for every 20-30 kms with minimum medical staff and ambulance facility” (Acad., PBO)
- “In many roads there are no toilets. The ones available are not neatly maintained” (COC)
- “Trees should be planted. Petrol bunk, automobiles shop, patrolling, Jou., COC,

ambulance with life line facility, toilets, telephone, medical facility to attend accident victims, service stations, check post, rest houses and mobile hospitals for every 100 kms should be provided on NH” *ESR, ADA, NGO, TD, Acad.*

“Roadside facilities are there on NHs. A few Dhabas are there but quality of food is not good and also we don’t get variety food. Good hotels are required on these roads. Petrol bunks for every 25-30 kms, toilets, telephone facility, rest rooms and medical facility should be provided” *(PCD)*

SH

“Water, hospital, hotel, emergency service, ambulance, service station, toilet, fuel pumps and mobile health facilities should be provided” *Almost all participants*

“Bus stops, ambulance and repair shops are required” *(COC)*

“Fuel pumps, neat hotels, service centres, hospitals, first aid centres and police patrolling for every 20-25 kms need to be provided” *(COC)*

MDR

“Service stations for every 50-100 kms, hospital, mobile service centre, traffic police and space for parking needed” *(NGO, PBO)*

“MDRs need facilities like STD booth, hospital, check post, ambulance, water facility, mechanic shops, fuel stations, patrolling, first aid facility, trauma centres and signboards” *(Jou., Acad.)*

“Need signboards at school zones, at crossing and also at the village entrance side” *(ESR)*

Reported medical relief and trauma care facilities available

Two fifth of the NH users reported to have noticed the ambulance stationed for emergency services. Presence of hospitals was reported by about one-fourth of the users of NH, SH, and MDR. Non-availability of any medical facility was reported by one-third (32%) of the ODR users and VR users.

Table 3.2e: Reported medical relief and trauma care facilities available on different roads

Medical facility	NH	SH	MDR	ODR	VR
Ambulance	43	11	7	3	1
Hospital facility	28	24	27	7	7
Information boards	1	4	1	0	0
No facility available	17	26	28	32	32
Not used the particular kind of road in the last journey	22	36	38	58	57
<i>Base</i>	<i>5435</i>	<i>5423</i>	<i>5494</i>	<i>5302</i>	<i>5143</i>

Roadside signs

Table 3.2f: Roadside signs about roadside amenities

Signs about Roadside amenities	NH	SH	MDR	ODR	VR
Not Available	2	1	2	3	9
Did not Notice	4	4	6	7	10
Not Helpful	8	12	20	14	11
Helpful	57	43	32	15	10
Very Helpful	10	6	3	2	3
Not used the particular kind of road in the last journey	20	34	37	57	56
Base	5435	5423	5494	5302	5143

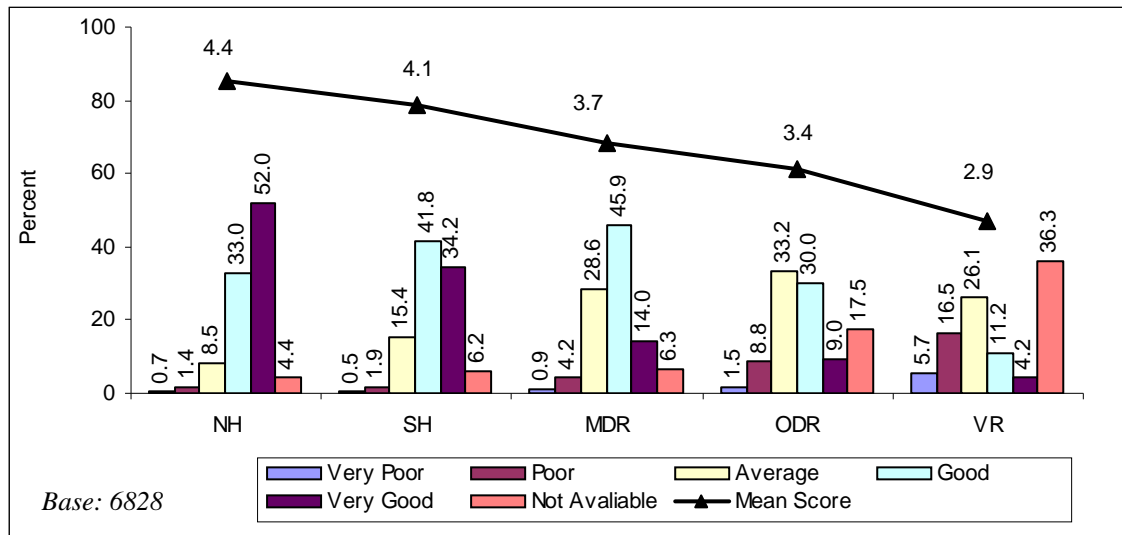
Two third (67%) of the NH users, about half (49%) of the SH users and one third (35%) of the MDR users found the roadside signs on different amenities helpful or very helpful. More than one tenth of the ODR and VR users reported so.

Signage

The road users were asked to rank the roadside signs in different types of roads such as quality of road markings, sufficiency, adequacy and visibility of warning/ road signs and milestone/ distance signs, positioning of warning/ road signs and access to service lanes to go into towns/ villages using four- and five-point scales.

Fig 3.2a shows the distribution of reporting on quality of road markings on different type of roads. About half (52%) of the road users have reported the quality of road markings on NH as very good and the quality consistently declines with the type of the roads.

Figure 3.2a: Quality of Road Markings – Mean Score and %



By and large, quality of road markings on NH are Good or Very good (85%). The corresponding figure for SH, MDR, ODR and VDR being 76%, 60%, 39% and 15% respectively. The rankings show that the quality of road markings on NH is comparatively better any than other roads followed by SH while VR with poor quality.

Figure 3.2b: Sufficiency of Warning/ Road Signs - Mean Score and %

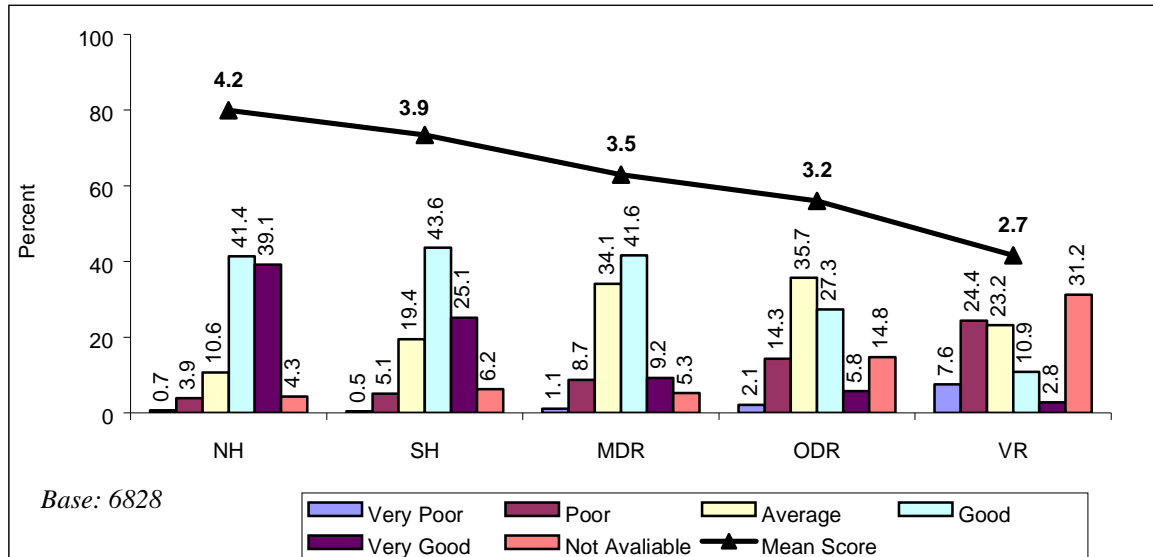


Figure 3.2b shows the sufficiency of warning/ road signs indicate about two-fifth (39%) reporting ‘very good’ on NH while just one-fourth (25%) reporting ‘very good’ on SH. It is been seen how desperate requirement of warning/ road signs in VR.

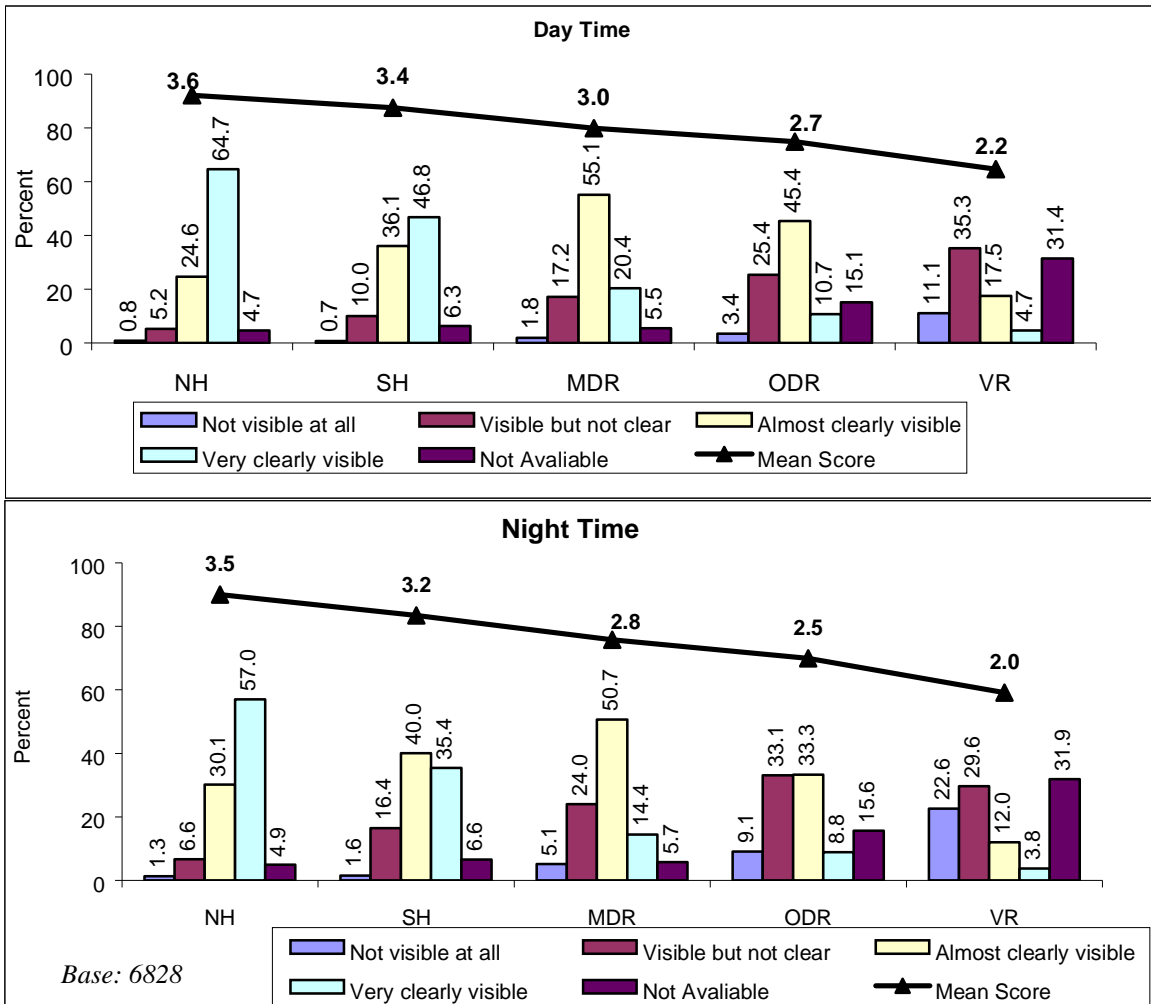
While the road signs and mile stones/distance signs on NH were rated as ‘sufficient’, the rating in case of SH, MDR and ODR were ‘average/fair’. The sufficiency of road signs and mile stones/ distance signs on the VR was rated as ‘insufficient’ by the road users.

The ratings show the warning/ road signs are sufficient on NH and SH whereas, the sufficiency rating falls less than average on VR.

Figure 3.2c indicates about the visibility of warning signs on different types of roads. More than three-fourth of road users have reported that the warning/ road signs are very clearly visible on NH while nearly half of the road users have reported very clear visibility on SH in the daytime. In the nighttime, the visibility is not as clear like the daytime in all the roads. Near about 30 percent of road users have reported that it is visible but not clear on the VR during both the day and night.

The rating of visibility in both day and night time shows clear visibility on NH, almost clearly visible on SH, MDR and ODR while not clearly visible on VR.

Figure 3.2c: Visibility of warning/ road signs- Mean Score and %



The visibility of milestones/ distance signs shows (Figure 3.2d) almost a similar pattern like the warning/ road signs. About three-fourth of road users have reported very clear visibility of warning/ road signs on NH while nearly half of the road users have reported very clear visibility on SH in the day time.

Even in case of milestones/ distance signs, the visibility is not clear in the nighttime. About one-third of road users have reported that it is visible but not clear on the VR in the daytime while 30 percent have reported no clear visibility in the nighttime.

Figure 3.2d: Visibility of milestones/ distance signs- Mean Score and %

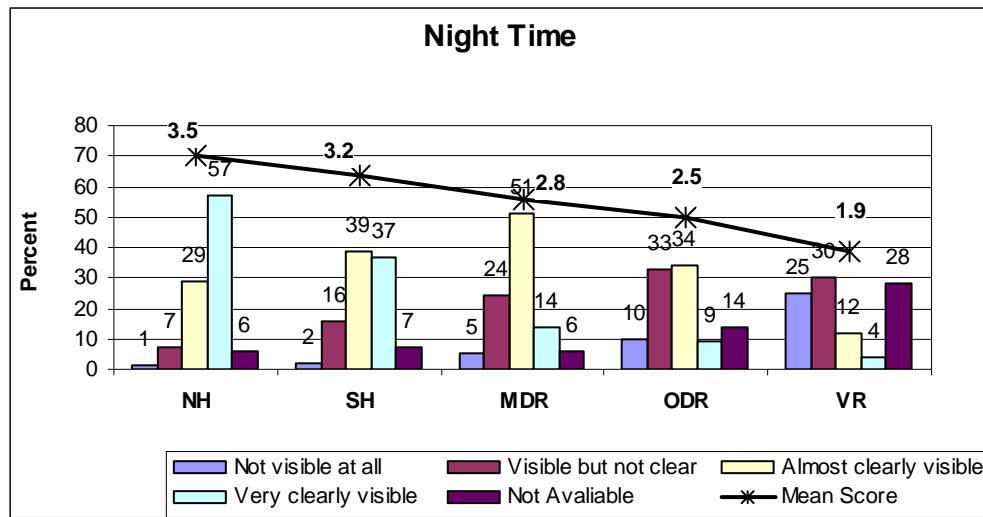
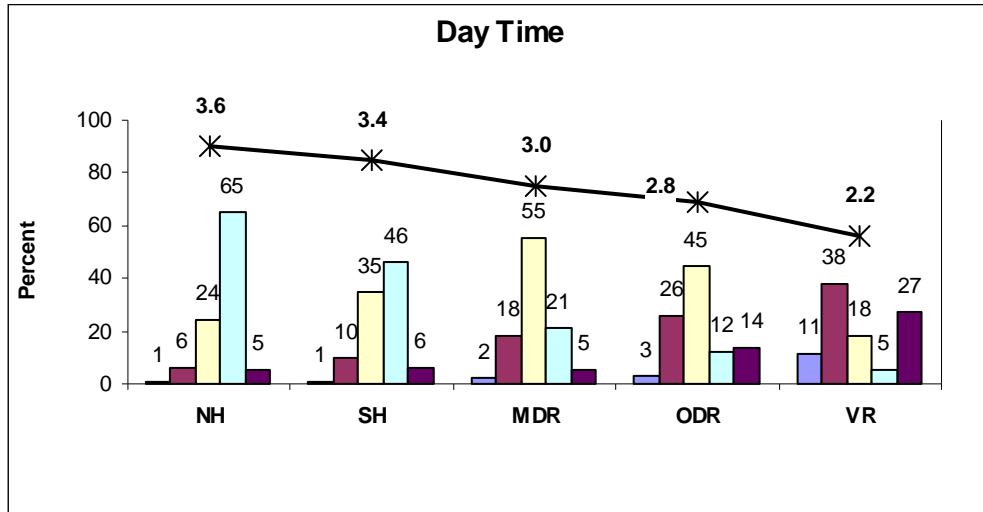
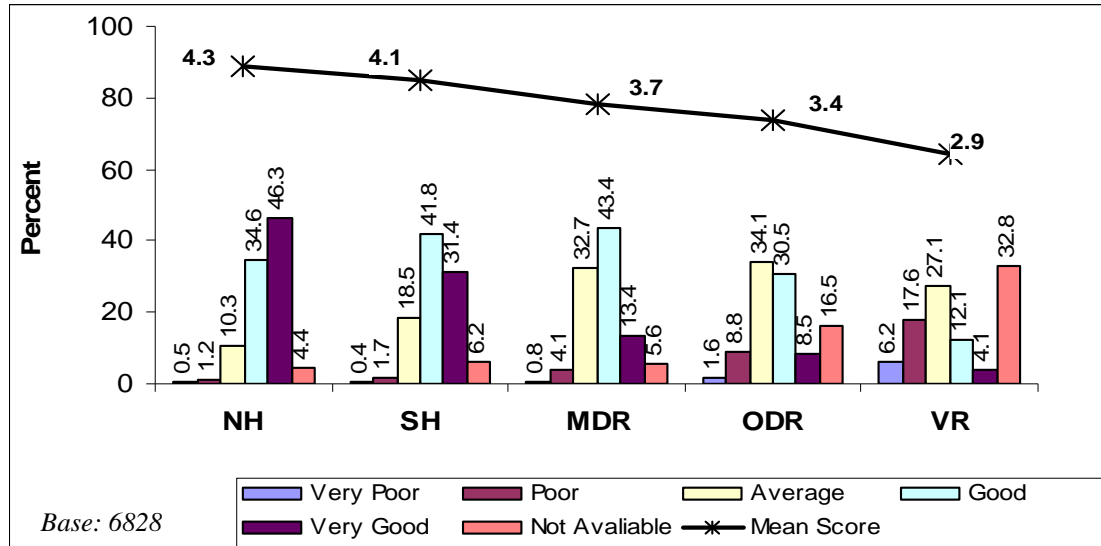


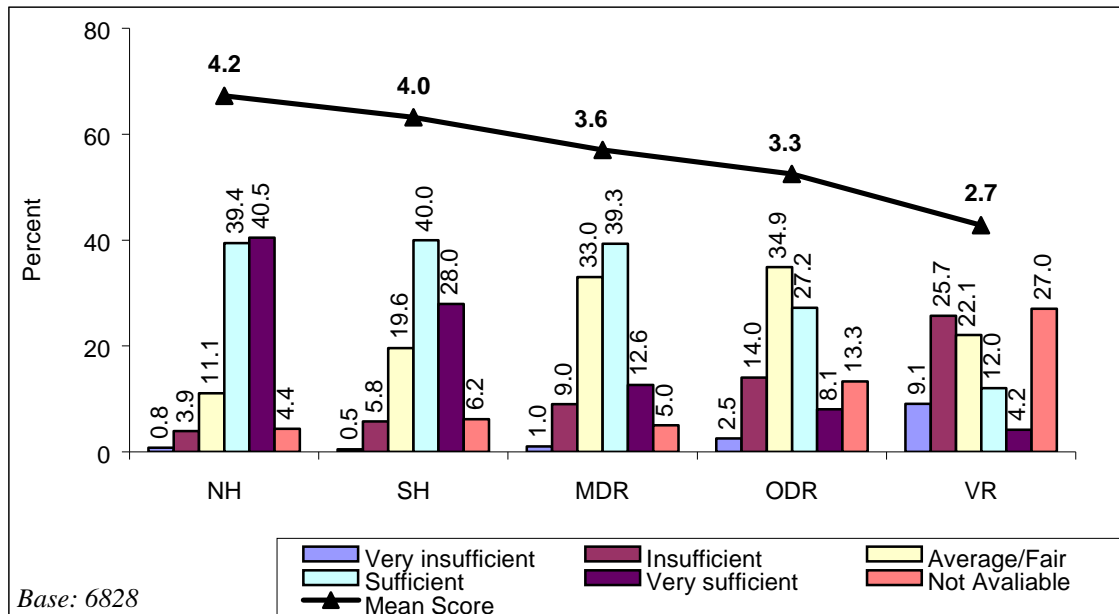
Figure 3.2e shows that 46 percent of road users have reported a very good positioning of warning/ road signs on NH and 31 percent on SH. The positioning of road signs and mile stones/distance signs was rated as ‘good’ and on the MDR and ODR the rating was ‘average/fair’. Most of the road users have reported the positioning as average on VR.

Figure 3.2e: Positioning of Warning/ Road Signs- Mean Score and %



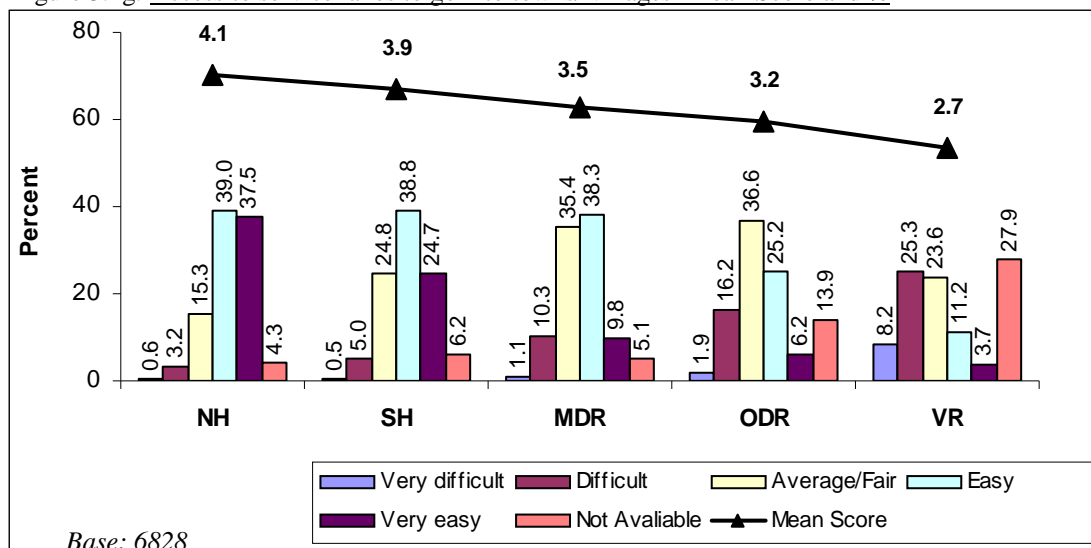
There is a felt need of adequacy of warning/ road signs on different types of roads. Figure 3.2f shows that nearly 40 percent find sufficient on NH, SH and MDR.

Figure 3.2f: Adequacy of warning/ road signs- Mean Score and %



Accessibility to service lanes to go into towns/villages on the NH was rated as 'easy', while on the SH, MDR and ODR accessibility was rated 'average/fair'. On the VR, accessibility to service lanes to go into towns/villages was rated as 'difficult' (Figure 3.2g).

Figure 3.2g: Access to service lanes to go into towns/ villages- Mean Score and %



Even in NH, less than 40 percent of road users have reported very easy accessibility while another 40 percent have reported easy accessibility to go into towns/ villages. The accessibility in SH and MDR is reported easy while on the VR is reported poor accessibility.

Qualitative Study Responses

Signage on Roads

The participants of the qualitative survey were asked about their perceptions on the roadside signs they have seen on various types of roads. Irrespective of the target group, all the participants felt that the roadside signs on the NH are better compared to the rest of the roads. This is in line with the quantitative findings seen in earlier pages. Population groups such as academicians, journalists, ESR and COC, opine that display of signboards need to be in local language and English. The emergency service representative interviewed was keen on display of signboards, radium lights at humps, curves to avoid accidents.

The perceptions of the qualitative study respondents on the roadside signs are summarised below:

Perception	Acad.	Jou.	ESR	COC	NGO	AD	Taxi/C D	PBO/ D
Roadside signs are available on NH	✓	✓		✓	✓			✓
No signboards are available on SH and MDR	✓		✓		✓	✓	✓	✓
Signboards are insufficient on SH and other roads	✓	✓	✓	✓				
Signboards are provided near curves, turnings / bridges	✓			✓				✓
Signboards are not visible at nights. Presence of radium stickers and reflectors need to	✓		✓	✓	✓			✓

checked and replaced wherever not there								
Signboards should be in local language and English		✓			✓			

The responses of the qualitative study respondents reflecting the above analysis are quoted below for a better understanding.

NH

“National Highways are well developed and all the information boards are there likewise the State Highways have to be improved. All the information boards and facilities are missing in SH.” *(Acad., PBO/D)*

“Signboards and caution boards are not visible at nights, so radium stickers and reflectors should be provided for both NH and SH” *(TD)*

“Signboards are insufficient SH and need to be placed at accident zones, near turnings, near bridges, humps etc.” *(Acad.)*

“Existing signboards are not very clean and so not be visible” *(PCD)*

“Signboards are to be installed at required places to have better view of the flow of traffic. Signboards are required at curves, bridges, humps etc.” *(COC)*

“Signboards increased especially near humps and four roads junction” *(ESR)*

“Signboards are not proper” *(NGO)*

SH

“Lack of signboards and roadside indicators is a problem on the SH” *(Acad.)*

“Require few more signboards than that of the existing ones” *(ESR)*

“Signboards are not maintained regularly, people stick some posters on the name boards” *(PCO, ESR)*

“Roadside signs are less, so accident chances are more” *(NGO)*

“Roadside signs are there but can’t notice them” *(NGO)*

“Signboards should be provided near humps” *(TD/O)*

“Roadside signals should be clear and installed at proper place. Signboard should be checked and maintained regularly. It will help in reducing the road accidents” *(Insu.)*

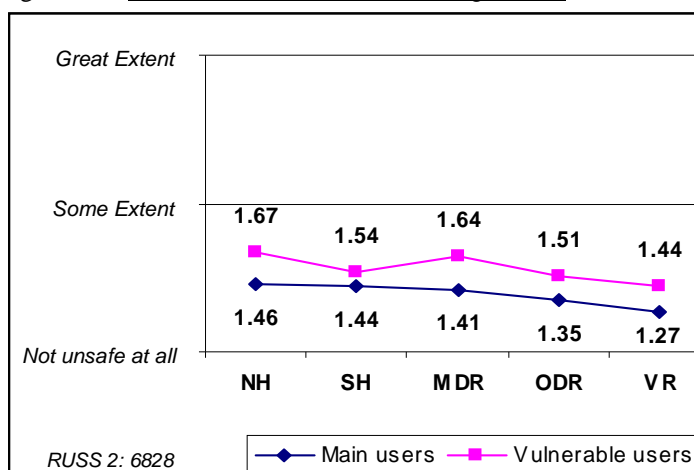
MDR

- “There are no signboards on MDR” *(Almost all)*
- “MDR has only milestones and nothing else is available” *(AD, PBO/D, ESR, NGO)*
- “Roadside signs are required like mileage stones and signs near bridges, humps, hospitals and crossings. These should be written clearly” *(NGO)*
- “All the boards are there but everything is hidden by tree branches” *(TD)*
- “In some roads milestones have wrong kilometer details and the names of villages are not visible and clear” *(Repair workshop owner)*

Safety aspects

Respondents were asked to rate their feeling of unsafe during their most recent journey on different types of roads on a three point scale, where 1 indicates do not feel unsafe at all, 2 indicates unsafe to some extent and 3 indicates unsafe to a great extent.

Figure 3.2h: Mean Level of Extent of Feeling Unsafe



Driver behavioural aspects emerge as a major concern for road users in Round 1 as well as Round 2. In Round 2 this feeling regarding high-speed traffic on all the roads increased. This could be one of the reasons for an increase in the proportion of road users who felt ‘unsafe to a great extent’ on the different roads.

Table 3.2g: Reasons for feeling unsafe during recent journey (%)

Reasons for feeling unsafe		NH	SH	MDR	ODR	VR
Driver behavior dimension	High speed traffic	67	40	28	11	6
	Over-taking	46	41	34	17	10
	Poor/ aggressive driving by others	31	26	22	10	7
Traffic management issues	Volume of traffic	19	15	22	16	10
	Heavy goods vehicles	20	19	28	21	16
	Lack of proper enforcement of traffic rules	9	23	20	28	24
	Absence of trauma care centers/ ambulance service	8	8	14	19	24
Road design issues	Inconspicuous intersections	8	17	12	14	19
	Absence of lighting at major intersections	8	14	12	14	19
	Lack of bypass/ ring roads to the towns and cities	9	14	17	15	14

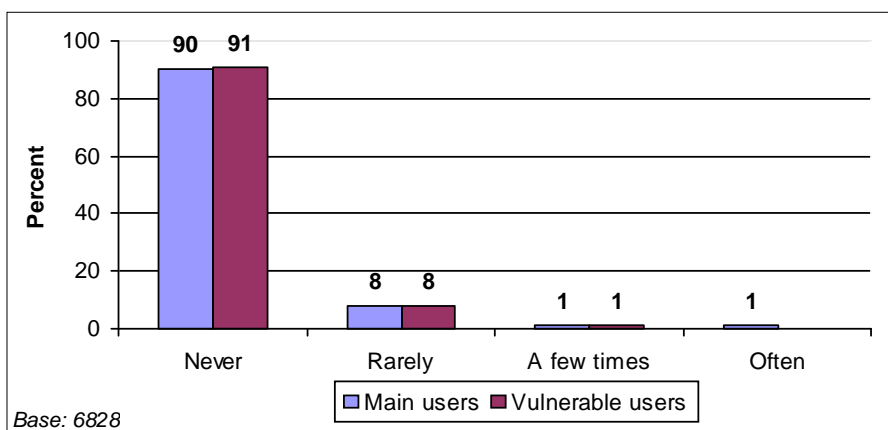
	Absence of bus bays	4	4	10	15	25
	Step Barriers	4	4	5	8	9
<i>Base: 6828</i>						

Note: Total exceeds 100 due to multiple responses

Majority of the road users reported to have not experienced theft/robbery on the different type of roads (Figure 3.2i).

Majority of the road users experience different problems which irritate them while traveling. The respondents were asked to answer various categories which irritate them during driving. Major irritants on the NH and SH include speed, rough driving, overtaking by other drivers and congestion/delay. Heavy vehicles and road works also irritate the users on the NH and SH. Congestion/delay is the major irritant on the MDR followed by speeding vehicles (Table 3.2h).

Figure 3.2i: Road Users who Experienced Theft/Robbery (%)



Pedestrians/cattle crossings and roadside soil/mud are the major irritants among the ODR and VR users (Table 3.2h).

Table 3.2h: Irritants while driving (%)

Irritants	NH	SH	MDR	ODR	VR
Congestion/delay	25	17	28	7	2
Rough driving of other drivers	25	22	13	5	2
Road work/diversions	10	8	8	5	2
Speed	30	19	14	6	2
Trucks/heavy vehicles	17	12	10	4	-
Over taking	25	22	17	9	2
Noise	12	8	11	5	2
Petrol fumes/pollution	10	9	12	6	4
Pedestrians/cattle crossings	7	9	14	15	18
Roadside soil/mud	6	6	11	15	26
Parking on the roadside	3	8	10	5	4
Tree bunches/branches	2	3	4	5	16
Width of the road	5	4	8	7	12
None	0	0	0	38	37
<i>Base: 6828</i>					

Note: Total exceeds 100 due to multiple response

Accidents

The road users were asked about their opinion on road accidents and asked to rate on a 10-Point scale the level of importance of specific factors leading to road accidents. The point 10 on the rating scale denotes 'most important' while 0 denotes

'not at all important'. Higher rating indicates the extent of importance of the specified reason for accidents on the road and vice versa.

Overall, bad driving emerges as main reason for accidents on the road followed by bad roads. Lack of police control followed by hindrance due to road repairs emerge as other factors leading to accidents.

Road users were asked to rate the specific behaviour of drivers on a five-point scale to understand the extent to which these specific behaviours lead to accidents.

All the factors relating to driver's behaviour emerge as major reason for accidents on the road to a great extent. Among the main users, rash driving/speeding among the drivers is responsible for accidents to a very high extent (Figure 3.2k).

Figure 3.2j: Main reasons for accidents on the road

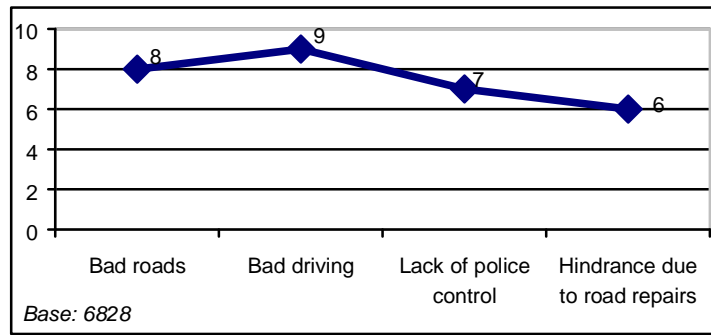
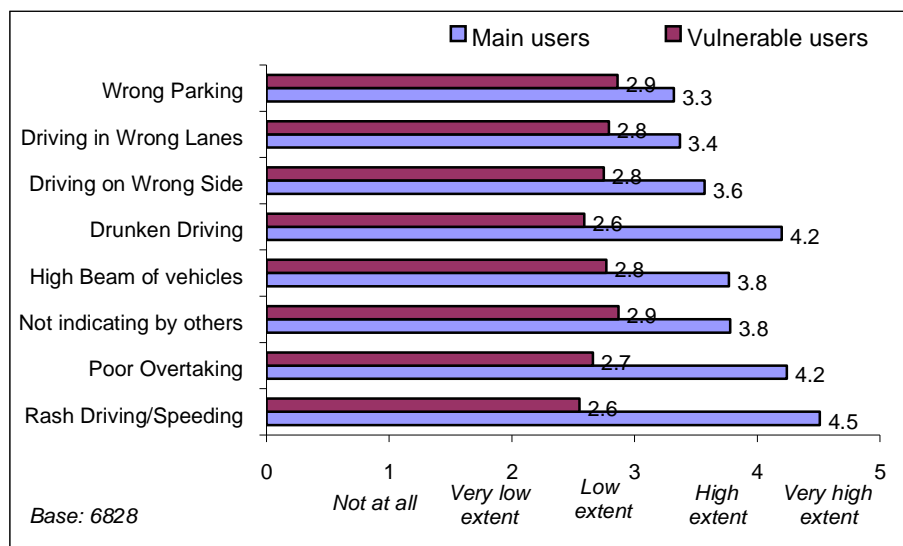


Figure 3.2k: Behaviour of drivers responsible for accidents



Qualitative Study Responses

Safety / Unsafety on NH

To get an in depth understanding of the perceptions about safety and reasons for accidents on each type of roads, all the participants were asked relevant questions. NH is perceived to be safe to road users as the roads are wide and lane discipline. On the other hand, narrow SH roads, clumsy/bumpy MDR and VR are stated as not very safe. The reasons for feeling unsafe on each type of road by target group is given in the grid below:

Reasons	Acad.	Jou rn.	ESR	COC	INSR	NGO	Taxi / CD	TD	PBO	PCD
Wide roads are safe	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Heavy Traffic	✓	✓	✓					✓	✓	✓
No signboards		✓						✓	✓	✓
Overtaking	✓	✓					✓		✓	✓
Lack of awareness of traffic rules						✓	✓			
No medical facility		✓					✓			
No patrolling		✓								
Bad condition of road	✓					✓				
Potholes		✓	✓					✓		

- “NH is very good but the traffic discipline is not good” (Trans. Dept.)
- “Require few more signboards than that of the existing ones” (ESR)
- “NH and SH are safe and good” (AD)
- “NH roads are very good and have all the sign boards. Some of these roads even have compound walls made of steel” (PBO)
- “NHs are not safe because traffic is more and no signboards are there. Signboards need to be displayed clearly near school zones, accident” (Pedes)

zones and other important places. Pedestrians need to be very careful of fast moving vehicles”

“NHs are not safe due to reckless driving” (Pedes)

“NH is some what safe. The problems here occur due to small vehicles like two wheelers, autos and bicycles” (COC)

“NH is not safe due to uncontrolled traffic, no rules, no maintenance, no safety and people cross road any where” (Acad., PBO/D)

Safety/Unsafety on SH

The qualitative survey participants felt that SH though safe are not as safe as NH. The issues attributed to ‘unsafety on SH’ relate to narrow roads, heavy traffic, air and noise pollution, poor quality roads, eroded roads etc... With some of the SH being repaired, the participants felt that inconvenience to SH users is more ending up in long travel time.

The qualitative responses on reasons for not feeling safe on the SHs are summarised below.

Reason	Acad.	Jou.	ESR	COC	NGO	AD	Taxi/CD	TD	PBO	PCO
Carelessness of driver		✓		✓		✓	✓			✓
Road not properly maintained	✓			✓	✓		✓	✓	✓	✓
Over taking	✓	✓	✓		✓	✓		✓	✓	✓
Heavy traffic	✓	✓	✓					✓	✓	✓
Bad road surface	✓				✓			✓	✓	✓
High speed	✓	✓						✓	✓	✓
Narrow roads	✓	✓	✓	✓		✓		✓	✓	✓
Night travel difficult							✓	✓	✓	✓
Improper signboard	✓		✓			✓	✓			
Humps not marked	✓						✓			
Potholes	✓	✓						✓		

Some of the responses on the perceptions regarding safety on the SH are quoted below:

“SH roads are safe, as they are wide. But safety measures have to be increased as in NH” (Acad, PCO, COC)

“SH have yellow borders on both sides and hence it is easy to walk” (Pedes)

“SHs are being developed and work is in progress” (COC)

“SHs are not very safe, congested and accidents are more” (PCO)

“SHs are not safe as there is no proper maintenance and the quality of material too is poor and hence there is no durability. These lead to accidents. The roads being single, half of it gets worn out due to poor maintenance” (Acad., INSR, PBO)

“SHs are not safe because of bad road condition” (PCO)

“No proper maintenance and no tar, only mud roads without signboards” (Acad.)

which is not safe”

“SH maintenance is poor, potholes are not filled, sharp turnings due to which transportation can’t be carried smoothly. The humps are not painted white hence experience sudden jerk while driving” (TD)

“Potholed roads, congested roads, bad maintenance, absence of traffic police, and careless driving make it unsafe” (PCO)

“SHs are not wide enough, the surface is not flat, no basic roadside amenities and signboards and all are single roads” (COC)

“Width of the road is very less. One can’t go fast because of pedestrians, cattle and cows coming across. No proper roads and signboards and hence there is no safety” (ESR)

“These roads are not wide. Two vehicles cannot move together on these roads, so accidents occur due to speed and taking over carelessly. To reduce accidents, road width has to be increased. For road safety sake, foot path should be made and signals have to be installed” (Jou.)

Safety/unsafety on MDR/VR

The responses on reasons for unsafety on MDR/ VR are summarised below:

Reason	Acad.	Jou.	ESR	COC	ZP	NGO	AD	Taxi /CD	TD	PBO
Narrow roads		✓	✓	✓	✓	✓	✓	✓	✓	✓
Humps			✓	✓	✓	✓	✓		✓	
Poor maintenance of road	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
No tar roads on VR, only mud roads		✓	✓	✓	✓	✓	✓		✓	✓
Single, narrow VR		✓	✓	✓	✓	✓	✓	✓	✓	
Heavy traffic			✓	✓	✓	✓	✓		✓	
Potholes			✓	✓	✓	✓	✓	✓	✓	✓
No signboards			✓	✓	✓	✓	✓		✓	
Pedestrian and cattle crossing			✓	✓	✓	✓	✓	✓	✓	✓
Surface not smooth			✓	✓	✓	✓	✓	✓	✓	✓

The responses on factors contributing to unsafety on MDRs are quoted below:

“Roads are not wide. The contractors do not work properly. Hence the MDR and VR are unsafe” (Acad.)

“MDR do not have yellow borders as in SH” (Pedes)

“Most of the MDR and VR are not maintained. They are laid down and forgotten” (NGO)

“MDRs are in bad condition. Roads are narrow, non leveled roads, no roadside facilities, no signboards, single roads, heavy traffic, potholes, pedestrians/cattle crossing, mud road” (NGO, COC, ESR)

- “Not safe. Especially villages and schools because roads are very narrow” (Pedes)
- “On many roads, branches of trees cover the signboards and driver can not see them properly” (Pedes, PCO)
- “MDR are provided with signals but many places it is not working. No one checks and repairs” (PCO)

Measures to be taken to Improve Safety

All the qualitative survey participants were asked to specify the measures to be taken to improve safety on NH/SH/MDR/VR. The responses are summarised in the grid below:

NH	SH	MDR	VR
<ul style="list-style-type: none"> ♦ Install signals at crossings / junctions ♦ Checking by transport department to control overloading and drunken drivers ♦ Provide health / first aid centres ♦ Provide parking facility at hotels ♦ Install roadside signals ♦ Provide white paint on humps regularly ♦ Checking of vehicle condition ♦ Higher patrolling ♦ Construct foot over bridges at important junctions 	<ul style="list-style-type: none"> ♦ Make double roads ♦ Provide parking facility ♦ Fill the potholes ♦ Maintain SH properly ♦ Improve quality of work ♦ Widen the road ♦ Reduce curves ♦ Make straight road ♦ Check over loading, over speed and licenses ♦ Ensure traffic rules are followed without deviation ♦ Check and fell obstructing trees 	<ul style="list-style-type: none"> ♦ Widen the road ♦ Level the mud on roads ♦ Provide signboards at appropriate places ♦ Create awareness of traffic rules ♦ Provide parking place ♦ Fell out obstructing trees ♦ Check regularly the signboards for posters and clear them 	<ul style="list-style-type: none"> ♦ Lay proper roads ♦ Level the mud on roads ♦ Create awareness of traffic rules ♦ Educate villages about care to be taken while cattle crossing ♦ Provide signboards

Reasons for Accidents

The qualitative study respondents were asked about the factors contributing to the increase in accidents in the state of Tamil Nadu. The responses are summarised below.

NH	SH	MDR
<ul style="list-style-type: none"> ♦ High speed ♦ Drunken driving ♦ Traffic congestion ♦ Unfilled potholes ♦ Non maintenance of road ♦ Increase in vehicle density ♦ Cattle/Pedestrian crossing ♦ Night travel 	<ul style="list-style-type: none"> ♦ Narrow road ♦ Overtaking ♦ Aggressive driving ♦ Restless long drives ♦ Drunken driving ♦ Unfilled Potholes ♦ High traffic flow ♦ Congested roads 	<ul style="list-style-type: none"> ♦ Bullock carts/cattle crossing ♦ Non availability of signboards ♦ Potholes ♦ Narrow roads ♦ Over speed ♦ Political cut outs and arches occupy space

<ul style="list-style-type: none"> ♦ Liberal issue of driving license 	<ul style="list-style-type: none"> ♦ Roadside parking ♦ Too many humps ♦ Non availability of signboards at curves and bridges ♦ Non availability of drainage ♦ Talking on cell phone while driving ♦ Not following safety rules (helmets, seat belts) 	<ul style="list-style-type: none"> and cause accidents ♦ Roadside signboards covered by trees ♦ Lack of maintenance of roadside signs
--	---	--

“Driving licenses are issues without checking and these drivers cause accidents” *(PCO)*

“Driving without proper training, not following rules, using mobile phone while driving, restless driving and narrow roads lead to accidents” *(NGO)*

“Let it be any road, drunken driving leads to accidents” *(COC, Pedes)*

“No sufficient road safety measures. On SH, traffic flow is heavy leading to accidents and there are no hospitals and Ambulance service. Bullock carts keep moving on the road. Traffic inspection and dividers are necessary. Potholes also lead to accidents” *(ESR, INSR, Acad.)*

SH

“Narrow road, high traffic flow, overtaking, rash driving, drinking and driving, signboards not being erected at regular intervals and potholes not being covered lead to accidents” *(Acad.,)*

“Heavy traffic, congested roads, over loading vehicles, neglected driving, and drinking by drivers cause accidents” *(Pedes., PCO, AD)*

“Improper roads, roadside parking, too many humps, no signs boards near curves and bridges, non availability of foot paths for pedestrians, lack of drainage facility cause accidents” *(NGO)*

MDR

“Bullock carts and cattle come across, only mud road without tar and lack of signboards lead to accidents” *(Acad.)*

“Narrow roads and potholes lead to accidents” *(TD)*

“Bad roads, people crossing the roads, movement of bullock carts, potholes and over speed cause accidents” *(PCO)*

“Quality of work is substandard, roads are not good and these lead to accidents” *(NGO)*

Safety measures used by drivers

Overall, 39% of the car drivers wear seat belts and 90% have driving license. Among the owner driven cars, more women than men wear seat belts while driving. Among the car drivers, only a few BPO/Call center and Taxi drivers wear seat belts.

Table 3.2i: Car drivers who wear seat belts and own a license (%)

Safety measures	All	TD	H/TD	FWO		PCD	BPO
				M	W		
Wear seat belts	39	23	37	46	51	40	23
Driving license	90	89	83	96	79	95	95
<i>Base:</i>	<i>1653</i>	<i>301</i>	<i>207</i>	<i>516</i>	<i>247</i>	<i>304</i>	<i>78</i>

Table 3.2j: Percentage of two-wheeler riders who wear helmets and have license (%)

Safety measures	All	M	W
Wearing helmets	37	39	33
Driving license	87	91	78
<i>Base:</i>	<i>445</i>	<i>311</i>	<i>114</i>

Helmets are worn by 39% men and 33% women and more men than women seem to have a driving license. The practice of using seat belts and helmets is low among car drivers and two-wheeler riders.

Only 28% of the total sample size has heard of any programmes on road safety, with majority seeing such messages on the bus.

Knowledge of road signs found within the city/town limits is high among the road users but knowledge on road signs found on highways such as 'slippery road' and 'cross roads' seems to be comparatively low across all the road users. The knowledge of mandatory signs is low among the F/A shows the need to create awareness among the rural people about the road signs.

Table 3.2k: Drivers who are aware of road signs (%)

Road Signs		Compulsory Ahead Only	Overtaking Prohibited	Compulsory Keep Left	Narrow Bridge	Cross Road	One Way	Compulsory Left Turn	Speed Limit	Compulsory Sound Horn	Slippery Road	<i>Base</i>
All		84	63	67	80	53	69	81	86	84	20	<i>5592</i>
TD		93	81	85	94	68	85	91	97	95	31	<i>413</i>
PBD		91	77	77	93	68	77	90	95	93	31	<i>408</i>
STD		95	82	86	95	76	88	92	97	95	33	<i>400</i>
TD		89	81	79	91	67	85	88	93	90	28	<i>301</i>
HC		91	76	79	90	72	80	89	92	87	28	<i>207</i>
AD		86	67	71	83	52	72	88	88	81	17	<i>245</i>
FWO	M	86	66	74	91	60	75	85	94	86	24	<i>516</i>
	W	84	64	62	77	48	79	81	87	85	14	<i>247</i>
TWO	M	88	63	71	86	48	64	84	90	88	19	<i>311</i>
	W	80	56	55	66	42	62	66	74	81	8	<i>144</i>

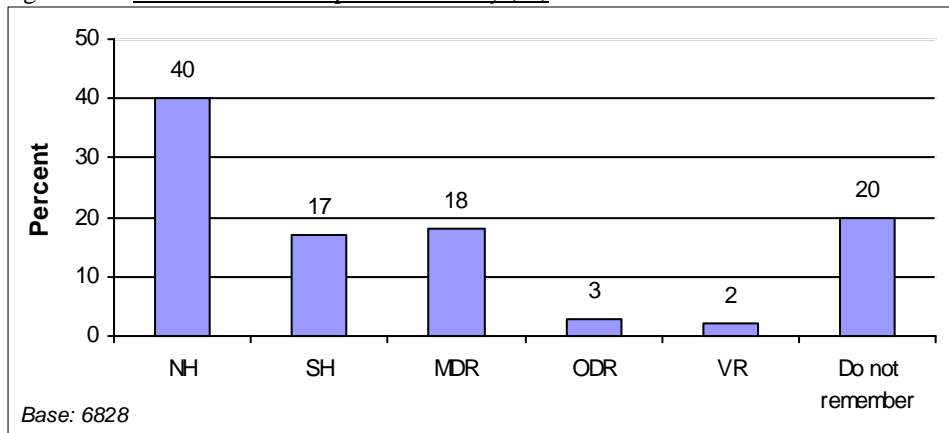
WD		95	79	81	88	60	82	94	95	93	21	108
PCD		90	79	78	92	64	86	91	95	90	26	304
CBD		94	85	89	93	71	89	85	94	92	28	85
ABD		89	86	85	92	67	87	94	98	94	29	85
BPOD		94	83	91	95	81	90	88	92	92	69	78
PTC	M	78	48	56	66	40	55	72	81	79	9	418
	W	65	37	41	49	25	44	61	64	67	4	406
Tou	M	87	55	60	71	39	62	81	85	87	14	205
	W	76	40	48	64	28	53	68	70	77	4	96
F/A	M	70	34	41	60	30	42	60	73	73	9	411
	W	59	18	30	44	18	24	55	55	61	3	204

Note: Total exceeds 100 due to multiple response

Experiencing delays during recent journey

During the recent journey, majority of the users experienced delay on the NH, with more than three-fourth reporting delays up to 1 hour.

Figure 3.21: Road users who experienced delay (%)



While 42% had expected such delay, 48% of the road users stated that it was an unexpected delay.

Among those who had expected such delay, 90% stated that they expected it due to prior road experience.

Table 3.21: Congestion on the highway or roads during the recent journey (%)

Extent of congestion	Road Users	
	Main users	Vulnerable users
Free from congestion	31	35
Congested to a small extent, but causing no delay	44	49
Congested to a considerable extent, causing a short delay	19	14
Congested to an unaccepted extent, causing a substantial delay	2	2
Not stated	3	0
<i>Base</i>	5592	1236

Less than half of the road users stated that the highway or road they had used during the recent journey was congested to a small extent, but caused no delay. However 19% of the main users and 14% of the vulnerable users stated that it

was congested to a considerable extent, causing a short delay.

Road works

About 46% of the main users and one-third (34%) of the vulnerable users reported to have noticed road works on the recent journey with majority of the road works being on the NH.

Around two-third of main users and 44% of vulnerable users reported roadwork carried out on NH. One-fourth of main users stated roadwork carried out on SH. Very few have reported the process of roadwork on ODR and VR (Figure 3.2m).

Figure 3.2m: Type of road where the roadwork was carried out

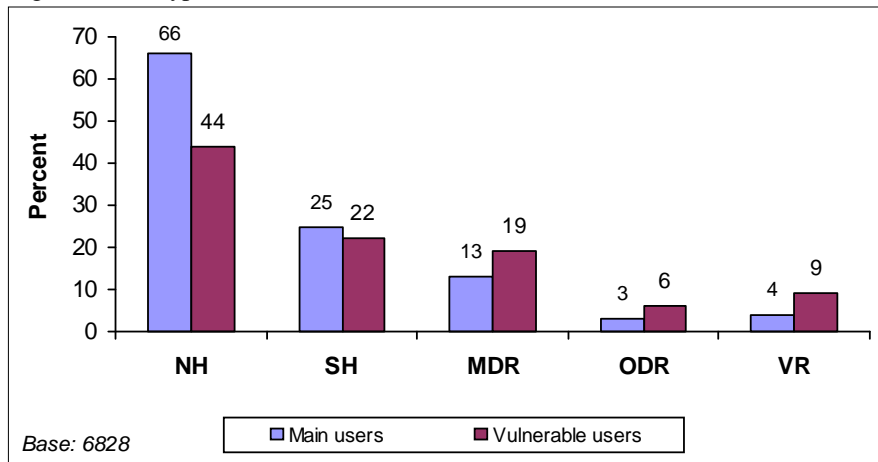
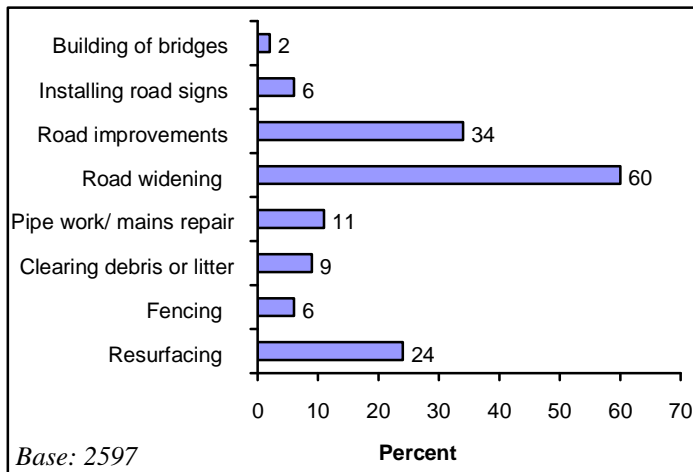


Figure 3.2n: Type of roadwork undertaken (%)



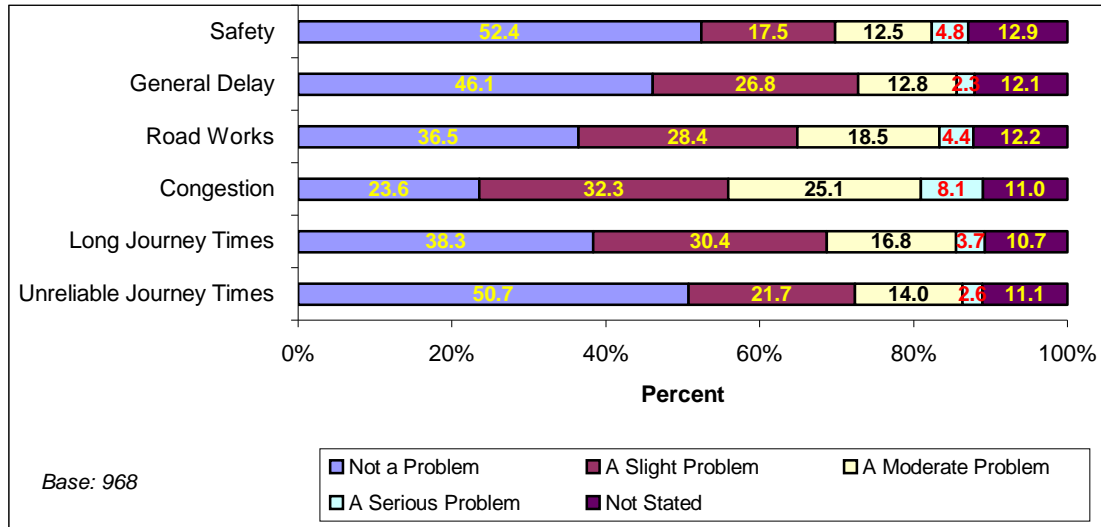
Three-fifth (62%) of the road users stated that the road work was being carried out in closed lanes, while almost three fourth (71%) stated that there was a sign explaining about the road works.

The type of road works, noticed include road widening followed by road improvements and resurfacing.

3.3 BUSINESS TRAVELER

The Road User Satisfaction Survey, Round 2 included 968 business travelers. Based on their experience they were asked to rank the problems they face as business traveler on a 4 point scale where 1 denotes not a problem, 2 denotes a slight problem, 3 denotes a moderate problem and 4 denotes a serious problem.

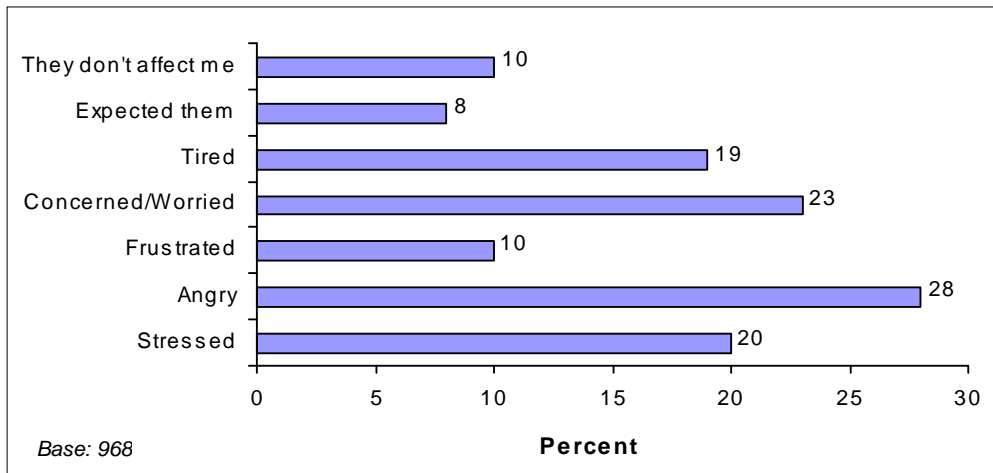
Figure 3.3a: Type of problem experienced as a business traveler (%)



Most of the business travelers have mentioned the above problems as ‘not a problem’ while a considerable proportion has stated it as ‘a slight problem’ (Figure 3.3a).

Majority of the business travelers feel angry whenever they encounter a problem on the road. Some stated that they become concerned and worried and also stressed because of the problem faced. One tenth (10%) stated that the problems they encounter do not affect them (Figure 3.3b).

Figure 3.3b: Way the business travelers feel about the problems encountered (%)



However, about half (54%) of the business travelers stated that the problems they encounter affect the organisation they work for in terms of time. These problems also affect the organisation as it becomes difficult for them to plan/ estimate journey (15%) and it costs money (13%).

Road users experience both time and money costs due to bad roads and heavy traffic.

3.4 EXPECTATIONS AND PERCEPTIONS OF ROAD TRAVEL

In order to understand the expectations and perceptions of road travel among the road users, a list of standard services were read out and the road users ranked them on a 10 point scale with 0 denoting ‘not at all essential’ and 10 denoting ‘absolutely essential’.

Table 3.4a gives the expectations and perceptions regarding travel by road users. Mean rating for almost all the standard services was rated ‘7’ and above which shows the importance of the services. In NH, all the services except the prior advance notice of road works are ranked ‘9’. Thus the users have very high expectation in case of NH. On the other hand, in VR, all the services got a mean rating of ‘7’, which indicates that the users have lower expectation in case of VR.

Table 3.4a: Mean level expectations and perceptions of road travel

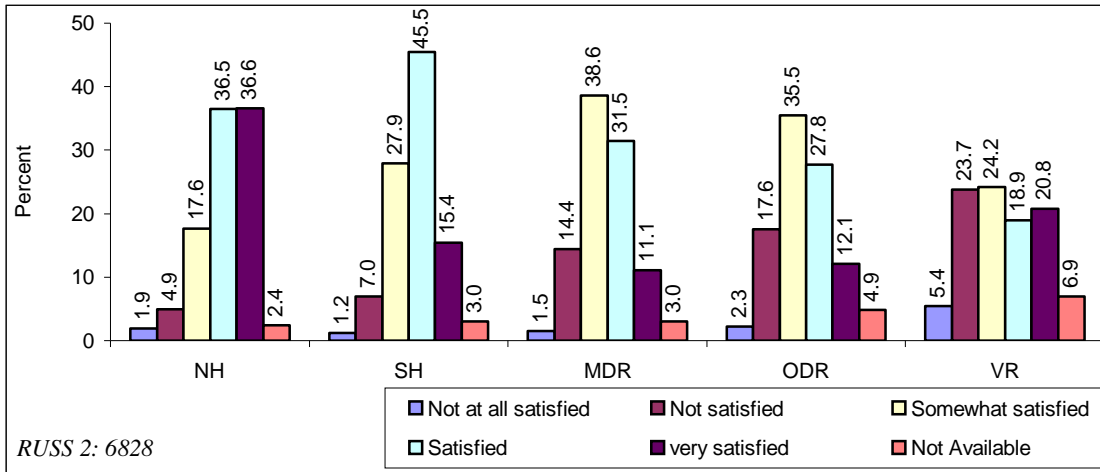
Expectations and perceptions	NH	SH	MDR	ODR	VR
Emergency phones should be available at regular intervals at the roadside	9	9	8	8	7
Emergency phones should be maintained so that they operate properly	9	9	8	8	7
There should be good direction signs to help you on your journey	9	8	8	8	7
There should be signs giving directions at all decision making points	9	8	8	8	7
Signs giving directions should be clear and understandable	9	8	8	8	7
Signs giving directions should be positioned for maximum effect	9	8	8	8	7
Traffic signs should be cleaned and maintained properly	9	9	8	8	7
The number of accidents should be reduced	9	9	8	8	7
The road surface should be free from litter and debris	9	8	8	7	7
The road surface should be quiet on travel on	9	8	8	7	7
Signs explaining road works	9	8	8	7	7
Routine maintenance (changing light bulbs, gully clearance) should be undertaken during the night	9	8	8	7	7
There should be advance notice of road works before they are due to start	8	8	8	7	7
There should be advance notice of road works before you drive through them	9	8	8	7	7
Major road works should not be too close together or too long	9	8	8	8	7
<i>Base: 6828</i>					

3.5 SATISFACTION WITH THE ROADS USED MOST RECENTLY

Road users were asked to indicate their satisfaction with various aspects of the NH, SH, MDR, ODR and VR they had used most recently. Road users ranked each aspect of the road on a five-point scale.

Figure 3.5a gives the distribution of ranking and compares the mean score given to various aspects of the roads between RUSS II and I. Of the NH users, 37 percent are very satisfied with the safety.

Figure 3.5a: Level of satisfaction on safety (%)

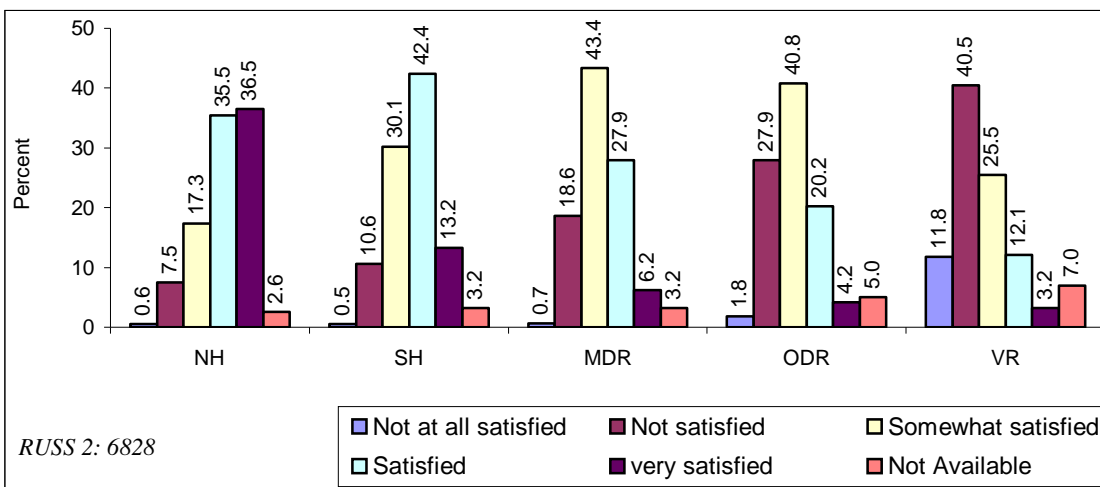


Interestingly, about one-fourth of the users are very satisfied with the safety on VR. This is subsequent to the earlier finds about feeling unsafe during recent journey (Table 3.2g) and irritants while driving (Table 3.2h) where the parameters for VR denotes better satisfaction when compared to other roads. Even then, the proportion not at all satisfied and not satisfied is higher in VR users (29%).

With regard to safety, majority of the road users found the NH to be much safer than all other roads. Road users were somewhat satisfied with the VR.

“NH is very good and safe especially the track system is very good”
Confederation of Indian Industries, M/38 years, Chennai

Figure 3.5b: Level of satisfaction on surface smoothness



Among the NH users, the proportion very satisfied and satisfied on surface smoothness is 72 percent while the same in case of SH is 56 percent. About half of the road users are either not at all satisfied or not satisfied about the surface smoothness of VR, while it is 30 percent in case of MDR (Figure 3.5b).

About 71 percent of road users are either very satisfied or satisfied on the traffic flow on NH, while it is 52 percent in case of SH. One-third of the road users are not satisfied on the traffic flow on VR, while about two-fifth of road users are somewhat satisfied with the traffic flow on MDR and ODR respectively (Figure 3.5c).

Figure 3.5d shows the satisfaction level on the highway services available on different types of roads. About two-third of road users are satisfied with the highway services on NH and SH respectively while about two-third are not satisfied on VR.

Figure 3.5c: Level of satisfaction on traffic flow

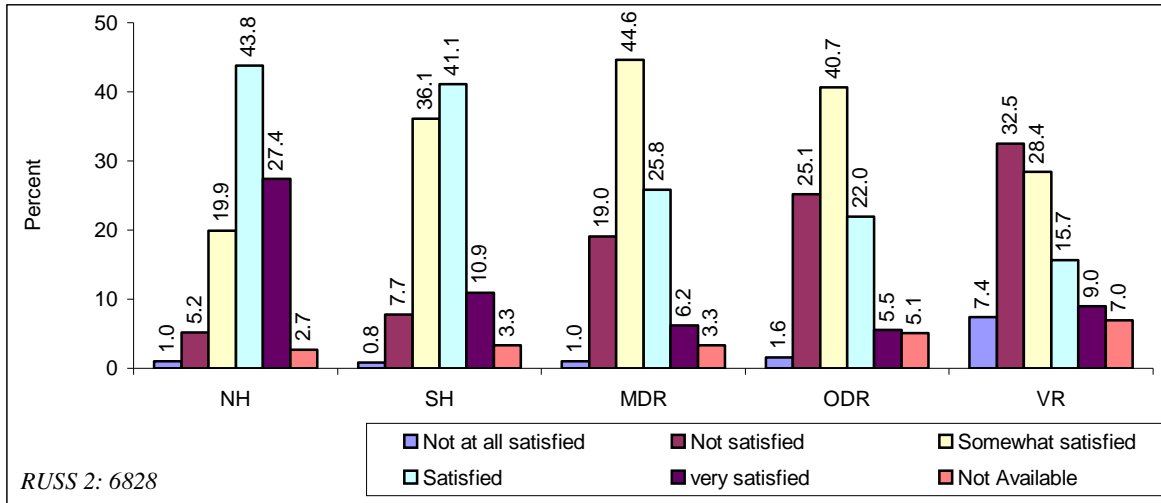


Figure 3.5d: Level of satisfaction on highway services

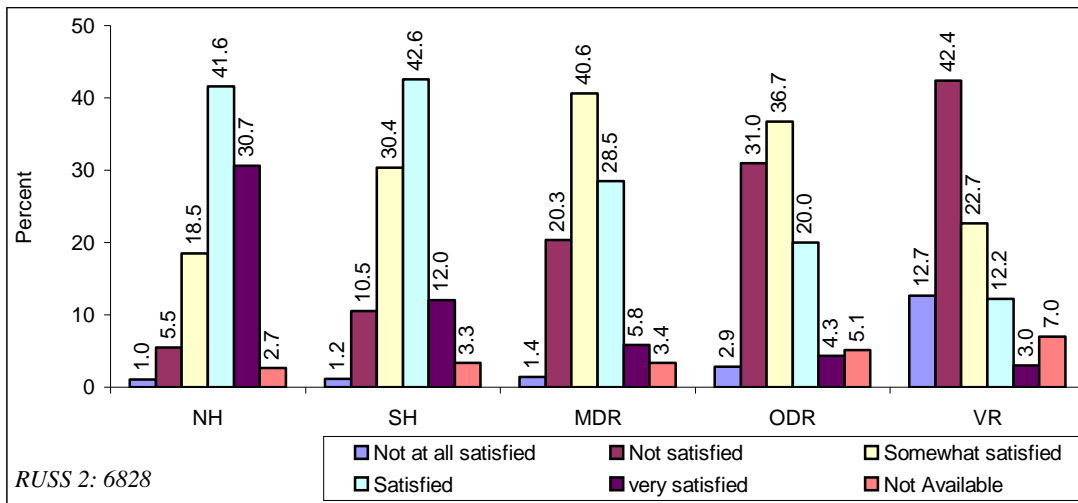


Figure 3.5e: Level of satisfaction on air and noise pollution (%)

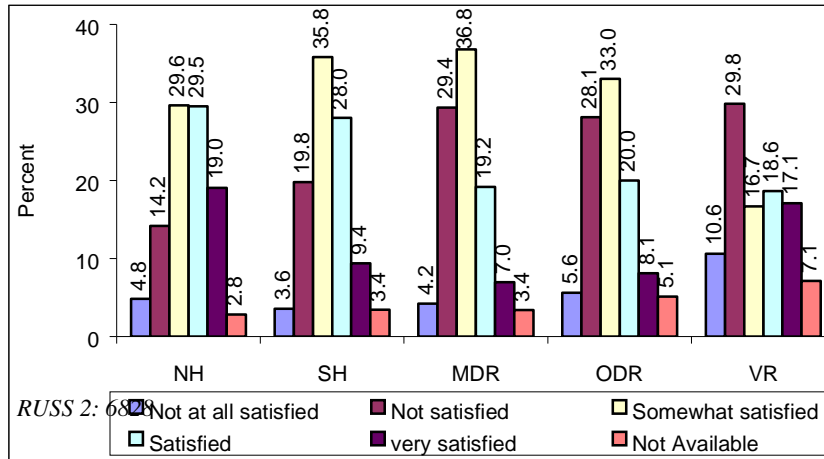
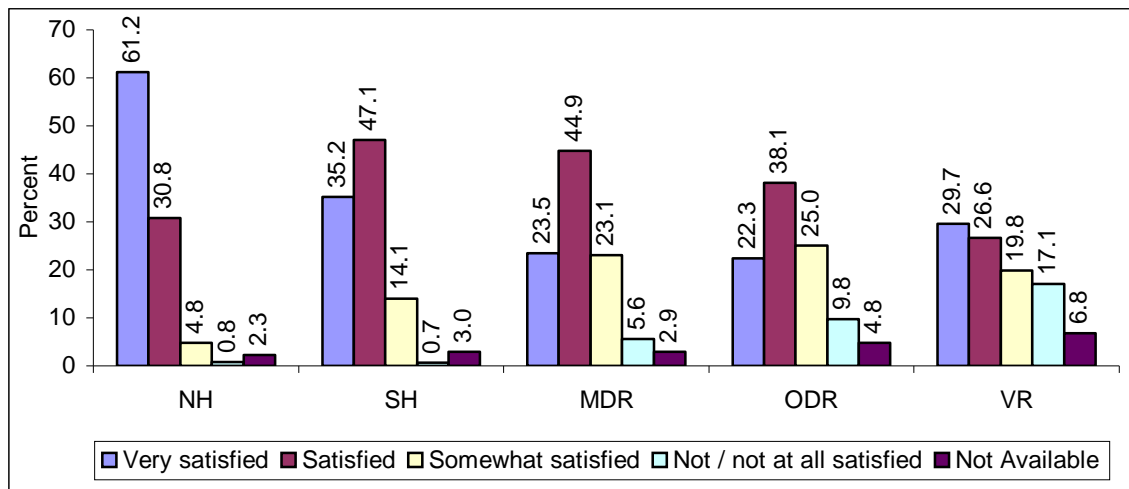


Figure 3.5e shows that only 19 percent of road users are very satisfied with the air and noise pollution on NH, which is almost equal with the satisfaction on VR (17%). The satisfaction level is almost average in case of SH, MDR and ODR as most of the road users have reported somewhat satisfied and the least are very satisfied in SH, MDR and ODR.

Overall satisfaction level

The different domains of satisfaction such as safety, surface smoothness, traffic flow, highway services and air/noise pollution are aggregated and the average satisfaction of all these indicators is presented as overall satisfaction of road users (Figure 3.5f).

Figure 3.5f: Overall Satisfaction (%)



The rural and urban differences in overall satisfaction reveals no much difference in the level of satisfaction.

About three-fifth of the road users are very satisfied on NH while only one-third are very satisfied on SH. Thirty percent of the road users are Very satisfied on VR which is higher than MDR and ODR.

3.6 RESPECTING THE ENVIRONMENT

Almost half of the road users found the beauty on the highway as somewhat pleasant experience and 29% of the main users found it very pleasant.

Table 3.6a: Beauty on highways and journey experience (%)

Journey experience	Road Users	
	Main users	Vulnerable users
Very pleasant	29	25
Somewhat pleasant	47	49
Doesn't make difference	20	22
Unpleasant	3	3
Very unpleasant	1	1
<i>Base</i>	<i>5592</i>	<i>1236</i>

Half of the road users rated that the visual appearance of flyovers/bridges on highways as good. In order to improve the visual appearance, majority of the road users suggested that roadside trees/ plants and parks should be constructed on the roadside.

Table 3.6b: Opinion on visual appearance of flyovers/bridges on highways (%)

Visual appearance	Road Users	
	Main users	Vulnerable users
Very Good	19	17
Good	49	47
Average/Fair	26	30
Poor	5	5
Very Poor	1	1

Maintenance of Green Belt on the highway was rated as 'good' and 'very good' by more than half and 'average/ fair' by one-third overall felt of the road users.

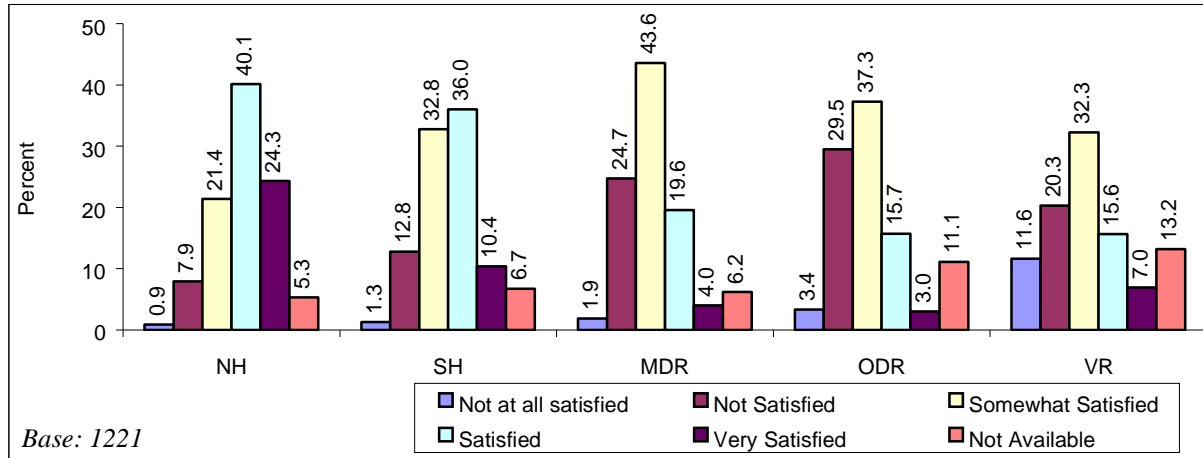
Table 3.6c: Maintenance of Green Belt on the highway (%)

Visual appearance	Road Users	
	Main users	Vulnerable users
Very Good	11	8
Good	46	44
Average/Fair	33	38
Poor	8	8
Very Poor	1	2
<i>Base</i>	<i>5592</i>	<i>1236</i>

3.7 PARKING FACILITIES AVAILABLE

Truck drivers, State transport drivers and Private bus drivers (n=1221) were asked to indicate their satisfaction with the parking facility available on different types of roads by ranking them on a five-point scale.

Figure 3.7a: Level Of Satisfaction With Parking Facility (%)

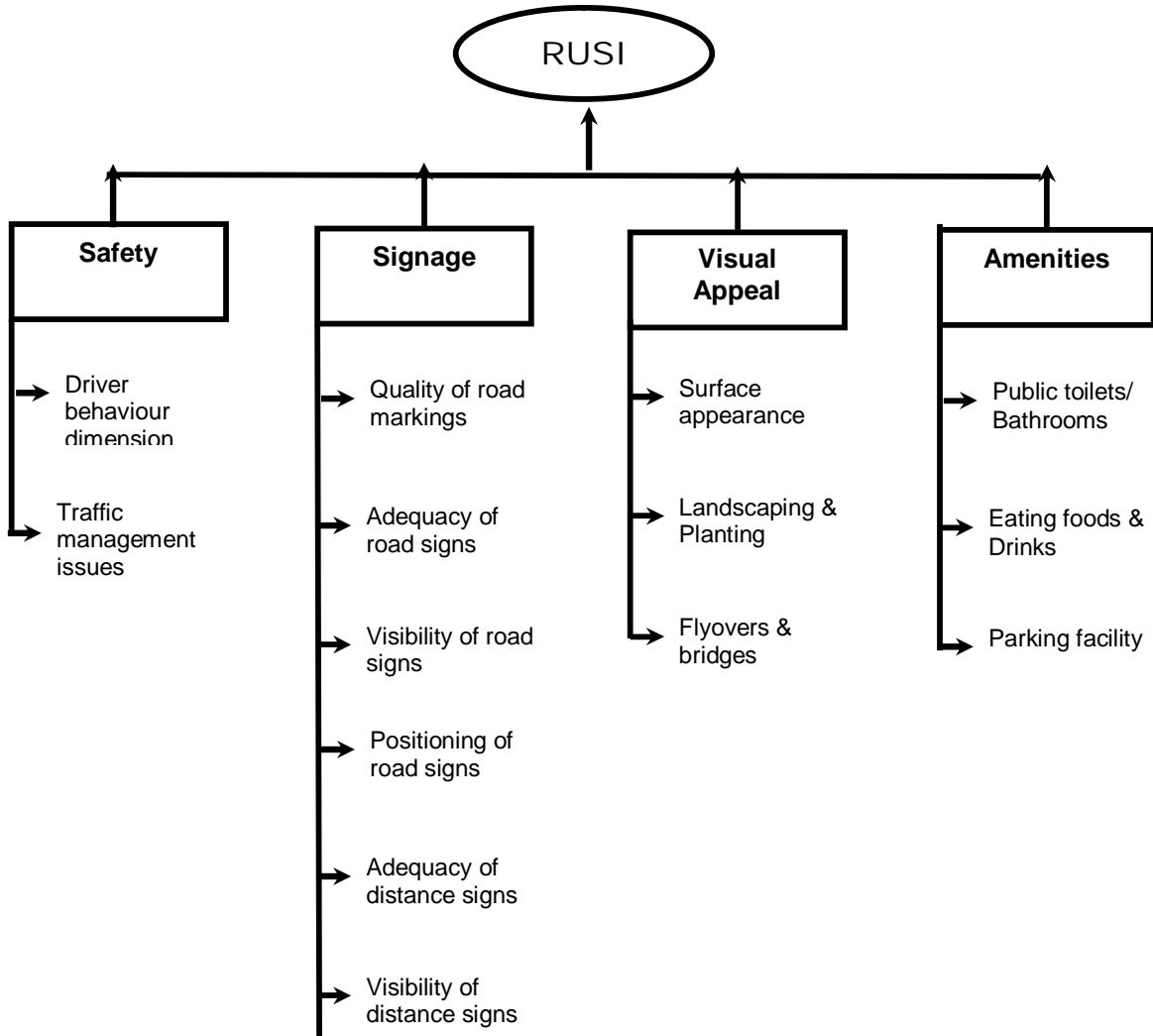


Only one-fourth are very satisfied with the parking facility on NH followed by SH (10%). Around 12% are not at all satisfied with the parking facility on VR.

3.8 ROAD USER SATISFACTION INDEX (RUSI)

In RUSS II, an attempt has been made to arrive at a composite indicator of road user satisfaction using 14 different variables such as Drivers' behaviour, Traffic management, Quality of road markings, Adequacy of road signs, Visibility of road signs, Positioning of road signs, Adequacy of distance signs, Visibility of distance signs, Surface appearance, Landscaping and planning, Fly over and bridges, Availability of public toilets and bathrooms, Eating food and drinks and Parking facility for five different types of roads.

The following diagram gives the four major factors and the relevant variables under each factor.



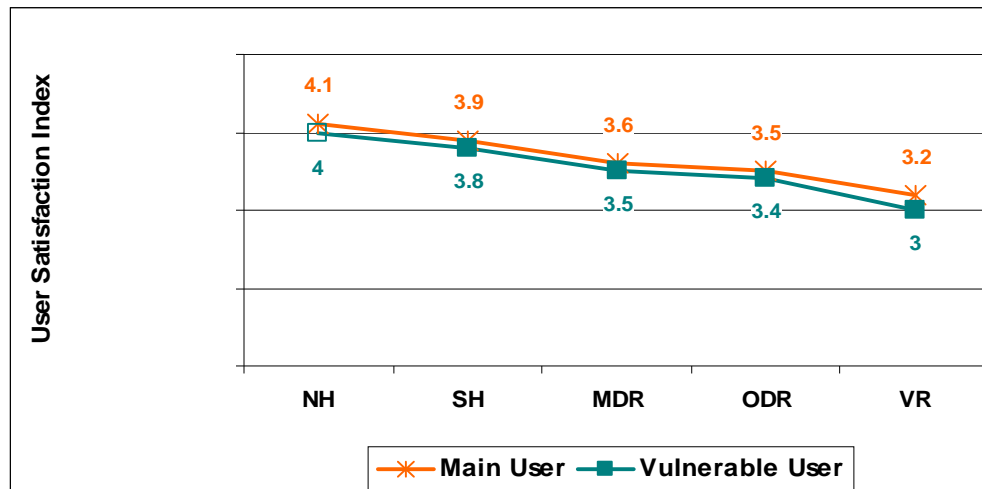
The responses for all the variables were recoded in such a way that they are in line with 5-point scale where 5 means “very satisfied” and 1 means “Not at all satisfied”. A score more towards 5 indicates more satisfaction and a score more towards 1 indicates less satisfaction.

Also, the 14 variables were grouped into four factors such as a) Safety, b) Signage, c) Visual appeal, d) Amenities and calculated weighted satisfaction scores for each of the factors.

The Factor analysis-Principal Component method was run to derive the ‘factor loading’ of each factors into the overall satisfaction. And then, the weighted mean scores were calculated to arrive at overall Users’ Satisfaction Index.

Figure 3.8a gives the Road User Satisfaction Index (RUSI) for all 5 types of roads and the two types of users (main user and vulnerable user)

Figure 3.8a: Road User Satisfaction Index by Type of User



The index scores for main users and vulnerable users across all types of roads are almost identical. NH is tops all the roads with an index score of 4.1 for main users and 4 for vulnerable users that indicate that users are just around “satisfied”. NH is followed by SH with an index score of 3.8 and 3.7 for main and vulnerable users respectively and the indication is that the satisfaction level lies beyond “somewhat satisfied” and close towards “satisfied” in case of SH.

The index score for MDR is 3.6 and 3.5 among main and vulnerable users respectively and similar trend for ODR with a score of 3.5 and 3.4 for main and vulnerable users indicating that they are on the fence between “somewhat satisfied” and just “satisfied” groups. The VR has attained a score of 3.2 for main user and 3 for vulnerable user indicating satisfaction level close to “somewhat satisfied”

Figure 3.8b: Road User Satisfaction Index by All Users

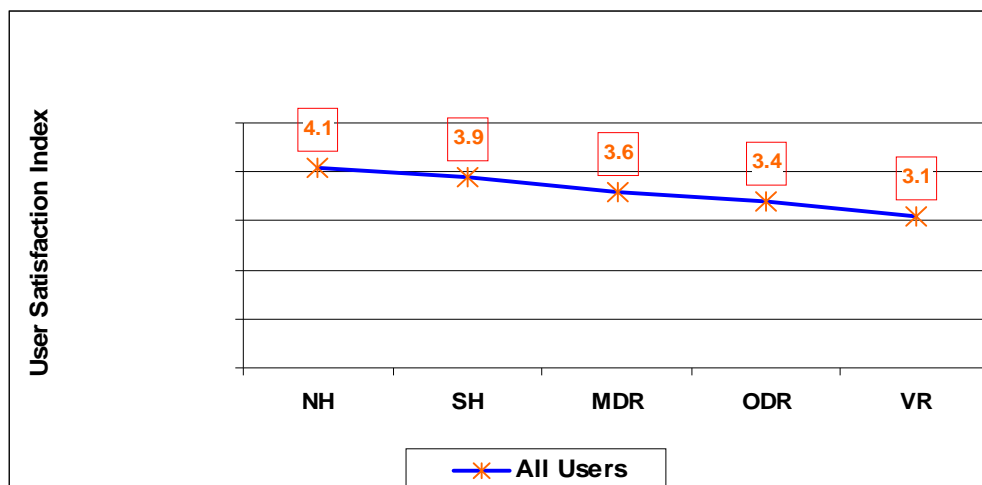


Figure 3.8b gives the overall Road User Satisfaction Index (RUSI) for all 5 types of roads and for the two types of users (main user and vulnerable user). The road users reported relatively higher satisfaction in case of NH followed by SH, MDR, ODR and VR. NH has overall highest satisfaction index of 4.1 followed by SH with 3.9, MDR with 3.6, ODR with 3.4 and VR with 3.1.

The RUSI indicates that the road users, in general, are satisfied with the road network of Tamil Nadu.

CHAPTER 4

VULNERABLE USERS AND SCHOOL STUDENTS

4.1 VULNERABLE USERS

In RUSS 2, 1236 vulnerable users, who travel alongside or cross a NH, SH, MDR, ODR and VR as a pedestrian, cyclist or bullock cart riders and 801 who live adjacent to the main road were interviewed.

Frequency of Travel among vulnerable users

Table 4.1a gives the frequency of travel for all the vulnerable users along different highways/roads used by them in the past 12 months. The frequency with which the vulnerable users travel along VR is higher than along the other roads. More than two-fifth each of the respondents travel five or more days a week along VR, MDR and NH.

Table 4.1a: Frequency of travel as a vulnerable user (%)

Frequency of travel	NH	SH	MDR	ODR	VR
5 or more days a week	42	31	44	35	46
2-4 days a week	16	30	26	32	15
Once a week	16	17	16	14	12
Less than once a week but more than once a month	10	8	7	10	8
Once a month	10	9	4	5	11
Less than once a month	6	5	3	4	8
<i>Base:</i>	<i>1156</i>	<i>1007</i>	<i>1066</i>	<i>955</i>	<i>1081</i>

Table 4.1b: Frequency of travel as a bullock cart rider (%)

Frequency of travel	NH	SH	MDR	ODR	VR
5 or more days a week	36	33	49	39	58
2-4 days a week	19	30	18	21	11
Once a week	10	21	14	18	4
Less than once a week but more than once a month	19	11	12	9	7
Once a month	9	5	1	7	9
Less than once a month	7	0	6	6	11
<i>Base:</i>	<i>96</i>	<i>77</i>	<i>7</i>	<i>78</i>	<i>95</i>

Table 4.1b gives the frequency of travel among the bullock cart riders. Among the bullock cart riders, frequency of use is higher in case of the VR (58%) followed by the MDR (49%) and ODR (39%).

Table 4.1c gives the results on frequency of travel among the cyclists. One-third to half of the cyclists travel along NH/SH/MDR/ODR/VR five or more days a week. The table also shows that women cyclists travel more frequently along different types of roads than their male counterparts. The frequency of use of roads among cyclists is higher in case of NH and MDR, compared to other roads.

Table 4.1c: Frequency of travel as a cyclist (%)

Frequency of travel	NH		SH		MDR		ODR		VR	
	M	W	M	W	M	W	M	W	M	W
5 or more days a week	44	55	37	38	43	55	30	44	33	35
2-4 days a week	17	13	26	29	29	23	36	25	16	16
Once a week	15	13	19	9	15	13	12	9	15	13
Less than once a week but more than once a month	12	1	10	9	7	7	13	10	10	7
Once a month	10	12	7	9	4	1	6	4	14	17
Less than once a month	2	6	1	6	2	1	3	8	12	12
Base:	207	80	186	68	181	71	164	71	184	75

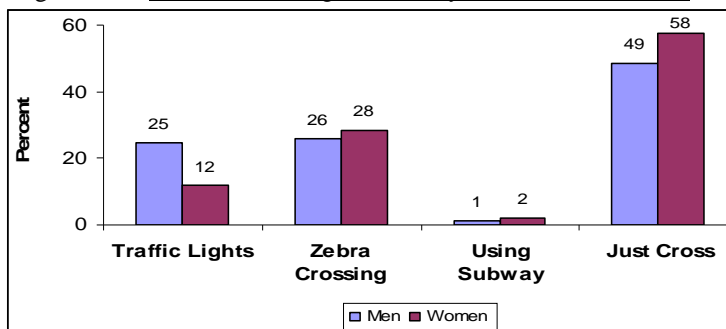
Among the pedestrians, frequency of travel seems to be higher in case of VR followed by MDR and NH. While almost half of the men and women use VR five or more days a week, 46% men and 39% women use MDR followed by 46% men and 35% women who use the NH five or more days a week.

Table 4.1d: Frequency of travel as a pedestrian (%)

Frequency of travel	NH		SH		MDR		ODR		VR	
	M	W	M	W	M	W	M	W	M	W
5 or more days a week	46	35	32	26	46	39	37	34	49	48
2-4 days a week	16	16	33	28	28	26	32	33	15	16
Once a week	16	17	14	20	15	18	16	13	13	10
Less than once a week but more than once a month	9	9	8	8	5	9	8	12	7	7
Once a month	9	13	8	11	3	5	4	5	9	12
Less than once a month	4	10	5	7	3	3	3	3	7	7
Base:	412	361	364	312	382	342	334	308	381	346

Mode of crossing the road by vulnerable users

Figure 4.1a: Mode of crossing the road by vulnerable users (%)



More than half of the vulnerable users cross the road at any point on the road. While 25% use the Zebra crossing, 20% cross the road with the help of traffic light. As Figure 4.1a indicates, majority of the women (58%) cross at any point on the road while 28% use the Zebra crossing and the traffic lights to cross the road.

More than half of the men follow safety methods while crossing the road such as the traffic lights and Zebra crossing while nearly half of them stated that they cross at any point on the road.

Crossing the road with the aid of a traffic light was reported by half of the bullock cart riders. Among the cyclists, 36% men and 25% women cross the road with the aid of a traffic light. The corresponding figure is much lower for pedestrians with 13% men and 9%

Table 4.1e: Mode of crossing road among vulnerable users (%)

Mode of crossing	Bullock cart riders	Cyclists		Pedestrians	
		M	W	M	W
Traffic lights	51	36	25	13	9
Zebra crossing	13	21	22	31	30
Use subway	0	0	2	2	2
Not at a pedestrian crossing/ Just cross	36	43	51	54	59
<i>Base: All</i>	<i>105</i>	<i>224</i>	<i>86</i>	<i>434</i>	<i>387</i>

of women stating that they use the traffic light to cross the road.

Among cyclists and pedestrians, majority cross at any point on the road. Women are more likely to ‘just cross’ a road than men and this is evident among women pedestrians and women cyclists. This essentially is

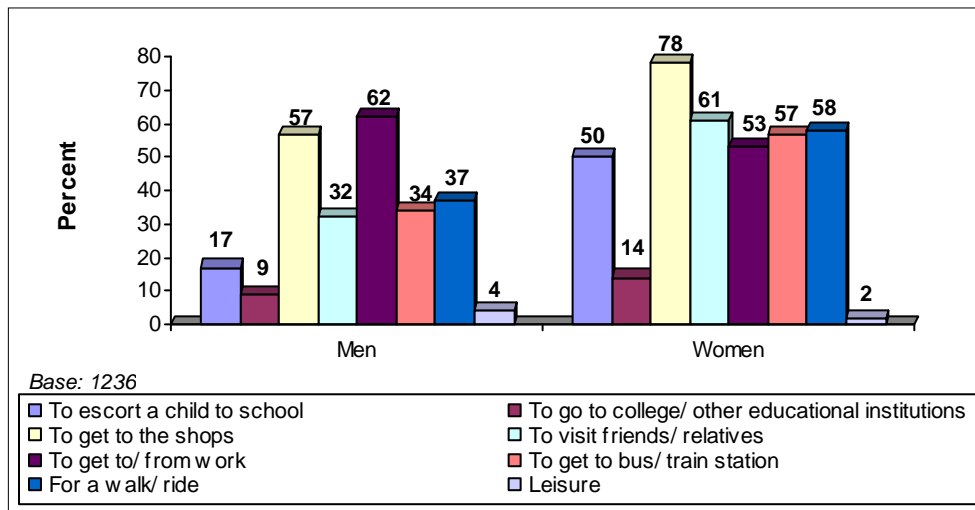
determined by availability of traffic signal and zebra crossing systems.

Reasons for crossing roads

Figure 4.1b shows that majority (61%) of the men cross the road to go and return from work and to get to the shops (57%).

Majority of the women cross the road to get to the shops (78%) and to visit friends/relatives (61%). Half of the women cross the road to escort child to school.

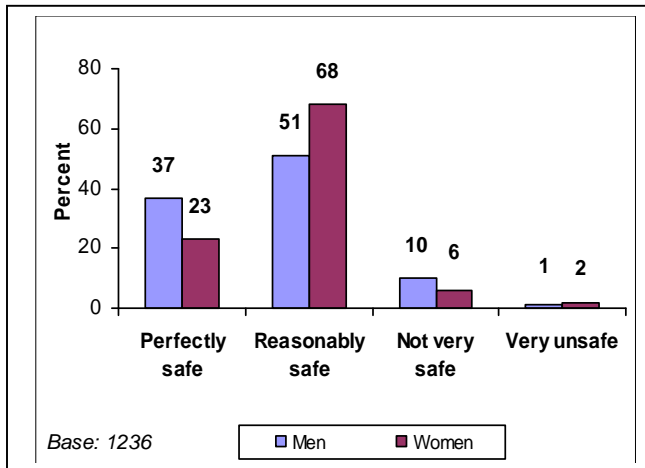
Figure 4.1b: Reasons for crossing the road (%)



Vulnerable users' perception of safety

Safety is a major concern of the vulnerable users as they are more prone to various mishaps along the roadside.

Figure 4.1c: Perception of safety among vulnerable users while crossing roads (%)



Though majority of women stated that they cross at any point of the road,

more than two- third feel “reasonably safe” while crossing road and 23% feel “perfectly safe”. Among men, 37% feel “perfectly safe” and 51% feel “reasonably safe” while crossing roads (Figure 4.1c).

About one tenth of men (11%) and women (8%) stated that they feel unsafe while crossing roads (Figure 4.1c).

One tenth of the bullock cart riders stated that they feel ‘not very safe’

while crossing roads while about half of them felt just ‘reasonable’ safety.

The cyclists feel more vulnerable while crossing roads than the other users. The feeling of unsafe while crossing road was expressed more by women cyclists (17%) and men pedestrians (13%).

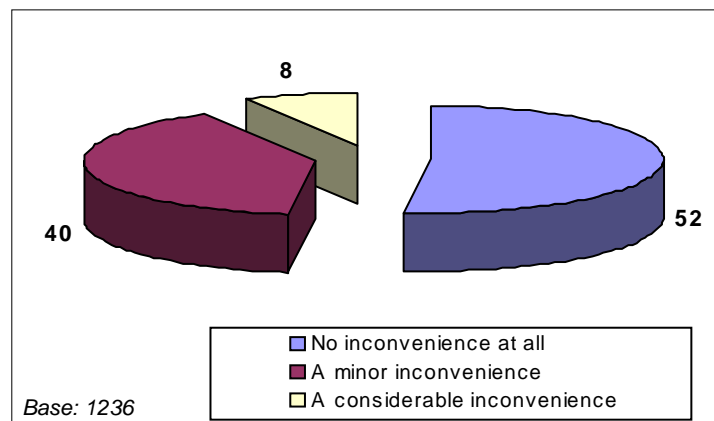
Table 4.1f: Vulnerable users' perception of safety when crossing roads (%)

Perception of safety	Bullock cart riders	Cyclists		Pedestrians	
		M	W	M	W
Perfectly safe	38	42	31	32	39
Reasonably safe	52	47	52	55	53
Not very safe	10	10	13	11	6
Very unsafe	0	1	4	2	2
Base:	105	224	86	434	387

Nearly half (48%) of the vulnerable users stated that they felt inconvenient while crossing the road and 52% stated that there is ‘no inconvenience at all’ (Figure 4.1d).

Feeling about safety and inconvenience of crossing the road affect behaviour and the Figure 4.1e gives the results on the vulnerable users' behaviour due to such feelings. More than one third of the users travel further to get to a crossing and

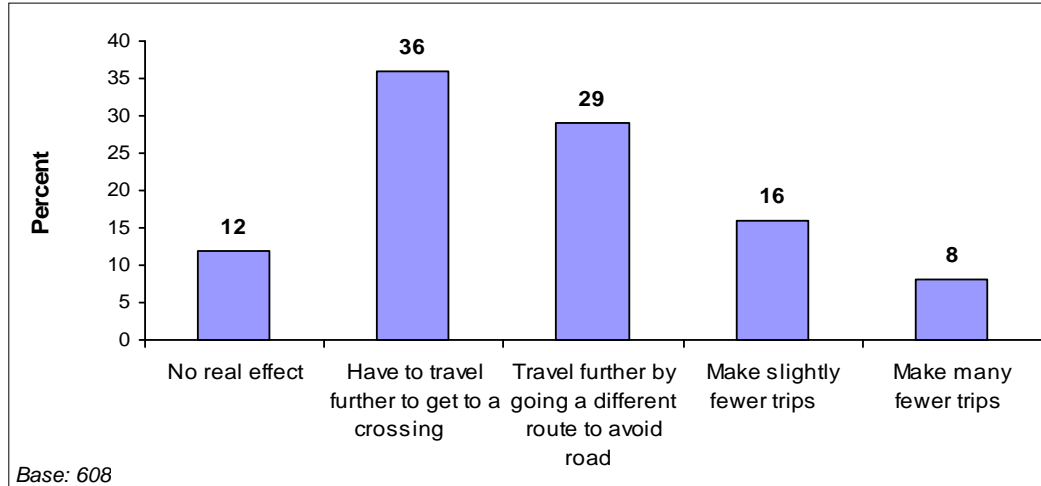
Figure 4.1d: Extent of inconvenience while crossing roads (%)



29% travel further by going to a different route to avoid road.

Feelings about safety and inconvenience led to the users making fewer trips with nearly one-fourth (24%) stating that that they make “slightly fewer” or “many fewer” trips.

Figure 4.1e: Vulnerable users’ behaviour due to feelings of safety and inconvenience of crossing the road (%)



When the vulnerable users were asked to name one safety measure that would make them feel safer when crossing a particular kind of road, it differed for each type of user (Table 4.1g).

Table 4.1g: Crossing made safer (%)

Perception of safety	Bullock cart riders	Cyclists		Pedestrians	
		M	W	M	W
Nothing else	22	15	16	12	12
A new pedestrian/ cycle lane	5	18	29	15	14
Lower speed limit	24	16	8	12	12
Subway	2	4	2	6	5
Pedestrian crossing	9	16	21	26	25
Less traffic	28	16	18	19	20
Not stated	10	15	6	10	12
Base:	105	224	86	434	387

For the bullock cart riders, less traffic and lower speed limit for other vehicles would make them safe while crossing roads. Among the cyclists, a new pedestrian/ cycle lane, pedestrian crossing followed by less traffic would make them feel safe while crossing roads.

Majority of the pedestrians stated that a pedestrian crossing and less traffic would make them feel safer.

Households adjacent to the main road

More than one fourth of the respondents (30%) have been staying adjacent to the highway for more than 22 years. They were asked the advantages of staying adjacent to the highway. The results are presented in Table 4.1h by Socio Economic Classification. Majority of them cited the availability of bus/transport facility and easy accessibility to shops/ educational institutions as the advantages. Other aspects considered advantageous, include comfort, proximity to market, hospital and easy travel.

Table 4.1h: Advantages of staying adjacent to main road by SEC (%)

Advantages	Socio Economic Classification								
	A	B	C	D	E	R1	R2	R3	R4
Bus Stand is there (near by)	60	63	65	57	64	71	62	60	29
School is there (near by) / college is near to my house	23	25	19	24	7	7	17	14	14
Shop is there (near by)	30	34	36	24	14	21	24	23	14
Market is there	12	16	14	12	14	12	13	14	14
Hospital is there	11	14	12	10	43	10	4	8	14
We can travel at any time	18	12	11	12	21	5	8	12	43
It is very comfortable / very useful	18	8	15	19	7	10	15	14	29
We sell our products here	2	9	7	5	0	2	13	11	0
No fear of thief	2	2	1	0	0	2	2	0	14
None	5	1	2	5	7	2	3	9	0
<i>Base:</i>	<i>57</i>	<i>95</i>	<i>162</i>	<i>42</i>	<i>14</i>	<i>42</i>	<i>119</i>	<i>263</i>	<i>7</i>

Note: Total exceeds 100 due to multiple responses

Table 4.1i: Reasons for feeling unsafe (%)

Reasons	NH	SH	MDR	ODR	VR
Due to vehicles	66	60	59	48	48
Crime such theft assault	27	29	30	25	30
Noise pollution	76	74	72	75	53
Air pollution	69	80	64	67	59
Bad infrastructure	21	28	29	26	37
<i>Base:</i>	<i>234</i>	<i>231</i>	<i>169</i>	<i>81</i>	<i>86</i>

Note: Total exceeds 100 due to multiple responses

Availability of bus facility was reported as a major advantage of staying adjacent to the main road across both urban and rural SEC except among R4. Urban SEC groups have found the presence of educational institution advantageous. Among rural SEC staying adjacent to main road helps them to travel at any time.

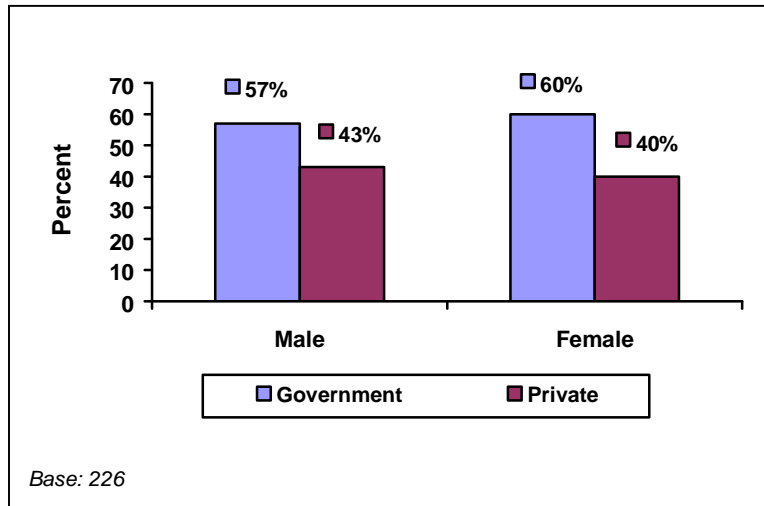
Respondents were asked to indicate what made them feel unsafe staying adjacent to the highway (Table 4.1i). Air and noise pollution were stated as major reasons by the households staying adjacent to the main road for feeling unsafe across all the roads.

Vehicles also make the respondents feel unsafe especially among those staying adjacent to NH, SH and MDR. Among those staying adjacent to the VR, bad infrastructure also makes them unsafe.

When asked about the problems faced during their stay near the highway, majority of the respondents cited air and noise pollution. Many also cited that children are not able to play outside due to vehicles. Accidents and fast moving vehicles are also a problem faced by the households.

4.2 SCHOOL STUDENTS

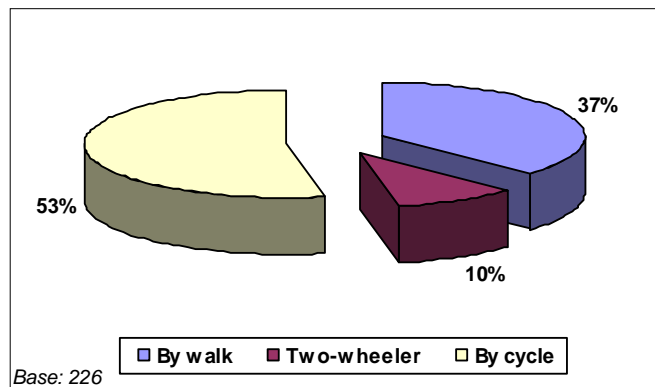
Figure 4.2a: Type of school and gender wise distribution of school students (%)



understand the road safety measures taken by students and their awareness in traffic rules and safety programmes.

Profile of the Students

Figure 4.2b: Mode of Transport to School (%)



Overall, 226 school students between the age group of 12-18 years were covered in the survey. Among them 54% (n=121) are boys and 46% (n=105) are girls.

The mean age of the school students is 16.81 years. Most (95%) of the students are between the age group of 16-18 years while 5% are in the age group of 12-15 years.

Overall, 132 students are from the Government schools while 94 are from the Private schools. Analysis of the gender distribution and type of school shows that in both Government and Private schools, boys have a higher representation than girls (Figure 4.2a).

More than half of the students (58%) who participated in the survey were currently studying in 11th standard and 42% are in 12th standard.

More than half of the students (53%) commute by bicycle to school while more than one-third (37%) go by walk. Only one-tenth (11%), commute to school by two-wheeler (Figure 4.2b).

Table 4.2a: Distribution of students by mode of transport and type of school (%)

Mode of transport	Government School	Private School
By walk	43	30
Two-wheeler	6	16
By cycle	52	55
<i>Base</i>	<i>132</i>	<i>94</i>

When compared to students from Government schools, a higher percentage of children from Private schools commute to school by two-wheeler. The table also shows that percentage of children who walk to school is much higher in Government school than in Private school (Table 4.2a).

Mode of transport depends on age of the children and we may have to control for this variable to have meaningful analysis.

More than half of the students (56%) of 12-15 years walk to school. In the age group 16-18 years, more than half commute by bicycle (53%) while more than one-third (37%) walk to school. Two-wheeler is used by one tenth of the students in this age group.

Table 4.2b: Distribution of students by mode of transport, age and gender (%)

Mode of transport	12-15 years*			16-18 years		
	All	Boys	Girls	All	Boys	Girls
By walk	56	71	40	36	37	35
Two-wheeler	0	0	0	11	10	11
Bicycle	45	29	60	54	53	54
<i>Base</i>	<i>12</i>	<i>7</i>	<i>5</i>	<i>214</i>	<i>114</i>	<i>100</i>

* Results need to be interpreted with care due to small base

In the age group of 12-15 years, a higher percentage of girls than boys commute by bicycle to school and a higher percentage of boys than girls walk up to school. In the older age group, an equal percentage of boys and girls commute by two-wheeler to school.

Road safety measures taken by students

According to a survey by WHO, each year road traffic injuries take away lives of 1.2 million men, women, and children around the globe and injure many more. The death toll is on the higher side for countries such as India, where pedestrians, motorcyclists and passengers are vulnerable and vehicles lack the safety norms.¹

Road safety is an emerging social concern among school students and this section provides information on the safety measures taken by students who walk up to school, use two-wheelers and bicycles to commute to school.

¹ <http://www.indiandrivingschools.com/road-safety-in-india.html>

Students who walk to school

The number of children who walk up to school is 84 (37%). Among the students who go by walk, 56% are boys (n=47) and 44% (n=37) are girls (Figure 4.2c).

Two-third of the students who stated that they walk to school are from Government schools while one-third are from Private schools.

Figure 4.2c: Percentage of students who go by walk to school by gender

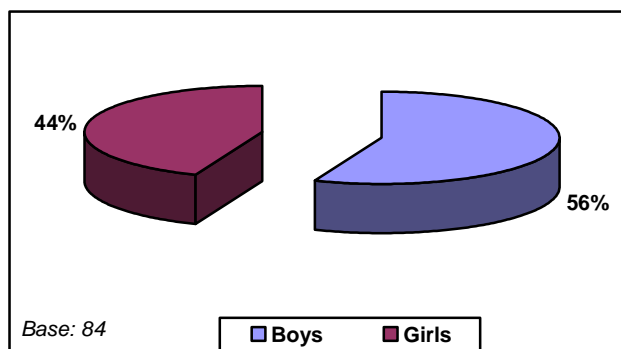
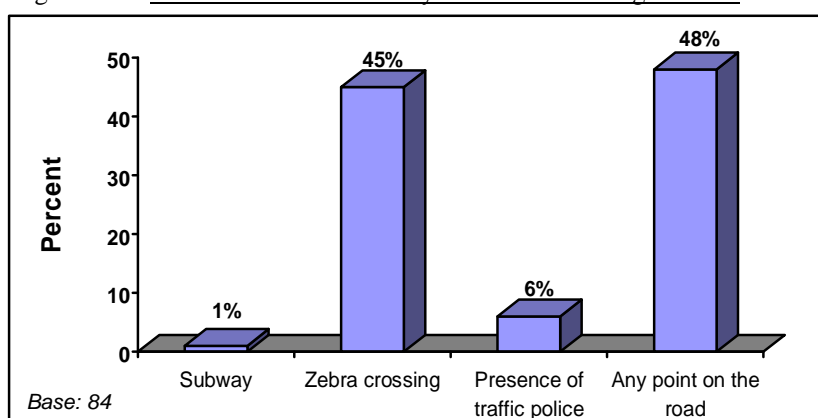


Figure 4.2d: Distribution of students by method of crossing the road



Most of the students (92%) who go by walk to school are of 16-18 years, while 8% are of 12-15 years.

When the students were asked on the approximate number of kilometers they walk from home to school, 39% stated that they walk almost 1 km and another 39%

walk almost 2 kilometers. About one fifth of the students walk for less than 1 kilometer.

Table 4.2c: Distribution of students by method used to cross road, gender and age (%)

Method of crossing	12-15 years*			16-18 years		
	All	Boys	Girls	All	Boys	Girls
Use subway	25	0	50	0	0	0
Zebra crossing	10	20	0	48	50	46
In the presence of traffic police	0	0	0	7	0	14
Any point on the road	65	80	50	45	50	40
Base	7	5	2	82	42	40

*Note: Results need to be interpreted with care due to small base

Almost half of the students (48%) stated that they cross at any point of the road, while more than two fifth cross the road using the zebra crossing. Only 6% of the students cross the road in the presence of a traffic police, while only 1% use the subway to cross the road.

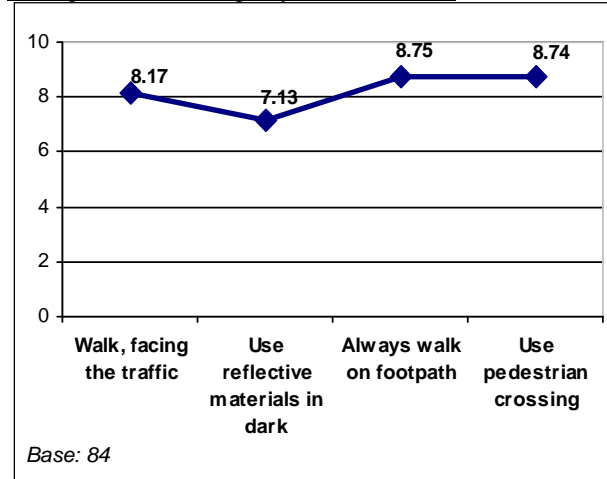
A further analysis of the data shows (Table 4.2c) that a higher percentage of

students in the older age group use zebra crossing (48%) and among them majority are boys (50%).

Proportion of students who cross road at any point on the road is 50% and 65% among students of 16-18 years and 12-15 years respectively. In both the age groups more boys than girls stated that they cross at any point on the road.

In order to measure the awareness on safety measures that pedestrians are expected follow, the students were asked to rate a few safety measures on a 10 point scale where '1' is not at all essential and '10' is absolutely essential (Figure 4.2e).

Figure 4.2e: Mean Score Awareness on safety measures among students who go by walk to school

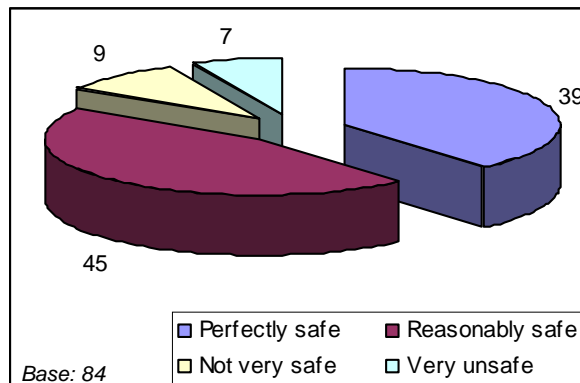


The safety measures that were rated included:

- While walking, one has to face the traffic and must not walk next to the kerb
- When it is dark, one must use reflective materials (e.g. armbands, sashes, waistcoats and jackets), which can be seen, by drivers using headlights, up to three times as far away as non-reflective materials
- One must always walk on the footpath
- One must cross roads where there are pedestrian crossings

The rating shows that awareness on safety measures that pedestrians are expected to follow is high among students who walk to school.

Figure 4.2f: Feeling of safety as a pedestrian (%)



When the students were asked how safe they felt as a pedestrian, more than two-fifth (45%) stated that they felt reasonably safe while nearly two-fifth felt perfectly safe. However 16% of the students did not feel safe as a pedestrian.

Some reasons stated by the students for feeling safe/ unsafe as a pedestrian are listed in Table 4.2d.

Table 4.2d: Distribution of students by reasons for feeling safe/ unsafe as a pedestrian (%)

Reason	All	12-15 years	16-18 years
Feeling safe			
Before crossing the road I see both sides of the traffic	10	0	11
I am following the road rules	8	0	9
I am using the pavement	18	10	19
Cross the road in the presence of a traffic police / Traffic police will help them	7	10	7
I am walking in the corner of the road / One side of the road	17	10	16
Pedestrian crossing is there to cross the road	10	10	9
I am walking on left side	2	0	3
I will cross the road, when there is no traffic jam / Very carefully	4	10	3
Road is very broad	2	0	3
No accident while walking on the pavement	1	0	1
Feeling unsafe			
No Pedestrian crossing	8	0	8
Many shops on the roadside	2	0	3
Many vehicles are parked on roadside	1	0	1
Drainage on roadside	1	1	1
Plants, bushes on roadside	1	1	1
Base	84	7	77

The most quoted reasons for feeling safe as a pedestrian among both age groups are:

“I am using the pavement”
“I walk in the corner of the road or one side of the road”
“Pedestrian crossing is there to cross the road”
“Before crossing the road I see both sides of the traffic”

While using a pavement and pedestrian crossing has been associated with safety for the school students, the absence of a pavement is one of the major reasons for feeling unsafe as pedestrian.

Students who commute by two-wheeler

Overall, 23 of the 226 students commute to school by two-wheeler, all being 16-18 years old. There is almost equal gender distribution with 52% being boys and 48% being girls. Majority of the students are from private school (65%).

When students were asked about the speed limit for a two-wheeler in the city almost two-third (65%) stated that it is 40 kms per hour.

Driving without valid documents (22%) and crossing wrong signal (22%) are the most violated traffic rules among the school students. Other traffic rule violations included driving without license (17%) and using mobile phones while driving (13%).

Table 4.2e: Distribution of students by violation of traffic rules (%)

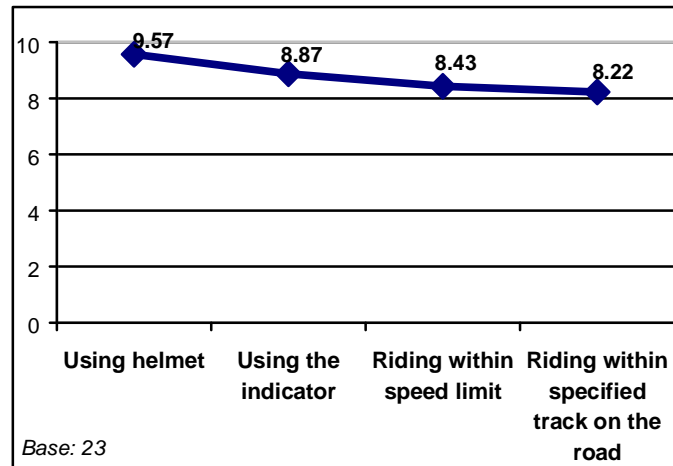
Violating traffic rules	All	Boys	Girls
Without helmet	9	17	-
Without valid documents	22	25	18
Without license	17	25	9
Using mobile phone while driving	13	8	18
Over speeding	9	8	9
Crossing wrong signal	22	17	27
Base	23	12	11

More girls than boys were found for using mobile phones (18%) and crossing wrong signals (27%).

Among the boys, majority have been caught for driving without valid documents (25%) and license (25%) followed by not wearing helmet (17%) and crossing wrong signal (17%).

In order to measure the awareness on safety measures that two-wheeler riders are expected to follow, the students were asked to rate a few safety measures on a 10 point scale by giving a score out of 10 where '1' is not at all essential and '10' is absolutely essential (Figure 4.2g).

Figure 4.2g: Awareness on safety measures among students who go by two-wheeler to school



The safety measures that were rated included:

- Using helmet
- Using the indicator at the appropriate turnings
- Riding within the speed limit
- Riding within the specified track on the road

Using helmet is considered as the most important safety measure as a two-wheeler rider. Two-third of the school students (66%) stated that they feel somewhat safe as a two-wheeler rider while 22% stated that they feel perfectly safe. However 13% of the students stated that they feel not very safe as a two-wheeler rider.

Safe driving is considered as a major reason among students for feeling safe on the road. The presence of a traffic police and signals also help them to feel safe. Among the boys, use of helmets makes them feel safe and girls are more particular about safe driving.

Table 4.2f: Distribution of students by reasons for feeling safe/unsafe as a two-wheeler (%)

Reason	All	Boys	Girls
Feeling safe			
Using helmet	22	33	9
Safe driving	48	41	54
Follow road rules	26	34	18
Presence of traffic police/ signals	35	50	9
Good road conditions	17	16	0
Feeling unsafe			
Bad roads	25	16	36
Bad driving by other drivers	30	33	27
Traffic	4	0	9
Base	23	12	11

Bad driving by other drivers has been primary reasons for making them feels unsafe on the road, especially over speeding and over taking by other vehicles.

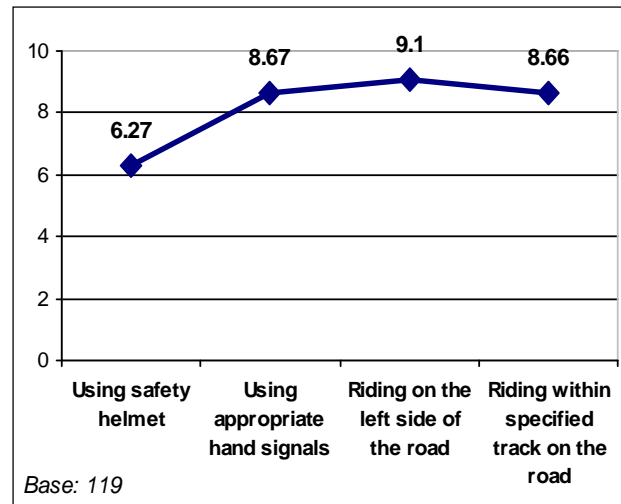
Among the other reasons cited, bad roads including the road condition and vehicle parking on the roadside make them feel unsafe on the road.

“Our concentration is on the road while driving”

Students who commute by cycle

Around 119 school students who commute to school by cycle were interviewed in the survey. Among them 62% are boys and 57% are girls. Majority of them (62%) are from the Government Schools. While 96% are in the age group 16-18 years, only 4% are of 12-15 years.

Figure 4.2h: Mean Score of Awareness on safety measures among students who go by cycle to school



In order to measure the awareness on safety measures that cyclists are expected to follow, the students who commute to school by cycle were asked to rate a few safety measures on a 10 point scale 10 means 'very essential' and 1 means 'not at all' essential to follow safety measure.

The safety measures that were rated included:

- Using safety helmet
- Using appropriate hand signals
- Riding on the left side of the road
- Riding within the specified track on the road

Table 4.2g: Distribution of students by reasons for feeling safe/ unsafe as a cyclist (%)

Reason	All	Boys	Girls
Feeling safe			
Safe driving	49	47	52
Use appropriate hand signals	5	4	6
Presence of traffic police/ signals	6	6	5
Feeling unsafe			
Over speeding/Over taking by other vehicles	41	39	44
Bad road condition	5	8	2
Traffic	10	11	9
Base	119	68	51

Riding on the left side of the road was rated highly as a safety measure.



One third of the school students who commute by bicycle stated that they feel unsafe. However, more than three fourth of the students stated that they feel safe on the road as a cyclist.

Among the reasons why students feel safe on the cyclist are due to safe driving by self (49%) and the most cited reason for feeling unsafe is over speeding and over taking by other vehicles on the road (41%).

Awareness on Traffic Rules and Traffic Safety Programmes

In order to understand the awareness among the school students on traffic rules, a set of 5 road traffic sign were shown to the students with the aid of a show card and they were asked to identify each sign. Analysis of this data is given in Table 4.2h. Except the road sign on 'No Parking', which was identified by 26% of the students, more than half of the school students were able to identify the other 4 traffic signs.

Table 4.2h: Distribution of students by awareness of traffic signs among students (%)

Road signs	All	Boys	Girls
U-Turn Prohibited 	59	64	52
Right Turn Prohibited 	61	62	60
Cycles Prohibited			



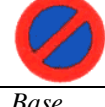
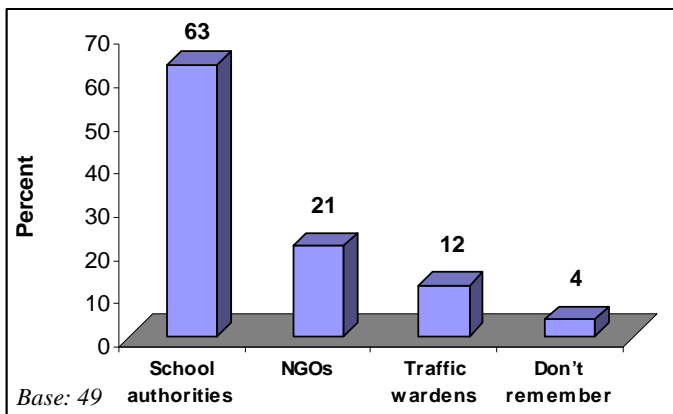
	81	83	79
Pedestrians Prohibited 	81	83	78
No Parking 	26	26	28
<i>Base</i>	226	121	105

Figure 4.2i: Person who conducted the road safety programme (%)



Less than one fourth of the school students interviewed reported to have attended programmes on road safety.

Among the students who attended programmes on road safety (n=49), majority stated (63%) that the programme was conducted by the school authorities while 21% stated that it was conducted by Non-Governmental Organisations. While 12 % stated that traffic wardens conducted the programme on road safety, 4% did not remember who conducted

it.

CHAPTER 5 COMPARISON OF RUSS 1 AND 2

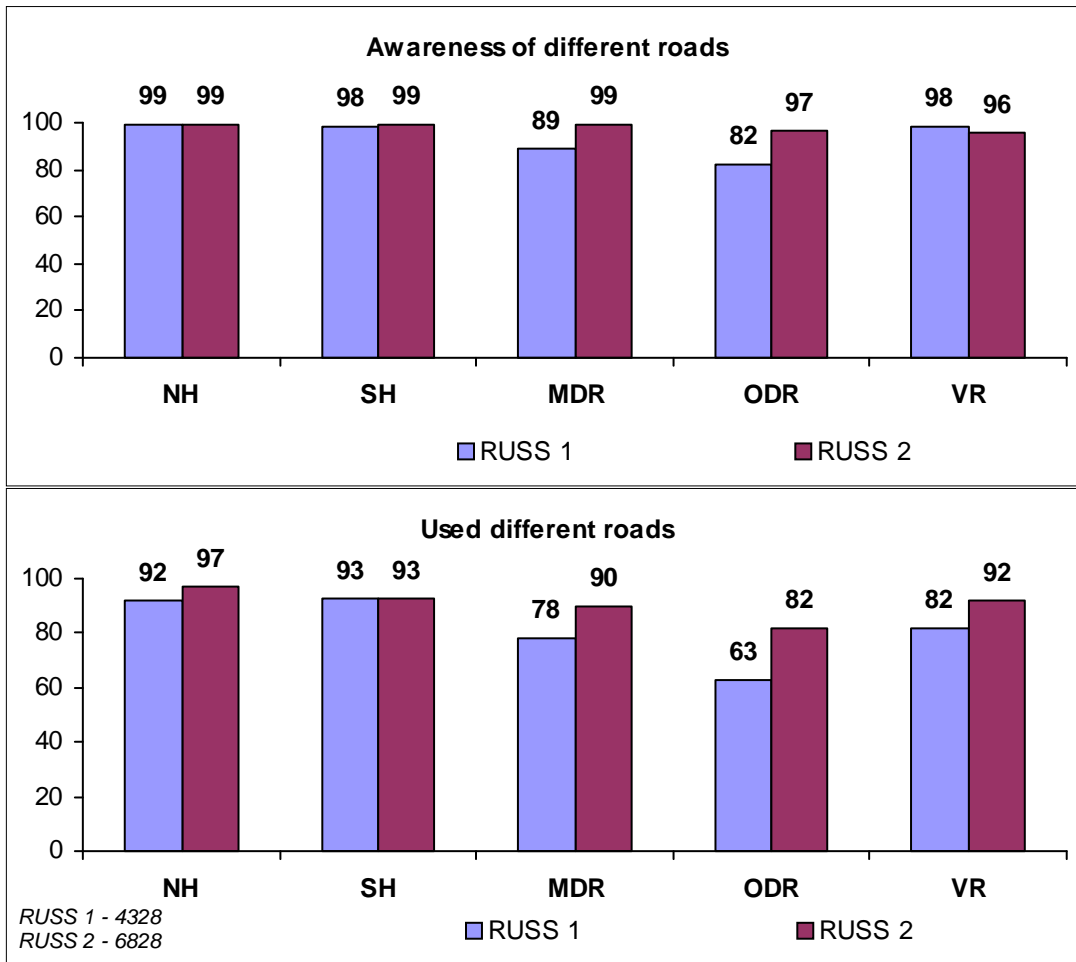
This chapter compares the selected key indicators that are common in Round 1 and 2 of the Road User Satisfaction Survey.

5.1 JOURNEY CHARACTERISTICS

Awareness and use of different roads

While the awareness of NH has remained the same in both the Rounds, there is a marginal increase in the awareness among users of the SH and a slight decrease is observed in the awareness among users of the VR. The awareness of ODR and MDR recorded an increase of 10% or more during Round 1 and Round 2 (Figure 5.1a).

Figure 5.1a: Awareness and Use of different type of roads (%)



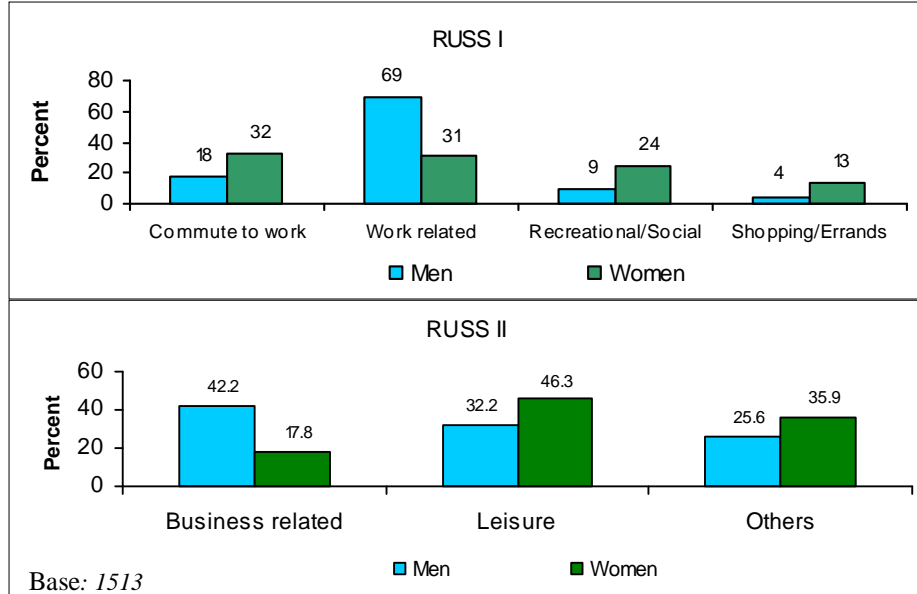
The proportion of road users has also increased for particular roads such as NH, MDR, ODR and VR. There is no change in the percentage of road of users of SH in both the rounds of RUSS (Figure 5.1a).

Purpose of travel

Question on travel purpose was asked only to FWO, TWO, WD, PTC and F/A in RUSS 2 and TD, PBD, STD and T-D in RUSS 1.

Figure 5.1b: Trip purpose (%)

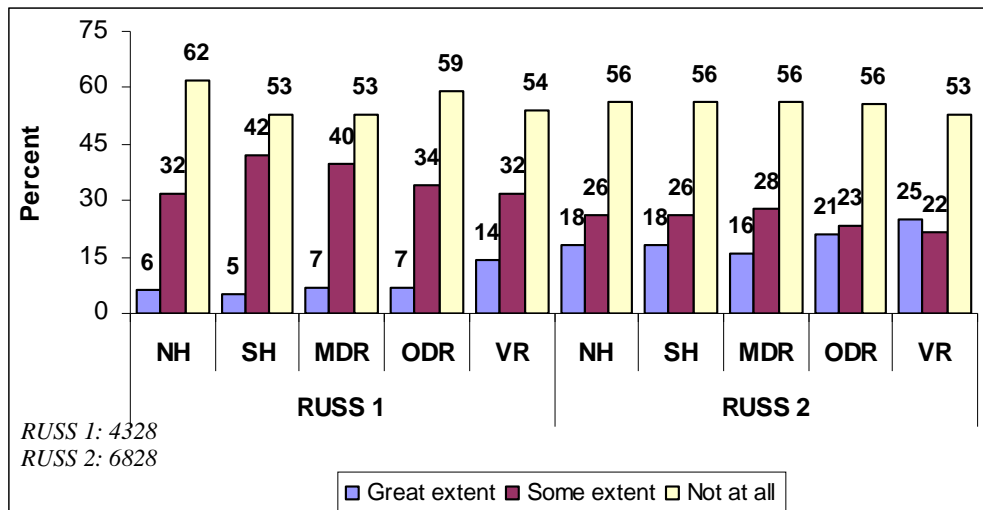
In both the rounds, findings show that comparatively more men than women undertake business/ work related trips and more women than men undertake recreational/ leisure trips.



Safety aspects

Proportion of users feeling unsafe to a ‘great extent’ has increased by 10 to 15% range on NH, SH, MDR, ODR and VR since Round 1.

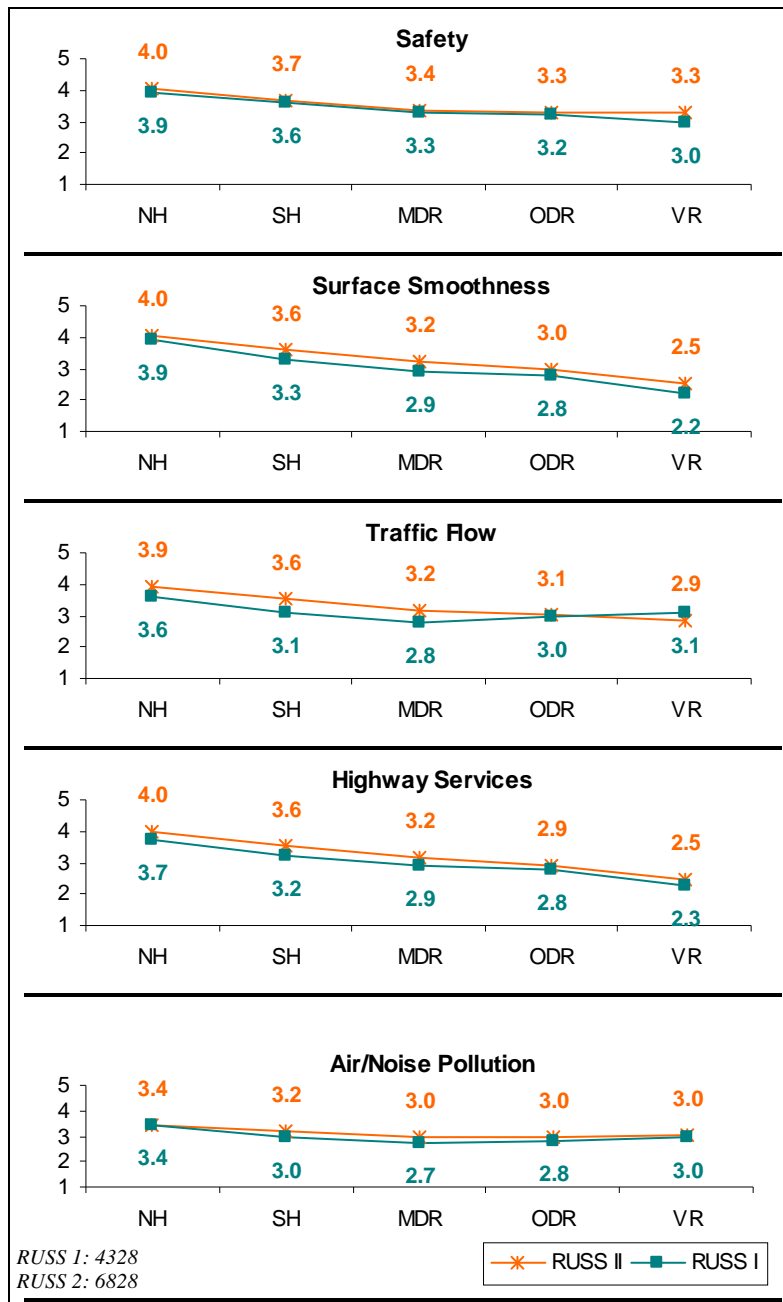
Figure 5.1c: Extent of feeling unsafe during recent journey (%)



5.2 SATISFACTION WITH ROADS USED MOST RECENTLY

Road users were asked to rate the extent of satisfaction with various aspects such as safety, surface smoothness, traffic flow, highway services and, air and noise pollution. A comparative picture of both the rounds of RUSS is presented in Figure 5.2ain terms of mean satisfaction score.

Figure 5.2a: Mean level of satisfaction with the roads used most recently



The mean score indicates a slight increase in the satisfaction of safety aspect of all types of roads from Round 1.

While there is only a slight increase in the mean level of satisfaction with surface smoothness on NH from Round 1, a considerable increase in the satisfaction is observed in case of SH, MDR and VR.

There is a considerable increase in the mean level of satisfaction with traffic flow in case of NH, SH and MDR from Round 1, whereas the mean level satisfaction has declined in case of VR which could be due to road design issues, low width of roads and its corresponding increase in the vehicle population.

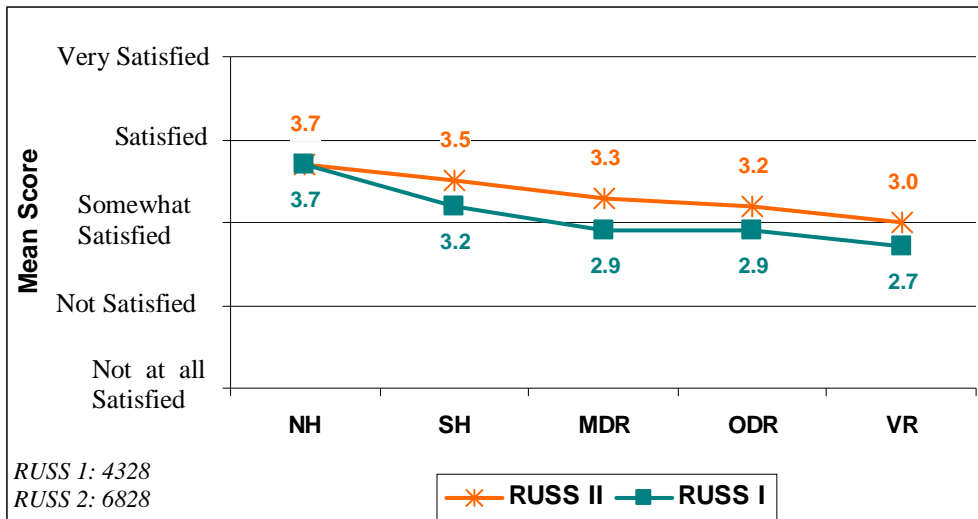
There is considerable increase in mean level of satisfaction with highway services in case of NH, SH and MDR while a slight increase is noticed in case of ODR and VR.

The mean level of satisfaction with air and noise pollution shows no difference from Round 1 on NH and VR, while slight difference is observed in case of SH, ODR and MDR.

Overall satisfaction level

Road users are satisfied with the various aspects on NH and SH, while they are somewhat satisfied with MDR and ODR and are least satisfied with VR.

Figure 5.2b: Mean of overall satisfaction



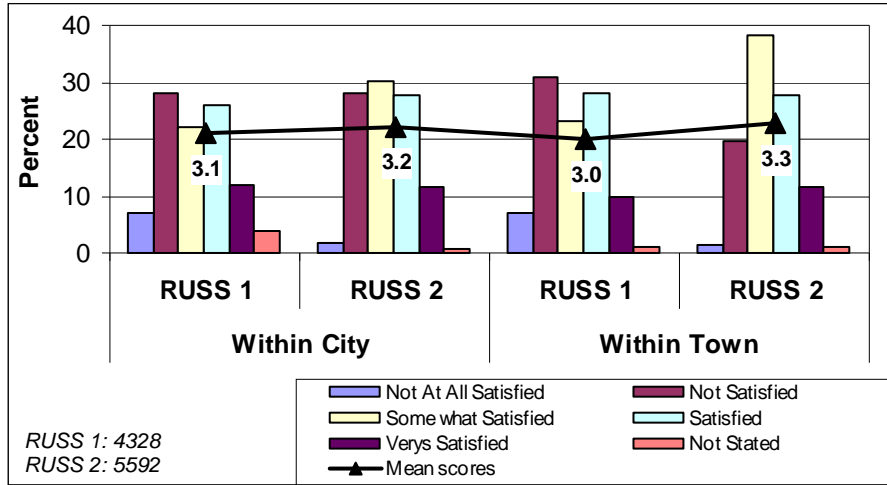
5.3 PARKING FACILITIES AVAILABLE

Road users were asked to indicate their satisfaction with the parking facility available within city/town on a five-point scale.

Figure 5.3a shows that the satisfaction with parking facilities within city and town has increased since Round 1. The proportion reporting somewhat satisfied and satisfied

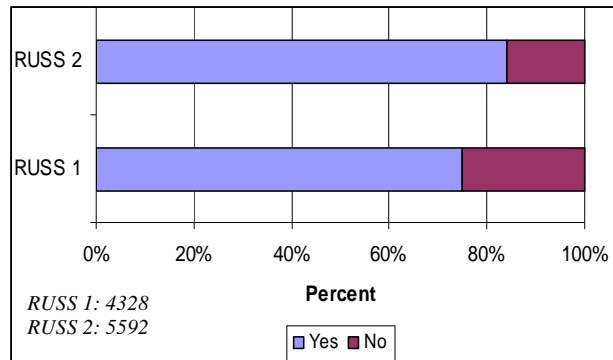
within city has increased and the proportion reporting somewhat satisfied within town has increased drastically since Round 1. In all the cases, just about 10% of road users only responded very satisfied about parking facilities. The mean scores show similar scenario but only slight increase within city while prominent increase within town.

Figure 5.3a: Mean level of satisfaction with parking facility within city/town



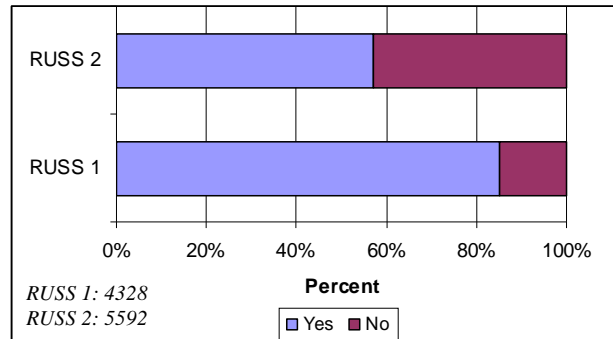
Majority (85%) of Truck drivers (TD), Private Bus Drivers (PBD) and State Transport Drivers (STD) have expressed the need for more parking space, which indicates that there is still huge demand for parking space among the road users (Figure 5.3b). Even then, only half of them (57%) replied in affirmative when they were asked whether they are prepared to pay for parking facility (Figure 5.3c).

Figure 5.3b: Need for more parking facility (%)



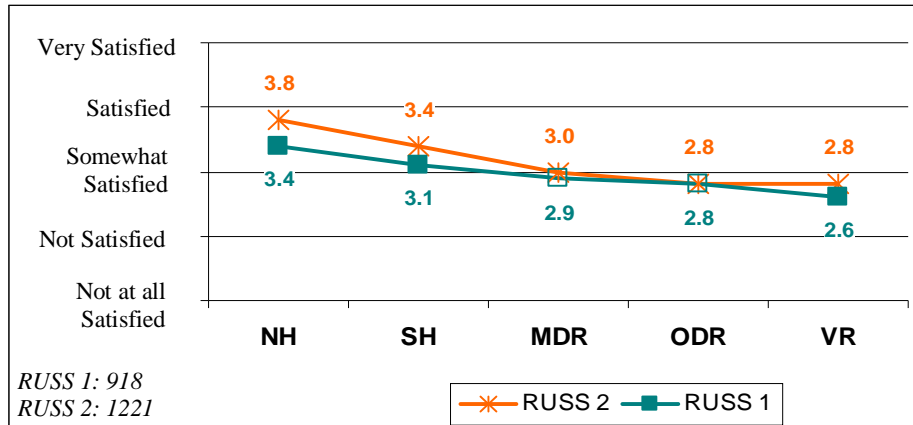
In both the rounds, Truck drivers, State transport drivers and Private bus drivers were asked about the satisfaction with regard to parking facilities, requirement of more parking facilities and distance at which the parking facilities need to be provided.

Figure 5.3c: Willingness to pay for parking (%)



The mean level of satisfaction with parking facility on NH is much higher than on any other roads while the same level of satisfaction was reported on ODR and VR (Figure 5.3d). The satisfaction level has increased from Round 1 on all the roads except ODR.

Figure 5.3d: Mean level of satisfaction with parking facility



Majority of the Truck drivers, State transport drivers and Private bus drivers, who expressed the need for more parking facility on different types of roads, indicated the need for a separate parking yard for every 40kms on the NH and every 30kms on the SH. On the MDR, majority felt the need for a parking yard every 30-40kms. In case of ODR, most of them felt the need for a separate parking yard for every 20kms (Table 5.3a).

Table 5.3a: Availability of Parking Facility (%)

Separate parking yard for	RUSS 1					RUSS 2				
	NH	SH	MDR	ODR	VR	NH	SH	MDR	ODR	VR
Every 20kms	3	9	15	12	18	25	16	16	37	7
Every 30kms	3	21	17	19	9	12	38	26	17	8
Every 40kms	12	19	18	13	3	28	25	25	12	10
Every 50kms	51	35	11	6	2	21	19	15	26	20
Not response	31	16	39	50	68	7	10	12	21	38
<i>Base</i>	<i>918</i>					<i>1221</i>				

The requirement of separate parking facilities for every 20kms, 30kms and 40kms has increased in NH and SH from Round 1 while the scenario is opposite in case of 50kms. Thus the users need parking yard at shorter distance. Compared to other roads, the need for a parking yard on the VR was low, as majority of the users were not sure about the requirement of parking facility on VR. When compared to RUSS 1, the need for parking facility for every 40 and 50kms on VR has increased.

5.4 PERCEPTION OVER HIGHWAYS DEPARTMENT

Awareness on the Highways Department

Respondents were asked which department is responsible for maintenance and improvement of different roads in Tamil Nadu.

Road Users identified the role of the Central Government and Highways Department in maintaining the NH. More than half of the respondents agreed that the State Government takes up the responsibility to maintain the State Highways. Similarly, majority of the

respondents stated that the State Government is responsible for maintaining both MDR and ODR. More than one third stated that the Gram Panchayat is responsible for maintaining the VR (Table 5.4a).

Table 5.4a: Department responsible for maintenance and improvement of different roads in Tamil Nadu (%)

Department	RUSS 1					RUSS 2				
	NH	SH	MDR	ODR	VR	NH	SH	MDR	ODR	VR
Highways Department	43	22	12	12	3	35	15	11	9	6
National Highway Authority of India	1	1	1	1	0	20	10	4	3	2
State Government	9	59	40	29	15	8	48	33	25	13
Central Government	41	8	9	5	3	38	20	19	15	12
Panchayat/ Municipal	0	0	27	34	72	0	3	30	41	62
Don't know	5	9	11	17	7	0	4	4	9	3
Base	6211					7629				

Compared to RUSS 1, the awareness on road maintenance/ improvement schemes has increased especially with regard to schemes like Golden Quadrilateral and the Tamil Nadu Road Sector Project (Table 5.4b).

Table 5.4b: Awareness of road maintenance/improvement schemes (%)

Schemes	RUSS 1	RUSS 2
Golden Quadrilateral	39	43
Tamil Nadu Road Sector Project	18	40
NABARD Road Scheme	33	21
State Highways Maintenance Scheme	36	34
Pradhan Mantri Gram Sadak Yojana	39	34
Base	6211	7629

Performance of the Highways Department

Respondents were asked to rate the performance of the Highways Department with regard to various key areas, on a five-point scale.

Nearly 60% of the road users rated the performance of the Highways Department as 'good' because of the efforts to add new capacity through widening/ by passes.

Environmental management seems to be neglected by the highways department as only 29 % rated the performance as good followed by neglect in disaster/ emergency management as one-third rated the performance in terms of this aspect as bad.

The mean scores for environmental management and disaster/ emergency management are low compared to other aspects. About three-fifth of the road users reported to be satisfied about dealing with public including people who are shifted due to new roads by the highways department.

Figure 5.4a: Performance of the Highways Department (%)

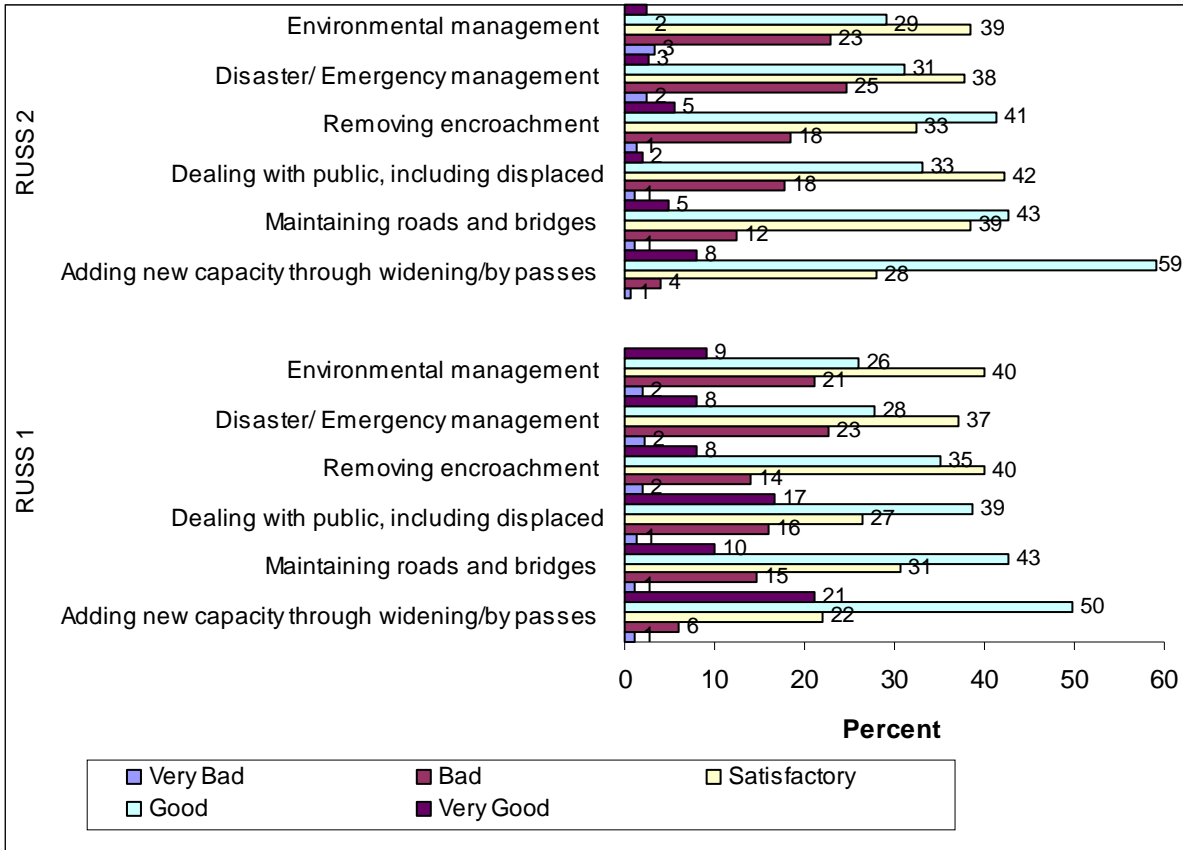
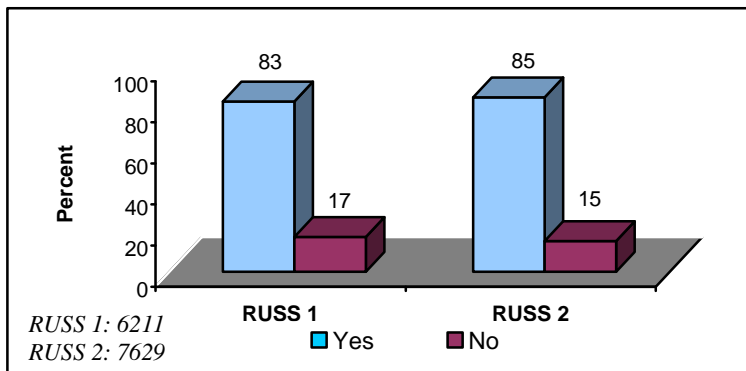


Figure 5.4b: Changes in the performance of the Highways Department (%)



RUSS 1: 6211
 RUSS 2: 7629

In RUSS 2, 85% of the road users reported to have noticed changes on different types of roads and there is a slight shift in the performance of the Highways Department from Round 1.

“TNRSP is giving a lot of importance to the road sector. I observe like laying concrete roads and other roads”.

Vehicle manufacturer, Chennai

5.5 VALUE FOR MONEY IN RELATION TO LEVIED ROAD TAX AND TOLL

Value for money by way of road infrastructure in relation to the levied road tax and road toll is high among the respondents.

Figure 5.5a: Value for money by way of road infrastructure in relation to the levied road toll (%)

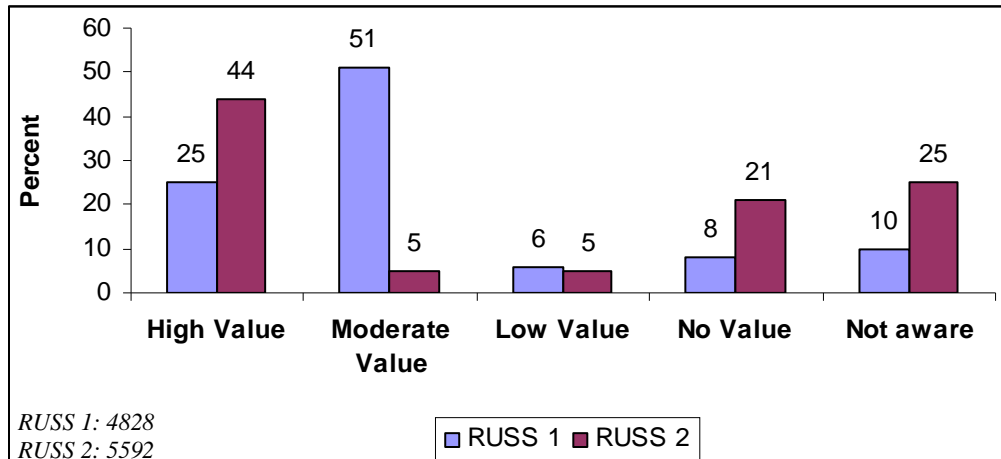
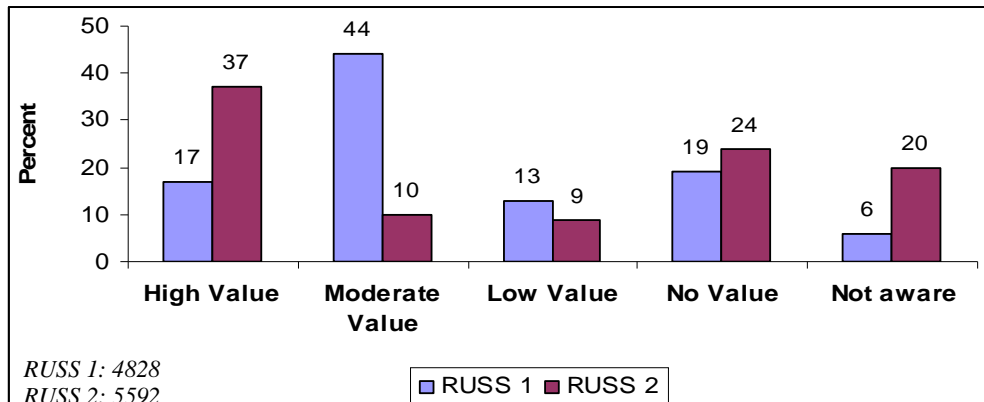


Figure 5.5a shows an increase in the percentage of road users who feel that there is high value for money by way of road infrastructure. However the percentage of those who feel there is no value for money in relation to the levied road toll is also considerably higher in RUSS 2 compared to RUSS I.

Figure 5.5b: Value for money by way of road infrastructure in relation to the levied tax (%)



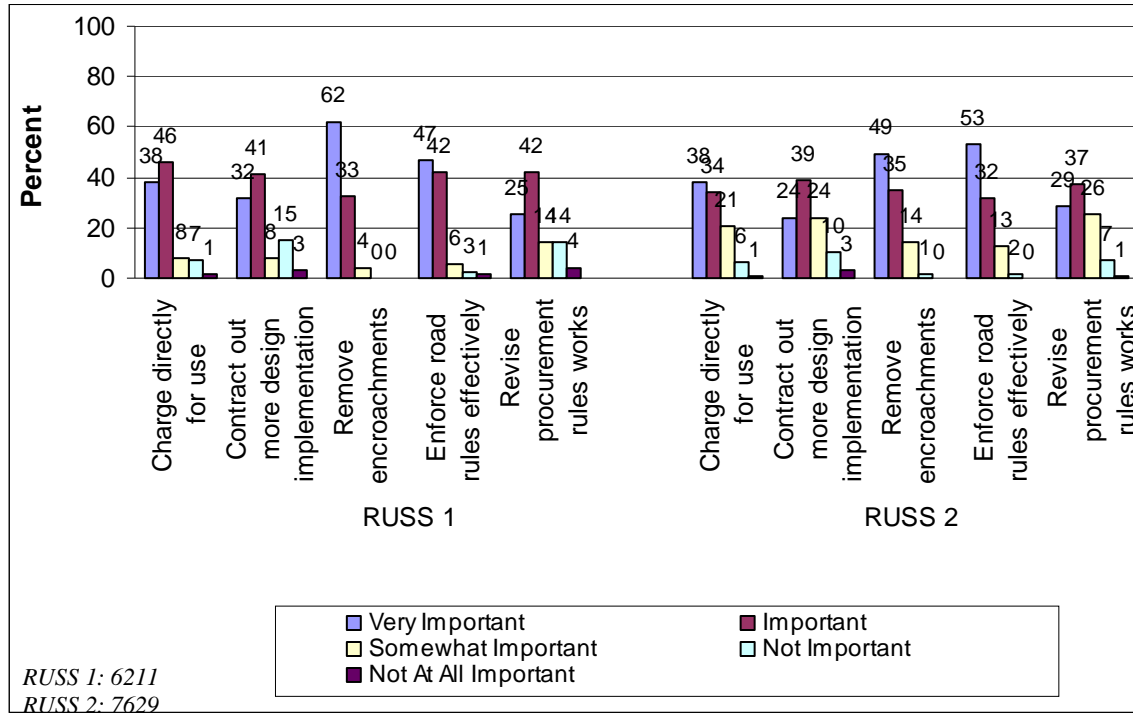
A similar trend is noticed among road users in relation to value for money for the levied tax (Figure 5.5b). While the percentage of those who feel there is high value increased from RUSS 1 to RUSS 2, there is also an increase in the percentage of those who feel there is no value.

The reasons cited for feeling that there is high value for money include good condition and maintenance of roads. On the other hand, not removing encroachments, bad road conditions and lack of maintenance emerge as the reasons for not feeling that there is no value for money.

5.6 POLICY INITIATIVES OF HIGHWAYS DEPARTMENT

Respondents were asked to indicate policy initiatives of the Highways Department in order of importance on a five-point scale.

Figure 5.4c: Policy initiatives of the Highways Department (%)



Most of the road users reported enforcing road rules effectively (53%) followed by removing encroachment (49%) as very important policy initiative for highways department while only 24% of the road users have reported contracting out more design and implementation as very important.

CHAPTER 6

COMPARISON OF URBAN, RURAL AND METRO

This chapter compares the salient, key indicators that are common for Rural and Urban settings of Tamil Nadu and exclusive to second round of RUSS. Chennai being the metropolitan city, to envisage a rightful comparison, Chennai Metropolitan Development Authority (CMDA) was treated as a separate domain and perception of road users under its jurisdiction was compared with rural and urban (other than Chennai) road users.

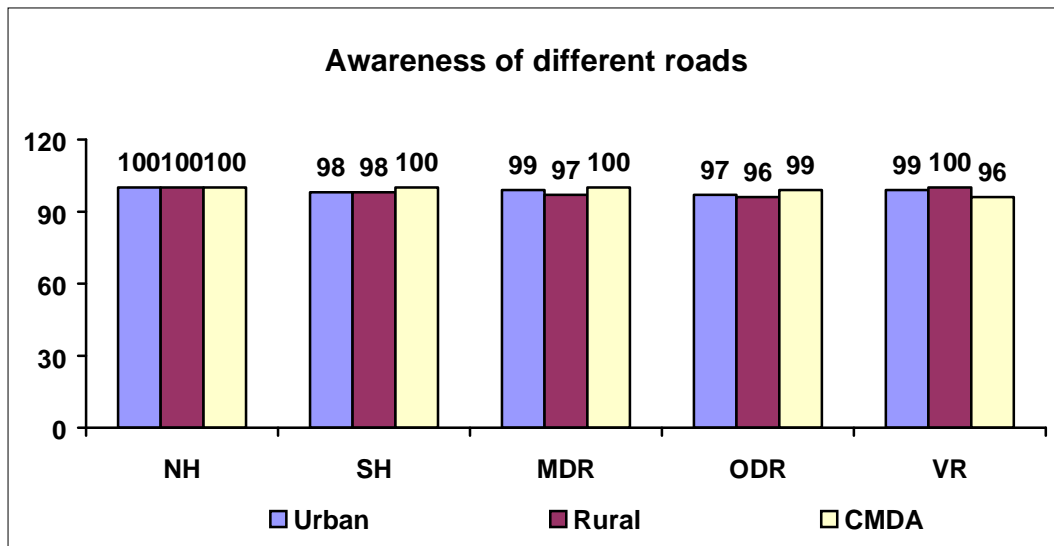
It is to be observed that comparison among Rural, Urban and CMDA was not part of objectives of the study and hence measures were not in place to maintain rural-urban SEC classification for all the target groups covered in the study. This comparison was advised to be carried out with a view to enhance and maximize the use of the survey findings. Hence, the urban and rural classification was done by recoding place of living/residential address of the respondents. The comparisons in this chapter comprise of perceptions of combined target groups such as main user and vulnerable user in RUSS 2. It is to be noted that some of the comparisons will lack opinions of ‘HH living adjacent to main roads’ as the question pattern followed somewhat different from other categories of target groups of the study.

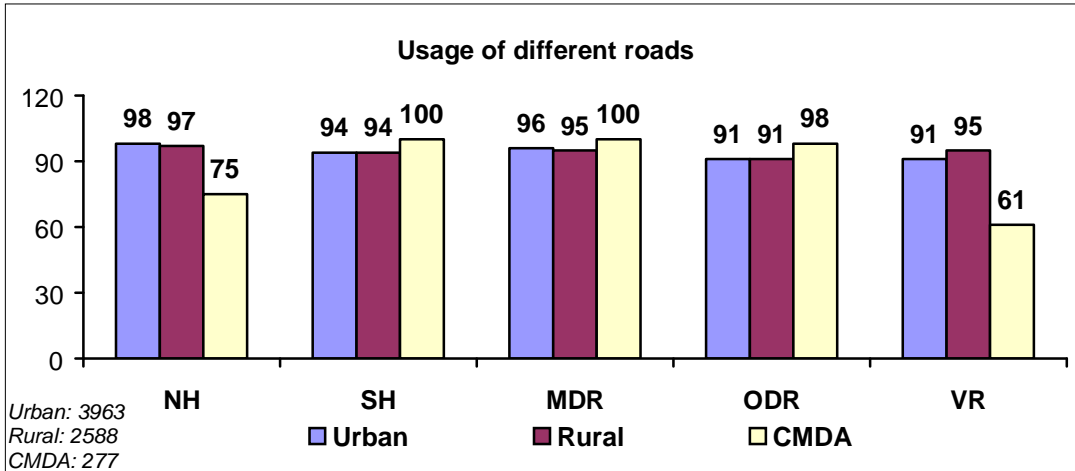
6.1 JOURNEY CHARACTERISTICS

Awareness and use of different roads

While the awareness of NH has remained the same (100%) among Urban, Rural and CMDA road users. Otherwise also the awareness of various types roads is almost universal across these three categories of road users. Except NH (75%) and VR (64%) for CMDA, the use of all types of roads reported to be more than 90 percent by all.

Figure 6.1a: Awareness and Use of Different Type of Roads

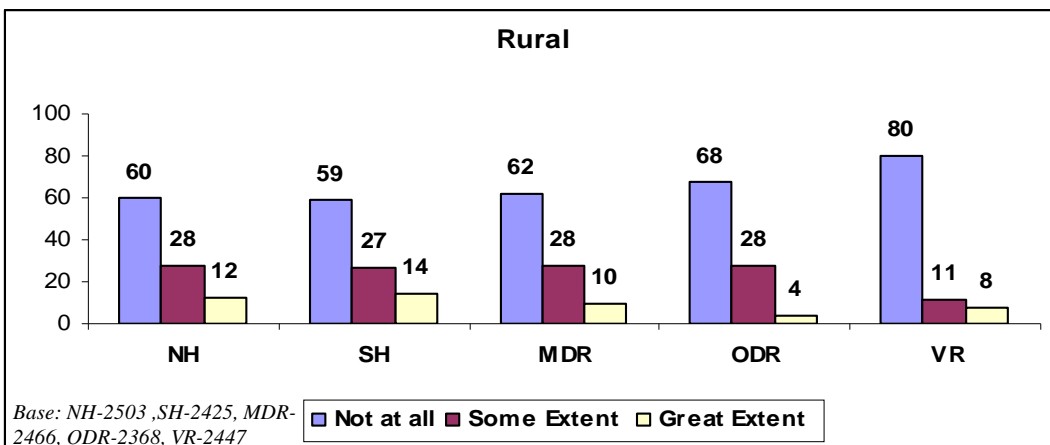
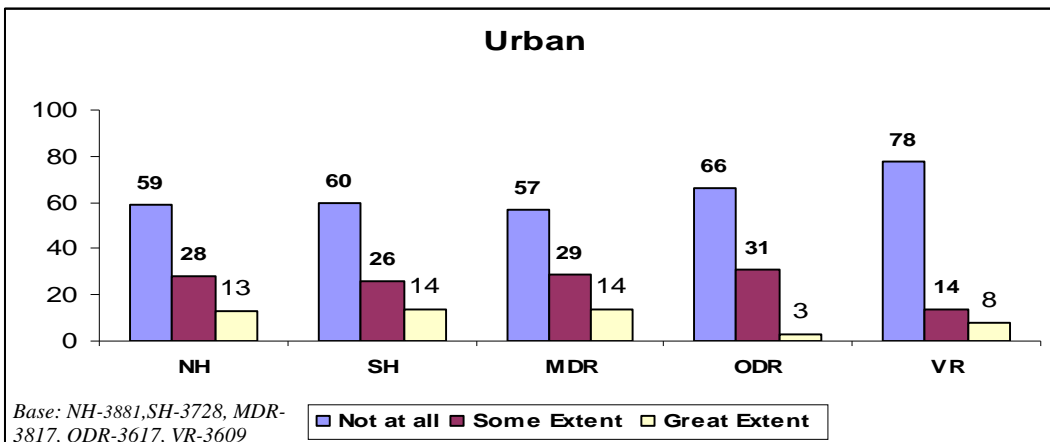


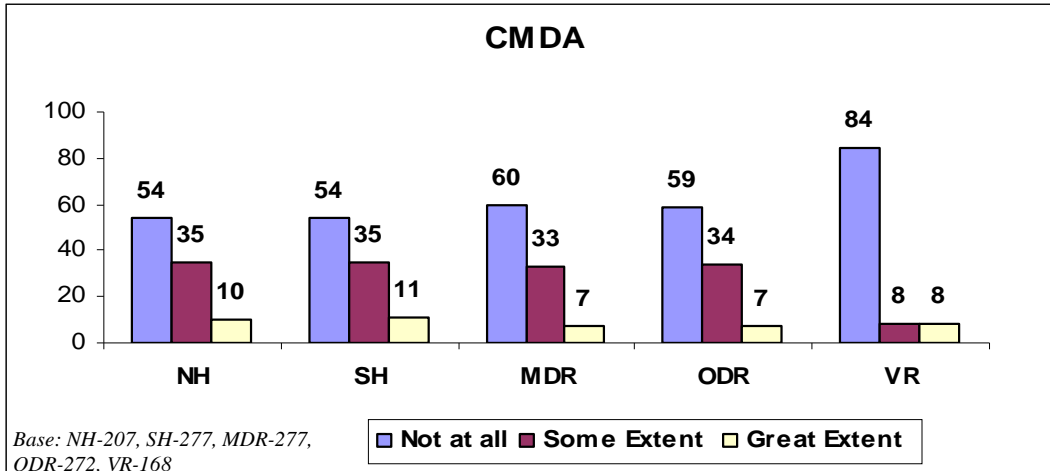


Safety aspects

The opinion on roads being safe or unsafe is almost appear to be synonymous among urban or rural or metro road users.

Figure 6.1b: Extent of feeling unsafe during recent journey



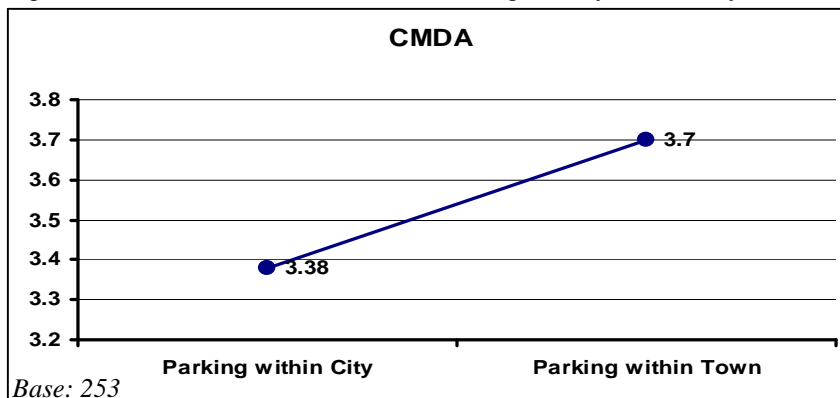


6.2 SATISFACTION WITH PARKING WITH IN CITY/ TOWN BY METROPOLITAN RESPONDENTS

The Road users were asked to indicate their satisfaction with the parking facility available within city/town on a five-point scale. Since the relevant questions were not administered to the some of the vulnerable users, the rural-urban comparison was limited and only perception of target group from Metropolitan/ CMDA territory has been depicted here.

Figure 6.2a shows that the satisfaction level of road users living in CMDA with parking facilities within city and town. The satisfaction level is better in case or parking facility in Towns than cities.

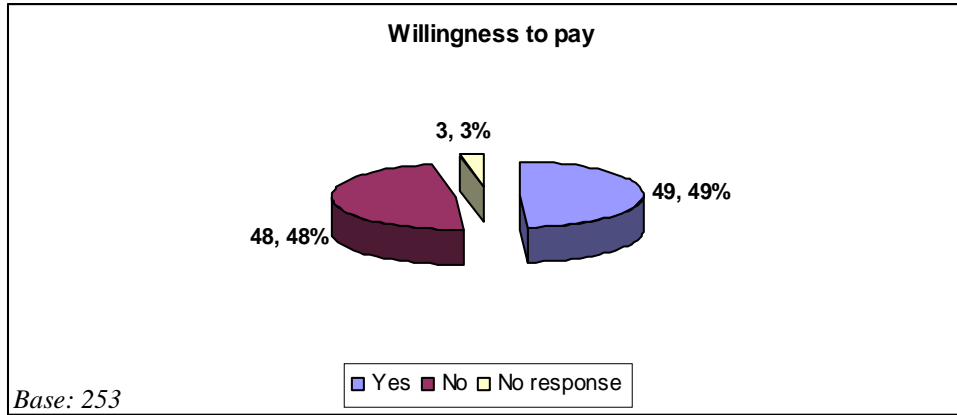
Figure 6.2a: Mean Level of Satisfaction Parking Facility Within City/ Town



Willingness to pay for parking

About half of them (49%) road users at metro/ CMDA come forward to pay for parking facility that they would use and similar proportion of people (48%) also feel that they would not be willing to pay for parking facility used.

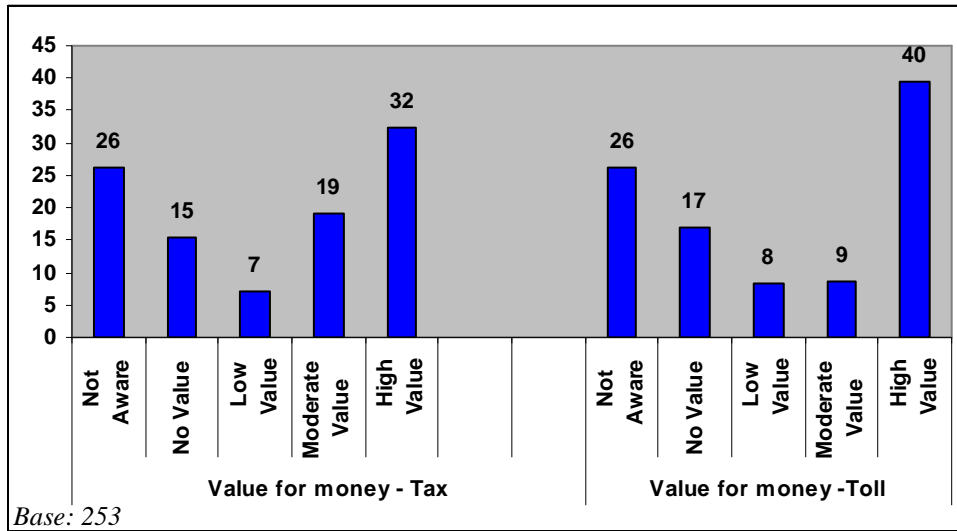
Figure 6.2b: Willingness to Pay for Parking (%)



6.3 VALUE FOR MONEY IN RELATION TO THE LEVIED ROAD TAX AND TOLL

Value for money by way of road infrastructure in relation to the levied road tax and road toll is high among the metro respondents also.

Figure 6.3a: Value for money by way of road infrastructure in relation to levied road toll



6.4 PERFORMANCE OF HIGHWAYS DEPARTMENT

Figure 6.4a indicate that ‘adding new capacity through widening/ bypass’ is prominently spelt and rated HD’ performance as ‘good’ by urban (56%), rural(57%) as well as metro respondents. And the over all responses for majority of the parameters of HD has been rated as satisfactory and good by all types of road users.

Figure 6.4a: Performance of Highways Department (%)

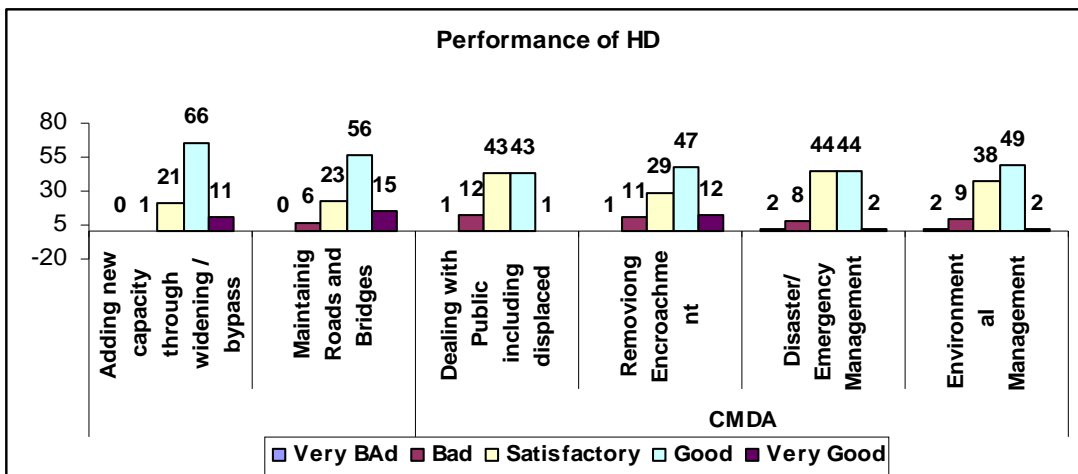
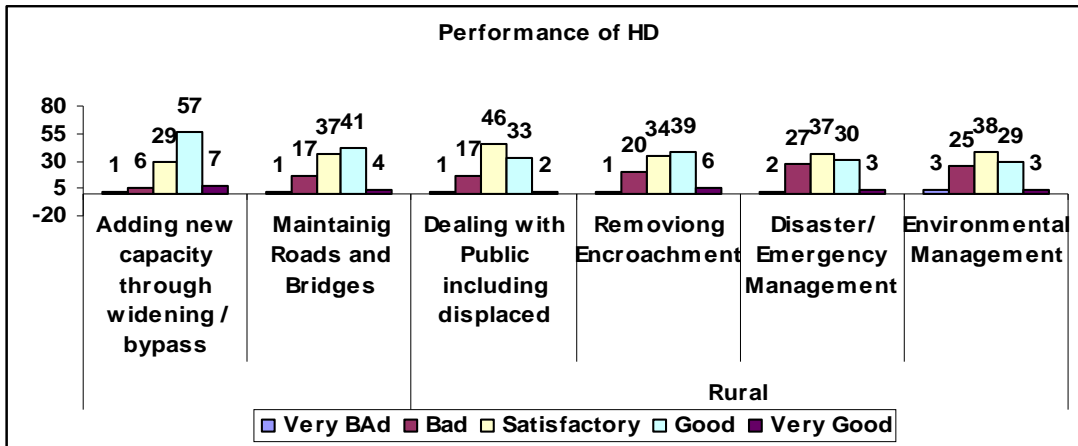
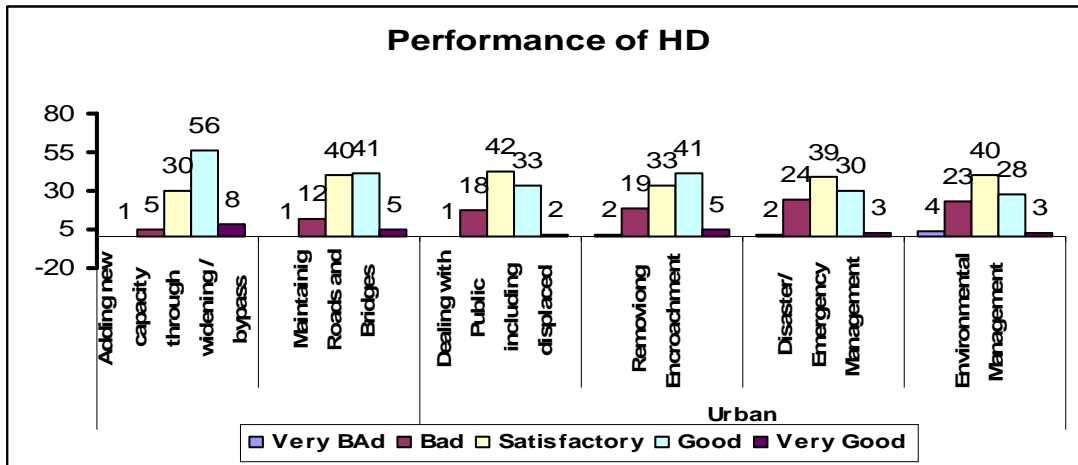


Table 6.1a: Awareness of road maintenance/improvement schemes (%)

Schemes	Urban	Rural	CMDA
Golden Quadrilateral	50	42	28
Tamil Nadu Road Sector Project	43	39	49
NABARD Road Scheme	24	21	35
State Highways Maintenance scheme	38	32	40
Pradhan Mantri Gram Sadak Yojana	36	34	17
Others	2	2	16
Base	4358	2982	289

The Metro/ CMDA (49%) respondents have better awareness about the TNRSP as a scheme to improve roads when compared with other urban or rural respondents. On the other hand, in case of Golden Quadrilateral, Ruralites and Urbanites than Metro respondents, have high awareness.

CHAPTER 7

SUGGESTIONS TO IMPROVE THE ROAD NETWORK

Road users were asked to give suggestions to improve the different roads in Tamil Nadu. Almost all the respondents suggested to widen all the roads and also to maintain their quality in the long run. Respondents expressed their views and suggestions on the following aspects:

Addressing accident or grievances on the road

Majority of the road users stated the need to take the person to the hospital or to the First Aid centre in case of accidents or grievances on the road.

“A free telephonic service has to be made available in petrol bunks with the phone numbers of doctors who can be accessed immediately”.

Coordinator-Chamber of Commerce, M/38, Chennai

More emergency services need to be provided such as access to emergency phone booths and to health centers where First Aid can be given to the victim.

“Most of the roads have only Private Hospitals but they do not admit casualties as they fear police case”.

Private bus driver, M/36 years, Perambalur

Roadside amenities and road signs

The road users have reported their grievances and concerns about roadside signs and amenities.

“In signboards and way finders, information should be given both in Regional language and English”

NGO Coordinator, F/33 years, Madurai

“If any one damages the boards they should be punished”

Journalist, M/48 years, Madurai

To avoid road accidents

Driver behaviour dimension such as rash driving, drunken driving, helmet wearing, using mobile phones, avoiding continuous driving without rest etc is reported by the road users to avoid accidents.

“Rash driving wrong parking and overtaking are the main reasons for road accidents”

Bus driver, M/36, Perambalore

“Lack of concentration while driving drunken drive not following the road rules long time driving without taking rest rash driving and worst roads are the important reasons for accidents”

Auto driver, M/40, Salem;
Ambulance driver, M/29, Dharmapuri

“Vehicles riders are not wearing helmets and seat belts. Most of the lorry drivers are consuming liquors”

Branch Manager-LIC India, M/50, Villupuram

“While driving, people are listing to radio and FM. They are also talking on phone”

Sr. Executive, M/30, Chennai

Concerns like banning old vehicles are reported to avoid road accidents. It will also have impact on the pollution control.

“Old vehicles (15 years old) should be banned from using the roads or such vehicles should be taxed heavily. Also the drivers should be made to take compulsory rest and early morning accidents can be avoided”

Coordinator-Chamber of Commerce, M/38 years, Chennai

Few have suggested actions to be taken by the road sector department to avoid accidents by means of road maintenance after rains and provision of speed breakers in the village roads.

“Road patching after the rains will avoid accidents”

Vehicle manufacturer, M/32 years, Pudukottai,

“Speed breakers should also be provided on the Village Roads”

HHs staying adjacent to the main road, M/ 39 years, Tiruvarur

Opinion on privatisation of road construction and maintenance

Analysis of the in-depth interviews reveal mixed opinion of the respondents on the issue of privatising road construction and maintenance. Respondents agreed that the quality of the roads would improve if they were privatized.

“I welcome the idea of privatizing the road construction and maintaining them. They will do a good job than the Government”.

Chamber of Commerce, M/38 years, Chennai

“Privatizing the road will be good private authorities are doing well in other sectors”.

Ambulance driver, M/29 years, Dharmapuri

Public role in maintaining the road and creating awareness

Educating public through awareness programmes on road maintenance, safe driving and other aspects of driver and pedestrian behaviour on road seems to occupy primary importance in the forefront of road sector development.

“We should create awareness among drivers and public. Lorry drivers sometimes make the cleaners drive the vehicle during night time and this is not safe for other vehicles”.

Chamber of Commerce, M/38 years, Chennai

“Government can organize awareness programmes to drivers like street plays dramas etc. They should tell me how to use the roads signals and signs and how to prevent accidents”.

Driver, M/29 years, Nagapattinam

“We create awareness on road network to the public by observing road safety week”

LIC, M/ 50 years, Villupuram

“We must create awareness among students”

Journalist, M/48 years, Madurai

ANNEXURE 1: Sample Size Achieved by District

