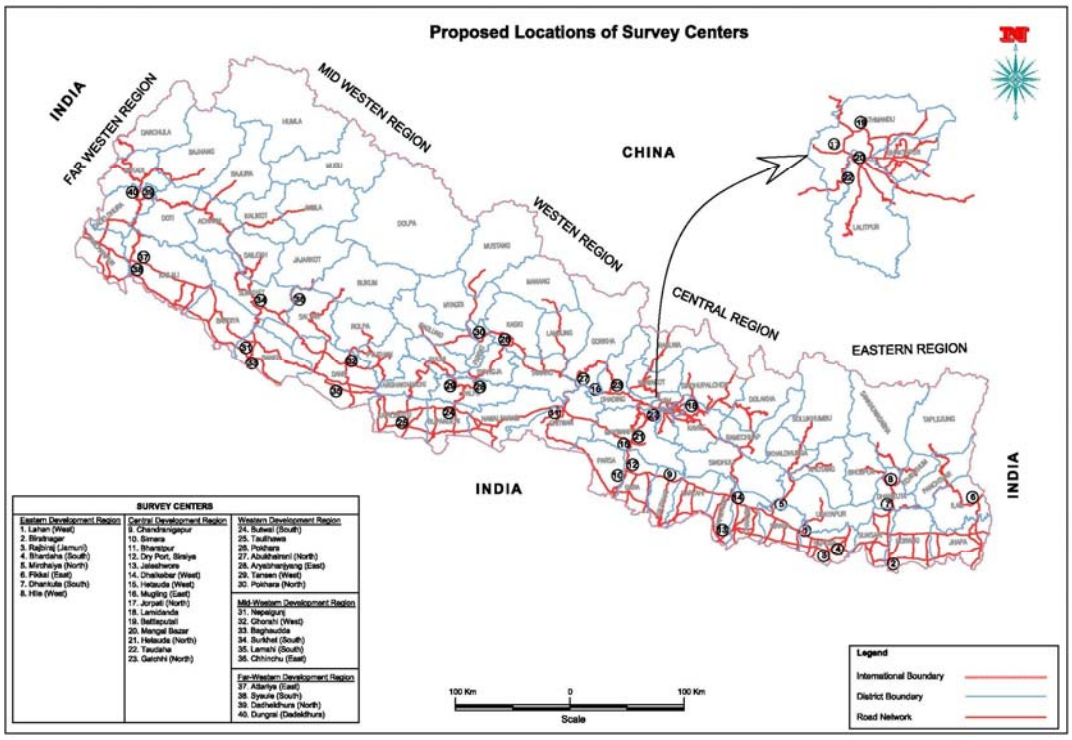
Roads Board Nepal

Araniko Building, Min Bhawan Kathmandu

FINAL REPORT

ROAD USERS' SATISFACTION SURVEY III

Contract No. – RBN-2073/074/RUSS III



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This **Final Report** on **"Road Users' Satisfaction Survey-III"** has been prepared as per the agreement between Roads Board Nepal, Min Bhawan, Kathmandu and North Star – ITECO – Homeland JV.

We would like to express our sincere appreciation to Roads Board Nepal, for entrusting us the responsibility to carry out the task of "Road Users' Satisfaction Survey-III". As per the responsibility assigned to us, we have completed the assigned task as per the ToR to the best of our knowledge and belief.

We would like to express our sincere gratitude to Executive Director Mr. Krishna Singh Basnet for his coordination and sincere help for executing the assigned task in inspirational environment. We would also like express our sincere appreciation to Administration Director Ms. Chetana Thapa, Technical Director Mr. Sagar Gyawali, Senior Engineer Mr. Sanu Babu Prajapati, Sr. Finance & Account Officer Mr. Nirmal Prasad Koirala for their regular coordination and guidance in the office work as well as field work. Other staffs of Roads Board Nepal are also really thankful for providing their sincere help, delivering required information and coordinating from time to time during the field and office work.

We are also very thankful to all concerned stakeholders, Local Road Agencies and various institutions/organizations for delivering kind information, co-operation and help during the field visit and collection of required data.

We would also like to convey our sincere appreciation to the expert participants attended in the presentation programme of RUSS III Report, who delivered their valuable views and suggestions in the report. We have incorporated all those views and suggestions in this final report as far as possible.

We hope that, the outcome of RUSS III, as presented in this report would be beneficial for Roads Board Nepal for further improvement and enhancement of the service delivery to the road users.

Dhruba Raj Tripathi
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EXECUTIVE SUMMARY

In order to improve performance on public service delivery, the Government of Nepal is undertaking comprehensive set of actions under economic restructuring programs such as user's surveys or consultations to identify problems and bench mark progress. RBN provides maintenance fund to DoR for SRN; likewise District Development Committees (DDCs) and Municipalities (MUs) for LRN. The main task was to measure customer's satisfaction through RUSS-III. In this regard, RBN has conducted RUSS-I and RUSS-II in the previous years with the objectives of bringing out views on public perceptions of current road sector outcomes; GON/road line agencies performance and government policies, documentation of views in comprehensive format suitable for comparison overtime. In the similar manner, Road Users' Satisfaction Survey-III has been undertaken in 2017.

The survey goal was to help for improving road transport outcomes in the country by providing the insight of the issues and concerns raised by road users of the network to the senior management in the GoN and Road Sector line agencies and thereby influencing future strategy and operational decision.

RUSS-III has been undertaken on 1500 Km of sample road lengths randomly selected in proportion to the total road length and traffic density covered by each category of roads; SRN, DR and UR selecting 40 service centers nationwide for the interaction with the users groups and other stakeholders. The sections of roads were selected representatively in Hill and Terai; and five development regions.

For the purpose of RUSS-III, total sample size of 2862 for structured and in-depth interview and 245 for focused group discussion representing all types of road users covering various roads in different terrain and five development regions nationwide has been selected on the basis of available traffic data.

Out of 40 service centers, 20 centers were selected in road sections having Average Annual Daily Traffic of High Volume (AADT more than 1500 vehicles per day), 12 service centers were selected from the road sections having AADT of moderate traffic (AADT between 250-1500 VPD) and remaining 8 service centers for road sections having low (less than 250 VPD) traffic volume.

The methodology adopted for different types of road users was structured interviews (SI), in-depth-interviews (IDI) and focused group discussion (FGD) through pre-prepared questionnaires, checklists, face to face interaction and group discussion.

During the survey, the consultant seek to elicit the respondents' perception on road network outcome/attributes and road agencies performance on five major indicators, namely road conditions & perceived Impact, comfort & convenience, safety aspects, travel amenities and perception about road agencies with respective sub-indicators.

The survey findings are elaborately explained and presented in various Tables and Figures in the respective chapters. Based on the findings and analysis, overall satisfaction of road users and the RUS index have been assessed and compared to the previous study, RUSS-II.

Road users' satisfaction:

Overall satisfaction level of road users on major indicators is shown in the following Table:

Indicator	Satisfaction Level (%)
Road Condition and its perceived impact	61
Comfort and Convenience	59
Safety	57
Travel Amenities	53
Perception about Road Agencies	60

Present research work on RUSS-III showed that the overall road condition and its perceived impact, comfort and convenience, safety aspects, travel amenities and perception about road

agencies have all satisfactory attributes from road users. The outcome shows that the overall satisfaction level of each aspect of roads is found more or less the similar in the range of 53 to 61 percent. Overall satisfaction was further distributed region, road type, terrain and service centre wise separately.

RUS Index:

In order to determine the Road Users' Satisfaction Index (RUSI), multiple linear regression analysis at 95% confidence level with 'Overall satisfaction' as dependent variable and five major indicators as independent variables has been carried out and a Model Linear Equation using Darwin-Watson Statistics calculated.

Road users' satisfaction indices have been prepared on the basis of '1' to '5' points rating scale, where rating '5' being the most satisfactory and '1' the least. Overall satisfaction index as found from the present study is shown in table below:

Indicator	Overall RUS Index
Road Condition and its perceived impact	3.05
Comfort and Convenience	2.95
Safety	2.85
Travel Amenities	2.65
Perception about Road Agencies	3.00

Overall RUS index was further distributed region, road type, terrain and service center wise separately.

Comparison between RUSS-II and RUSS-III

Comparative satisfaction level between RUSS-II and RUSS-IIII shows a noticeable improvements (10~16 percent) in main indicators- road condition and its perceived impact, comfort and convenience, safety aspects and perception about road agencies while it is even more nearly 25 percent in travel amenities. Similarly the RUS indices have also improved in RUSS-III as compared to those in RUSS-II.

From this comparison, we can say that the satisfaction level of road users on the issue of road condition and its services has slightly improved in RUSS-III since RUSS-II and as such the road maintenance issue is better managed.

Conclusion and Recommendations

- Road users' satisfaction level increased by 11% in road condition and its perceived impact, 10% comfort and convenience, 10% safety aspects, 25% in travel amenities and 16% perception about road agencies in RUSS III since RUSS II, which seems good indication in road condition and its service delivery.
- On road users' perception for better road services, "Safety on the roads" was the first priority, second priority has been given to "value for time" and then to "Comfort and convenience" whereas the priorities given to other factors, "travel amenities" and "visual appeal" were insignificant.
- Road users attributed timely procurement and implementation of maintenance works instead of waiting for the last moment of the fiscal year. They were also concerned about the wider and congestion-free roads with proper road width and drainage system. They also suggested expediting timely approval of annual program and procurement process and stressed on the quality of works to be supervised by site engineer regularly and monitoring and evaluation by higher authority.
- Rigorous campaigning programs should be undertaken for raising awareness of road safety aspects among road users by the use of various media like audio/video broadcast through FM radio, television, display of posters, leaflets with the help and participation of NGOs, community-based organization, schools, chambers of commerce, traffic police and effective enforcement of traffic rules and regulations.

- Traffic rules and regulations can be enforced effectively by the traffic police. Traffic police need to mainly concentrate in controlling unsafe driving habits. Violations of traffic rules and regulations should be strictly penalized and driving license confiscated on the event of violating traffic rules several times.
- Concerned authority, DoTM, should reform the prevailing policy to ban old vehicles from major urban areas.
- Most of respondents suggested that the illegal encroachment of right-of-way can be significantly reduced with the help of NGO/local political leaders/local administration and traffic police.
- DoTM and traffic police should ensure strict check on pollution free vehicles in the city areas.
- DoTM should arrange on-the-job training to drivers including non-motorized drivers and road users and reform prevailing licensing-system so that only competent applicants get their driving licenses.
- DoTM should take initiative with regards to prohibition of over loaded vehicles in city areas and manage effective axle-load control mechanism.
- According to the opinion of road users, road agencies (DoR/DDC/Municipality) should carry out detailed study for the improvement of all road geometry. Routine, recurrent and periodic maintenance and improvement works should also be taken up timely to keep the road free from potholes and cracks. In this regards, private-sector participation has to be encouraged.
- Road agencies should take up the study of road markings, appropriate road signs and installation at proper locations. It is recommended that maintenance of road signs be followed and monitored regularly.
- Road Agencies should identify the illegal encroachment of right-of-way and clear it if encroached. Such activity should be discouraged with the help of NGO/local political leaders/local administration and police.
- Maintenance and repair of strategic roads should be carried out by DoR, and monitoring and evaluation of works be undertaken by RBN. In the opinion of respondents, users' committee including private-sector participation should be given the responsibility of road maintenance and repair of district and urban roads. Required maintenance-budget should be provided by RBN and the technical support and monitoring by DDC/Municipality.
- Roads Board Nepal needs to revise the prevailing toll-charge and fix it reasonably.
- RBN should take active initiation to mass introduce Mobile application "Merosadak" to road users.
- RBN should allocate and provide the maintenance budget to the concerned road agencies on need-basis so that maintenance works are completed on time. RBN should also continue the monitoring and evaluation of maintenance works undertaken by various road agencies.

List of Acronyms

AADT	Average Annual Daily Traffic
DDC	District Development Committee
DoLIDAR	Department of Local Infrastructure Development and Agriculture Roads
DoR	Department of Roads
DoTM	Department of Transport Management
DR	District Roads
FGD	Focused Group Discussion
GON	Government of Nepal
IDI	In-Depth Interview
IEC	Information, Education & Communication
LRN	Local Road Network
MoFALD	Ministry of Federal Affairs and Local Development
MoPIT	Ministry of Physical Infrastructure and Transport
NRUSS	National Road Users' Satisfaction Survey
RA	Road Agency
RBN	Road Users' Satisfaction Index
RUSI	Roads Board Nepal
RUSS-I	Road Users' Satisfaction Survey-I
RUSS-II	Road Users' Satisfaction Survey-II
RUSS-III	Road Users' Satisfaction Survey-III
SI	Structured Interview
SR	Strategic Roads
SRN	Strategic Road Network
SSRN	Statistics of Strategic Road Network
ToR	Terms of reference
UR	Urban Roads
VPD	Vehicle Per Day
WB	World Bank

1. INTRODUCTION AND PROJECT BACKGROUND

1.1 Project Background

Road infrastructure is considered to be the backbone for overall socio-economic development of the nation. Almost 90% populations in Nepal depend on road transport for the movement of goods and services and has been the cheapest mode of transportation so far. Effective, efficient, safe and reliable transport is the need of people. At present Strategic Road Network (SRN) comprises of 12,898 Km of road length. Population influenced per Km road in numbers is 2064 and road density 8.76 Km/100 km^2 (Statistics of Strategic Road Network, SSRN 2015/2016, DoR). Similarly, total road length of Local Road Network (LRN) comprising district, village and local roads is 57,632 Km, population influenced per Km road in numbers is 2180 and road density 39.16 Km/100 km^2 (Statistics of Local Road Network, SLRN 2016, DoLIDAR).

Even though there is gradual improvement in the services provided by the road sector. Nevertheless, it has been facing some problems, such as;

i) inadequate resource allocation for road maintenance;

ii) less priority given for road maintenance by the stakeholders

iii) less attention in road safety;

iv) least enthusiasm of Private Sector Participation (PSP) in road maintenance works;

v) Institutional constraints of the key Road Agencies

The road network is one of the most valuable assets in the country, facilitating the movement of people and goods every day. The network in one hand has some significant positive impact on society through stimulating growth, generating employment and helping to integrate the country, and on the other hand it has some negative impact like increase in accidental death and injury, environmental damage and social costs in terms of community severance or destruction of cultural property. Moreover, with the large amount of public fund invested in road sector and the significant amount of road related tax and charges collected, all the stakeholders should be keen on the performance of road network. Yet despite these significant direct impacts on public, the level of effective dialogue between government departments responsible for roads and the road users has traditionally been very limited and informal.

The road line agencies are responsible for the planning, designing and construction of roads and bridges, as well as the maintenance of roads on behalf of the Government of Nepal through its available resources. To manage and maintain the road network effectively and meet the transport demands as of a modern economy, the road agencies need to improve their efficiency. Mostly, the performance of road agencies has been measured largely in terms of expenditure progress instead of benefit to road users. Road planning needs updating and in particular requires the systematic collection and analysis of data from the field.

The Government of Nepal has articulated its strategy for enhancing road sector performance through publication by local government act with their right and responsibility for local road network development through DOLIDAR, along with the activities of DOR for strategic road network. The National Transport policy (2058) states its objectives as to provide economic, safe, comfort, reliable and sustainable transport system in the Country to develop the social, economical, cultural and tourism sector.

In order to improve performance and public service delivery, the Government of Nepal is undertaking comprehensive set of actions under economic restructuring program. Some of the actions such as user's surveys or consultations to identify problems and bench mark progress. RBN provides maintenance fund to DoR for SRN; likewise District Development Committees (DDCs) and Municipalities (MUs) for LRN. Since RBN is advocating for fee for service, its main task is to measure customer's satisfaction that is through road user's satisfaction survey. In this

regard, RBN has conducted Road User's Satisfaction Survey in the year 2006 and 2013 with the objectives of bringing out view on public perceptions of current road sector outcomes; GON/road line agencies performance and government policies, documenting the views in comprehensive format suitable for comparison overtime and presenting the findings to senior decision-makers in GON/related agencies and general public. The RUSS-I and RUSS-II have identified issues and concerns raised by road users related to road conditions and road management by the line agencies. Present study RUSS-III is primarily intended to identify similar issues and concerns; and more importantly compare the satisfaction indices as identified in the previous studies. The user's perceptions and recommendation to different road agencies were collected and used for improvement such as allocating maintenance budget on the basis of performance of the RAs, raising awareness level by using Audio system Radio FM, initiation for funding to regulating axle-load, different awareness campaigns for road safety has also been made.

Since the amount of investment for the maintenance of roads has been increasing, the accountability towards the proper utilization of the fund and its impact to the road users need to be assessed. Hence Road User's Satisfaction Survey-III is needed and is in the process of conduction. The survey aims to capture the experiences and perceptions of stakeholders. The outcome of the survey will help to improve road transport services by providing insight to the issues and concerns raised by road users, thereby helping to enhance future strategic and operational decisions. RUSS-III will also help to design and develop Road User's Satisfaction Index (RUSI) comprising of different variables.

1.2 Project Objectives

The survey goal is to help improve road transport outcomes in the country by providing insight of the issues and concerns raised by road users of the network to the senior management in the GoN and Road Sector line agencies and thereby enhancing future strategic and operational decision.

The specific objectives of the Road User Satisfaction Survey (RUSS-III) are as follows:

- Elicit views on public perceptions of current sector outcomes, GoN / road line agencies performance and government policies.
- Develop a composite road user satisfaction index (RUSI) which could be mainstreamed in the RBN context. The idea is to take the user survey / feedback exercise beyond the project and mainstream within RBN operations so that the policy making / program formulation in the road sector could benefit from such structured method of feedback / user perception surveys.
- Compare the present users' satisfaction level and indices with those of the previous studies.
- Document views in a comprehensible format suitable for comparison overtime; and
- Present the findings of the survey to senior decision makers in GoN / related agencies and the general public.

1.3 Scope of works

As per the ToR, the consultant is required to carry the survey on 1500 Km selected length of Strategic, District and Urban Roads with selecting at least 40 service centers nationwide for the interaction with the users groups and other stockholders. 20 such service centers will be along the section of road having Average Annual Daily traffic of High volume (more than 1500 vehicle per day), 12 service centers will be of the road sections having AADT of moderate (AADT between 250 – 1500 VPD) and 8 service centers having AADT of low (Less than 250 VPD) traffic volume each. The section of roads will be selected representatively in Hill and Terai; and five development regions.

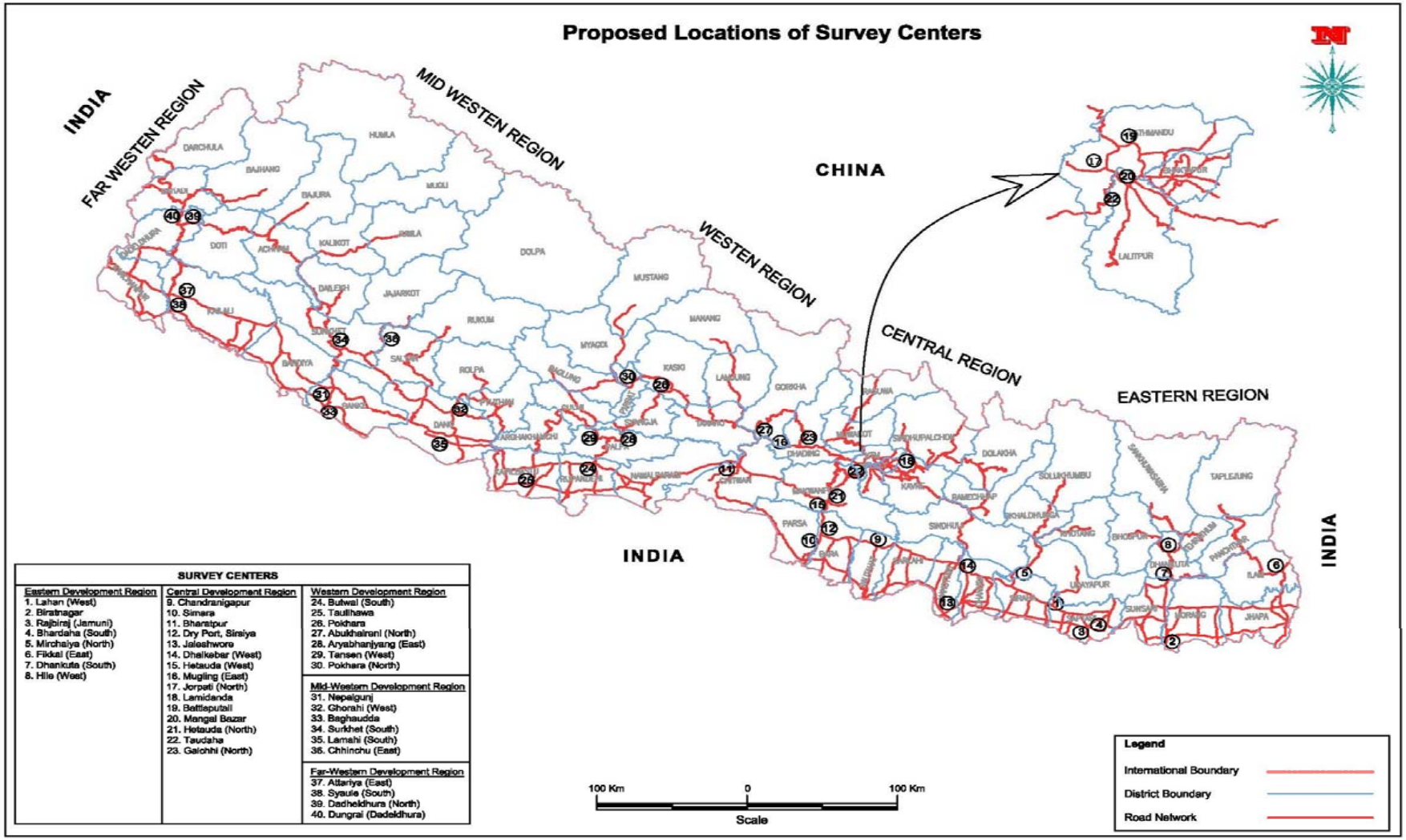
The service centers as provided in the ToR are listed in the following Table 1.1 and the location of each of the Service Centers on SRN Map of Nepal is shown in the Figure 1.1.

Table 1.1: Service Centers and Road Link Details

Region	Terrain	Ref.	Road-Link	Survey Center	Center Ref.
Eastern	Terai	H01	MRM (Lahan - Mirchaiya)	Lahan (West)	1
		UR	Biratnagar Munucipal Roads	Biratnagar	2
		DR	Rajbiraj – Balan	Rajbiraj (Jamuni)	3
		F0301	MRM Bhardaha Rotary Towards Hanumannagar-Rajbiraj Road	Bhardaha (south)	4
		F7201	Mirchaiya – Katari Road (1 Km North)	Mirchaiya (north)	5
	Hill	F38	Fikkal – Pashupati Nagar	Fikkal (east)	6
		H08	KRM (Dhankuta - Bedetar)	Dhankuta (south)	7
		H18	Hile - Bhojpur	Hile (West)	8
Total No. of Centers (East)				**8**	
Central	Terai	H01	MRM (Pathalaiya - Chandranigahapur)	Chandranigahapur	9
		H02	TRP (Pathalaiya - Birgunj)	Simara	10
		UR	Bharatpur City Roads	Bharatpur	11
		H17	Birgunj - Thori	Dry Port, Sirsiya	12
		DR	Jaleshwor - Matihani	Jaleshwor	13
		H0121	Ratubridge Dhalkebar - Nawalpur	Dhalkebar(west)	14
	Hill	H01	MRM (Hetauda - Narayanghat)	Hetauda (West)	15
		H04	PRM (Mugling - Malekhu)	Mugling (east)	16
		F27	Jorpati - Sundarijal	Jorpati (North)	17
		F30	Panchkhal – Melamchi (Lamidanda – Dadhkhola)	Lamidanda	18
		UR	Kathmandu City Road (Baneshwor - Battisputali)	Battisputali	19
		UR	Lalitpur City Road (Pulchowk - Mangal Bazar)	Mangal Bazar	20
		H0205U	Samari Bridge (Hetauda - Bhainse)	Hetauda (North)	21
		F2202	Chobhar - Dakshinkali Road	Taudaha	22
		F6901	Galchhi – Trishuli Road	Galchhi (North)	23
Total No. of Centers (Central)				**15**	
Western	Terai	H10	SRM (Butwal - Bhairahawa)	Butwal (South)	24

		DR	MRM Highway - Taulihawa	Taulihawa	25
	Hill	UR	Pokhara City Road	Pokhara	26
		F35	Abukhaireni - Gorkha	Abukhaireni (North)	27
		DR	Aryabhanjyang - Rampur	Aryabhanjyang (East)	28
		F4301	Tansen - Ridhi - Tamghas	Tansen (West)	29
		F4201	Pokhara – Baglung at Yamdi Bridge	Pokhara (North)	30
Total No. of Centers (Western)				**7**	
Mid-Western	Terai	UR	Nepalgunj City Road	Nepalgunj	31
		F15	Gorahi - Tulsipur	Gorahi (West)	32
		DR	Nepalgung - Baghauda	Baghauda	33
	Hill	H12	RRM (Surkhet - Chhinchu)	Surkhet (South)	34
		DR	Lamahi - koilabas	Lamahi (South)	35
		F4701	Chhinchu - Jajarkot	Chhinchu (East)	36
Total No. of Centers (Mid Western)				**6**	
Far-Western	Terai	H01	MRM (Attariya – Junga)	Attariya (East)	37
		H1406	Attariya - Syaule	Syaule (South)	38
	Hill	H14	MKRM (Dadeldhura – Khodpe)	Dadeldhura (North)	39
		DR	Dadeldhura - Bagarkot	Dungrai (Dadeldhura)	40
Total No. of Centers (far Western)				**4**	
Total No. of Survey Centers				**40**	

Figure 1.1: Map of Nepal Showing SRN with Location of Service Centers



2. STUDY APPROACH AND METHODOLOGY

The approach and methodology enumerated hereunder is in direct response to the scope of work as defined in the TOR and the methodology presented by this consultant.

2.1 General Approach

The Consultant followed a general approach to best achieve the objectives of the assignment by streamlining various activities and coordination of the concerned Target group particularly defined by RBN and practices adopted in the past. The Consultant's team worked in close liaison and coordination with the RBN, DOR, DDC and municipalities and other concerned local agencies during the entire period of the assignment.

The following general approaches were pertinent and followed during the study period;

- Selection and utilization of those methods, procedures, guidelines and technologies, which have been tested and proven to be optimum and successful in similar past exercise
- Application of an optimal combination of the methods and technologies based on practicability, client's requirement, and concerns of funding agencies with sound professional judgment.
- Full use of the technical standards and procedures for data processing and analysis
- Full use of available and applicable reports, standards, data, forms, formats, guidelines and other relevant information for execution and completion of the proposed services in accordance with accepted professional standards and sound management practices.
- Full use of computer –based software(s) for data analysis, report preparation etc.
- Use of statistical regression analysis for identification of Road Users Satisfaction Index (RUSI).
- Imparting knowledge on User's Satisfaction survey to the staff(s) of the Roads Board Nepal
- Close contact and effective co-ordination with the Roads Board Nepal inclusive of regular reporting of the progress of the assignment.
- Completion of the proposed services within the stipulated time and budget following the milestone as per Work Schedule.

Management Approach

The Consultant's management approach comprised:

- Clearly defined roles and responsibilities for each member of the proposed Team.
- In-depth knowledge of sector and field of expertise at all times.
- Strict adherence to the work schedule and milestones.
- Sufficient flexibility to respond desired changes and directions.
- Systematic procedures for quality control on field survey for data collection and analysis.
- Systematic monitoring of both processes and performance of the team members.
- Use of computer software(s) and tools associated with the proposed tasks.

Participatory Approach

The Consultant has taken the perception of the study as;

- An opportunity for capacity building and professional development of the RBN officials. The Consultant will ensure active and effective participation of the staff in all activities of its service delivery and transfer of knowledge/skill.

- A process to explore, identify and test further improvements in the methodology.

The Consultant strived to meet the deadlines of all reporting schedule of the reports. During the implementation of the services, Consultant carried out internal progress monitoring and took up any corrective measures to delayed works with due diligence.

2.1.1 Review and Study of Previous Documents

Prior to beginning the survey work, the following information and document which were relevant to the present study were collected, studied and reviewed:

- All the previous study reports on user's satisfaction survey done by RBN, other road agencies, government and non-governmental organizations, individuals, media collection etc. These included:
  - Road-User Satisfaction Survey-I, 2006; Roads Board Nepal.
  - Road-User Satisfaction Survey-II, 2013; Roads Board Nepal.
  - National Road Users' Satisfaction Survey (NRUSS) Annual Report 2010/11, Highway Agency, UK.
  - Nepal Road Sector Assessment Study conducted by GON/WB in collaboration with ADB, DFID and SDC.
  - Road-User Satisfaction Survey in the state of Himanchal Pradesh, India (2007); Himanchal Pradesh Road and Other Development Corporation Ltd. (HPRIDC), India.
  - Second Road-User Satisfaction Survey in Karnataka, India (2004); Karnataka State Highway Improvement Project, Public Works Dept./State Govt. of Karnataka, India.
  - State User Survey 2003; Transit New Zealand.
- Road Condition data on surface distress, traffic count, road accident and closer, maintenance approach and its frequency on various road network; which mainly included:
  - Statistics of Strategic Roads of Nepal 2004, 2007, 2011/12, 2013/14, 2015/16, DOR /GON
  - Traffic Count Survey on SRN, 2015/016, HMIS Unit, DOR /GON
  - Traffic Count Survey 2004/05 of strategic roads, RMDP1, DOR /GON
  - Statistics of Local Road Network (SLRN) 2016, DoLIDAR/GON
  - District Selection Criteria and Recommended Districts, 2003, RAIDP, DoLIDAR/GoN
- Organizational or the structural set up of all the agencies responsible for road construction and maintenance; and their concerns, issues and constraints, such as budgetary provisions, fiscal regulations, supervisory and quality control mechanisms, maintaining a balance between new road construction and maintenance of existing road network etc. Organizations responsible for road construction and maintenance mainly include;
  - Department of Roads, MoPPW, GON, Nepal.
  - Department of Rural Infrastructures and Agricultural Roads, MoLD, GON, Nepal.
  - District Development Committees, MoLD, GON, Nepal and
  - Municipalities, Nepal.

2.1.2 Planning Phase

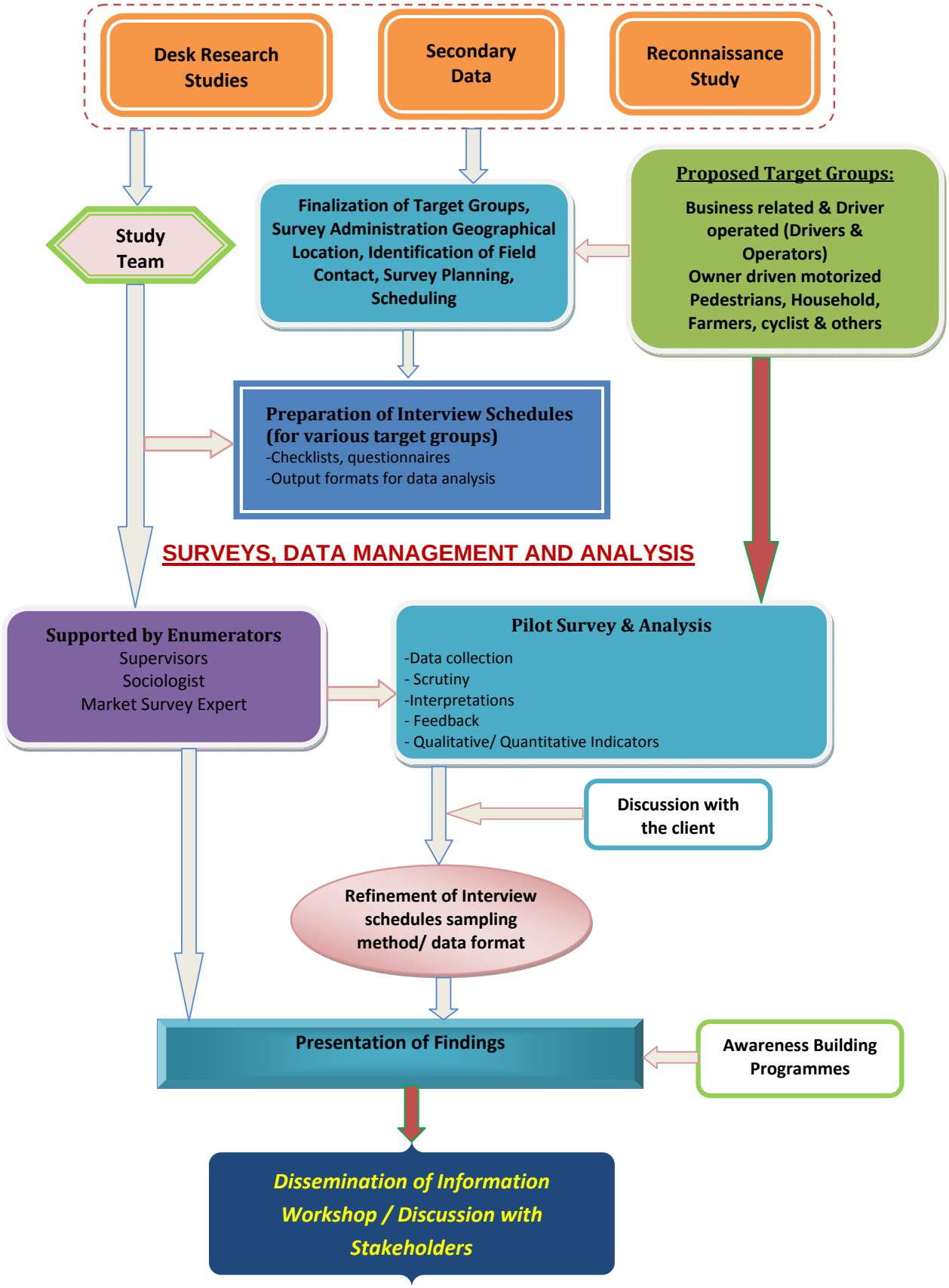
It was in this initial phase that the full progression of the study is decided. The preliminary data useful for the study has been collected referring to the study of various related documents and previous studies and the required field data were collected during the field visit. The tasks included:

- Determination of sample size and its distribution to focused target group in each service centers covering all five development regions in hill and Terai areas,
- Identification of key Indicators and Sub-indicators to be addressed in the study,
- Selection of sample road sections and their lengths covering all five development regions in hill and Terai areas,
- Finalization of target groups and survey methodology,
- Development of Questionnaires/checklists and preparation of interview schedules,
- Output formats for data processing,
- Identification of appropriate data analysis techniques,
- Reporting formats etc.

The Consultant has thoroughly planned its schedule to undertake and complete the assignment considering all the linkages between the activities

The following Schematic Flow Chart (Fig. 2.1) represents the activity and output of the assignment:

Fig. 2.1.: Schematic Chart for the Study Approach



2.2 Sample Design

2.2.1 Identification of Road Users, Target Group

The research study had identified Road Users, Target Group and Stakeholders in three categories for the present survey as:

- Motorized Traffic
- Non-Motorized Traffic (vulnerable users)
- Traffic related organizations/associations

Table 2.1 below lists the various classifications of user groups under the three Target Groups.

Table 2.1 Target /Users Group for Survey

Target / User Groups		
Motorized Traffic	**Non-Motorized Traffic**	**Traffic related Organizations/Associations**
- Truck / Tanker Drivers	- Pedestrians	- Transport Entrepreneur (Yatayat Byabasai Sangh)
- Light Commercial Vehicles	- Cyclists	- Truck / Tanker Operators/associations
- Bus Drivers	- Rickshaw puller	- Bus Operators
- Taxi / Hired Car Drivers	- Bullock/hand driven Carts	- Association of farmers/agricultural producers (Tarkari Byabasai Sangh)
- Two wheeler drivers	- Farmers	- Chamber of commerce
- Tractor Drivers	- Pilgrims/tourist	- Industrial manufacturers
- Private car drivers/owners	- Market consumers	- Traders/Freight Forwarders
	- Households adjacent to main road	- Insurance representatives
	- Passengers	- NGOs involved in social and environmental issues in roads
		- Journalists and media representatives
		- Government institutions
		- Traffic Police

From the pool of user groups under Associations, efforts had been made to cover as many groups as possible. Interaction/interview with the Pedestrians, Cyclists, Bullock cart drivers and Cart pullers was organized separately. For group discussion, similar users were grouped together.

2.2.2 Development of Questionnaires and Checklists

This was the most crucial stage to elicit the customer perceptions on prevailing road services and road agencies performance. For this purpose, a set of questionnaires for different categories of road users were developed. Development of questionnaires helped to guide the consultant personnel in collecting road user's views in transparent and unbiased manner; and select appropriate user to be interviewed. For ease of responding interviewee's perceptions, questionnaires were made as objective and practicable as possible with a number of possible options to each question. Sample questionnaires are given in Appendix I.

2.2.3 Traffic Data

Traffic count data for F.Y. 2015/16 conducted by DOR are available for 160 survey stations. These data cover mostly for SRN and some of district and urban road are not covered in these data. In the absence of traffic data at the exact service center, data from nearby stations were taken. .

2.2.4 Estimation of Sample Size

The required sample sizes for different road users were computed considering the confidence limit at 95% error margin. The traffic data of service centers in the Kathmandu valley were very high as compared to outside service centers. So, the sample size for outside valley had been calculated based on the respective traffic data whereas the sample size for Kathmandu valley had been fixed on judgment. The sample size for farmers, households adjacent to road and pedestrians were fixed on judgmental basis as there were no traffic data of these variables.

The sample sizes for different types of users at different service centers were allocated proportionately based on their total traffic volume and its composition. The minimum sample size was fixed to five for different users if it was lower than five. In the case of farmers, the sample sizes were allocated equally to all the sample service centers.

Further, the samples for households adjacent to roads and pedestrians were allocated equally except in Kathmandu Valley, where the sample size was slightly increased as compared to outside valley due to heavy traffic. Thus the total sample size for the proposed Users Satisfaction Survey-III was estimated to 3107, which included the road users selected for structured interviews (2862 numbers) and the rest selected for IDI and FGD.

2.2.5 Distribution of Sample Size

The total sample size used for SI in the present survey has further been distributed at different service centers region wise for different types of road users as given in table 2.2 (a). Distribution of total sample size selected for IDI and FGD is given in table 2.2 (b) in terms of target group and research technology.

Table 2.2(a): Distribution of Sample by Service Centre and Types of Road Users for SI

Region	Terrain	Service Center No.	Ref. No.	Survey Center	Road Type	Truck	Inter-urban	Taxi, hired cars	utility	Tractors	3 Wheelers, Rickshaws	Households	Farmers	Pedestrians	Total
Eastern	Terai	1	H01	Lahan (West)	SR	15	12	0	8	12	6	7	7	12	79
		2	UR	Biratnagar	UR	0	6	6	6	6	9	17	0	16	66
		3	DR	Rajbiraj (Balan)	DR	0	0	0	0	9	0	10	15	0	34
		4	F0301	Bhardaha (south)	SR	9	7	7	0	0	0	7	7	7	44
		5	F7201	Mirchaiaya (north)	SR	10	8	0	0	0	0	0	8	11	37
	Hill	6	F38	Fikkal (east)	SR	6	6	11	0	6	0	7	11	8	55
		7	H08	Dhankuta (south)	SR	6	6	6	0	0	0	6	11	8	43
		8	DR	Hile (West)	DR	7	7	0	0	0	0	8	13	7	42
Central	Terai	9	H01	Chandranigapur	SR	33	24	0	8	14	0	10	14	10	113
		10	H02	Simara	SR	32	18	0	9	16	0	9	8	8	100
		11	UR	Bharatpur	UR	0	0	9	9	9	13	24	0	24	88
		12	DR	Dry Port, Sirsiya	DR	8	8	0	0	0	8	9	14	11	58
		13	DR	Jaleshwore	DR	8	8	0	0	8	0	10	14	0	48
		14	H0121	Dhalkebar (west)	SR	22	12	0	6	0	0	18	12	15	85
	Hill	15	H01	Hetauda (West)	DR	34	16	0	0	13	8	13	7	11	102
		16	H04	Mugling (east)	SR	37	21	28	11	0	0	11	12	17	137
		17	F27	Jorpati (North)	SR	9	14	14	7	0	0	19	13	19	95
		18	F30	Lamidanda	SR	0	10	0	10	0	0	12	18	12	62
		19	UR	Battisputali	UR	0	0	29	18	0	11	16	0	16	90
		20	UR	Mangal Bazar	UR	0	0	30	21	0	10	16	0	18	95
		21	H020SU	Hetauda	SR	27	12	0	8	0	0	20	9	14	90

Region	Terrain	Service Center No.	Ref. No.	Survey Center	Road Type	Truck	Inter-urban	Taxi, hired cars	utility	Tractors	3 Wheelers, Rickshaws	Households	Farmers	Pedestrians	Total
				(North)											
		22	F2202	Taudaha	SR	11	9	11	11	0	0	19	12	10	83
		23	F6901	Galchhi (North)	SR	8	10	0	8	8	0	10	12	12	68
Western	Terai	24	H10	Butwal (South)	SR	23	15	31	13	10	20	10	15	21	158
	Hill	25	DR	Taulihawa	DR	7	7	0	0	7	10	0	13	8	52
		26	UR	Pokhara	UR	0	18	13	13	0	0	16	0	33	93
		27	F35	Abukhaireni (North)	SR	8	8	0	8	8	0	10	15	20	77
		28	DR	Aryabhanjyang (East)	DR	9	9	0	0	0	0	0	17	10	45
		29	F4301	Tansen (West)	SR	11	9	0	8	0	0	16	9	11	64
		30	F4201	Pokhara (North)	SR	14	14	13	9	8	0	14	16	16	104
Mid-Western	Terai	31	UR	Nepalgunj	UR	0	0	0	7	7	9	12	0	17	52
		32	F15	Gorahi (West)	SR	8	14	0	12	11	0	9	13	9	76
	Hill	33	DR	Baghaudda	DR	0	10	0	0	10	0	0	16	12	48
		34	H12	Surkhet (South)	SR	8	8	0	8	14	0	9	11	10	68
		35	DR	Lamahi (South)	DR	0	9	0	0	9	0	0	16	11	45
		36	F4701	Chhinchu (East)	SR	8	8	0	0	0	0	8	9	9	42
Far-Western	Terai	37	H01	Attariya (East)	SR	8	12	8	8	10	5	10	12	10	83
		38	H1406	Syaule (South)	SR	8	10	0	0	12	0	8	10	12	60
	Hill	39	H14	Dadeldhura (North)(	SR	7	7	0	0	0	0	10	13	10	47
		40	DR	Dungrai (Dadeldhura)	DR	7	0	0	0	7	0	0	11	9	34
		40		Total Nos (all types)		408	372	216	226	214	109	410	413	494	2862
					District Roads (DR)	39	51	0	0	50	18	29	116	61	364
					Urban Roads (UR)	0	24	87	74	22	52	101	0	124	484
					Strategic Roads (SRN)	369	297	129	152	142	39	280	297	309	2014

Table 2.2 (b): Sample Selection for IDI and FGD

SN	Target Group	Research Technique	Sample Size
1	Transport Entrepreneur (Yatayat Byabsai Sangh)	IDI	12
2	Truck / Tanker Operators/associations	IDI	24
3	Inter-urban service Operators	IDI	24
4	Taxi, hired car, Rickshaw operators	IDI	18
5	Chamber of commerce/ Industrial manufacturers/Traders	IDI	17
6	Private car owners associations	IDI	7
7	Insurance Representatives	IDI	9

SN	Target Group	Research Technique	Sample Size
8	NGOs involved in social and environmental issues	IDI	16
9	Vehicle including Bicycle, manufacturers, repair workshop representatives	IDI	18
10	Government institutions	IDI	5
11	Traffic Police	IDI	22
12	Freight forwarding/ Shipping agents	IDI	6
13	Academician, Journalists, Media representatives	IDI	30
		Sub Total	**208**
14	Truck / Tanker Operators/associations	FGD	6
15	Inter-urban service operators	FGD	6
16	Taxi, hired car, Rickshaw operators	FGD	6
17	Households	FGD	19
		Sub Total	**37**
		Total	**245**

2.2.6 Service Centres for Road User's Survey

Service centers for survey together with the road link were already identified and given in ToR as presented in Table 1.1 above. Proposed service centers cover both Hilly and Terai geographical terrain in all five development regions of Nepal.

Region-wide distribution of service centers with different geographical coverage and different categories of roads is given in Table 2.3.

Table 2.3 Region-wise distribution of Service Centers

Region	Terai				Hill/Rolling				Total
	SRN	DR	UR	Sub-total	SRN	DR	UR	Sub-total	
Eastern	3	1	1	5	3	0	0	3	8
Central	4	1	1	6	7	0	2	9	15
Western	1	1	0	2	3	1	1	5	7
Mid-Western	1	1	1	3	2	1	0	3	6
Far Western	2	0	0	2	1	1	0	2	4
Total	**11**	**4**	**3**	**18**	**16**	**3**	**3**	**22**	**40**

2.3 Distribution of Road Network in Nepal

Region-wise distribution of total road network in Nepal constituting SRN, district and urban roads with different geographical coverage and different categories of roads is given in Table 2.4.

Total length of strategic road network has been taken from 'Statistics of Strategic Road Network, SSRN 2015/16'. Total length of Local Road Network (comprising district, village and local roads) and Urban Roads has been taken from 'Statistics of Local Road Network, SLRN 2016', DoLIDAR.

Table 2.4 Region-wise Road Lengths of different Categories

Region	Road Length (Km.)								
	Hill/Rolling terrain				Terai				Total
	SRN	DR	UR	Sub-total	SRN	DR	UR	Sub-total	
Eastern	1467.93	3979.80	83.09	5530.82	1249.03	2400.98	614.98	4264.99	9795.81
Central	2218.19	4914.19	993.48	8125.86	1198.21	2170.13	876.11	4244.45	12370.31
Western	2013.28	5055.49	758.13	7826.90	778.55	1070.52	175.04	2024.11	9851.01

Mid-Western	1661.27	2642.79	62.01	4366.07	804.05	1065.51	70.12	1939.68	6305.75
Far Western	1040.66	1497.75	18.70	2557.11	467.02	931.03	67.37	1465.42	4022.53
Total	8401.33	18090.02	1915.41	28406.76	4496.86	7638.17	1803.62	13938.65	42345.41
Distribution of lengths	**20%**	**43%**	**5%**	**67%**	**11%**	**18%**	**4%**	**33%**	**100%**

Source: - Statistics of Strategic Road Network, SSRN 2015/16 for SRN.
- Statistics of Local Road Network, SLRN 2016 for DR
- Current lengths of UR have been calculated in proportionate to the increase in SRN lengths.

2.3.1 Distribution of Sample Roads

Region wise distribution of sample road length of 1500 km. covering SRN, district and urban roads with different geographical coverage and different categories of roads with respect to the total road lengths as given table 2.4 was calculated as given in Table 2.5.

Table 2.5 Distribution of Survey Length for different categories of roads

Region	Road Length (Km.)								
	Hill/Rolling terrain				Terai				Total
	SRN	DR	UR	Sub-total	SRN	DR	UR	Sub-total	
Eastern	140.00	0.00	0.00	140.00	73.00	25.00	40.00	138.00	278.00
Central	193.00	0.00	4.00	197.00	156.00	35.00	35.00	226.00	423.00
Western	174.00	48.00	53.00	275.00	22.00	22.00	0.00	44.00	319.00
Mid-Western	133.00	34.00	0.00	167.00	24.00	50.00	14.00	88.00	255.00
Far-Western	27.00	17.00	0.00	44.00	181.00	0.00	0.00	181.00	225.00
Total	667.00	99.00	57.00	823.00	456.00	132.00	89.00	677.00	1500.00
Distribution of lengths (%)	**44%**	**7%**	**4%**	**55%**	**30%**	**9%**	**6%**	**45%**	**100%**

Note : Latest statistics for Urban Road lengths are not available. They are available only for 2004 (Nepal Road Statistics 2004) DoR. The recent data are taken in proportionate to increase in SRN lengths.

2.3.2 Distribution of Sample Road Section for Survey

Sample road length for survey was randomly selected in proportion to the total road length covered by each category of roads based upon traffic density (as given in the ToR) with the total sample survey length of 1500 Km. and shall be representing hill and Terai; and all five development regions.

The sampling frame for the survey was 1500 Km of selected roads all over Nepal covering Strategic Road Network, District and Urban Roads as per the classification based on Nepal Road Standards. Within this stretch of roads, 40 service centers (as required by the TOR) were selected for interaction with users groups and stakeholders. Table 2.6 below illustrates the region wise distribution of road lengths for Hill and Terai regions.

Out of 40 such service centers, 20 were selected in the section of road having Average Annual Daily Traffic of High Volume (more than 1500 vehicles per day), 12 service centers selected from the road sections having AADT of moderate volume (AADT between 250-1500 VPD) and remaining 8 service centers for the road sections having low (less than 250 VPD) traffic volume.

Region-wise distribution of total survey length of 1500 km. at different service center with each of the above traffic band in hill and Terai is given in Table 2.6.

Table 2.6 Region-wise Sample Roads Distribution

Region	Terrain	Traffic Volume								
		AADT >1500 vpd			AADT 250 - 1500 vpd			AADT <250 vpd		
		Road Ref No.	Road Link	Survey Length (Km.)	Road Ref No.	Road Link	Survey Length (Km.)	Road Ref No.	Road Link	Survey Length (Km.)
Eastern	Terai	H01	MRM (Lahan-Mirchaiya)	28						
		UR	Biratnagar Munucipal Roads	40						
								DR	Rajbiraj – Balan	25
					F0301	MRM Bhardaha Rotary Towards Hanumannagar-Rajbiraj Road	18			
					F7201	Mirchaiya – Katari Road (1Km North)	27			
	Hill				F38	Fikkal – Pashupatinagar	11			
					H08	KRM (Dhankuta Bhedetar)	37			
								H18	Hile - Bhojpur	92
Sub-total: East				68			93			117
Central	Terai	H01	MRM (Pathalaiya-Chandranigahapur)	40						
		H02	TRP (Pathalaiya-Birgunj)	22						
		UR	Bharatpur City Roads	35						
					H17	Birgunj - Thori	60			
					DR	Jaleshwor - Matihani	35			
		H0121	Ratubridge Dhalkebar - Nawalpur	34						
	Hill	H01	MRM (Hetauda-Narayanghat)	78						
		H04	PRM (Mugling-Malekhu)	40						
		F27	Jorpati-Sundarijal	7						
					F30	Panchkhal – Melamchi (Lamidanda – Dhadkhola)	22			
		UR	Kathmandu City Road (Baneshwor - Battishputali)	2						
		UR	Lalitpur City Road	2						

Region	Terrain	Traffic Volume								
		AADT >1500 vpd			AADT 250 - 1500 vpd			AADT <250 vpd		
		Road Ref No.	Road Link	Survey Length (Km.)	Road Ref No.	Road Link	Survey Length (Km.)	Road Ref No.	Road Link	Survey Length (Km.)
			(Pulchowk - Mangal Bazar)							
		H020SU	Samari Bridge (Hetauda-Bhainse)	11						
		F2202	Chobhar-Dakshinkali Road	13						
					F6901	Galchhi - Trishuli Road	22			
Sub-total: Central				284			139			0
Western	Terai	H10	SRM (Butawal-Bhairahawa)	22						
								DR	MRM Highway-Taulihawa	22
	Hill	UR	Pokhara City Road	53						
					F35	Abukhaireni-Gorkha	25			
								DR	Aryabhanjyang-Rampur	48
		F4301	Tansen-Ridhi-Tamghas	76						
		F4201	Pokhara – Baglung at Yamdi Bridge	73						
Sub-total: Western				253			0			70
Mid-Western	Terai	UR	Nepalgunj City Road	14						
					F15	Ghorahi-Tulsipur	24			
								DR	Nepalgung - Baghauda	50
	Hill	H12	RRM (Surkhet-Chhinchu)	26						
								DR	Lamahi - Koilabas	34
					F4701	Chinchu - Jajarkot	107			
Sub-total: Mid-Western				36			131			84
Far-Western	Terai	H01	MRM (Attariya-Junga)	64						
					H1406	Attariya - Syaule	117			
	Hill							H14	MKRM (Dadeldhura – Khodpe)	27
								DR	Dadeldhura-Bagarkot	17
Sub-total: Far-Western				64			117			44
Total		**20 Nos.**		**705**	**12 Nos.**		**480**	**8 Nos.**		**315**
Total				**1500**						

2.4 Selection of Respondents

Each of the road users had different perceptions of road network outcomes/attributes and agencies performance. All types of road users were therefore, included in the field survey process. Depending upon the sample size and the methodology adopted for survey, i.e. SI or IDI or FGD, each of the respondents for SI was randomly selected, say every 4^{th} or 5^{th} respondent for each target group. However, this approach varied from one place (service center) to another depending upon their frequency and availability for gathering information. Respondents for IDI and FGD were selected in such a way that the maximum information was obtained which carried factual significance for the purpose of the present study.

2.5 Identification of Indicators and Sub-indicators

During the survey, the consultant were seek to elicit the respondents' perception on road network outcome/attributes and road agencies performance on the following aspects and accordingly the responses to each of the pre-developed questionnaires were gathered. The major indicators with respective sub-indicators were as follows:

Road Conditions & Perceived Impact

- Road Conditions/Physical Features
- Traveling Time
- Fuel Cost
- Vehicle Maintenance Cost
- Reliability of Travel

Comfort & Convenience

- Congestion on Roads and Reasons for Discomfort
- Road width
- Reliability to reach destination
- Information on Road Works
- Quality of Roads and Bridges
- Accessibility to Settlements
- Irritating Factors
- Road Markings & Distance Signs
- Cause and Extent of Delays

Safety Aspects

- Is Commuting in Nepal Safe Enough?
- Reasons for Feeling Unsafe
- Accident Management
- Quality of Road Construction
- Warning/ Road Signs
- Availability of Police Posts and Display of Emergency Signs
- Availability and Satisfaction with Medical Facilities

Travel Amenities & Visual Appeal

- Availability of Amenities
- Satisfaction (if availed) with Amenities
- Availability of Petrol Pumps
- Availability of parking facilities
- Satisfaction with Roadside Plantation
- Suggestions for Beautification of Roads

Perception about Road Agencies

- Awareness of Road Agencies for Maintenance
- Road Improvement and Maintenance Scheme
- Perception about Road Agencies mainly DoR, DoLIDAR, DDC, Municipality
- DoR vs Local Road Development Agencies
- Complaint Redressal System & Maintenance Response Time
- Acquaintance with RBN App 'Mero Sadak'

Priorities for Improvement

- Priorities for Improvement
- Priorities for Better Road Management
- Priorities for better road services

Overall Satisfaction

- Road Users' Satisfaction Level- Based on Type of Road
- Overall Satisfaction – Geographical terrain type wise (Hill/Terai)
- Road Users' Satisfaction – region wise

2.6 Survey Guidelines

The consultant shaped up the survey methodology and guidelines covering the conduction of field survey of the selected sample/unit/agency. The guideline covered how to start question/survey i.e. simple questions at the beginning and hard questions towards the end, for historical data followed in chronological order, asking one topic at a time, using transition question when switching from one topic to another, etc. Apart from these it also listed what to do and what not to do during the survey with respondent like; thanking him/her before start and at the end of completion, keep survey short and simple, being sensitive to the needs of the respondent, be alert on respondent being uncomfortable, etc.

The survey methodology included various issues and processes as mentioned earlier like sample size, selection of road sections, selection of service centers, sample size allocation, selection of respondents etc. including sample questionnaires etc. Furthermore it contained survey tools to be used for various respondents like structured interview, in depth interview and focused group discussion.

Annex-1 of the ToR provided the list of various respondents. Based on this list, the consultant used the following survey tools for each category of potential respondents, as shown in Table 2.7:

Table 2.7 Survey Tools applied

SN	Respondents	Survey Tools		
		SI	IDI	FGD
1	Truck and tanker operator and drivers	√	√	√
2	Inter-urban service operators and drivers	√	√	√
3	Tempo, rickshaw, taxi and hired car operators and drivers	√	√	√
4	Private car owner associations		√	
5	Households living adjacent to main roads	√		√
6	Farmers/ agricultural commodity producers	√	√	
7	Chambers of commerce, industrial manufacturers and traders		√	
8	Freight forwarding/ shipping agents		√	
9	Insurance industry representatives		√	
10	Vehicle, including bicycle, manufacturers and repair workshop representatives		√	
11	NGOs involved with social, environmental issues related to roads plus vulnerable groups such as the disabled		√	

SN	Respondents	Survey Tools		
		SI	IDI	FGD
12	Academician, journalists and media representatives		√	
13	Pedestrians	√		

Note: **SI**: Structured Interview, **IDI**: In Depth Interview, **FGD**: Focus Group Discussion

2.7 Pilot Survey

2.7.1 Service Centre for Pilot Survey

Pilot survey was conducted, as proposed in our Inception Report, at Toudaha (Chobhar – Dakshinkali road) service center for the present study. The data collected at this service center were representing the strategic road network having AADT of moderate traffic volume (AADT 200 between 1500 vehicles per day) and also the non-homogeneity of the respondents. Pilot survey outcome enabled the consultant to modify the survey methodology and fine tune the questionnaires as needed to fulfill the required objective of the study. Survey methodology and questionnaires were further refined through similar survey at 3 other service centers, namely Jorpati (North), Battisputali and Mangal Bazar within Kathmandu valley in order to get the field data from multiple respondents. Ms. Chetana Thapa and Mr. Sanu Babu Prajapati from RBN also monitored the pilot survey and provided very meaningful and useful suggestions for main survey work.

2.7.2 Coverage of Pilot Survey

The pilot survey was essential to test the survey methodology as well as fine tune the proposed methodology and research instruments. The output of the pilot survey had led to administering the main survey with higher confidence level in the data/ information thus generated.

The coverage details for the pilot survey in terms of research technique for each category of road users groups is as given in Table 2.7, which was later covered during the main survey too.

2.7.3 Data Analysis from Pilot Survey

The Pilot survey data were documented and analyzed with respect to:

- Sample size allocated
- Consistency and accuracy of data
- Survey methodology and tools adopted
- Competency of supervisors and enumerators
- Consistency and usefulness of questions, checklists etc.

2.7.4 Outcome of Pilot Survey

Pilot survey has proved very useful in the following aspects:

- Train supervisors and enumerators proposed for main survey.
- Update and fine tune already prepared questionnaires/checklists which were the basic tools for eliciting the road user's perception/attributes towards road serviceability as well as the road agencies.
- Gather important suggestions on survey methodology from client's perspective.
- Understand respondents' attitude and behavior towards different questions and their responses and be prepared accordingly.

From the experience of pilot survey, some changes in proposed questionnaires have been made. Previously 6 sets of questionnaire formats were proposed. But during pilot survey, two of the formats were targeting almost similar respondents nearly with similar outcome and as such these two formats were merged into a single format to be used for main survey. As suggested by RBN

representatives, some of English wordings used in questionnaires which were found difficult to understand by some of the respondent were simplified as far as possible. In case of confusion or ambiguity the enumerator explained the meaning in Nepali language too.

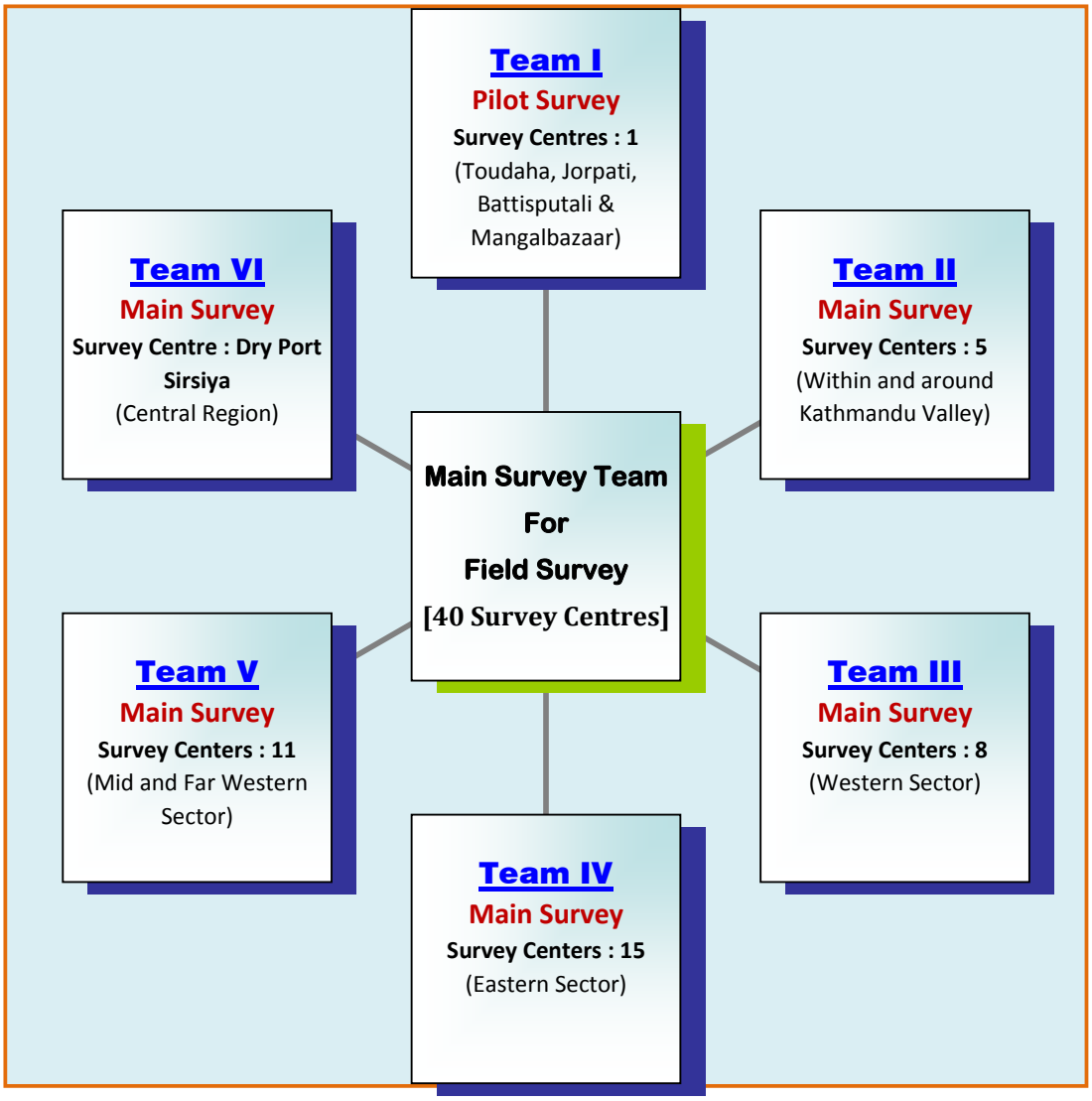
During the pilot survey it was also observed that each respondent's perspective on road serviceability was also somehow linked to his profession and day-to-day activities. The enumerator was therefore required to approach each respondent differently so that the respondent feels comfortable and easy going to respond any questionnaire. It was also learnt from pilot survey that the most queries and the ranking for different options for each question needed to be clearly explained in Nepali language.

2.8 Administration of Main Survey

2.8.1 Assignment of Survey Team

Five different survey teams were formed to administer the field survey works. Each team was headed by one field supervisor (Civil Engineer) and one sociologist with two enumerators. The study professionals had also visited the site frequently and made efforts to improve the quality of the survey works. During the field, the survey team also conducted in-depth interview with representatives of chamber of commerce, transport association, traders, municipality etc. Team details are given in the fig. 2.2 below.

Fig. 2.2: Main Survey Team in Field Work



2.8.2 Training of Field Supervisors and Enumerators

The methods used to impart training included lectures by experts, group discussion, and explanation of questionnaires, demonstration interviews and field practice interviews. Before the start of the survey, the consultant selected enumerators to conduct the survey with required qualification and experience.

The issues that needed to be addressed during the training were for example:

- Locating, enlisting and soliciting cooperation from respondents
- Motivating respondents to properly provide information
- Clarifying any confusion/concern
- Observation of quality of responses and
- Conducting good interview etc.

Similarly, the other aspects that needed to be addressed were:

- Describing the entire study
- Stating who is the sponsor of the study
- Educating about the survey tools
- Explaining sampling logic and process
- Explaining interviewer biasness
- Walking through the interview, explaining respondents selection procedures
- Rehearsing the interview
- Explaining about the supervision and
- Explaining the schedule by which the exercise was to be completed

2.9 Execution of Field Survey

Structured Interview

Structured questionnaires were used for interview for those respondent groups as identified and suggested in table 2.2. Field supervisors randomly checked the survey works carried out by the field enumerators during the structured interview process. Time frame allocated and the methodology adopted was adhered to conduct those interviews. No major deviations were entertained during the survey, which were necessary in order to harmonize the data collected across all the 40 service centers.

In Depth Interview

In Depth interview was conducted by the Key Exports, and in some cases through adequately trained supervisors. The questionnaires developed for this purpose were utilized during the interview. No major deviations were entertained during such interviews as well.

Focus Group Discussion

Focused group discussion with selected group as outlined in Table 2.2 was conducted by key professionals i.e. Team Leader and Sociologist. FGD elicited the information on qualitative basis on various aspects of the study objectives i.e. concentrating on road users' satisfaction and in line with the major indicators and sub-indicators.

FGD checklists along with semi-structured questionnaire were also used to conduct the FGD among the various target groups/respondents. Focus group output was also be used to triangulate the information provided through structured and in-depth Interviews.

2.10 Compilation of Field Data for Evaluation

The consultant compiled and organized the data collected from main survey, other primary and secondary sources as per the requirement of the study for easy reference and analysis. All the structured questionnaires were pre-coded for easiness in the data entry, output generation and analysis. The data were then validated and checked for consistency and reliability. Inconsistent and unreliable data were omitted during the final entry into the database.

The quantitative data/information were documented using software packages (Microsoft Access 10), whereas the qualitative data/information were documented in electronic form using word processing software and Spreadsheet Program, whichever was suitable.

Data entry was made on 'Microsoft Access 10' software as per the following procedure:

- Related questions for each indicators and sub-indicators were first identified in each Format.
- Response to each question was entered as 1 to 5 rating scale (already proposed in inception report) for highly negative to highly positive response.
- Separate 'Coding' was made for each indicator and sub-indicator as well as for service center, region, terrain type, road type, gender, age, education etc. so that the required data can be easily and conveniently extracted for analysis from the main data entry sheet.

2.11 Data Analysis and Output Interpretation

The field data were then analyzed and output interpreted in line with the study objectives i.e. the satisfaction level of road users in terms of various key indicators and sub-indicators and finally the RUS index calculated. The data were analyzed and presented using various tools and software. The outputs of the analysis are interpreted and findings and recommendations made accordingly on various aspects of road development, maintenance and future policy issues etc. from road users' perspectives.

2.12 Presentation and Final Report Submission

Findings of the study were presented and a wide dissemination of the results, in the form of presentation slides, flyers etc. have been made in a dissemination forum of representatives from RBN, other road agencies and related stakeholders. Comments/suggestions raised during the presentation followed by discussions have been noted and later incorporated in the final report.

The final report was then submitted to the Project Director of RBN and decision makers.

2.13 Limitation of Study

As per the scope of the study, it was required to carry out the survey of 1500 Km of selected length of Strategic Road Network, District Roads and Urban Roads. Similarly, it was also required to select at least 40 service centers for the interaction with the users' group and stakeholders. The actual lengths of the Urban Roads were not available in the present Road Statistics. Hence, NRS 2004 has been referred and projected to determine the current lengths for the urban roads. The current lengths for 2015/16 have been calculated in proportionate to the increase in SRN lengths.

Referring to the availability of authentic data, the traffic count data exactly at some of the proposed service centers for all the SRN, District and Urban Roads was difficult to avail. Thus while determining the sample size for survey, the published Traffic Count Data for 160 Strategic Roads (2015/016) has been used as a basis for Strategic Road Network. Traffic data for missing service centers has been manipulated with the nearest available traffic survey stations. With these data, the survey sample size has been derived for all the service centers.

Regarding Urban Roads, the Consultant reviewed the available documents in which the traffic data as well as the road lengths were not updated. The Consultant therefore considered the urban roads for survey as per the ToR and the traffic data estimated based on available traffic data of nearby station on judgmental basis.

The sampling within Kathmandu Valley has been considered in a separate manner, irrespective of the actual traffic counts as the traffic characteristic within Kathmandu Valley is different from the rest of the country. The Consultant selected roads to cover Urban Roads such as inner urban roads with all type of urban traffic modes. Similarly for Strategic Roads, different traffic conditions and modes were considered.

The outcomes/attributes presented in this report are fully the respondent's personal views/ perceptions without any modification or alteration.

3. RESPONDENTS' PROFILE

3.1 Introduction

This chapter presents the respondents' demographic profile on the basis of various categories e.g. age group, level of education, ownership of vehicles, exposure to mass media (newspaper, radio, TV and internet etc.), duration of driving, marital status and level of income. The profile of the respondents was required to link it with the output of the road-users survey as well as to act as a level for similar works to be conducted in future. The above data were also required to see the variability in the response-level and their impact on the output.

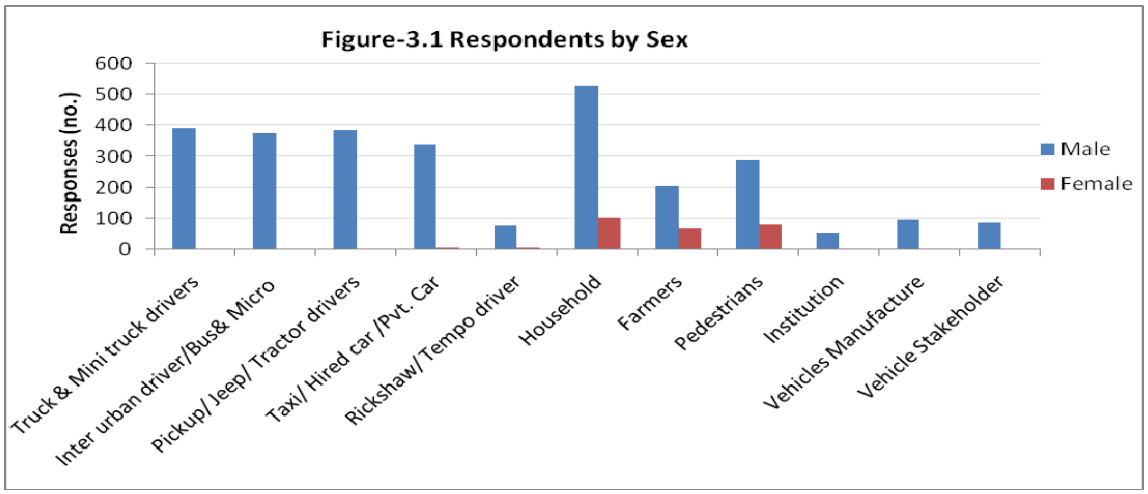
3.2 Demographic Profile of Respondents

This study interviewed 3107 respondents (including **FGD)** such as the drivers of trucks/mini-trucks, buses, inter-urban vehicles, private, hired-cars and three wheelers; road side household, pedestrian and passengers, farmers etc. from 40 Service Centers throughout Nepal in quantitative survey method. The majority of respondents are male covering nearly 91 percent and female covering 9 percent only. Table 3.1 shows the overall demographic distribution of respondents.

Table 3.1 Distribution of Respondents by Gender

Respondents Group	Male			Female			Total	
	No	%	All %	No	%	All %	No	All (%)
Truck & Mini truck drivers	392	100	13	0	0	0	392	13
Inter urban driver/Bus& Micro	375	100	12	1	0	0	376	12
Pickup/ Jeep/ Tractor drivers	385	100	12	1	0	0	386	12
Taxi/ Hired car /Pvt. Car	341	98	11	6	2	0	347	11
Rickshaw/ Tempo driver	77	92	2	7	8	0	84	3
Household	529	84	17	104	16	3	633	20
Farmers	204	75	7	69	25	2	273	9
Pedestrians	289	78	9	82	22	3	371	12
Institution	56	100	2	0	0	0	56	2
Vehicles Manufacture/Workshop	97	100	3	0	0	0	97	3
Vehicle Stakeholder	88	96	3	4	4	0	92	3
Total	2833	91	91	274	9	9	3107	100

Source: - Field Visit 2017



3.3 Age Group Segregation of Respondents

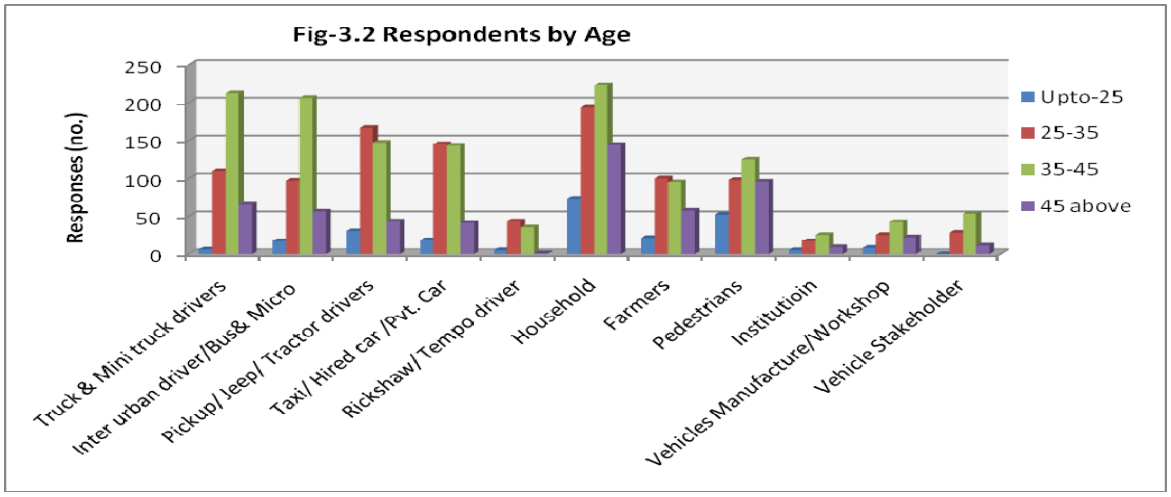
According to the age group distribution, majority of the respondents are in the range of 35-45 years (42%) and then second highest in between 25-35 years, (33%) and those above 45 years

represents 18% and the lowest is under 25 years (8%). Table 3.2 shows detailed distribution of respondents by age group:

Table 3.2 Distribution of Respondents by Age

Respondents Group	Upto-25			25-35			35-45			45 above			Total Sample	
	No	%	All %	No	%	All %	No	%	All %	No	%	All %	No	All %
Truck & Mini truck drivers	6	3	0	109	11	4	212	16	7	65	12	2	392	13
Inter urban driver/Bus& Micro	17	7	1	97	10	3	206	16	7	56	10	2	376	12
Pickup/ Jeep/ Tractor drivers	30	13	1	166	16	5	147	11	5	43	8	1	386	12
Taxi/ Hired car /Pvt. Car	18	8	1	145	14	5	143	11	5	41	8	1	347	11
Rickshaw/ Tempo driver	5	2	0	43	4	1	35	3	1	1	0	0	84	3
Household	73	31	2	193	19	6	223	17	7	144	26	5	633	20
Farmers	21	9	1	100	10	3	95	7	3	57	10	2	273	9
Pedestrians	52	22	2	98	10	3	125	10	4	96	18	3	371	12
Institutioin	5	2	0	17	2	1	25	2	1	9	2	0	56	2
Vehicles Manufacture/Work shop	8	3	0	25	2	1	42	3	1	22	4	1	97	3
Vehicle Stakeholder	0	0	0	28	3	1	53	4	2	11	2	0	92	3
Total	235	100	8	1021	100	33	1306	100	42	545	100	18	3107	100

Source: - Field Visit 2017



3.4 Educational Status of Respondents

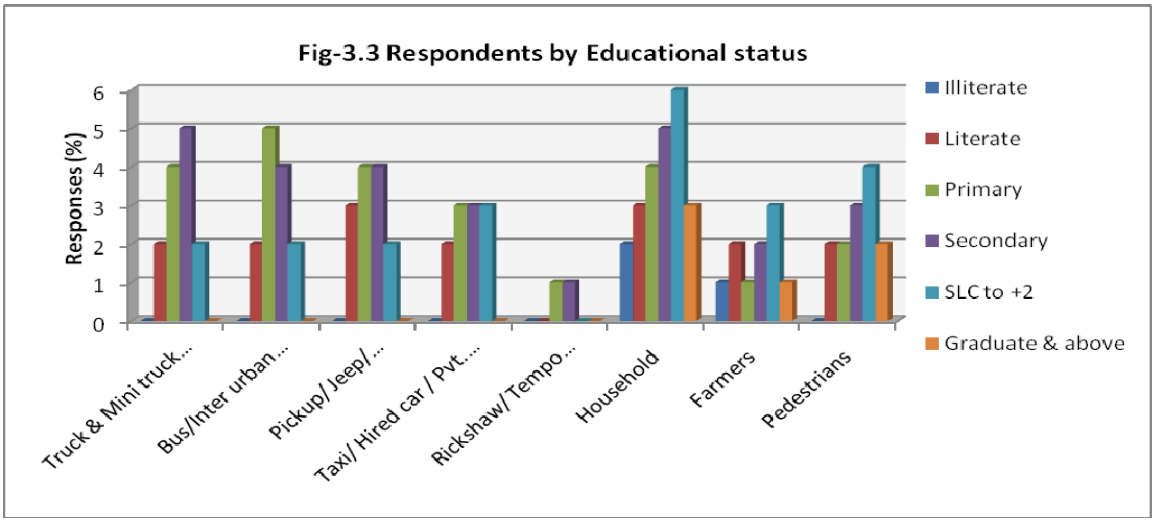
The table 3.3 below shows that 4 percent of the respondents are illiterate, while 17 percent respondents are literate. Percentage of respondents in primary and secondary educational level is about 25 percent each. Likewise the respondents of SLC to +2 are 22 and those of Graduate and & above are 7 percent only. Among them household, farmers and pedestrians are more educated than other respondents. The education status of respondents is given in Table 3.3

Table 3.3 Distribution of Respondents by Educational status *(All figures are in percentage)*

Respondents Group	Illiterate	Literate	Primary	Secondary	SLC to +2	Graduate & above	Total
Truck & Mini truck drivers	0	2	4	5	2	0	14

Bus/Inter urban driver & Micro	0	2	5	4	2	0	13
Pickup/ Jeep/ Tractor drivers	0	3	4	4	2	0	13
Taxi/ Hired car / Pvt. Car	0	2	3	3	3	0	12
Rickshaw/ Tempo driver	0	0	1	1	0	0	3
Household	2	3	4	5	6	3	22
Farmers	1	2	1	2	3	1	10
Pedestrians	0	2	2	3	4	2	13
Total	4	17	25	25	22	7	100

Source: - Field Visit 2017



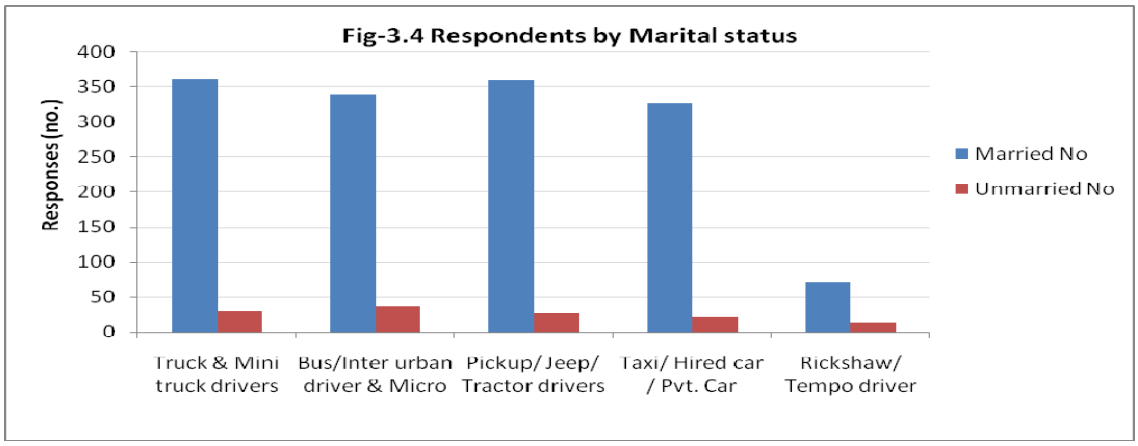
3.5 Marital Status of Respondents

Table 3.4 shows that 92 percent respondents are married and only 8 percent unmarried. Table 3.4 shows the distribution of respondents based on their marital status

Table 3.4 Distribution of Respondents by Marital status

Respondents Group	Married			Unmarried			Total	
	No	%	All %	No	%	All %	No	%
Truck & Mini truck drivers	362	92	23	30	16	2	392	28
Bus/Inter urban driver & Micro	339	90	21	37	16	2	376	24
Pickup/ Jeep/ Tractor drivers	359	93	23	27	16	2	386	24
Taxi/ Hired car / Pvt. Car	326	94	21	21	16	1	347	16
Rickshaw/ Tempo driver	71	85	4	13	16	1	84	8
Total	1457		92	128		8	1585	100

Source: - Field Visit 2017



3.6 Access to Mass Media

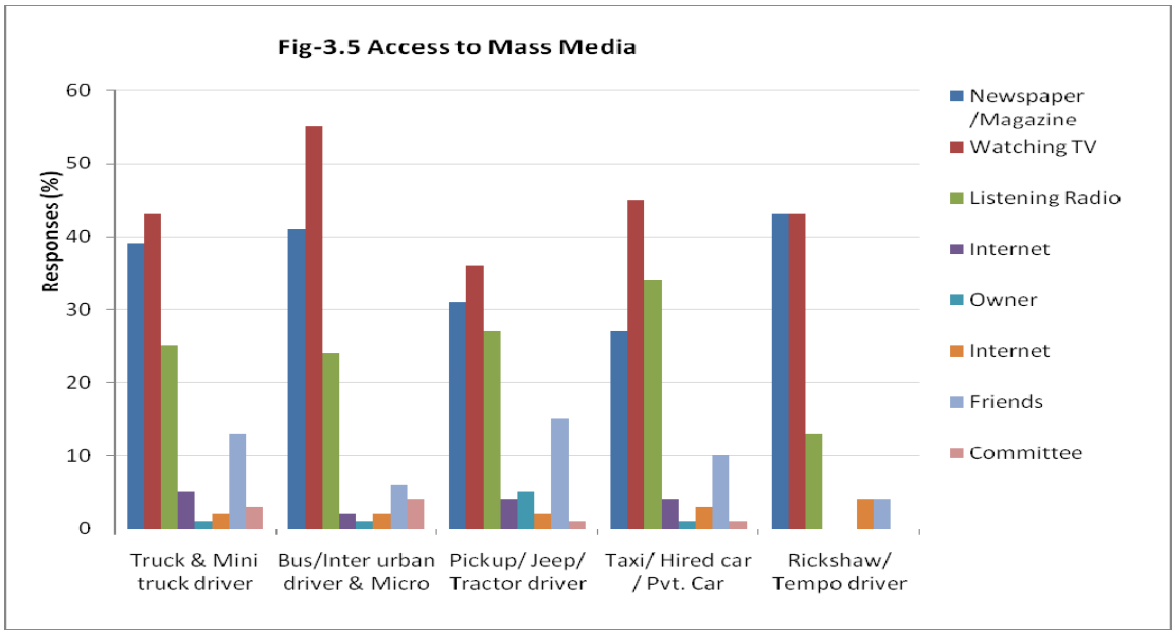
Table 3.5 below shows the extent of exposure that different road-users interviewed in the quantitative surveys have access to newspaper, magazines, radio and television. This information is helpful to identify the most effective media for communication that can be used to reach various road-users.

Among them nearly 35 percent of respondents have access to read newspaper. Likewise 27 percent respondents listen to FM radio, 45 percent respondents watch TV and only 2 percent use internet.

Table 3.5 Distributions of Respondents with Access to Media *All figures are in percentage*

Respondents Group	Newspaper /Magazine	Watching TV	Listening Radio	Internet	Owner	Internet	Friends	Committee	Counter
Truck & Mini truck driver	39	43	25	5	1	2	13	3	0
Bus/Inter urban driver & Micro	41	55	24	2	1	2	6	4	2
Pickup/ Jeep/ Tractor driver	31	36	27	4	5	2	15	1	4
Taxi/ Hired car / Pvt. Car	27	45	34	4	1	3	10	1	1
Rickshaw/ Tempo driver	43	43	13	0	0	4	4	0	0
Total	35	45	27	4	2	2	10	2	2

Source: - Field Visit 2017



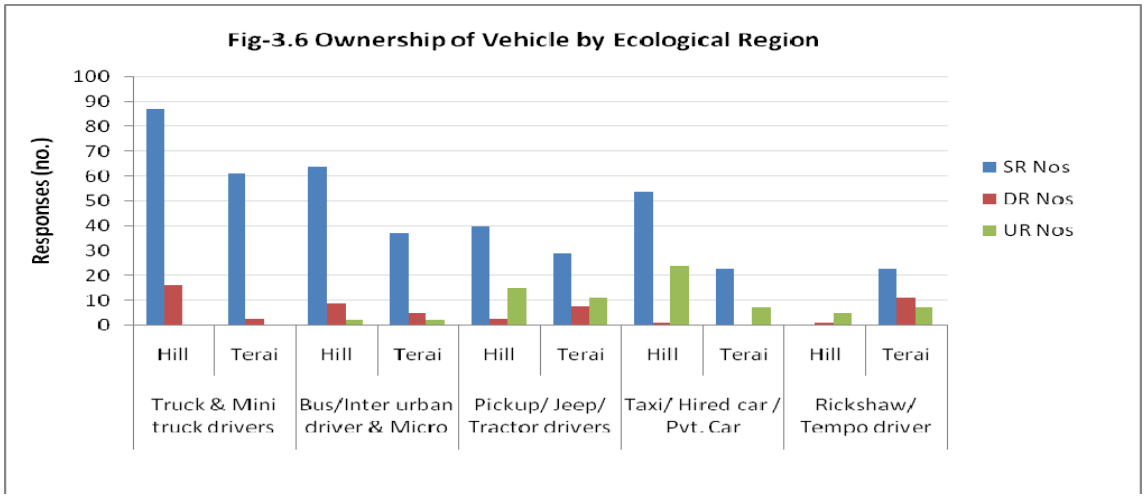
3.7 Vehicles Ownership

Table 3.6 shows pattern of vehicle-ownership by road type. While studying the results of vehicle ownerships, it is found that mostly, 76% vehicle owner are commuting on SRN's plus the urban sections of Strategic roads, the lowest, 10% on DR's and remaining 14% on UR's. Comparatively, more drivers commuting on Strategic and Urban roads own their vehicles than District roads.

Table 3.6 Ownership of Vehicle by Road Type and Ecological Region

Vehicles type	Ecological Region	SR		DR		UR		Total	
		Nos	%	Nos	%	Nos	%	Nos	%
Truck & Mini truck drivers	Hill	87	84	16	16	0	0	103	19
	Terai	61	95	3	5	0	0	64	12
Bus/Inter urban driver & Micro	Hill	64	85	9	12	2	3	75	14
	Terai	37	84	5	11	2	5	44	8
Pickup/ Jeep/ Tractor drivers	Hill	40	69	3	5	15	26	58	11
	Terai	29	60	8	17	11	23	48	9
Taxi/ Hired car / *Pvt. Car*	Hill	54	68	1	1	24	30	79	14
	Terai	23	77		0	7	23	30	5
Rickshaw/ Tempo driver	Hill		0	1	17	5	83	6	1
	Terai	23	56	11	27	7	17	41	7
Total		418	76	57	10	73	13	548	100

Source: - Field Visit 2017



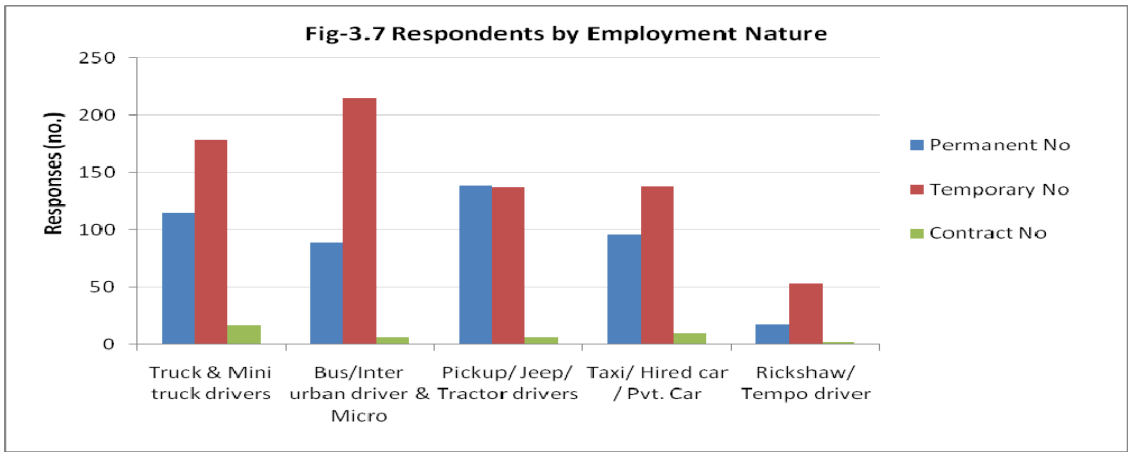
3.8 Employment Status of respondents

Table 3.7 shows the employment status of respondents. Majority of the respondents, 59 percent are serving on temporary basis, 37 percent on permanent basis and only 4 percent are serving on contract basis. From Fig. 3.7, it is clear that most of the drivers are of temporary nature.

Table 3.7 Distribution of Respondents by Employment Nature

Respondents Group	Permanent			Temporary			Contract			Total (No)	Overall (%)
	No	%	All	No	%	All	No	%	All		
Truck & Mini truck drivers	115	37	9	178	57	15	17	5	1	310	25
Bus/Inter urban driver & Micro	89	29	7	215	69	18	7	2	1	311	25
Pickup/ Jeep/ Tractor drivers	139	49	11	137	48	11	7	2	1	283	23
Taxi/ Hired car / Pvt. Car	96	39	8	138	57	11	10	4	1	244	20
Rickshaw/ Tempo driver	18	25	1	53	73	4	2	3	0	73	6
Total	457	37	37	721	59	59	43	4	4	1221	100

Source: - Field Visit 2017



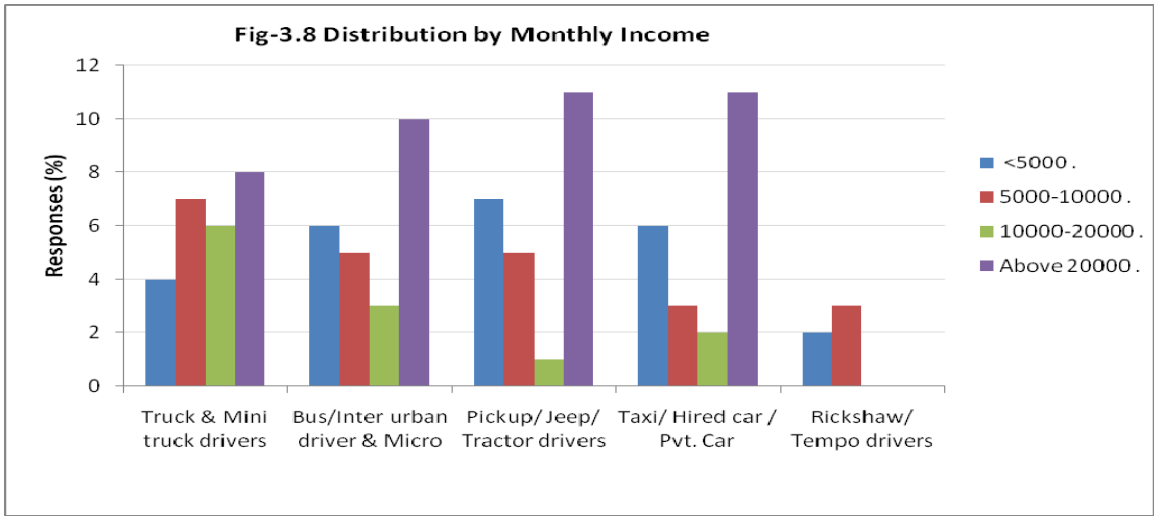
3.9 Income Status Respondents

Table 3.8 gives the average monthly income of respondents. Majority of respondents (41%) earn above 20000 per month while 24 percent respondent earn below 5,000. According to the survey 22 percent earn in between 5000-10000 and 13 percent 10000-20000 per month. The overall income status shows that the Rickshaw Puller/Tempo Drivers earn least of all others.

Table 3.8 Distribution of Respondents by Monthly Income

Respondents Group	<5000			5000-10000			10000-20000			Above 20000			Total	Overall (%)
	No	%	All	No	%	All	No	%	All	No	%	All		
Truck & Mini truck drivers	66	17	4	108	28	7	98	25	6	120	31	8	392	25
Bus/Inter urban driver & Mi	89	24	6	72	19	5	49	13	3	166	44	10	376	24
Pickup/ Jeep/ Tractor	118	31	7	72	19	5	16	4	1	180	47	11	386	24
Taxi/ Hired car / Pvt. Car	88	25	6	55	16	3	29	8	2	175	50	11	347	22
Rickshaw/ Tempo drivers	27	32	2	46	55	3	7	8	0	4	5	0	84	5
Total	388	24	24	353	22	22	199	13	13	645	41	41	1585	100

Source: - Field Visit 2017



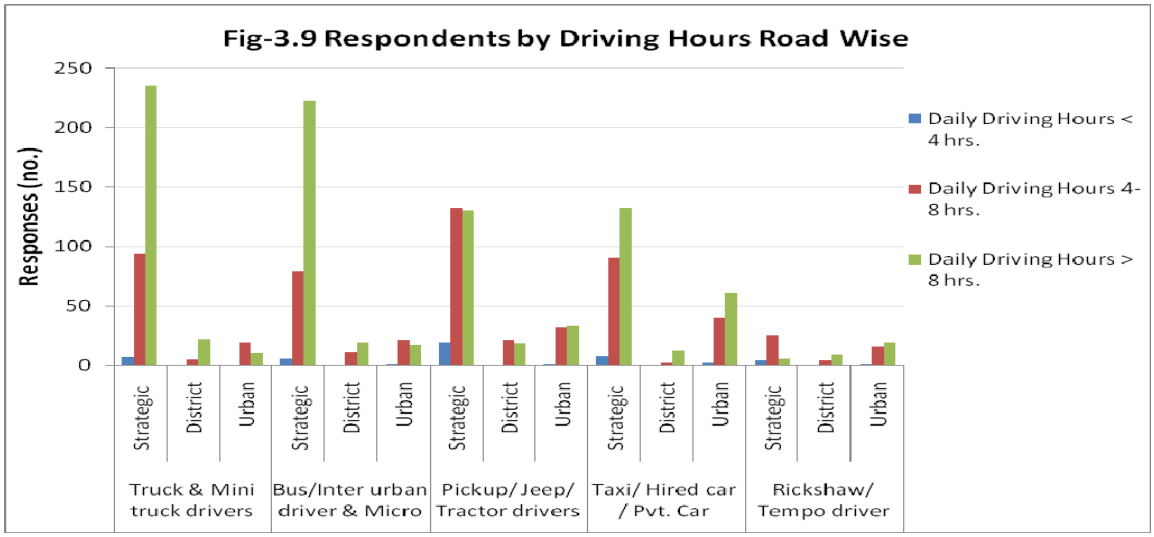
3.10 Driving Hours

Table 3.9 below shows the daily driving status on different types of road (Strategic, District and Urban) by driving hours. The survey data reveals that motorized vehicle drivers on strategic road are driving for significantly a longer period than on other two roads, while on urban roads, Rickshaw and Tempo driver work little longer period.

Table 3.9 Distribution of Respondents by Driving Hours *(All figures are in numbers)*

Vehicles type	Road type	Daily Driving Hours			Total	
		< 4 hrs.	4-8 hrs.	> 8 hrs.	No	%
Truck & Mini truck drivers	Strategic	7	94	235	336	21
	District	0	5	22	27	2
	Urban	0	19	10	29	2
Bus/Inter urban driver & Micro	Strategic	6	79	222	307	19
	District	0	11	19	30	2
	Urban	1	21	17	39	2
Pickup/ Jeep/ Tractor drivers	Strategic	19	132	130	281	18
	District	0	21	18	39	2
	Urban	1	32	33	66	4
Taxi/ Hired car / Pvt. Car	Strategic	8	90	132	230	15
	District	0	2	12	14	1
	Urban	2	40	61	103	6
Rickshaw/ Tempo driver	Strategic	4	25	6	35	2
	District	0	4	9	13	1
	Urban	1	16	19	36	2
Total		49	591	945	1585	100

Source: - Field Visit 2017



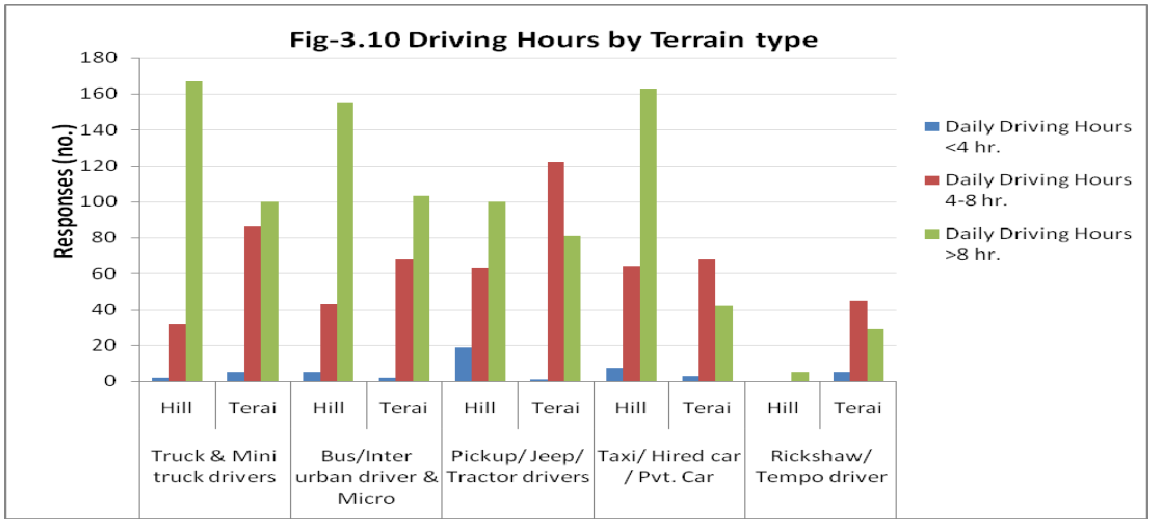
Similarly Table 3.10 depicts that the average daily driving hours of motorized vehicles on hill roads is slightly longer than in Terai roads for Taxi/ Hired car / Pvt. Car, Bus/Inter urban driver & Micro; and Truck & Mini truck drivers, while it is slightly lower in hill roads than in Tarai roads for Pickup/ Jeep/ Tractor drivers. Driving hour for Rickshaw pullers/Tempoo drivers in hill roads is almost nill.

Table 3.10 Distribution of Driving Hours by Terrain Type *(All figures are in numbers)*

Vehicles type	Ecological Region	Daily Driving Hours			Total	
		<4 hr.	4-8 hr.	>8 hr.	No	%
Truck & Mini truck drivers	Hill	2	32	167	201	13
	Terai	5	86	100	191	12
Bus/Inter urban driver & Micro	Hill	5	43	155	203	13
	Terai	2	68	103	173	11
Pickup/ Jeep/ Tractor drivers	Hill	19	63	100	182	11

Vehicles type	Ecological Region	Daily Driving Hours			Total	
		<4 hr.	4-8 hr.	>8 hr.	No	%
	Terai	1	122	81	204	13
Taxi/ Hired car / Pvt. Car	Hill	7	64	163	234	15
	Terai	3	68	42	113	7
Rickshaw/ Tempo driver	Hill	0	0	5	5	0
	Terai	5	45	29	79	5
Total		81	445	971	1585	100

Source: - Field Visit 2017



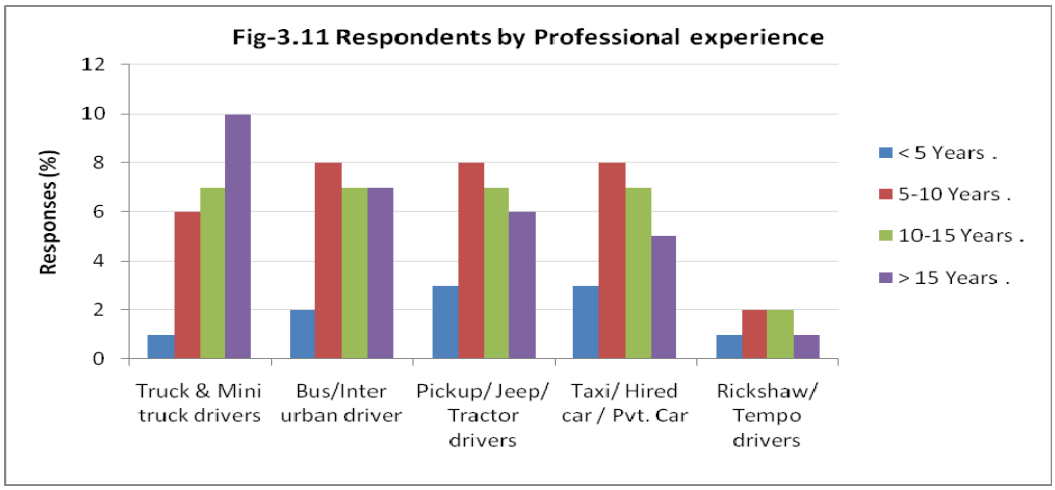
3.11 Status of Respondents by Professional Experience

Table 3.11 below depicts that the majority of the respondents (31 percent) have 5-10 years of driving-experience. The distribution of respondents having driving-experience within the ranges: <5 years, 5-10 years, 10-15 years and above 15 years is 11, 31, 30 and 28 percent respectively. Percentage of drivers with less than <5 years' experience is comparatively low.

Table 3.11 Distribution of Respondents by Professional experience

Respondents Group	< 5 Years			5-10 Years			10-15 Years			> 15 Years			Total	Overall (%)
	No	%	All	No	%	All	No	%	All	No	%	All		
Truck & Mini truck drivers	21	5	1	94	24	6	116	30	7	161	41	10	392	25
Bus/Inter urban driver	36	10	2	120	32	8	111	30	7	109	29	7	376	24
Pickup/ Jeep/ Tractor drivers	54	14	3	133	34	8	106	27	7	93	24	6	386	24
Taxi/ Hired car / Pvt. Car	41	12	3	122	35	8	109	31	7	75	22	5	347	22
Rickshaw/ Tempo drivers	19	23	1	26	31	2	26	31	2	13	15	1	84	5
Total	171	11	11	495	31	31	468	30	30	451	28	28	1585	100

Source: - Field Visit 2017



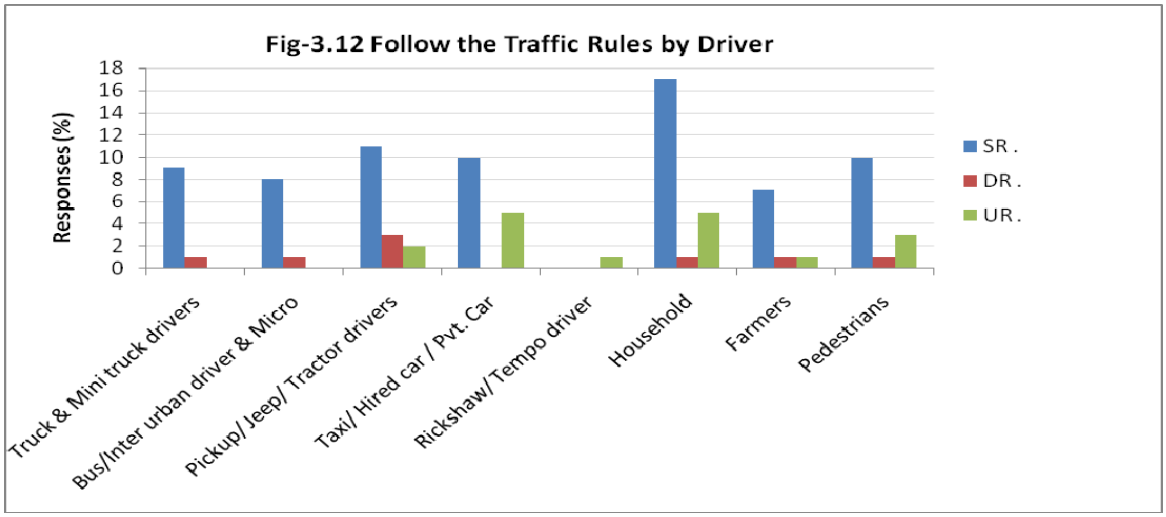
3.12 Adherence to Traffic Rules

Table 3.12 below gives the distribution of respondents who follow the traffic rules and regulation. From fig.3.12 below reveals that nearly 73 percent of the respondents strictly follow the traffic rules and regulations on strategic roads, 9 percent on district roads and 18 percent on urban roads. In consideration of vehicle type, the most vulnerable traffic rules violators are the Rickshaw and Tempo drivers while the Taxi/ Hired car / Pvt. Car drivers comes under second stand. Comparatively Strategic road driver follow traffic rules and regulations more strictly than District and Urban road drivers.

Table 3.12 Adherence to Traffic Rules & Regulations by Driver

Respondents Group	SR			DR			UR		
	No	%	All	No	%	All	No	%	All
Truck & Mini truck drivers	55	86	9	9	14	1	0	0	0
Bus/Inter urban driver & Micro	53	85	8	6	10	1	3	5	0
Pickup/ Jeep/ Tractor drivers	69	69	11	18	18	3	13	13	2
Taxi/ Hired car / Pvt. Car	65	64	10	3	3	0	33	33	5
Rickshaw/ Tempo driver	1	13	0	2	25	0	5	63	1
Household	108	76	17	5	3	1	30	21	5
Farmers	47	75	7	7	11	1	9	14	1
Pedestrians	64	72	10	4	4	1	21	24	3

Source: Field Survey 2017, Sample size: 2862



4. ROAD CONDITION AND PERCEIVED IMPACT

4.1 General

This chapter presents the overall condition of the road and its perceived impact on traveling time, vehicle operating and other users' cost and reliability of journey. Responses from all the respondents of total sample size i.e. 2862 have been collected on the basis of their experiences in the last two years and presented in this chapter.

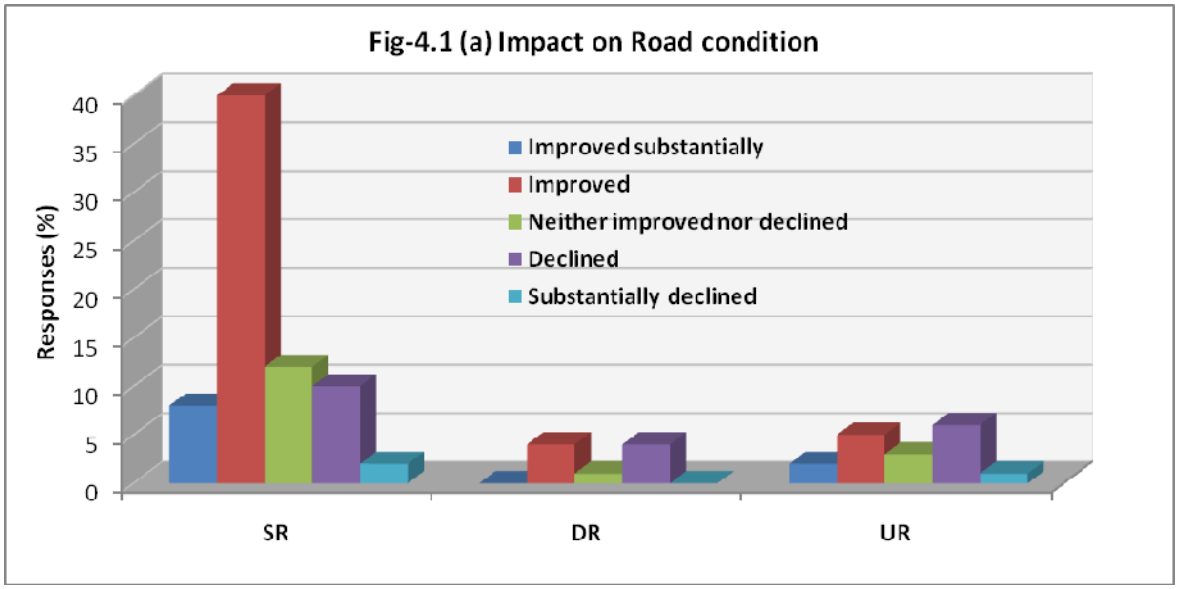
4.2 Road Conditions and Travelling Time

Table 4.1 shows the road condition in the last two years has mostly improved in all types of roads with 6% responses on substantial improvement, 47% 'improved' and 20% Neither improved nor declined, while 24% responded 'declined' and 2% substantially declined. Improvement in SRN is better than other roads. Overall response on road condition for different types of roads is presented in fig. 4.1(a).

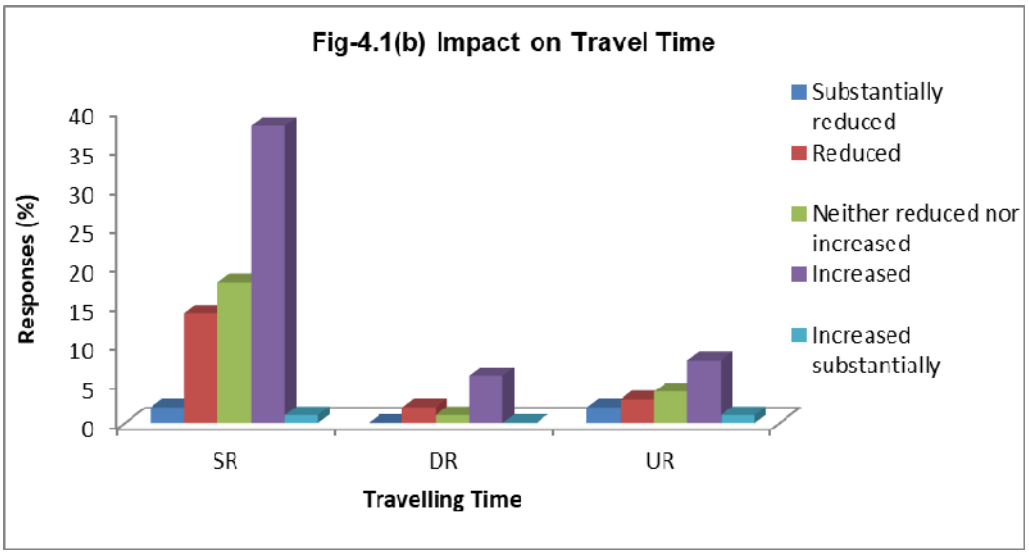
Table- 4.1: Road Conditions and Traveling Time (All figures are in percentage)

During last two years		SR	DR	UR	Total
Road condition	Improved substantially	3	0	3	6
	Improved	38	4	5	47
	Neither improved nor declined	17	1	2	20
	Declined	14	4	6	24
	Substantially declined	2	0	0	2
Traveling time	Substantially reduced	2	0	2	4
	Reduced	14	2	3	20
	Neither reduced nor increased	18	1	4	22
	Increased	38	6	8	53
	Increased substantially	1	0	1	2

Source: - Field visit 2017, Sample size: 2862



The road has direct impact on traveling time, as there is a correlation between road users' perception of improvement in overall condition of the road and reduction in traveling time between any two particular places where they travel frequently. However the present study shows rather contrasting result as majority of respondents 53% have the feeling of increase in traveling time, while 20% responded reduction and only 4% highly reduced in travelling time. 22% responded 'Neither reduced nor increased'. Overall response on traveling time is presented in fig. 4.1(b).



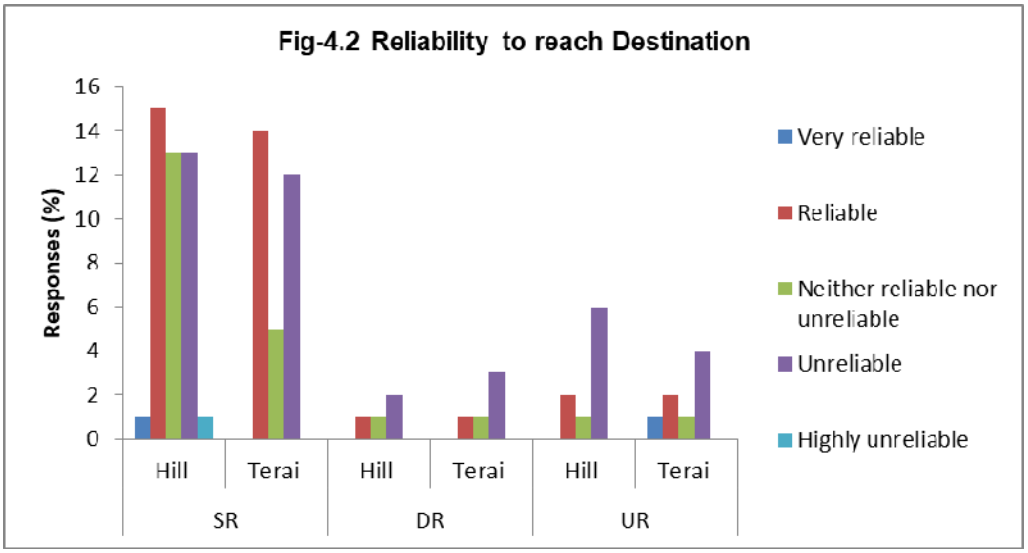
4.3 Reliability to Reach Destination

Survey data on reliability of respondents to reach their destination have been presented in Table 4.2, which shows 38% of the responses from 'reliable' to 'very reliable', 22% 'neither reliable nor unreliable' and 40% for 'unreliable' to 'highly unreliable'. Fig. 4.4 shows the graphical presentation of perception on reliability.

Table 4.2 Reliability to reach destination (All figures are in percentage)

Reliable to reach	SR		DR		UR		Total
	Hill	Terai	Hill	Terai	Hill	Terai	
Very reliable	1	0	0	0	0	1	2
Reliable	15	14	1	1	2	2	36
Neither reliable nor unreliable	13	5	1	1	1	1	22
Unreliable	13	12	2	3	6	4	38
Highly unreliable	1	0	0	0	0	0	2
Total	42	31	4	6	9	8	100

Source: - Field visit 2017, Sample size: 2862



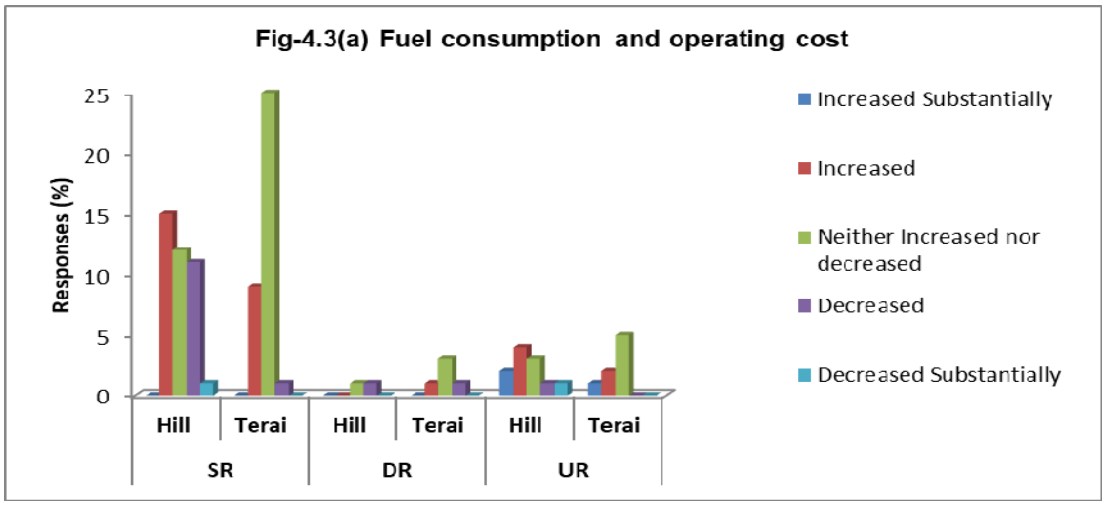
4.4 Effect on operating cost of vehicles

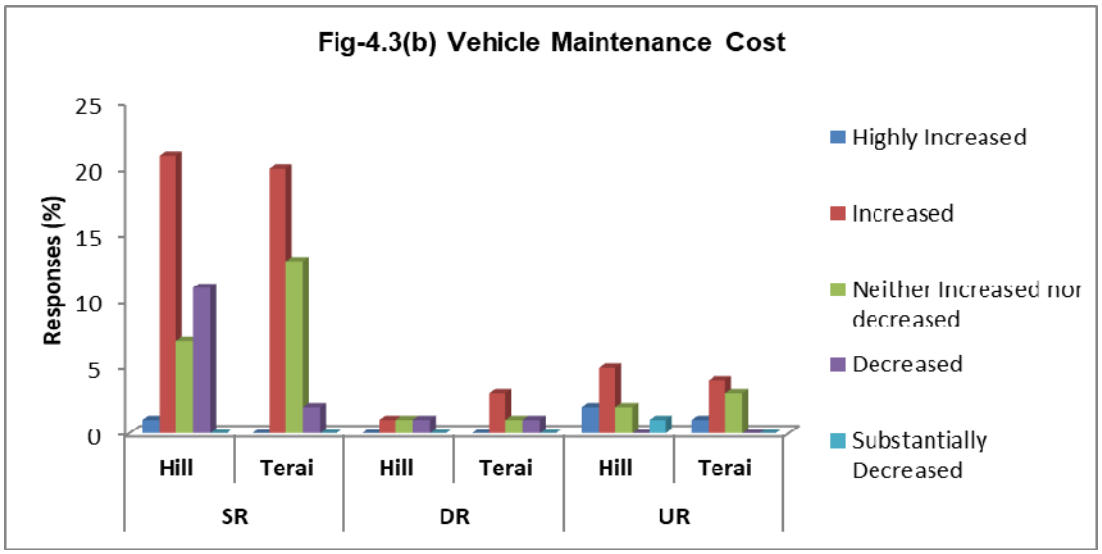
The road conditions have direct impact on operating cost (mainly maintenance cost and fuel consumption) of vehicles. Table 4.3 shows the responses on vehicle operation and maintenance costs for different types of roads in hill and Terai regions. From the responses, it is found that fuel and maintenance costs in hills roads are generally higher than in Terai roads. It is also observed that cost of fuel comprises the highest portion of the vehicle operation costs for all vehicle class. Some drivers/ owners of motorized vehicles feel that the fuel consumption and maintenance cost of their vehicles has increased over the years. It is significantly high at strategic roads, where 49 percent of the respondents feel the Fuel consumption and operating cost 'neither increased nor decreased' and 55 percent of the respondents feel vehicle maintenance cost 'increased'. Only 15 to 17 percent feel it decreased on both costs. Graphical presentation of responses for both the costs is given in fig-4.3(a) and (b).

Table 4.3 Operating cost of vehicles (All figures are in percentage)

Operating cost in Percentage		SR		DR		UR		Total
		Hill	Terai	Hill	Terai	Hill	Terai	
Fuel consumption and operating cost	Increased Substantially	0	0	0	0	2	1	3
	Increased	15	9	0	1	4	2	32
	Neither Increased nor decreased	12	25	1	3	3	5	49
	Decreased	11	1	1	1	1	0	15
	Decreased Substantially	1	0	0	0	1	0	2
Vehicle Maintenance cost	Highly Increased	1	0	0	0	2	1	3
	Increased	21	20	1	3	5	4	55
	Neither Increased nor decreased	7	13	1	1	2	3	27
	Decreased	11	2	1	1	0	0	15
	Substantially \Decreased	0	0	0	0	1	0	1

Source: - Field visit 2017, Sample size: 1585





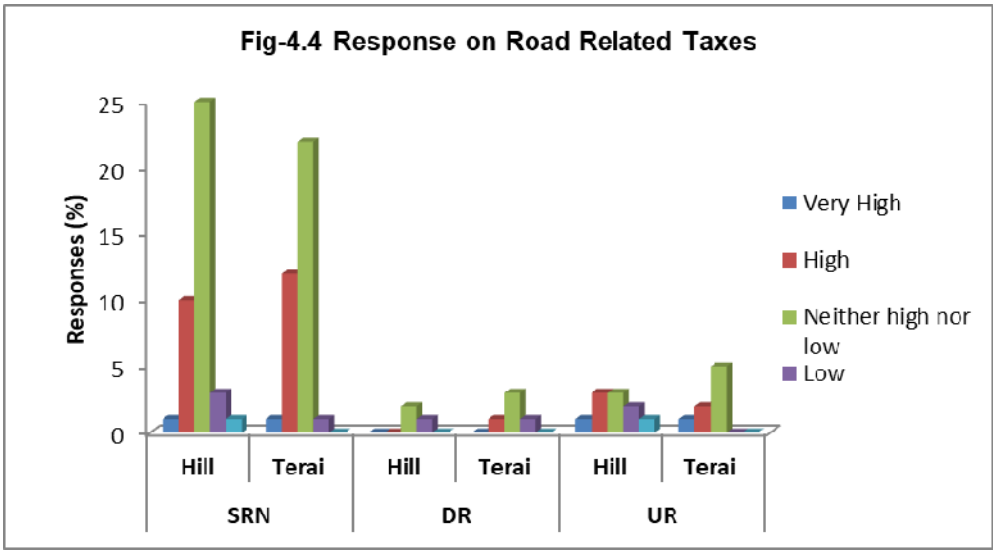
4.5 Road Taxes

Majority of the vehicle drivers/ owners (59%) feel that various kinds of road related taxes, which are collected at various modes during different period of time are 'neither high nor low', whereas 29 percent feel it high and nearly 8 percent feel low. Following Table 4.4 shows the responses on road and other related taxes:

Table 4.4 Road and Related Taxes (All figures are in percentage)

Various kinds of road and related taxes are.....	SRN		DR		UR		Total (%)
	Hill	Terai	Hill	Terai	Hill	Terai	
Very High	1	1	0	0	1	1	3
High	10	12	0	1	3	2	29
Neither high nor low	25	22	2	3	3	5	59
Low	3	1	1	1	2	0	8
Very Low	1	0	0	0	1	0	1
Total	40	35	3	5	10	8	100

Source: - Field visit 2017, Sample size: 1585



5. COMFORT AND CONVENIENCE

This chapter deals with the responses from road-users regarding their assessment of existing roads of Nepal in terms of their perceptions on comfort and convenience which is governed by various sub-indicators such as quality of road, traffic congestion, accessibility to the intended destination, delays in traveling time, information on road works and road signs etc.

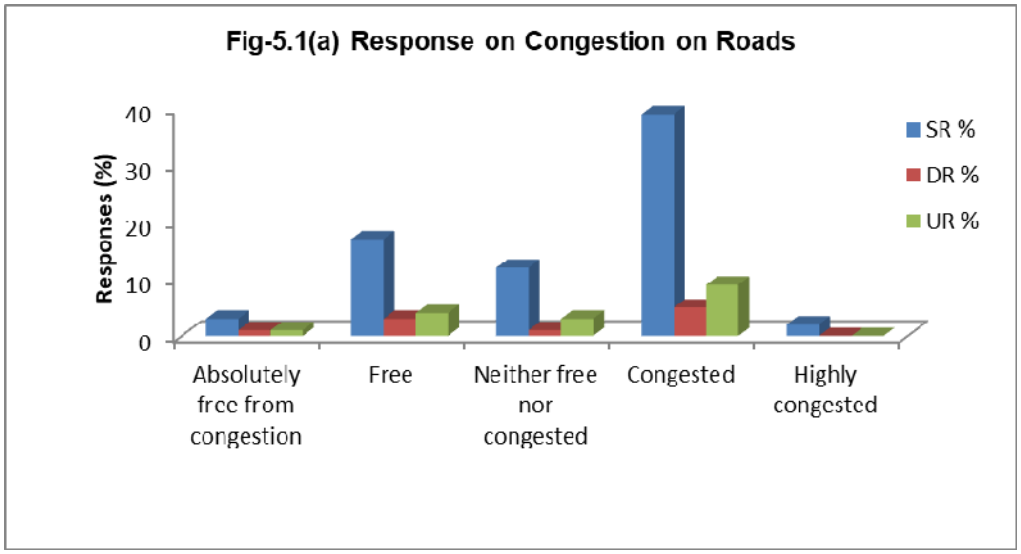
5.1 Congestion on Roads

Survey data on congestion aspect shows that only 6 percent of the road-users feel roads absolutely free from congestion, 24 percent feel them free, 16 percent feel neither free nor congested while 52 percent feel 'Congested' and 2 percent highly congested. Normally the traffic congestion in strategic road is higher than in district and urban roads. Table-5.1 below summarizes the overall status of road congestion and adequacy of road width:

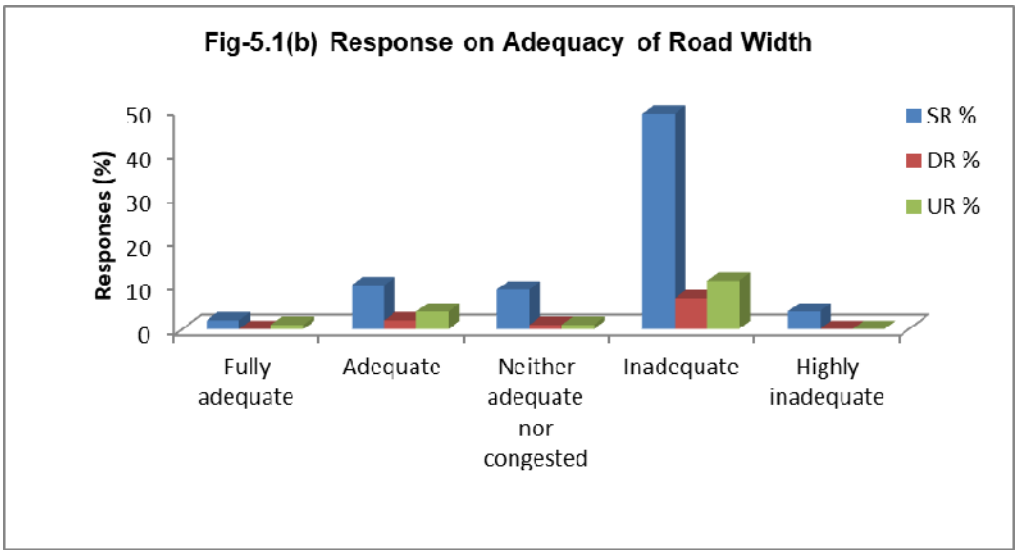
Table 5.1 Congestions on Road and Adequacy of Road-width

Attributes.....	Satisfaction level	SR		DR		UR		Total	
		No	%	No	%	No	%	No	%
Congestions	Absolutely free from congestion	97	3	31	1	40	1	168	6
	Free	530	17	87	3	130	4	747	24
	Neither free nor congested	373	12	16	1	86	3	475	16
	Congested	1185	39	150	5	265	9	1600	52
	Highly congested	51	2	2	0	8	0	61	2
Road Width	Fully adequate	49	2	10	0	44	1	103	3
	Adequate	282	10	45	2	108	4	435	15
	Neither adequate nor congested	271	9	24	1	30	1	325	11
	Inadequate	1455	49	202	7	317	11	1974	67
	Highly inadequate	110	4	1	0	6	0	117	4

Source: - Field visit 2017, Sample size: 2954



In response to the adequacy of road width, majority of the respondents nearly 71% perceived that the present road width is 'Inadequate' to 'Highly Inadequate' whereas 18% responded it as 'Adequate' to 'Fully Adequate'. Fig-5.1(b) shows the respondents' perception on adequacy of road width.



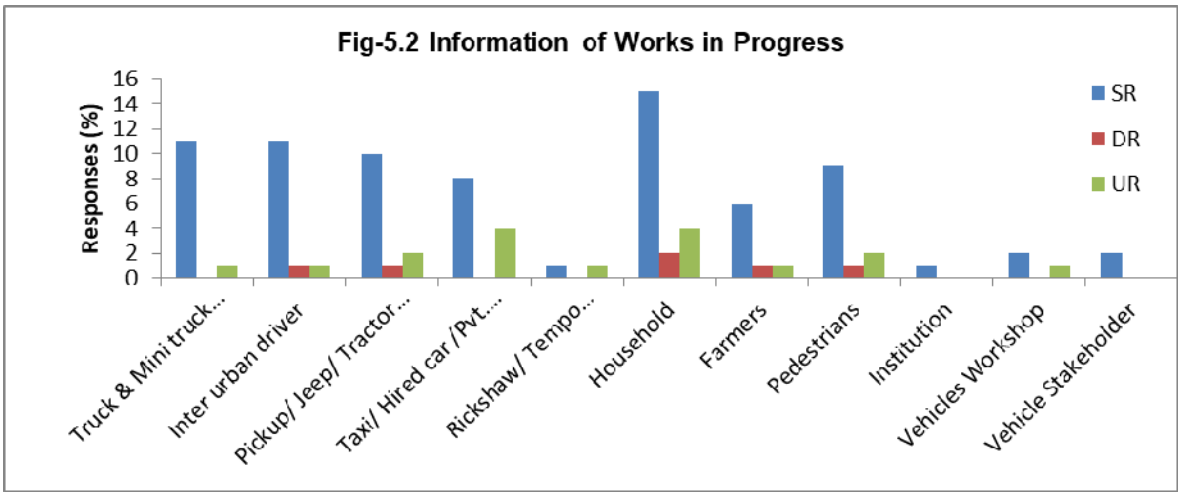
5.2 Information on road works

This study presents the overall status of responses on information of road works in progress. Table 5.2 illustrates the road-users' assessment of various aspects related to the information of road work progress. The assessment is given according to the road type i.e. strategic, district and urban roads and presented in fig-5.2.

Table 5.2 Information of Work-in-Progress

Respondents Group	SR		DR		UR		Total	
	No	%	No	%	No	%	No	%
Truck & Mini truck drivers	299	11	12	0	29	1	340	13
Inter urban driver/Bus& Micro	276	11	25	1	39	1	340	13
Pickup/ Jeep/ Tractor drivers	257	10	29	1	53	2	339	13
Taxi/ Hired car /Pvt. Car	213	8	13	0	93	4	319	12
Rickshaw/ Tempo driver	28	1	11	0	33	1	72	3
Household	389	15	53	2	96	4	538	21
Farmers	155	6	28	1	29	1	212	8
Pedestrians	229	9	31	1	52	2	312	12
Institution	26	1	1	0	6	0	33	1
Vehicles Manufacture/Workshop	50	2	0	0	18	1	68	3
Vehicle Stakeholder	50	2	0	0	0	0	50	2
Total	1972	75	203	8	448	17	2623	100

Source: - Field visit 2017, Sample size: 2623



5.3 Quality of Road

Majority of the respondents (53%) are satisfied with present road quality, road-surface, smoothness and appearance, whereas 17 percent said it poor. Similarly 2 percent respondent said very good; 5% very poor and 23 percent said neither good nor bad. Comparatively strategic road quality is better than others roads.

Similarly 62 percent of the respondents are satisfied to highly satisfied with road transportation services delivered, 24 percent dissatisfied and 14 percent neither satisfied nor dissatisfied. In case of durability and quality of Road construction, 51 percent of the respondents are satisfied to highly satisfied, 28 percent dissatisfied and 21 percent neither satisfied nor dissatisfied.

Table 5.3 Quality of Road surface

Attribute	Satisfaction level	SR		DR		UR		Total	
		No	%	No	%	No	%	No	%
i) Quality and Appearance of Road Surface	Very good	18	1	10	1	14	1	42	2
	Good	690	41	56	3	138	8	884	53
	Neither good nor bad	337	20	14	1	33	2	384	23
	Poor	191	11	24	1	75	4	290	17
	Very Poor	22	1	23	1	37	2	82	5
ii) Satisfaction with road and transportation services delivered	Highly Satisfied	40	3	0	0	24	2	64	4
	Satisfied	671	44	55	4	158	10	884	58
	Neither satisfied nor dissatisfied	167	11	26	2	23	2	216	14
	Dissatisfied	184	12	72	5	59	4	315	21
	Highly Dissatisfied	25	2	14	1	4	0	43	3
iii) Satisfaction on Durability and quality of Road construction	Highly Satisfied	14	1	0	0	11	1	25	2
	Satisfied	527	41	11	1	87	7	625	49
	Neither satisfied nor dissatisfied	155	12	66	5	51	4	272	21
	Dissatisfied	193	15	72	6	70	5	335	26
	Highly Dissatisfied	10	1	10	1	0	0	20	2

Source: - Field visit 2017, Sample size: i) 1682; ii) 1522; iii) 1277

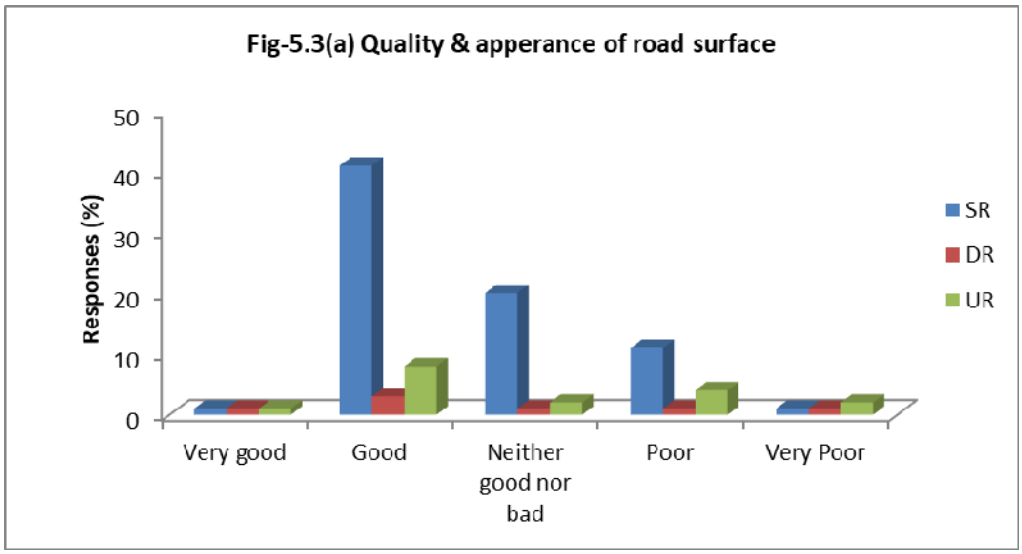


Fig-5.3(a) Quality & apperance of road surface
Responses (%)
50
40
30
20
10
0
Very good
Good
Neither good nor bad
Poor
Very Poor
SR
DR
UR

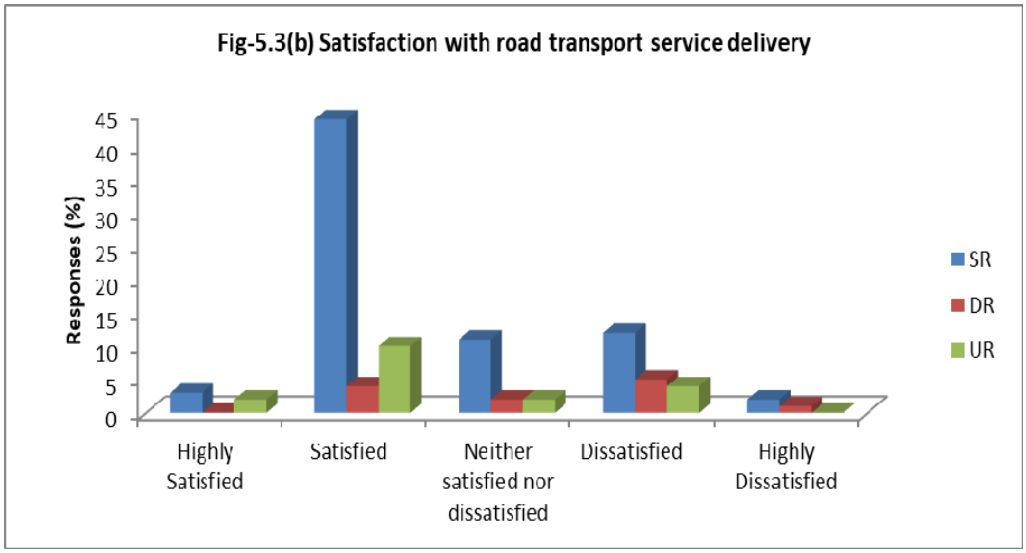


Fig-5.3(b) Satisfaction with road transport service delivery
Responses (%)
45
40
35
30
25
20
15
10
5
0
Highly Satisfied
Satisfied
Neither satisfied nor dissatisfied
Dissatisfied
Highly Dissatisfied
SR
DR
UR

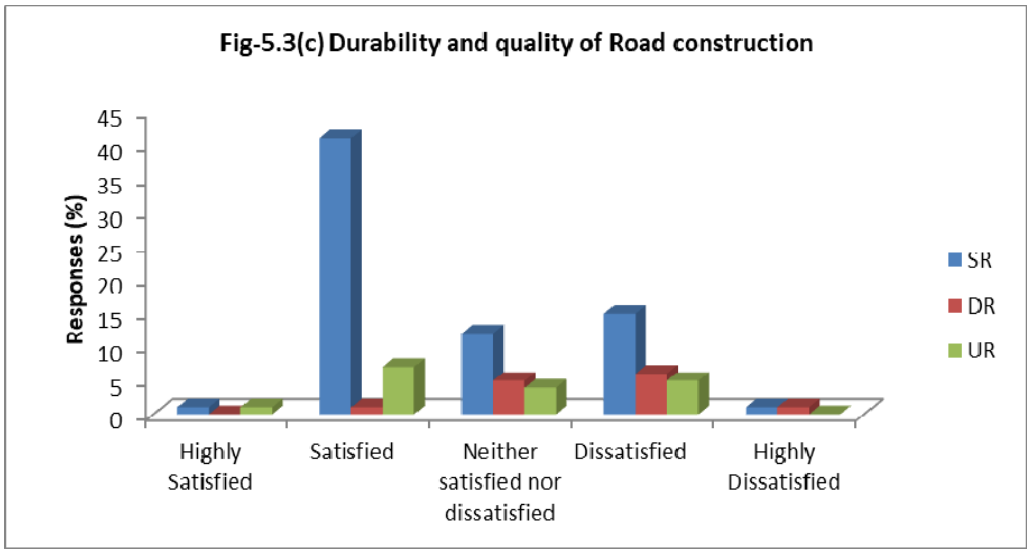


Fig-5.3(c) Durability and quality of Road construction
Responses (%)
45
40
35
30
25
20
15
10
5
0
Highly Satisfied
Satisfied
Neither satisfied nor dissatisfied
Dissatisfied
Highly Dissatisfied
SR
DR
UR

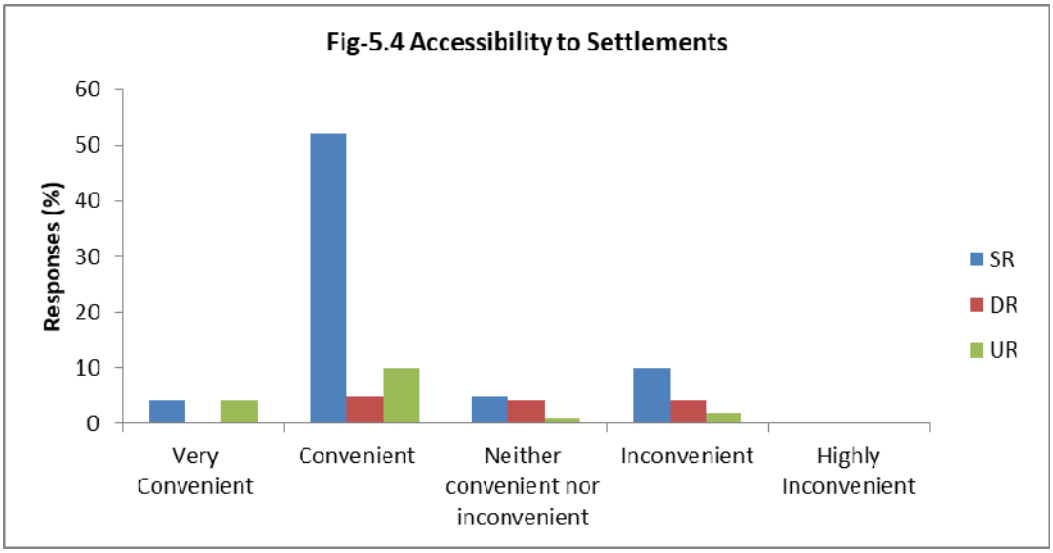
5.4 Accessibility to Settlements

Table 5.4 below depicts 75 percent of respondents feel that the accessibility to reach settlements where they need to visit regularly like workplaces, residence, shops, schools, hospitals etc. is more convenient in the last two years. Among them 9 percent feel neither convenient nor inconvenient and only 16 percent said it inconvenient. Road accessibility in strategic roads is more convenient than district and urban roads. Fig-5.4 below represents the detailed status of accessibility to settlement.

Table 5.4 Accessibility to Settlements

Accessibility to Settlements		SR		DR		UR		Total	
		No	%	No	%	No	%	No	%
Accessibility to Settlements.	Very Convenient	50	4	0	0	56	4	106	8
	Convenient	659	52	62	5	132	10	853	67
	Neither convenient nor inconvenient	64	5	45	4	11	1	120	9
	Inconvenient	124	10	46	4	20	2	190	15
	Highly Inconvenient	2	0	6	0	0	0	8	1

Source: - Field visit 2017, Sample size: 1277



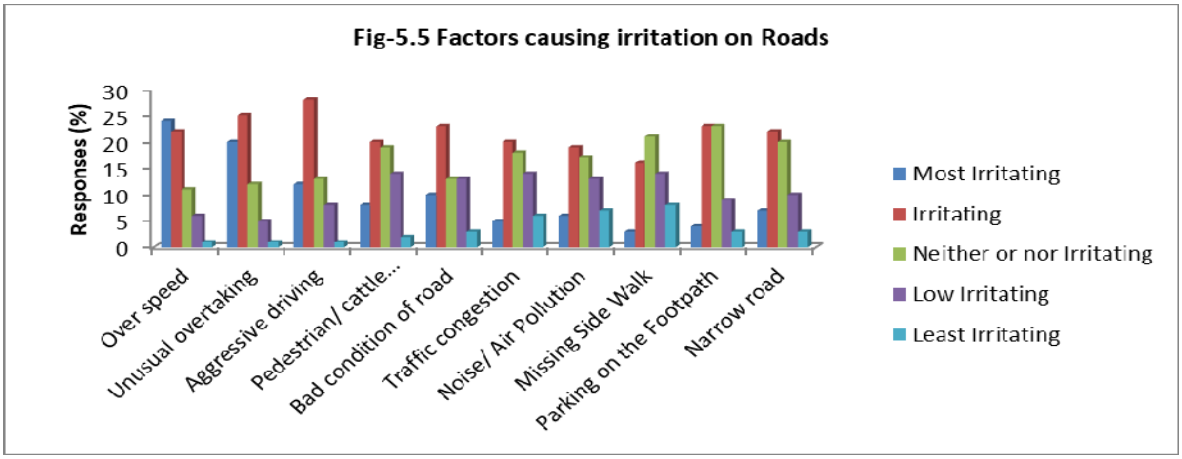
5.5 Irritating factor

Table 5.5 briefly describes the road users' perception towards irritating factor while traveling or driving through roads in Nepal. Generally poor road condition with pot holes, over speed, unnecessary over taking, aggressive driving, reckless road crossing by pedestrian/cattle and congestion etc. were the main causes of irritating factors in all types of roads. Over speed (24%) and Unusual overtaking (20%) were the major most irritating factors; aggressive driving and the bad condition of the road were second most irritating factors whereas the other factors have more or less the similar contribution towards irritation. Table 5.5 below summarizes the detailed status of factors causing irritation on road.

Table 5.5 Factor causing Irritation on Roads

Reason of Irritation	Most Irritating		Irritating		Neither or nor Irritating		Low Irritating		Least Irritating	
	No	%	No	%	No	%	No	%	No	Rating (%)
Over speed	733	24	676	22	334	11	179	6	25	1
Unusual overtaking	616	20	783	25	383	12	144	5	24	1
Aggressive driving	377	12	861	28	419	13	254	8	36	1
Pedestrian/ cattle crossing	246	8	614	20	579	19	431	14	77	2
Bad condition of road	323	10	722	23	415	13	404	13	86	3
Traffic congestion	166	5	617	20	557	18	435	14	172	6
Noise/ Air Pollution	190	6	594	19	537	17	403	13	226	7
Missing Side Walk	108	3	507	16	646	21	433	14	253	8
Parking on the Footpath	133	4	726	23	713	23	284	9	91	3
Narrow road	223	7	699	22	620	20	298	10	107	3

Source: - Field visit 2017, Sample size: 3107

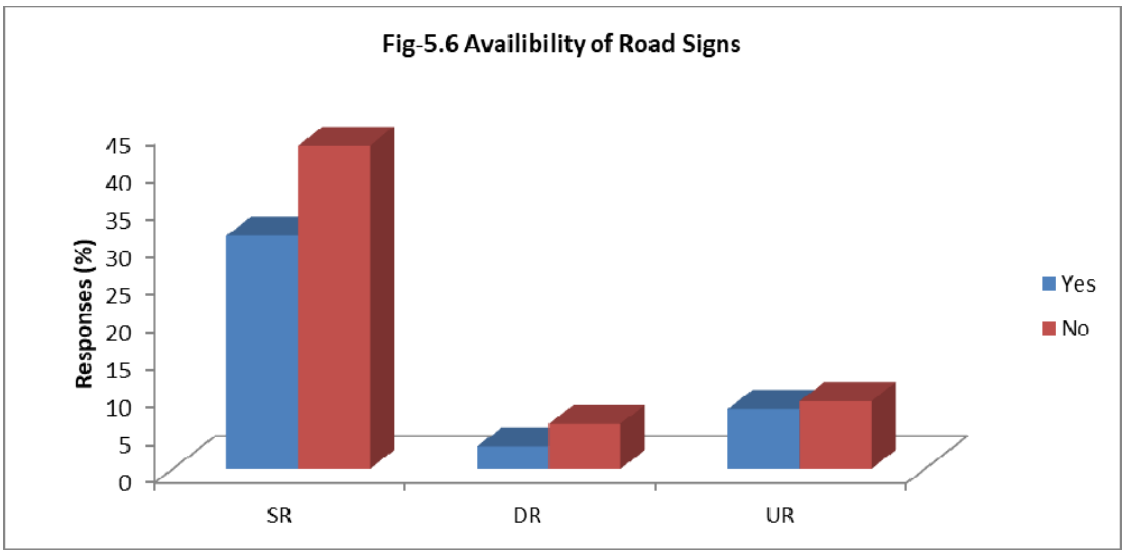


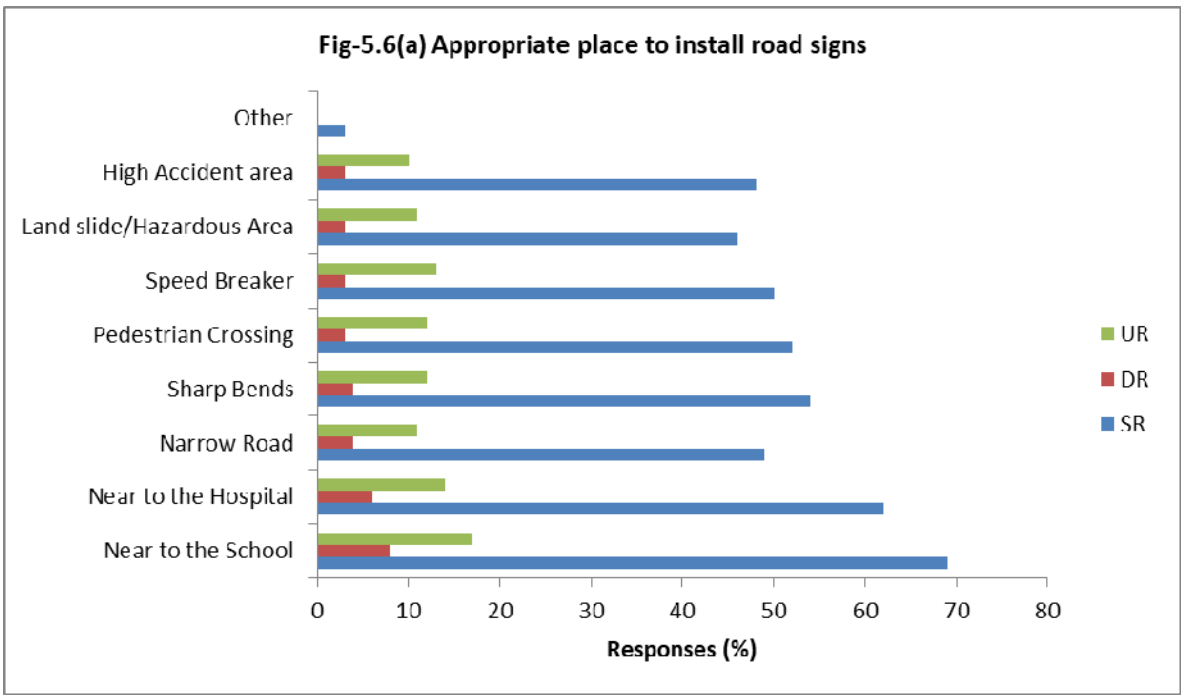
5.6 Road Signs

Table 5.6 shows the respondent satisfaction level on road signs and marking. Majority of the road users (58%) are dissatisfied with the road signs on different roads. In their opinion road signs should be adequate and clearly visible at all times. Fig-5.6 below summarizes the respondents' satisfaction level on road signs on all categories of roads i. e. strategic, district and urban roads.

Table 5.6 Appropriate Places for Road Signs

Attributes	Locations	SR		DR		UR		Total	
		No	%	No	%	No	%	No	%
Satisfaction with Road Sign	Yes	948	31	97	3	251	8	1296	42
	No	1328	43	193	6	290	9	1811	58
Appropriate Place for Road Sign	Near to the School	2147	69	252	8	515	17	2914	94
	Near to the Hospital	1911	62	176	6	448	14	2535	82
	Narrow Road	1507	49	113	4	356	11	1976	64
	Sharp Bends	1674	54	125	4	377	12	2176	70
	Pedestrian Crossing	1601	52	101	3	373	12	2075	67
	Speed Breaker	1549	50	99	3	390	13	2038	66
	Land slide/Hazardous Area	1419	46	93	3	350	11	1862	60
	High Accident area	1495	48	98	3	308	10	1901	61
	Other	105	3	14	0	7	0	126	4





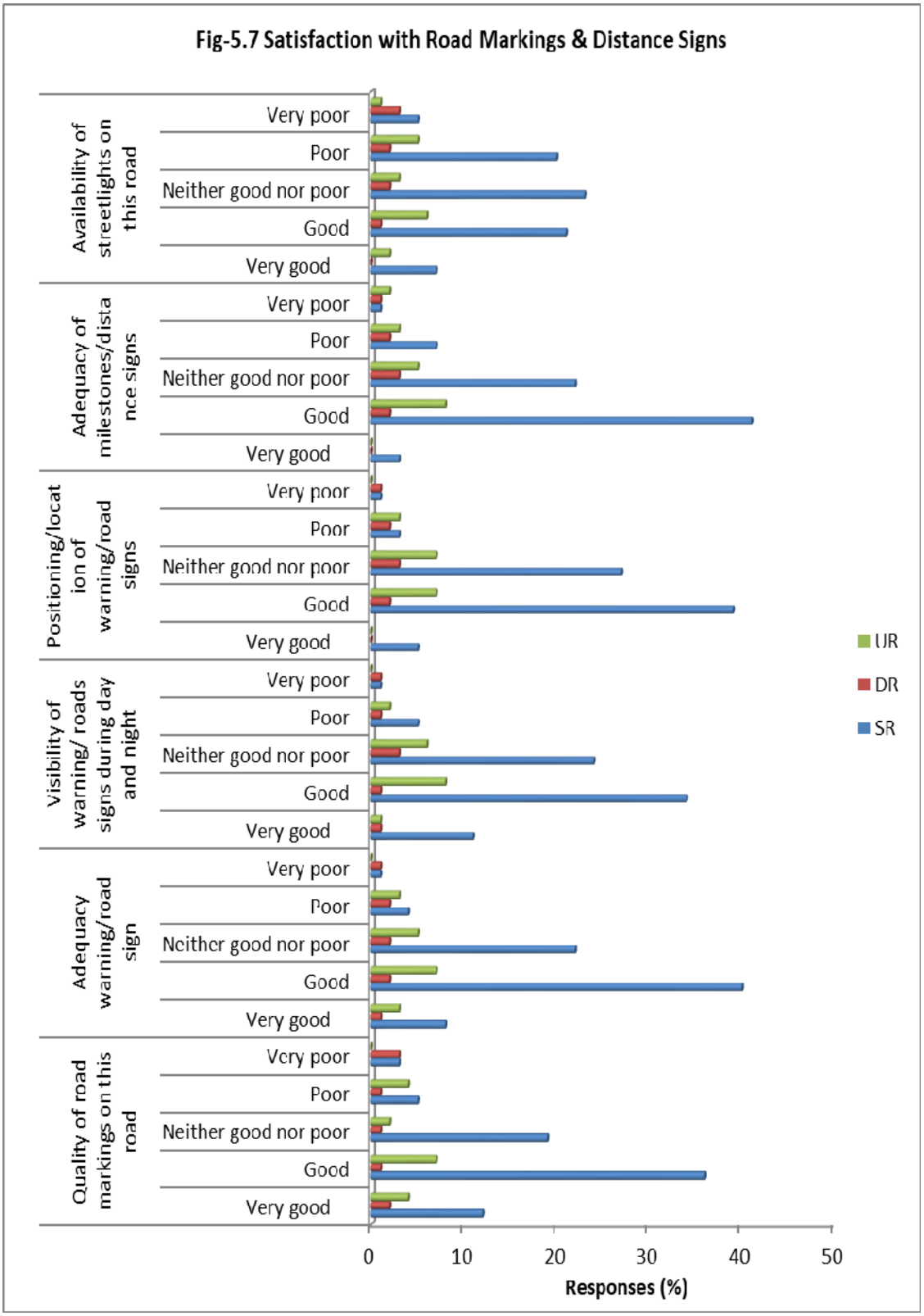
5.7 Road Markings and Distance Signs

Road making, distance signs/mile stones and information boards should be adequate and clearly visible at all times. Table 5.7 below summarizes the respondents' satisfaction level in road marking and distance signs on all categories of roads i. e. strategic, district and urban roads. From the responses, it has been observed that nearly 53 to 60% of the respondents perceive the quality, adequacy, visibility, positioning of such signs as 'Good' to 'Very Good', 30 to 37% as 'Neither good nor poor' and the rest found 'poor' to 'very poor'. However, in case of availability of street light, it was almost similar view from available to non-available.

Table 5.7 Road marking and distance signs

Satisfaction level		SR		DR		UR		Total	
		No	%	No	%	No	%	No	%
Quality of road markings on this road	Very good	185	12	28	2	65	4	278	18
	Good	563	36	21	1	106	7	690	44
	Neither good nor poor	306	19	10	1	37	2	353	22
	Poor	82	5	21	1	62	4	165	10
	Very poor	53	3	43	3	3	0	99	6
Adequacy warning/road sign	Very good	122	8	15	1	42	3	179	11
	Good	627	40	30	2	105	7	762	48
	Neither good nor poor	355	22	34	2	83	5	472	30
	Poor	69	4	26	2	43	3	138	9
	Very poor	16	1	18	1	0	0	34	2
Visibility of warning/ roads signs during day and night	Very good	175	11	10	1	17	1	202	13
	Good	542	34	21	1	134	8	697	44
	Neither good nor poor	386	24	51	3	98	6	535	34
	Poor	74	5	23	1	24	2	121	8
	Very poor	12	1	18	1	0	0	30	2
Positioning/location of warning/road signs	Very good	73	5	6	0	5	0	84	5
	Good	621	39	30	2	111	7	762	48
	Neither good nor poor	431	27	42	3	107	7	580	37
	Poor	53	3	27	2	44	3	124	8
	Very poor	11	1	18	1	6	0	35	2
Adequacy of milestones/distance signs	Very good	52	3	0	0	3	0	55	3
	Good	644	41	27	2	123	8	794	50
	Neither good nor poor	355	22	50	3	75	5	480	30
	Poor	117	7	24	2	47	3	188	12
	Very poor	21	1	22	1	25	2	68	4
Availability of streetlights on this road	Very good	108	7	2	0	30	2	140	9
	Good	337	21	17	1	102	6	456	29
	Neither good nor poor	358	23	33	2	44	3	435	27
	Poor	313	20	30	2	84	5	427	27
	Very poor	73	5	41	3	13	1	127	8

Source: - Field visit 2017, Sample size: 1585



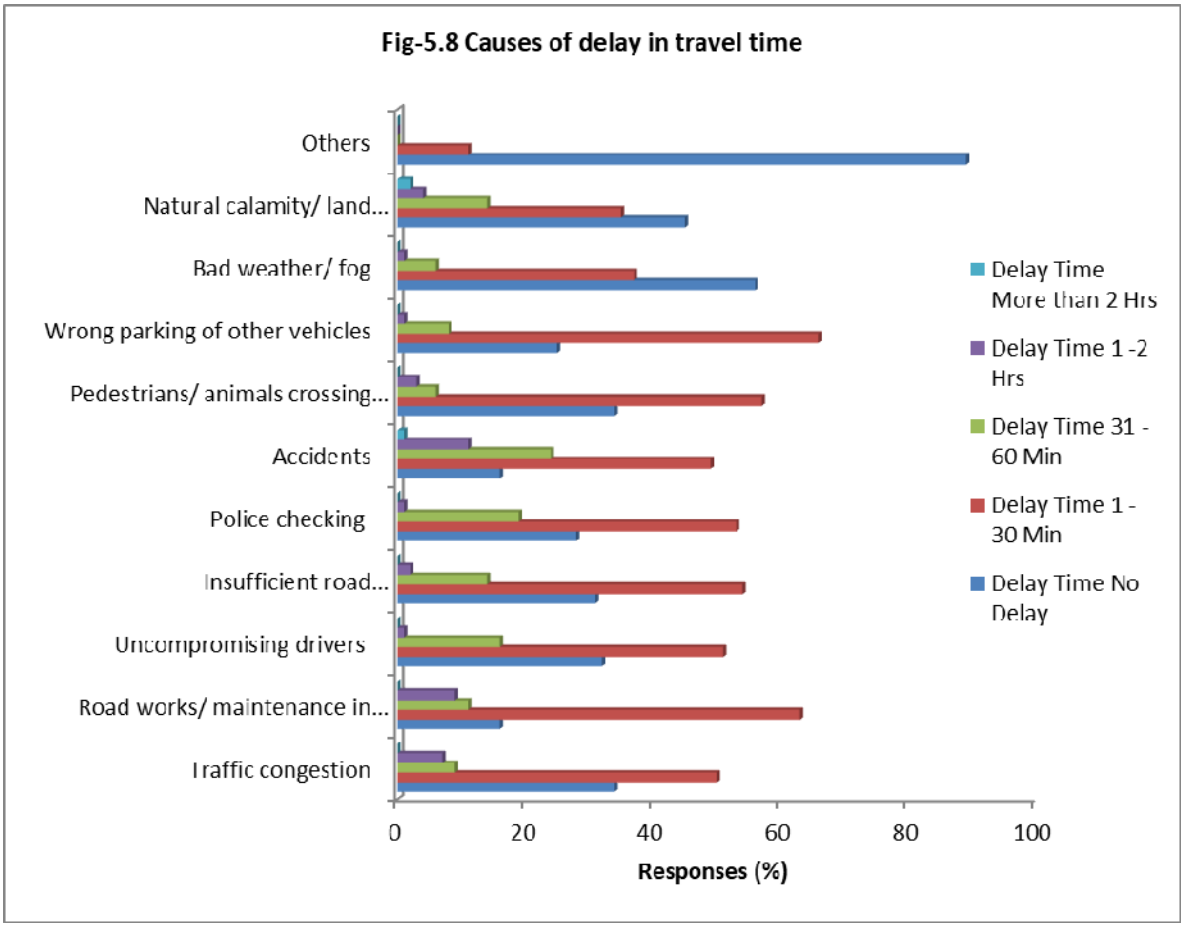
5.8 Causes and extent of delay

Overall study shows a number of factors that make delays during travel. Table 5.8 shows respondents' perception on various factors which make them delays during their travel. Mostly the delays are within 1 – 30 minutes range. There is also a significant positive response on 'No delays'. Only in case of accident and natural calamity like land slide, flooding, delay is more than two hours.

Table 5.8 Causes and extent of delay (All figures are in percentage)

Reason	Delay Time				
	No Delay	1 - 30 Min	31 - 60 Min	1 -2 Hrs	More than 2 Hrs
Traffic congestion	34	50	9	7	0
Road works/ maintenance in progress	16	63	11	9	0
Uncompromising drivers	32	51	16	1	0
Insufficient road capacity/narrow stretches	31	54	14	2	0
Police checking	28	53	19	1	0
Accidents	16	49	24	11	1
Pedestrians/ animals crossing the roads	34	57	6	3	0
Wrong parking of other vehicles	25	66	8	1	0
Bad weather/ fog	56	37	6	1	0
Natural calamity/ land sliding/flooding/snowfall	45	35	14	4	2
Others	89	11	0	0	0

Source: - Field visit 2017, Sample size: 1585



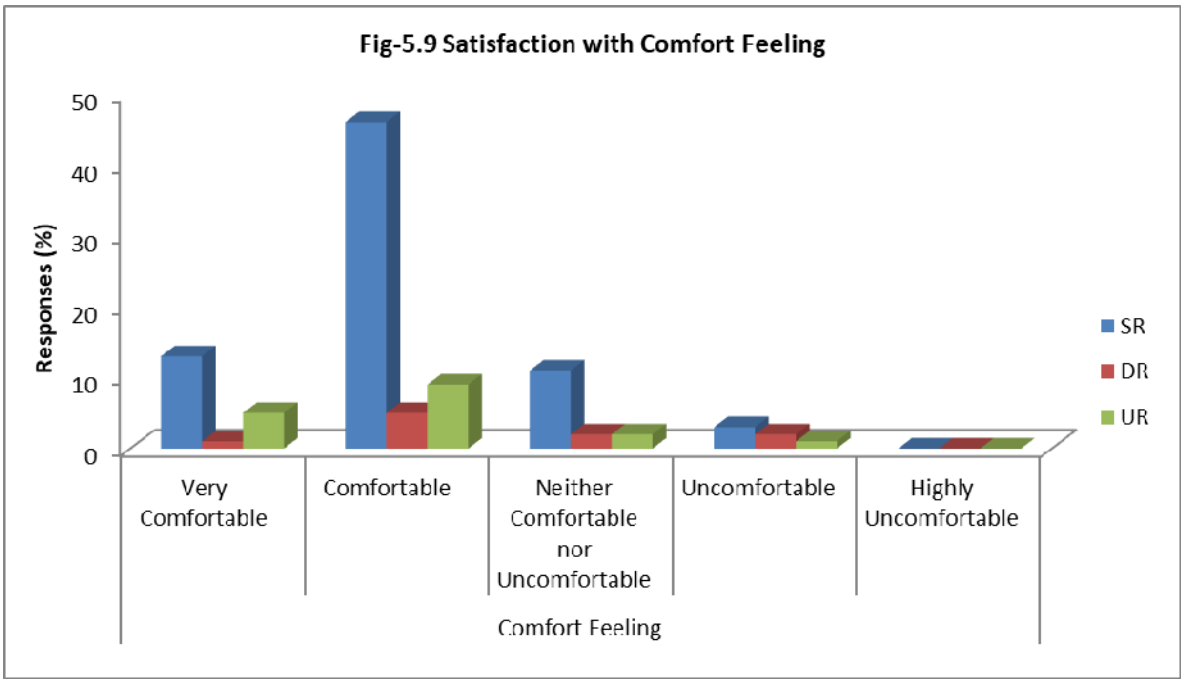
5.9 Comfort Feeling while Travelling

Table 5.9 shows that nearly 18% of the respondents feel 'very comfortable', 60% feel just 'Comfortable' while travelling on roads and 15% 'Neither Comfortable nor Uncomfortable' while 6% feel 'Uncomfortable' to 'very uncomfortable'. Detail of responses on Comfort Feeling while Travelling on roads is shown in Table 5.9 and also graphically represented in Fig-5.9.

Table 5.9 response to comfort feeling

Feeling of Confortness		SR		DR		UR		Total	
		No	%	No	%	No	%	No	%
Comfort Feeling	Very Comfortable	359	13	34	1	134	5	527	18
	Comfortable	1325	46	143	5	263	9	1731	60
	Neither Comfortable nor Uncomfortable	317	11	46	2	71	2	434	15
	Uncomfortable	79	3	51	2	24	1	154	5
	Highly Uncomfortable	8	0	8	0	0	0	16	1

Source: - Field Survey 2017, Sample size: 3010



6. SAFETY ASPECTS

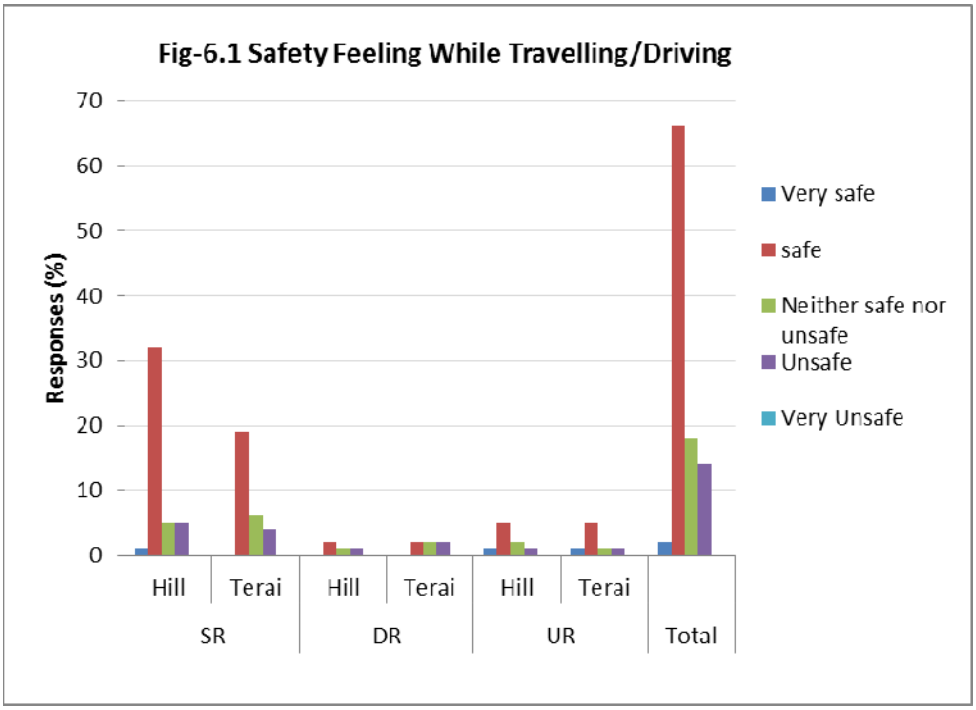
6.1 Terrain Type-wise Perceptions about Safety

Road safety is a major concern while traveling from one place to another. In context of Nepal, it has been given low priority. During survey, only 2 percent of the respondents feel very safe, 66% 'Safe', 18% 'Neither safe nor unsafe' and 14% feel unsafe, while almost none of them feel very unsafe while traveling on roads. Comparatively the road users feel SRN hill roads more safe than Terai roads while in other types of roads, safety aspect is more or less the same both in hill and Tarai roads.

Table 6.1 Respondents' perception about road safety (All figures are in percentage)

Feeling safe While traveling/ driving	SR		DR		UR		Total
	Hill	Terai	Hill	Terai	Hill	Terai	
Very safe	1	0	0	0	1	1	2
safe	32	19	2	2	5	5	66
Neither safe nor unsafe	5	6	1	2	2	1	18
Unsafe	5	4	1	2	1	1	14
Very Unsafe	0	0	0	0	0	0	0

Source: -Field visit 2017, Sample size: 3077



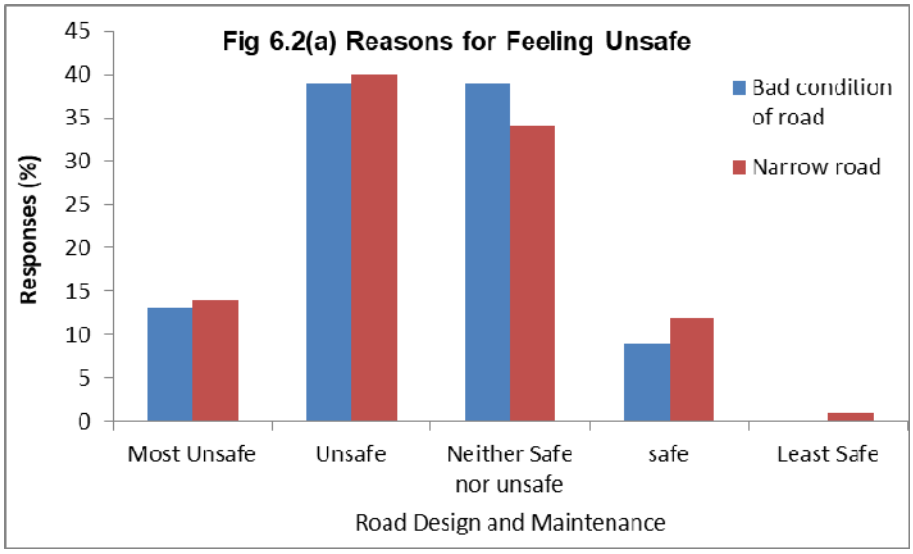
6.2 Reasons for feeling unsafe

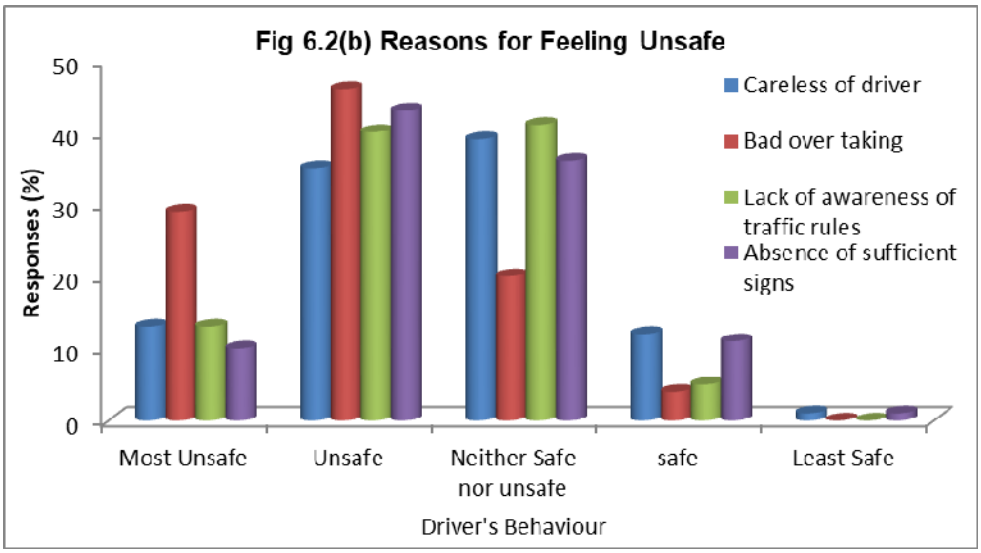
Bad road condition is the most important concern of the respondents for feeling unsafe. Road agencies need to look at this aspect very closely to change unsafe feelings of road users. Table 6.2 shows the distribution of the responses from the road users regarding their perception on various reasons for feeling unsafe.

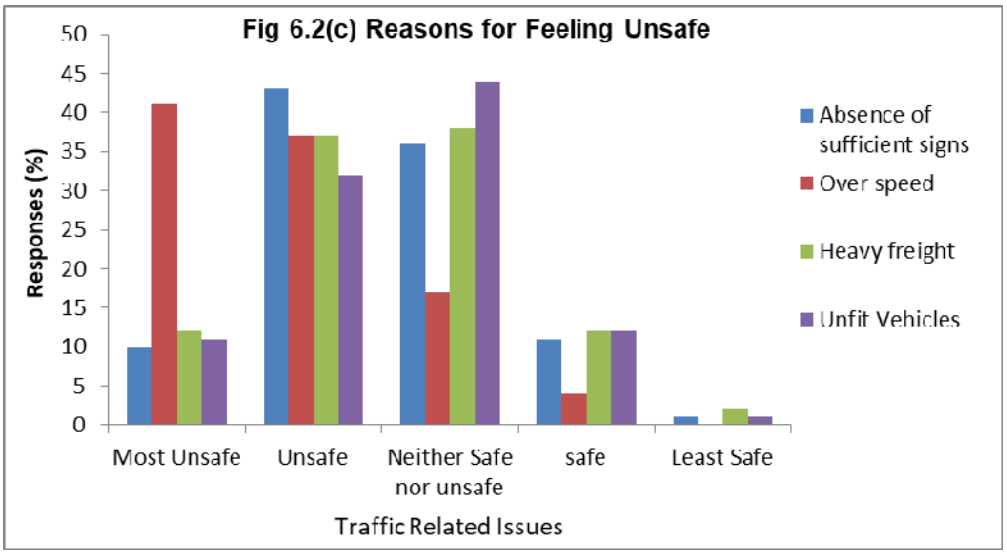
Table 6.2 Reasons for feeling Unsafe (All figures are in percentage)

Feeling unsafe.		Most Unsafe	Unsafe	Neither nor unsafe	safe	Least Safe
Road design and maintenance	Bad condition of road	13	39	39	9	0
	Narrow road	14	40	34	12	1
Driver's behavior	Aggressive driving	15	38	39	8	0
	Careless of driver	13	35	39	12	1
	Bad over taking	29	46	20	4	0
	Lack of awareness of traffic rules	13	40	41	5	0
Traffic related issues	Absence of sufficient signs	10	43	36	11	1
	Over speed	41	37	17	4	0
	Heavy freight	12	37	38	12	2
	Unfit Vehicles	11	32	44	12	1

Source: -Field visit 2017







From the above Fig. 6.2(c), it is clear that the most important reasons for feeling unsafe are over speed, overtaking and carelessness of the drivers, while the bad road condition, reckless road crossing by pedestrian and cattle, aggressive driving and lack of traffic signs are the second important causes for feeling unsafe.

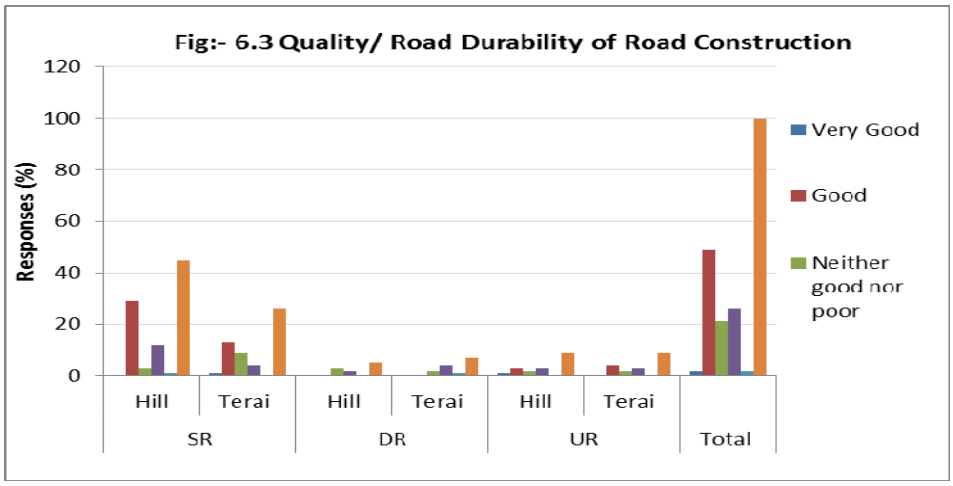
6.3 Quality/Durability of Road Construction

Table 6.3 shows the respondents' perception about Quality/Durability of Road Construction. Majority (49%) of the respondents feel that the Quality/Durability of Road Construction in Nepal is good, whereas 21 percent feel neither good nor poor and 28 percent as poor to very poor. Table 6.3 presents the respondents' view about road safety ecologically and road type wise.

Table 6.3 Rating on Quality/Durability of Road Construction (All figures are in percentage)

Road safety is...	SR		DR		UR		Total
	Hill	Terai	Hill	Terai	Hill	Terai	
Very Good	0	1	0	0	1	0	2
Good	29	13	0	0	3	4	49
Neither good nor poor	3	9	3	2	2	2	21
Poor	12	4	2	4	3	3	26
very Poor	1	0	0	1	0	0	2
Total	45	26	5	7	9	9	100

Source: -Field Survey 2017, Sample size: 1277



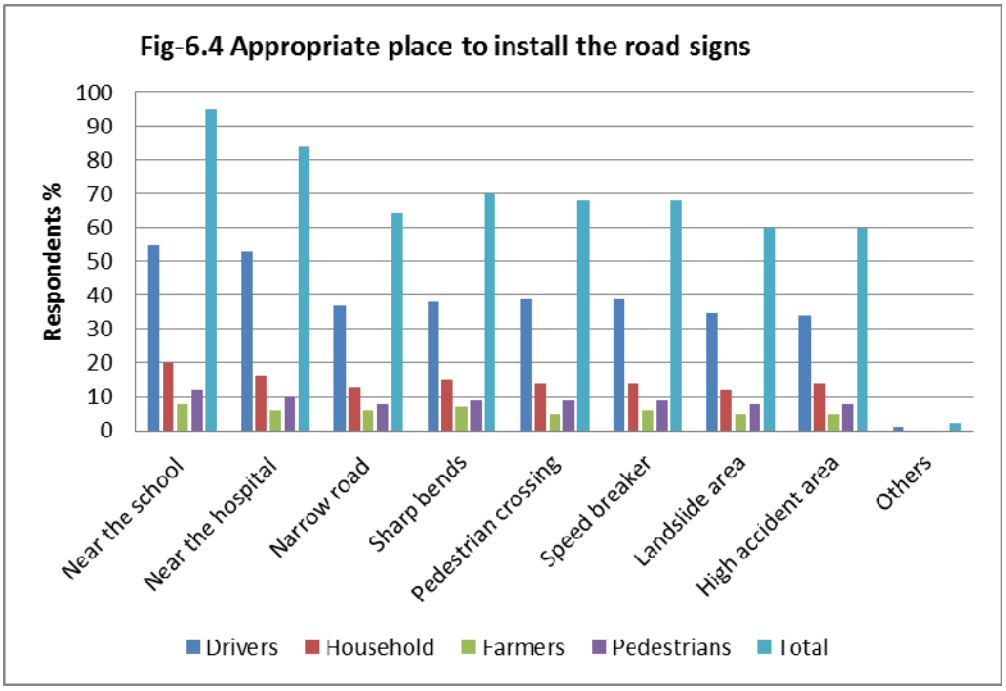
6.4 Appropriate place to install road signs

During the survey the respondents were asked whether they are satisfied with the current practices for installation of road signs or not. Nearly 58 percent of the respondents were not satisfied with the present practice for installation of road signs. They were either at improper place or insufficient. Only 42 percent were satisfied with the present road signs.

Proper traffic rules and road signs reduce road accident. Table-6.4 shows the respondents perception on most appropriate places to install road signs.

Table 6.4 Appropriate place to install the road signs (All figures are in percentage)

Appropriate places ...	Drivers	Household	Farmers	Pedestrians	Total
Near the school	55	20	8	12	95
Near the hospital	53	16	6	10	84
Narrow road	37	13	6	8	64
Sharp bends	38	15	7	9	70
Pedestrian crossing	39	14	5	9	68
Speed breaker	39	14	6	9	68
Landslide area	35	12	5	8	60
High accident area	34	14	5	8	60
Others	1	0	0	0	2



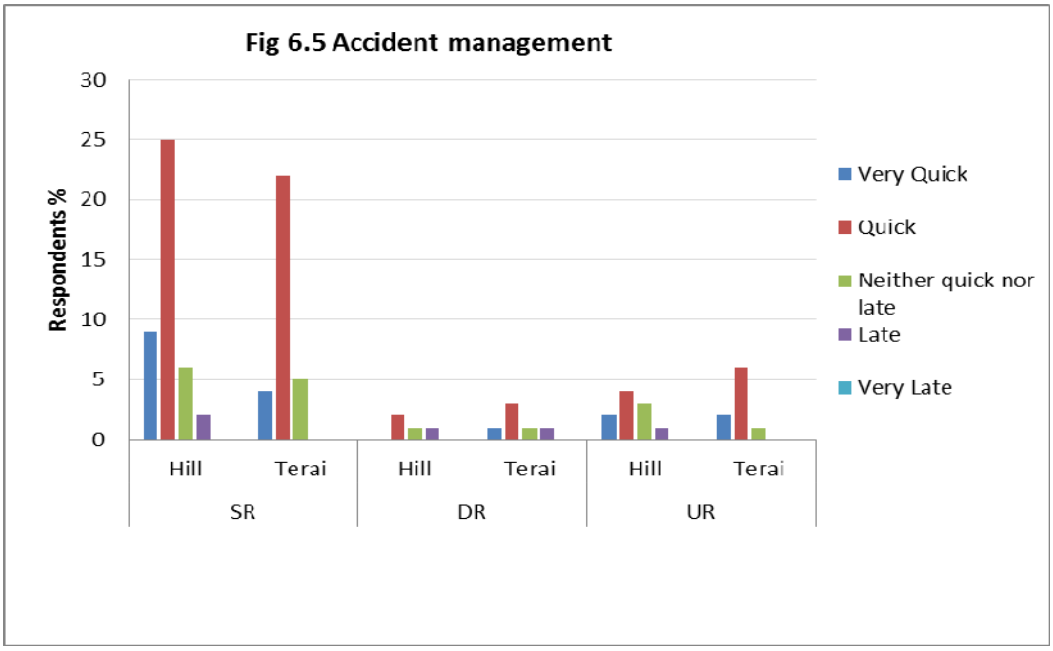
6.5 Accident Management

Overall 61 percent of the respondents feel accident management and time to clear the road is 'Quick'. Comparatively accident management system is better in strategic road network than in other roads.

Table 6.5 Accident Management (All figures are in percentage)

Accident Management	SR		DR		UR		Total
	Hill	Terai	Hill	Terai	Hill	Terai	
Very Quick	9	4	0	1	2	2	17
Quick	25	22	2	3	4	6	61
Neither quick nor late	6	5	1	1	3	1	16
Late	2	0	1	1	1	0	5
Very Late	0	0	0	0	0	0	1
Total	42	30	4	6	9	8	100

Source: -Field visit 2017, Sample size: 2834



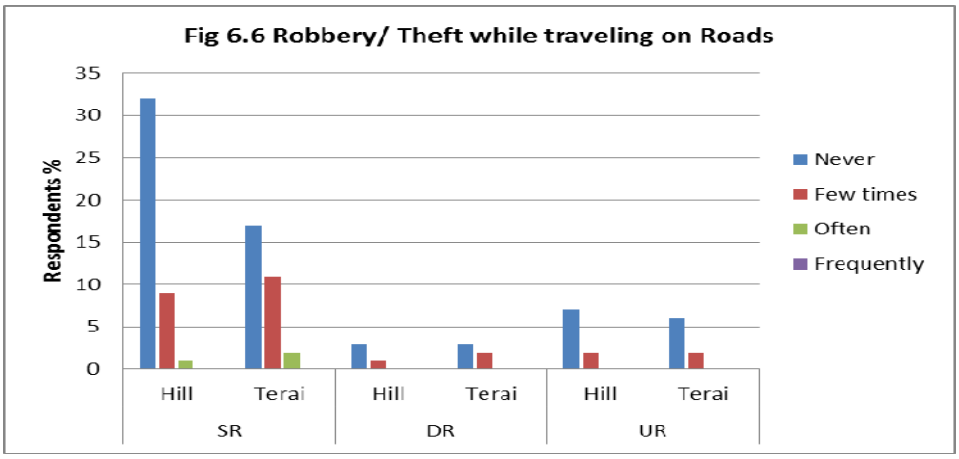
6.6 Robbery/Theft

Table 6.6 shows the respondents' experience about robbery/theft while driving or traveling through roads in Nepal. These include loss or theft of small personnel belongings; pick pocketing at or nearby the road areas, robberies at public vehicle or nearby the roads. Road users view that the presence of roads has further increased such activities. Comparatively strategic roads are safer than district and urban roads. Majority of the respondents (69 percent) do not have any experience of robbery or theft while traveling on roads in Nepal while the rest of them have experienced it few times. Figure 6.6 shows details of respondent perception.

Table 6.6 Robbery/ Theft while traveling on Roads in Nepal (All figures are in percentage)

Robbery/ Theft while traveling on this Road.....	SR		DR		UR		Total
	Hill	Terai	Hill	Terai	Hill	Terai	
Never	32	17	3	3	7	6	69
Few times	9	11	1	2	2	2	28
Often	1	2	0	0	0	0	3
Frequently	0	0	0	0	0	0	1
Total	42	30	4	6	9	8	100

Source: -Field visit 2017, Sample size: 2834



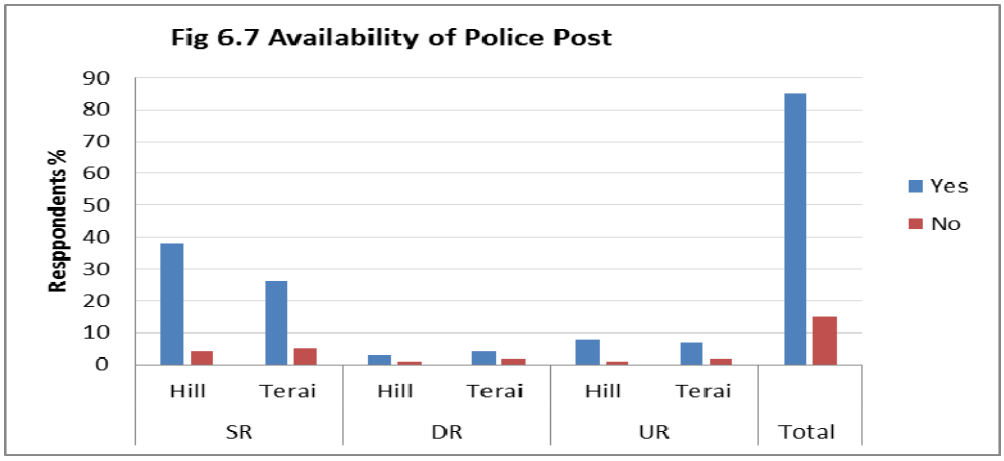
6.7 Availability of police post

Almost all of the respondents (85%) have said the availability and accessibility of police post is easy. Fig. 6.7 shows the road users' perception about availability of police post.

Table 6.7 Availability of Police Post (All figures are in percentage)

Availability of police post	SR		DR		UR		Total
	Hill	Terai	Hill	Terai	Hill	Terai	
Yes	38	26	3	4	8	7	85
No	4	5	1	2	1	2	15
Total	42	30	4	6	9	8	100

Source: -Field visit 2017, Sample size: 2834



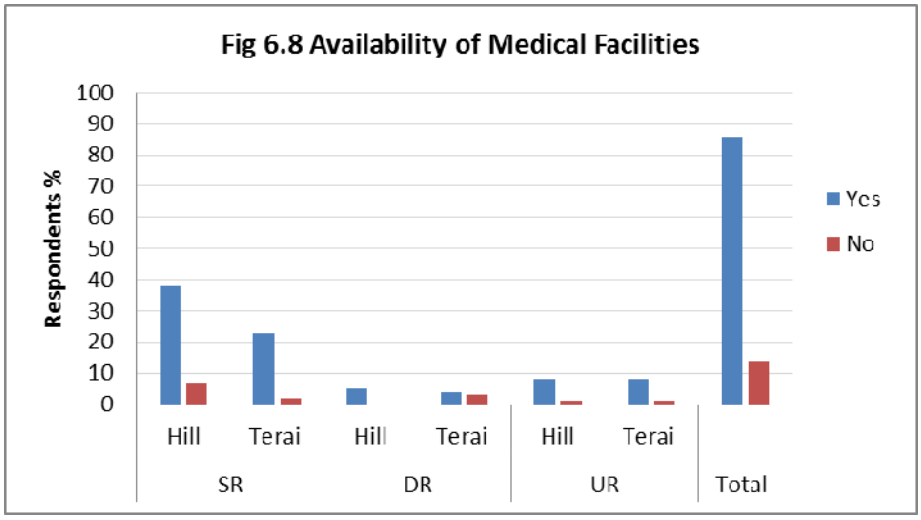
6.8 Availability and Satisfaction with Medical Facilities

The availability of medical facilities has been responded easy to find on roads in Nepal. Comparatively medical facilities of Government and private hospitals in Terai roads are better than in hill SRN roads. Table 6.8 below presents the responses on the availability and satisfaction of medical facilities on each type of roads in hill and Terai region of Nepal.

Table 6.8 Availability of Medical Facilities (All figures are in percentage)

Availability of Medical Facility	SR		DR		UR		Total
	Hill	Terai	Hill	Terai	Hill	Terai	
Yes	38	23	5	4	8	8	86
No	7	2	0	3	1	1	14
Total	45	25	6	7	9	9	100

Source: -Field visit 2017, Sample size: 1262

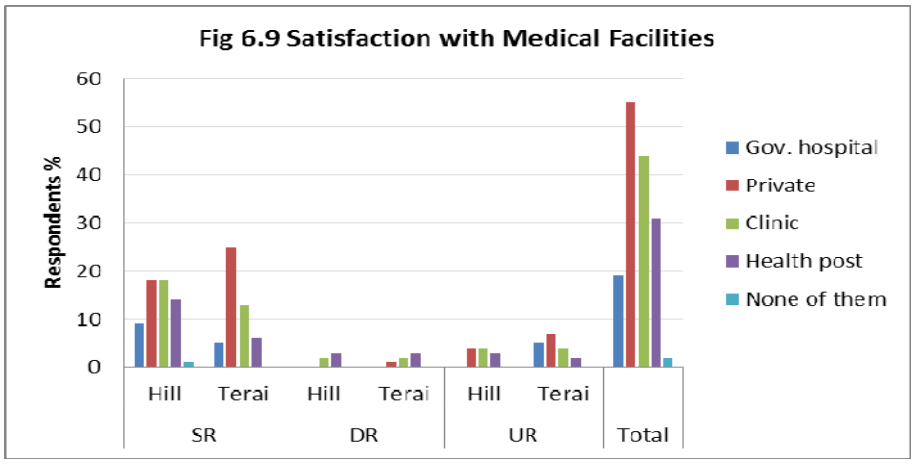


Various types of medical facilities along different roads in Nepal is given in Table 6.9 below:

Table 6.9 Type of and Satisfaction with Medical Facilities (All figures are in percentage)

Medical facilities	SR		DR		UR		Total
	Hill	Terai	Hill	Terai	Hill	Terai	
Gov. hospital	9	5	0	0	0	5	19
Private	18	25	0	1	4	7	55
Clinic	18	13	2	2	4	4	44
Health post	14	6	3	3	3	2	31
None of them	1	0	0	0	0	0	2

Source: -Field visit 2017

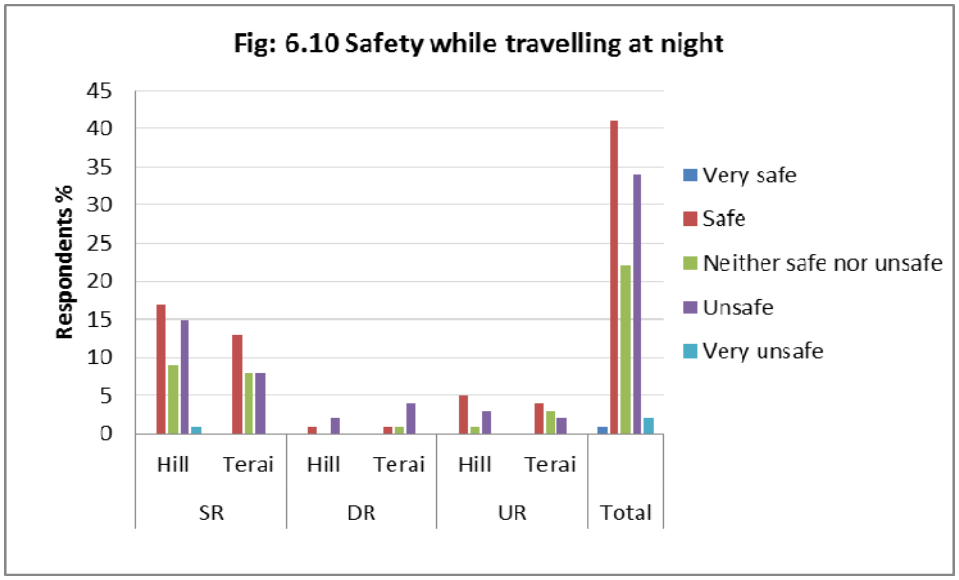


6.9 Safety at Night Travel

Table 6.10 shows the various responses about the safety feeling while travelling at night. Nearly 42 percent of the respondents feel safe while travelling at night whereas 22 percent feel neither safe nor unsafe and 36 percent feel unsafe to highly unsafe.

Table 6.10 Safety feeling while travelling at night

Night Travel	SR		DR		UR		Total
	Hill	Terai	Hill	Terai	Hill	Terai	
Very safe	0	0	0	0	0	0	1
Safe	17	13	1	1	5	4	41
Neither safe nor unsafe	9	8	0	1	1	3	22
Unsafe	15	8	2	4	3	2	34
Very unsafe	1	0	0	0	0	0	2



7. TRAVEL AMENITIES

7.1 Availability of Amenities

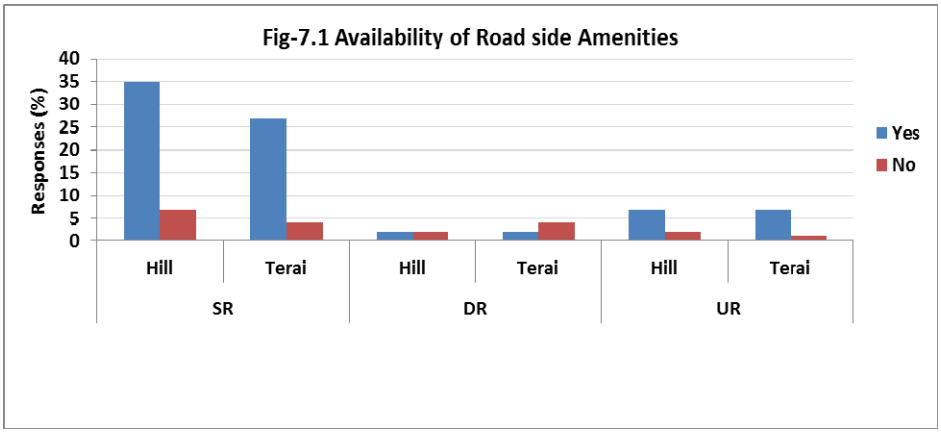
This section discusses about the availability of road-side amenities such as restaurant, drinking water, petrol pumps etc. In response to the availability of road side amenities or facilities utilized during their journey, majority of the road users reported 'satisfied' with these facilities. Table 7.1 shows respondents' perception about availability of amenities and satisfaction level in different road sections.

Table7.1 Satisfaction with Road-side Amenities (All figures are in percentage)

Satisfaction with Amenities	SR		DR		UR		Total
	Hill	Terai	Hill	Terai	Hill	Terai	
Yes	35	27	2	2	7	7	80
No	7	4	2	4	2	1	20
Total	42	31	4	6	9	8	100

Source: -Field visit 2017, Sample size: 2862

Fig.7.1 below shows that nearly 80 percent of respondents are satisfied with road-side amenities and only 20 percent dissatisfied because of poor quality of services.

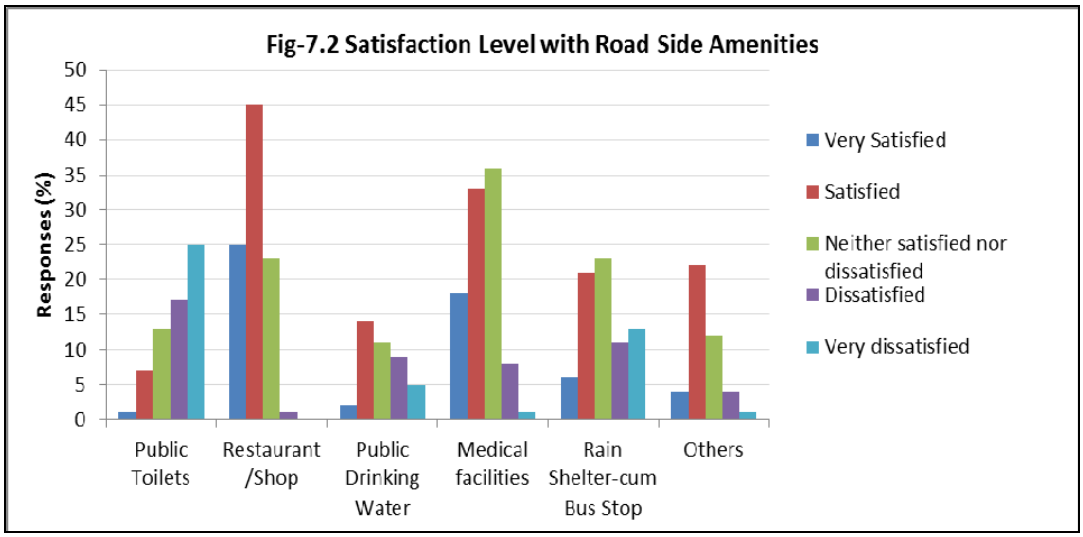


Similarly, table 7.2 below shows the respondents' satisfaction level on different types of roadside amenities during their travel.

Table 7.2 Satisfaction level road type wise (All figures are in percentage)

Medical facilities	SR		DR		UR		Total
	Hill	Terai	Hill	Terai	Hill	Terai	
Public Toilets	24	24	1	2	6	5	63
Restaurant /Shop	40	31	4	5	9	7	95
Public Drinking Water	22	8	2	1	3	5	41
Medical facilities	40	30	4	4	9	8	96
Rain Shelter-cum Bus Stop	30	22	3	5	7	7	74
Mechanics/ vehicles service	16	17	1	2	2	4	43

Source: -Field visit 2017, Sample size: 2862 (Multiple response)



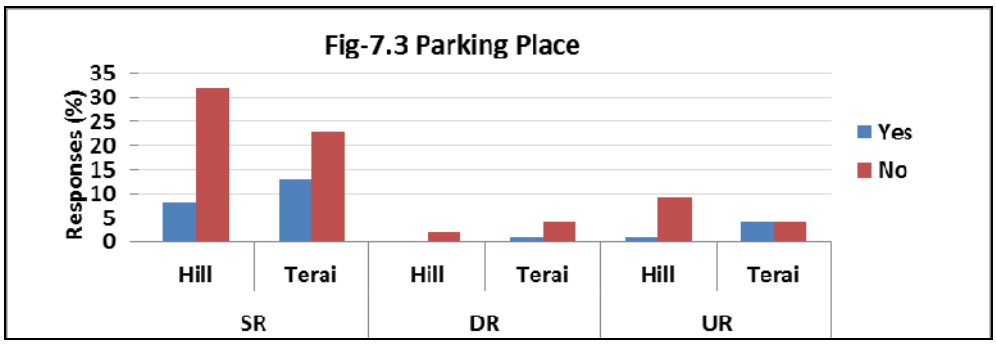
7.2 Parking Facilities

In response to the respondents' satisfaction level with the parking facilities available on different types of roads, majority of road users (73%) were 'dissatisfied'. Only 27 percent users were 'satisfied'. During survey, the surveyor found that most of the vehicles were parked on road sides. Table 7.3 below shows the road users' satisfaction level of road wise and terrain type wise parking facilities available:

Table 7.3 Parking facilities (All figures are in percentage)

Availability of Parking places	SR		DR		UR		Total
	Hill	Terai	Hill	Terai	Hill	Terai	
Yes	8	13	0	1	1	4	27
No	32	23	2	4	9	4	73
Total	40	35	3	5	10	8	100

Source: -Field visit 2017, Sample size: 1585



7.3 Availability of petrol pump

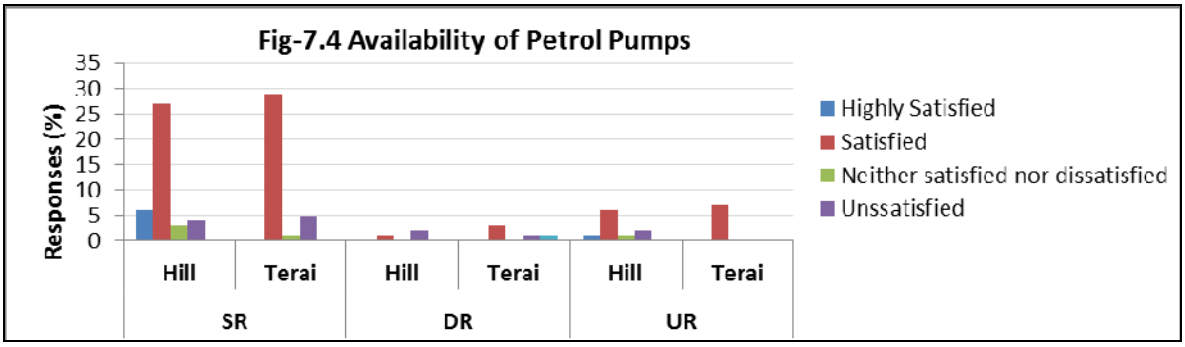
Overall respondent are satisfied with the availability of petrol pumps or fuel station along various roads. Table-7.4 below summarizes the respondents' satisfaction level with the availability of fuel stations along different types of road in hilly and Terai terrain.

Table7.4 Availability of petrol pump (All figures are in percentage)

Availability of petrol pumps	SR		DR		UR		Total
	Hill	Terai	Hill	Terai	Hill	Terai	
Highly Satisfied	6	0	0	0	1	0	6
Satisfied	27	29	1	3	6	7	73
Neither satisfied nor dissatisfied	3	1	0	0	1	0	6
Unsatisfied	4	5	2	1	2	0	15
Highly Unsatisfied	0	0	0	1	0	0	1

Source: -Field visit 2017, Sample size: 1585

Fig. 7.4 shows that most of the vehicles drivers (79%) are 'satisfied' with the availability of petrol pumps, whereas 6 percent responded 'neither satisfied nor dissatisfied 'and only 16 percent were 'dissatisfied'. Comparatively satisfaction level is higher on strategic roads than district and urban roads.



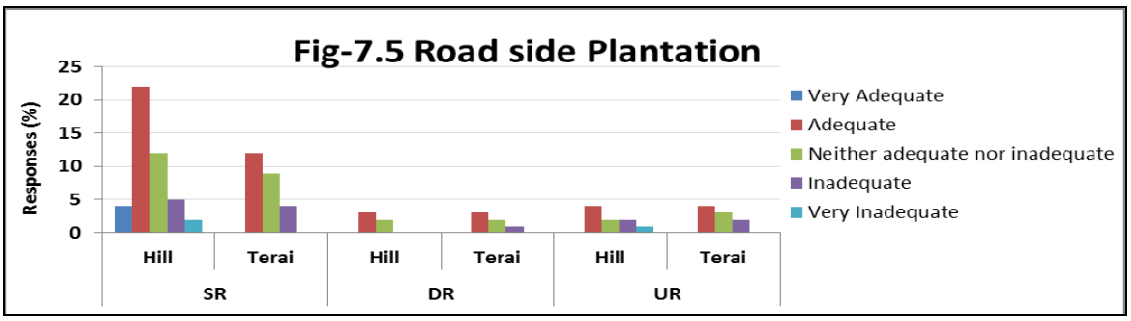
7.4 Road-side plantation

Present study shows that more than 52 percent of respondents said that the road-side plantation is adequate in all road sections, whereas 31 percent said 'neither adequate nor inadequate'. Only 17 percent respondent suggested road-side plantation is inadequate in all types of roads. During the survey, majority of the road users (drivers, road neighbors, pedestrian farmers and local people) suggested that the road agencies have to plant trees when they further expand the roads. Table 7.5 below shows the respondents' perception about road side plantation:

Table 7.5 Road side plantation (All figures are in percentage)

Road side plantation	SR		DR		UR		Total
	Hill	Terai	Hill	Terai	Hill	Terai	
Very Adequate	4	0	0	0	0	0	4
Adequate	22	12	3	3	4	4	48
Neither adequate nor inadequate	12	9	2	2	2	3	31
Inadequate	5	4	0	1	2	2	14
Very Inadequate	2	0	0	0	1	0	3
Total	45	26	5	7	9	9	100

Source: -Field visit 2017, Sample size: 1277



8. VULNERABLE USERS

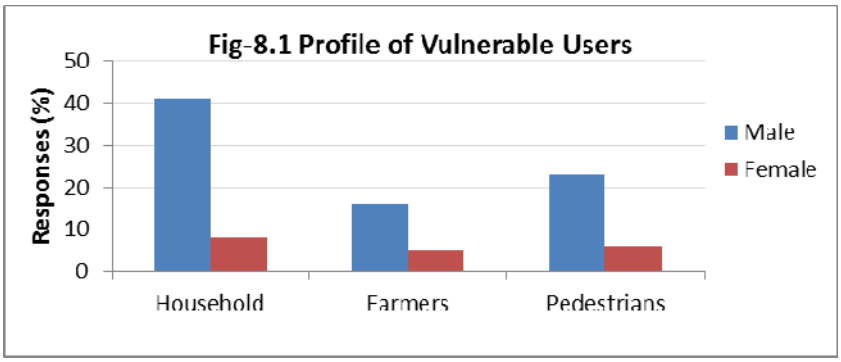
8.1 Profile of Vulnerable Users

This chapter describes about vulnerable user's profile and their satisfaction level, perception, experience and awareness about existing road. During the survey, 1277 vulnerable users mainly the non-motorized traffic (household, pedestrians and farmers etc.) were interviewed in all 40 service centers. Among vulnerable users, 1022 were male and 255 female. Table 8.1 below shows respondents' profile by gender.

Table8.1 Profile of Vulnerable Users

Respondents Group	Male		Female		Total	
	No	%	No	%	No	%
Household	529	41	104	8	633	50
Farmers	204	16	69	5	273	21
Pedestrians	289	23	82	6	371	29
Total	1022	80	255	20	1277	100

Source: -Field visit 2017, Sample size: 1277



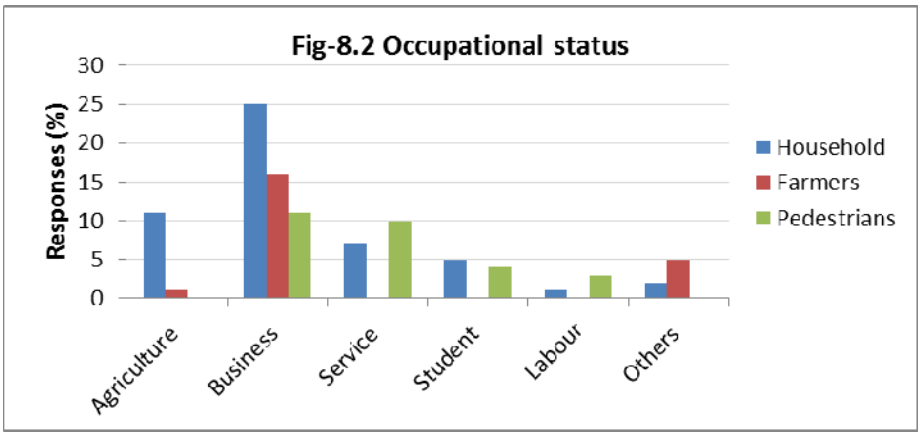
8.2 Occupational status of Respondent

Overall survey shows that majority of respondents (52%) are engaged in business, whereas 17 percent respondents were service holders and 9 to 11 were student and agriculture. Fig. 8.2 below shows the occupational status of all respondent from vulnerable users.

Table 8.2 Occupational Status of Vulnerable Users

Occupation	Household		Farmers		Pedestrians		Total	
	Nos	%	Nos	%	Nos	%	Nos	%
Agriculture	138	11	7	1	0	0	145	11
Business	317	25	206	16	146	11	669	52
Service	89	7	1	0	131	10	221	17
Student	58	5	1	0	52	4	111	9
Labour	10	1	0	0	40	3	50	4
Others	21	2	58	5	2	0	81	6
Total	633	50	273	21	371	29	1277	100

Source: -Field visit 2017, Sample size: 1277



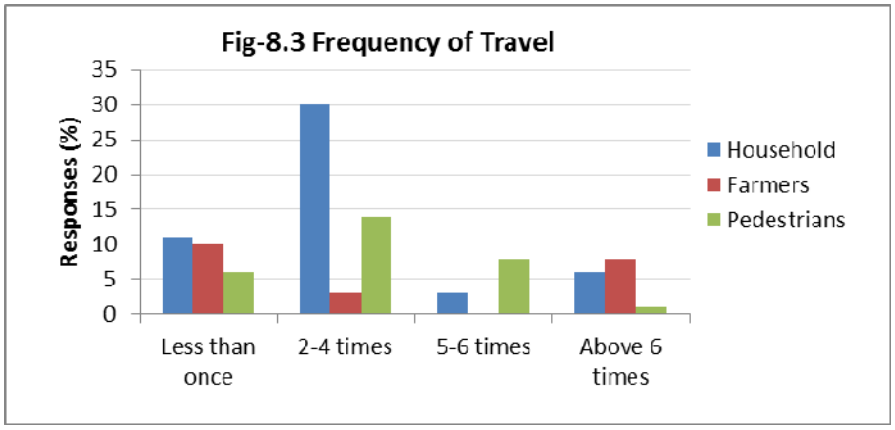
8.3 Frequency of Travel

In response to their frequency of travel on roads in Nepal, majority of respondents, nearly 47 percent travel 2-4 times in a week, 27% less than once, 11% 5-6 times and 15% above 6 times in a week. Table-8.3 below shows the detail travel status of all respondents interviewed:

Table 8.3 Frequency of travel

Frequency of travel	Household		Farmers		Pedestrians		Total	
	Nos	%	Nos	%	Nos	%	Nos	%
Less than once	139	11	126	10	75	6	340	27
2-4 times	383	30	41	3	174	14	598	47
5-6 times	32	3	6	0	104	8	142	11
Above 6 times	79	6	100	8	18	1	197	15
Total	633	50	273	21	371	29	1277	100

Source: -Field visit 2017, Sample size: 1277



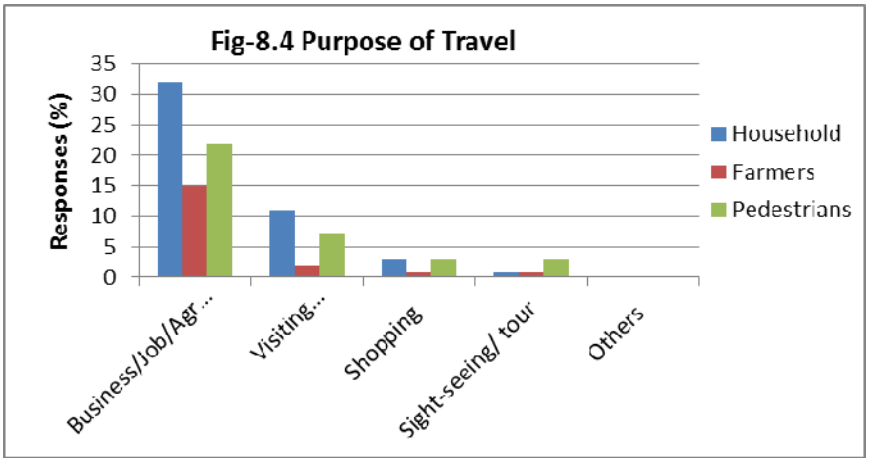
8.4 Purpose of Travel

Present study shows majority of the respondent nearly 69 percent frequently use the road for business/job/agricultural purpose, whereas 20 percent use for visiting relatives and friends, 6% for shopping/marketing, 5 percent for sightseeing and leisure propose, and 1 percent for other various purposes. Table 8.4 shows the details of responses:

Table 8.4 Purpose of travel

Purpose of Travel	Household		Farmers		Pedestrians		Overall	
	No	%	No	%	No	%	No	%
Business/Job/Agricultural work	407	32	191	15	278	22	876	69
Visiting relatives/friends	136	11	26	2	91	7	253	20
Shopping	38	3	8	1	33	3	79	6
Sight-seeing/ tour	17	1	10	1	33	3	60	5
Others	4	0	1	0	4	0	9	1

Source: -Field visit 2017, Sample size: 1277



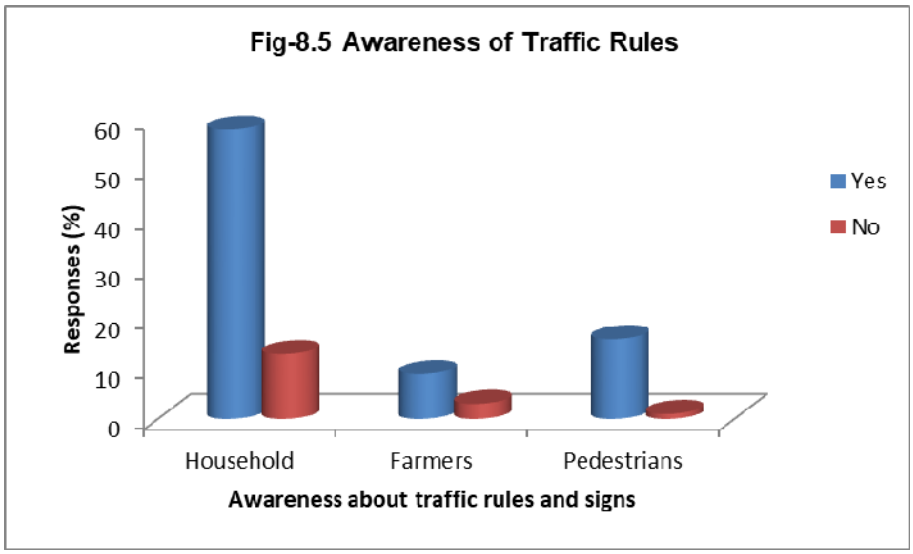
8.5 Awareness of Traffic Rules

Among the respondents, nearly 85 percent were aware of traffic rules and regulation while 17 percent were unaware of them. During the field work, the research team found that the respondents from eastern and central regions were more conscious about traffic rules and regulations than those from western and far-western regions. Table 8.5 below shows the respondents' degree of awareness about different traffic rules and signals. Some of the respondents have given multiple answers too.

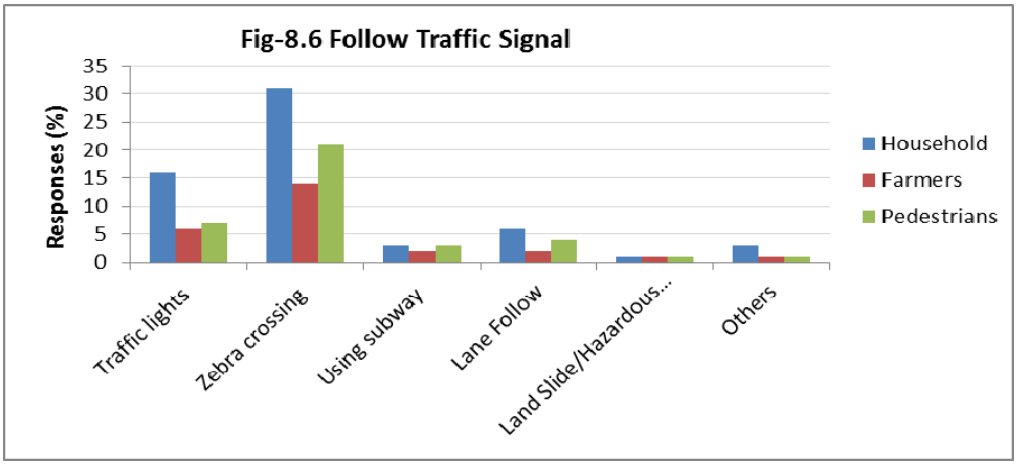
Table8.5 Awareness of traffic rules

Traffic signal		Household		Farmers		Pedestrians		Total	
		No	%	No	%	No	%	No	%
Awareness about traffic rules & signs	Yes	736	58	118	9	208	16	1062	83
	No	163	13	41	3	11	1	215	17
Follow Signal	Traffic lights	202	16	78	6	92	7	372	29
	Zebra crossing	399	31	177	14	267	21	843	66
	Using subway	40	3	27	2	39	3	106	8
	Lane Follow	76	6	29	2	53	4	158	12
	Land Slide/ Hazardous Area	19	1	8	1	11	1	38	3
	Others	37	3	11	1	10	1	58	5

Source: -Field visit 2017, Sample size: 1277 (Multiple answers from same respondent)



From Table 8.5 and Fig. 8.6, we can say that out of the total sample size, 66 percent of the respondents were fully aware of Zebra crossing and 29 percent were aware traffic lights and signals and the rest of them followed partially.



8.6 Appropriate Place to install road Signs

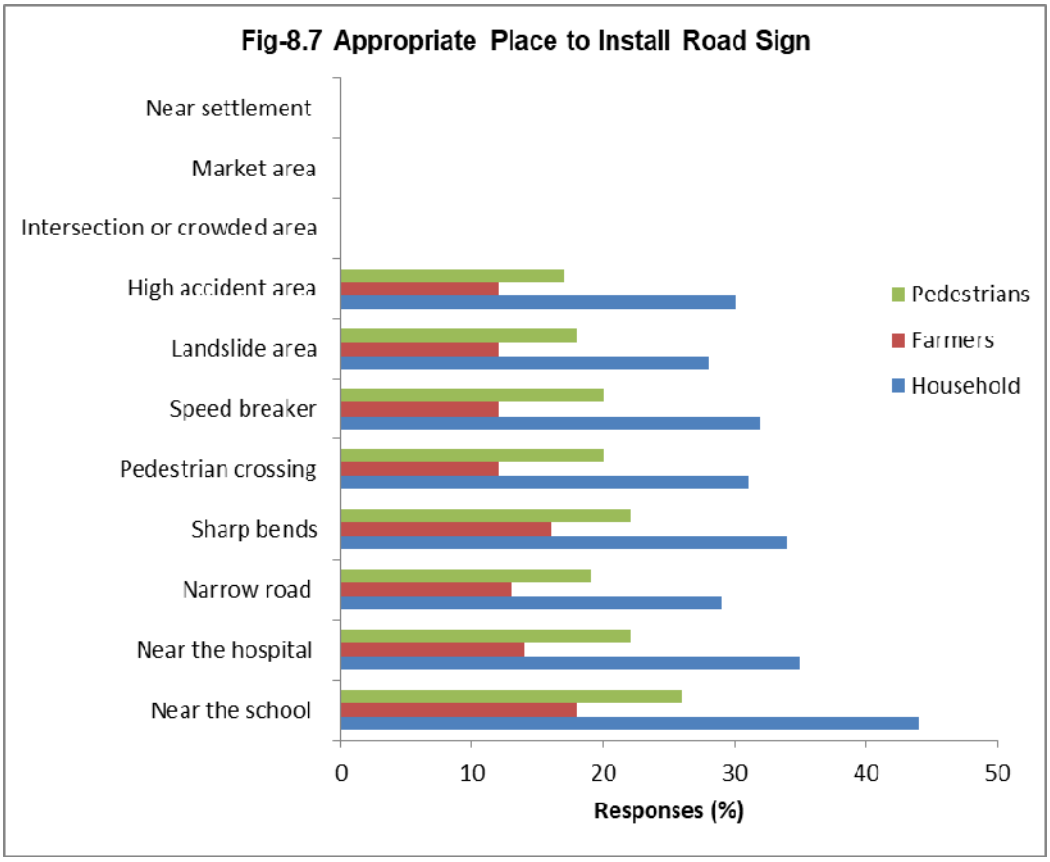
Survey data on road users' attributes regarding the appropriate place for installation of road signs are given in table 8.6 and presented in fig. 8.7 below:

Table 8.6 Appropriate place to install road signs

Places	Household		Farmers		Pedestrians	
	No	%	No	%	No	%
Near the school	561	44	233	18	334	26
Near the hospital	449	35	177	14	282	22
Narrow road	369	29	166	13	239	19
Sharp bends	433	34	198	16	275	22
Pedestrian crossing	390	31	154	12	261	20
Speed breaker	403	32	158	12	252	20
Landslide area	354	28	149	12	225	18
High accident area	385	30	156	12	220	17
Intersection or crowded area	4	0	1	0	1	0

Places	Household		Farmers		Pedestrians	
	No	%	No	%	No	%
Market area	0	0	0	0	0	0
Near settlement	0	0	0	0	0	0

Source: -Field visit 2017, Sample size: 1277 (Multiple answers from same respondent)



From Fig 8.7, it is clear that nearly 88 percent of the respondents suggested the appropriate places for installation of the traffic signs near school, while the other places near hospital, pedestrian crossing, speed breaker, high accidental areas and sharp bends etc. have similar rating from 60 to 70 percent. Other places like market areas, narrow roads and intersection or crowded area have been given less priority.

8.7 Problems Facing due to Road

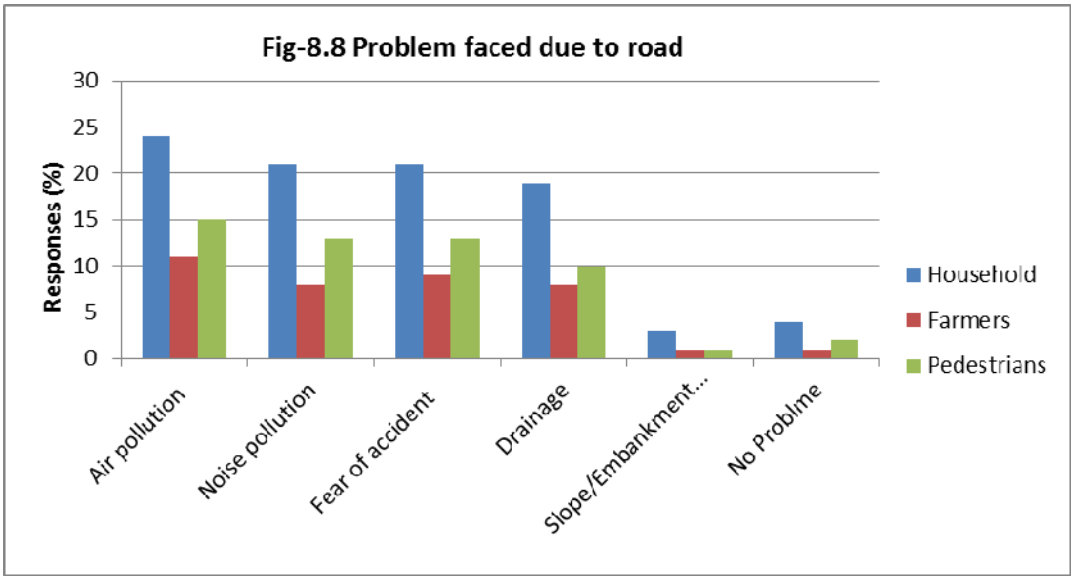
Over fifty percent respondents have been residing adjacent to different types of roads for more than 20 years. They were asked what type of problem they face due to road nearby. Majority of respondents (nearly 40 to 50 percent) face problems due to air pollution, noise pollution, fear of accident and drainage problems, and nearly 6 percent face problem due to slope/embankment failure and 7 percent have hardly any problem from road. Table 8.7 below shows the respondent feeling about the problem faced due to road nearby:

Table 8.7 Problem Facing due to Road Nearby

Factors	Household		Farmers		Pedestrians		Total	
	No	%	No	%	No	%	No	%
Air pollution	303	24	145	11	191	15	639	50
Noise pollution	268	21	104	8	163	13	535	42
Fear of accident	269	21	121	9	162	13	552	43

Factors	Household		Farmers		Pedestrians		Total	
	No	%	No	%	No	%	No	%
Drainage	249	19	101	8	129	10	479	38
Slope/Embankment Failure	44	3	17	1	16	1	77	6
No Problem	55	4	13	1	23	2	91	7

Source: -Field visit 2017, Sample size: 1277 (Multiple answers from same respondent)



8.8 Safety Feeling while travelling/driving

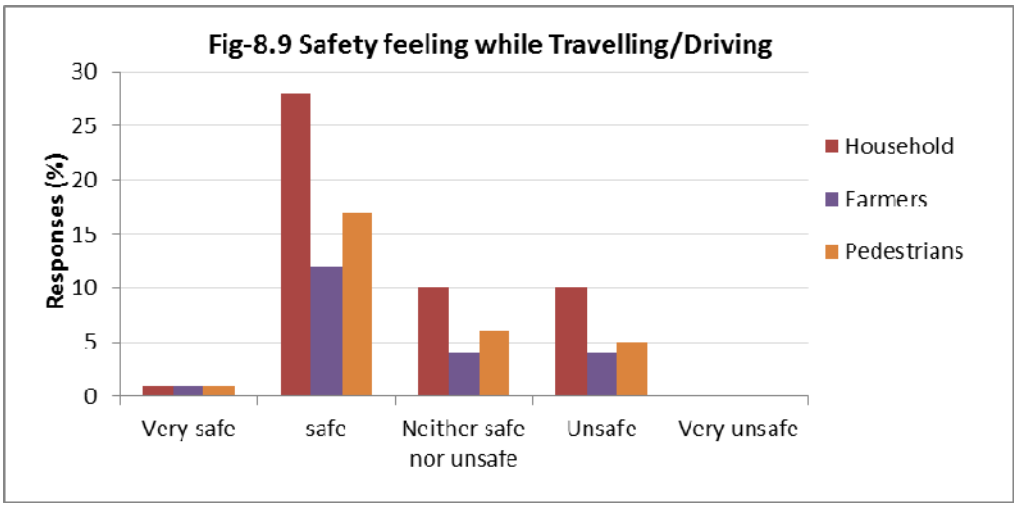
Safety is the major concern of the vulnerable users as they are more prone to various mishaps and accidents along the road. Attributes on safety feeling of various respondents is given in table 8.8:

Table 8.8 Safety feeling while traveling/driving

Safety feeling while traveling/driving	Household		Farmers		Pedestrians		Total	
	Nos	%	Nos	%	Nos	%	Nos	%
Very safe	19	1	13	1	12	1	44	3
safe	358	28	151	12	214	17	723	57
Neither safe nor unsafe	129	10	51	4	71	6	251	20
Unsafe	124	10	54	4	70	5	248	19
Very unsafe	3	0	4	0	4	0	11	1

Source: -Field visit 2017, Sample size: 1277

From fig. 8.9 below, it is clear that majority of respondents, nearly 60 percent feel safe to very safe and 20 percent feel neither safe nor unsafe while 20 feel unsafe to very unsafe while traveling on roads in Nepal.



8.9 Factors for Feeling Unsafe

Table 8.9 shows the attributes to various factors which make the road users feel unsafe while travelling along the different types of road in Nepal.

Table 8.9 Attributes to Factors Feeling Unsafe

Factors for feeling Unsafe	SR		DR		UR		Total	
	No.	%	No.	%	No.	%	No.	%
Over speed	1746	59	195	7	427	14	2368	80
Unusual overtaking	1650	56	202	7	367	12	2219	75
Heavy goods carrying vehicles	1120	38	90	3	222	8	1432	48
Lack of awareness of traffic rules	1186	40	134	5	244	8	1564	53
Bad condition of road	1093	37	161	5	276	9	1530	52
Absence of sufficient signs	1173	40	132	4	256	9	1561	53
Aggressive driving	1201	41	119	4	209	7	1529	52
Narrow road	1211	41	136	5	243	8	1590	54
Careless driving	1131	38	123	4	170	6	1424	48
Unfit vehicles	925	31	118	4	187	6	1230	42

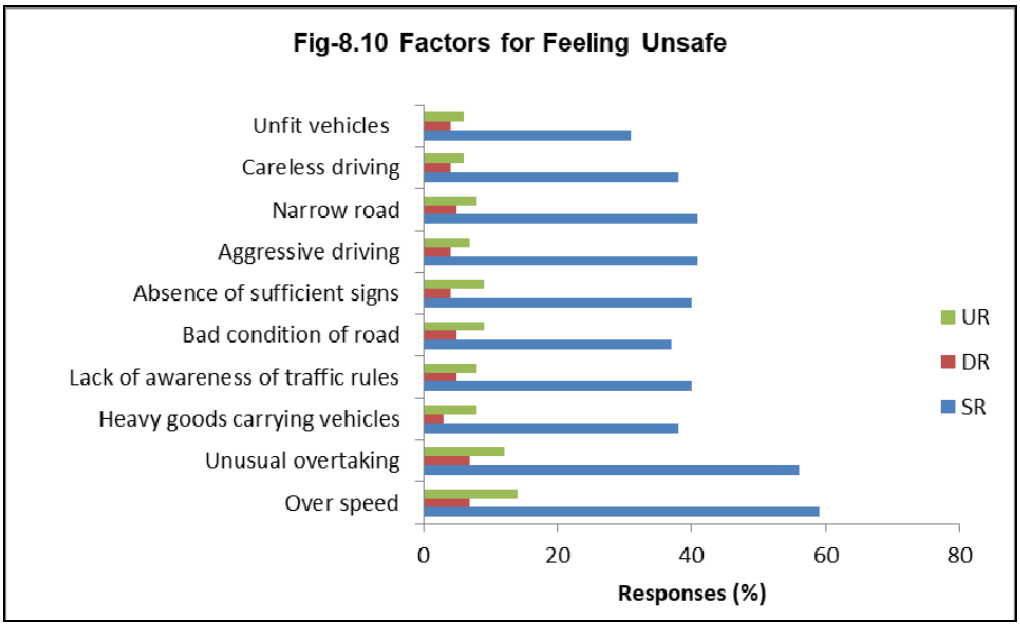


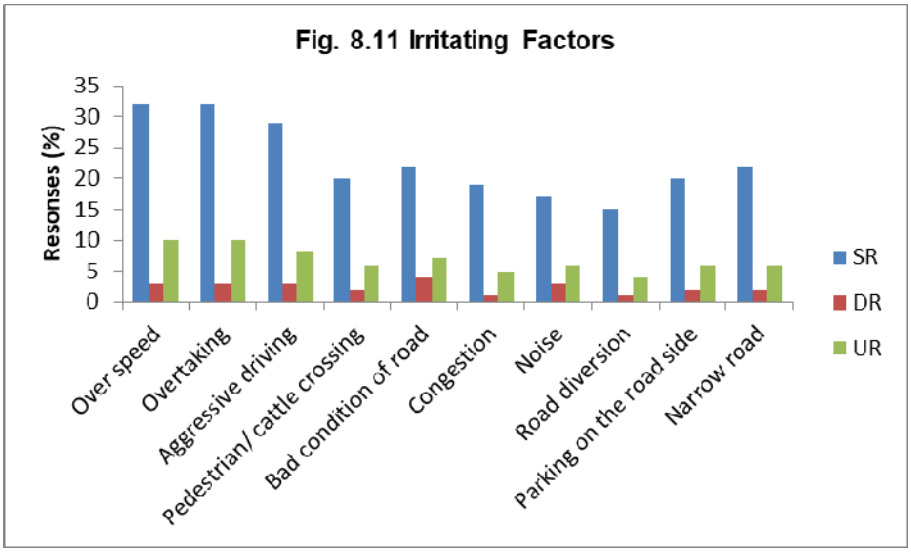
Figure 8.10 above shows the respondent perception on different factors which make them feel unsafe while traveling on various types of road. From the figure we can say that the most important factors for feeling unsafe are, over speed (early 80%) and unusual overtaking (nearly 75%) while the rest of the factors range in between 48 to 53 percent except the factor 'unfit vehicle' at 42 percent.

8.10 Irritating factors for Vulnerable Users

Responses on various factors which make the road users irritate have been summarized in Table 8.9 and presented in Fig. 8.11.

Table 8.10 Attributes to irritating factors for Vulnerable Users

Irritating factor	SR		DR		UR		Total	
	No	%	No	%	No	%	No	%
Over speed	993	32	97	3	319	10	1409	45
Overtaking	994	32	91	3	314	10	1399	45
Aggressive driving	905	29	90	3	243	8	1238	40
Pedestrian/ cattle crossing	622	20	52	2	186	6	860	28
Bad condition of road	685	22	134	4	226	7	1045	34
Congestion	582	19	40	1	161	5	783	25
Noise	520	17	80	3	184	6	784	25
Road diversion	465	15	36	1	114	4	615	20
Parking on the road side	610	20	49	2	200	6	859	28
Narrow road	674	22	71	2	177	6	922	30



From Fig. 8.11, major irritating factors for vulnerable users are over speed and overtaking (45 percent each) and aggressive driving (40 percent) while the rest of the factors range in between 20 to 30 percent.

9. PERCEPTION ABOUT ROAD AGENCIES

9.1 Road Agencies

This chapter elicits road-users' perceptions to various questions that reflect the performance of road agencies namely the Department of Roads (DoR), Department of Local Infrastructure Development and Agricultural Roads (DOLIDAR) and Roads Board Nepal (RBN), and the local governments mainly District Development Committees (DDC) and Municipalities, and similar other organizations involved in road maintenance & management. Perceptions also reflect their acknowledgement of appropriate road agency and promptness to address various road related problems.

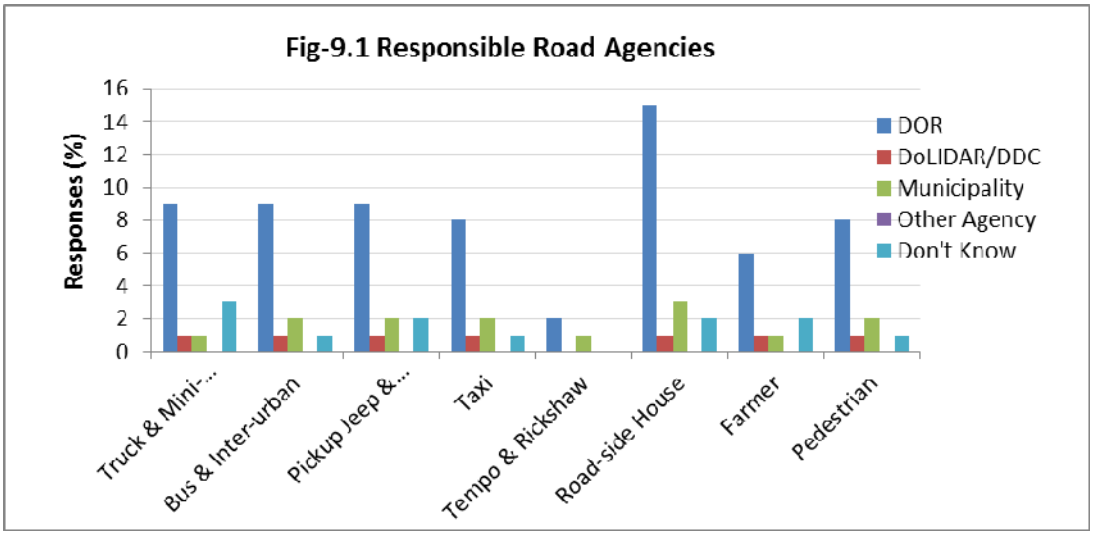
9.2 Perception about Road Agencies

During the survey the respondent were asked which agency they felt was responsible for the road maintenance. Responses to this question are summarized in Table 9.1 and presented in chart (Fig. 9.1) below:

Table 9.1 Road Agency Responsible for Maintenance (All figures are in percentage)

	Distribution of Responses								
	Drivers					Vulnerable Users			Overall
Responsible Agencies	Truck & Mini-Truck	Bus & Inter-urban	Pickup Jeep & Tractor	Taxi	Tempo & Rickshaw	Road-side House	Farmer	Pedestrian	
DOR	9	9	9	8	2	15	6	8	65
DoLIDAR/DDC	1	1	1	1	0	1	1	1	6
Municipality	1	2	2	2	1	3	1	2	15
Other Agency	0	0	0	0	0	0	0	0	1
Don't Know	3	1	2	1	0	2	2	1	13

Source: -Field visit 2017, Sample size: 2881



From the respondents' perception as seen from fig. 9.1, nearly 85 percent of them regard the DoR as the main responsible agency for road maintenance activities; while13 percent of them were not sure of the organization that is responsible for maintenance. Levels of Attributes on DDC's and municipalities were 6 and 15 percent respectively.

9.3 Quality of Road Maintenance

Road-users' perception regarding the quality of road maintenance works carried out by DOR/DDC/Municipality in terms of satisfaction level as 'satisfied' to 'highly satisfied', 'neither

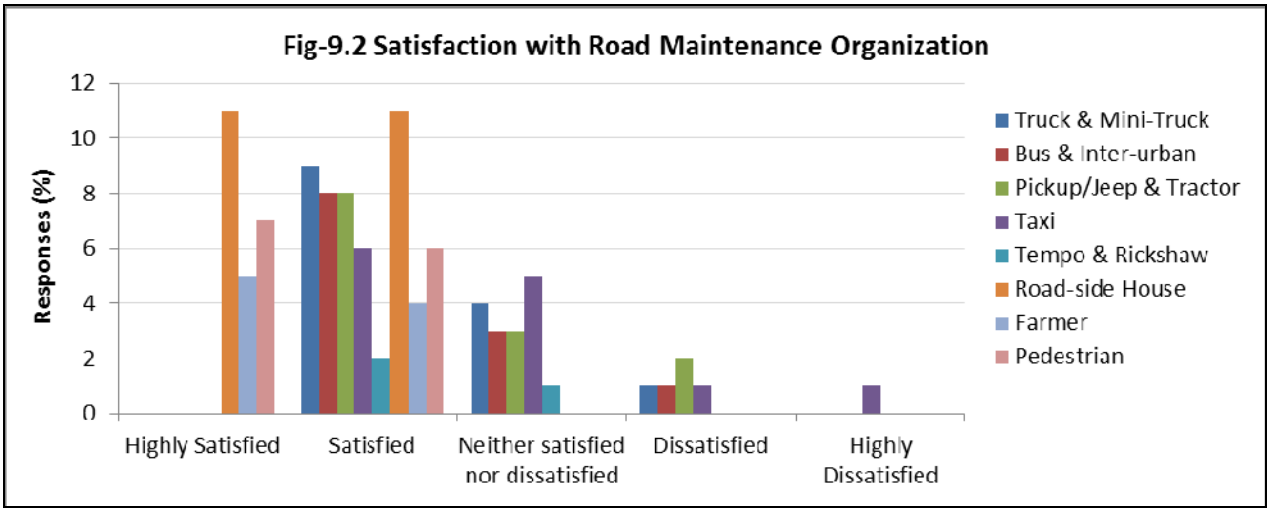
satisfied nor dissatisfied' and 'Dissatisfied' to 'highly dissatisfied' during the survey has been given in Table 9.2 and the outcome presented in fig. 9.2 below:

Table 9.2 Satisfaction with road maintenance organizations (All figures are in percentage)

Satisfaction Level	Distribution of Responses in Percentage								
	Drivers					Vulnerable Users			Overall
	Truck & Mini-Truck	Bus & Inter-urban	Pickup/ Jeep & Tractor	Taxi	Tempo & Rickshaw	Road-side House	Farmer	Pedestrian	
Highly Satisfied	0	0	0	0	0	11	5	7	23
Satisfied	9	8	8	6	2	11	4	6	55
Neither satisfied nor dissatisfied	4	3	3	5	1	0	0	0	16
Dissatisfied	1	1	2	1	0	0	0	0	4
Highly Dissatisfied	0	0	0	1	0	0	0	0	2

Source: -Field visit 2017, Sample size: 2862

Figure 9.2 shows that 78% of the road-users found the quality of road works as satisfactory to highly satisfactory, whereas 16% of them found the quality to be 'neither satisfied nor dissatisfied'. About 6% of the users responded the quality to be dissatisfactory to highly dissatisfactory.



9.4 Promptness to Complaint Redress

During the survey the respondent were asked whether they made any complain to road agencies or not and promptness to redress their complaints, if made. Responses from different users' have been given in Table 9.3:

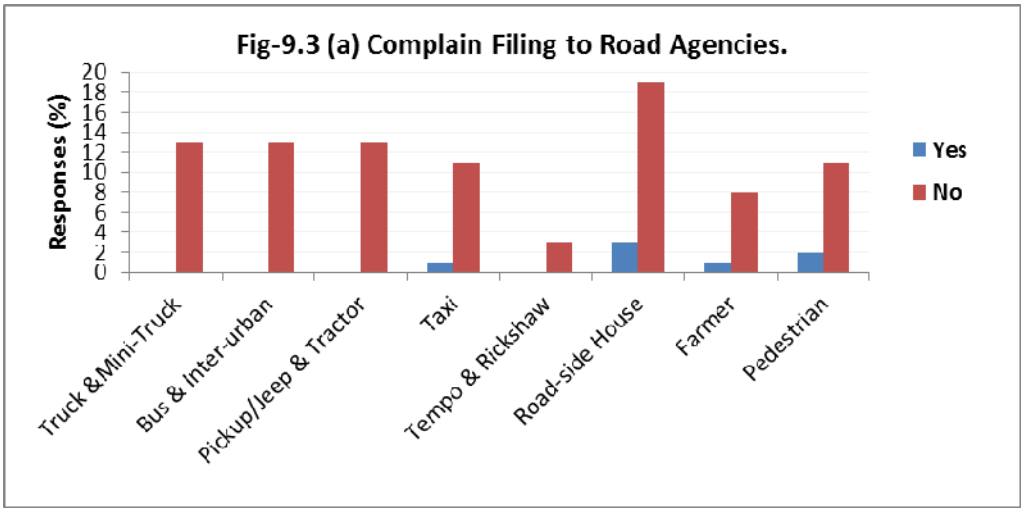
Table 9.3 Complaint redress and problem resolving on time (All figures are in percentage)

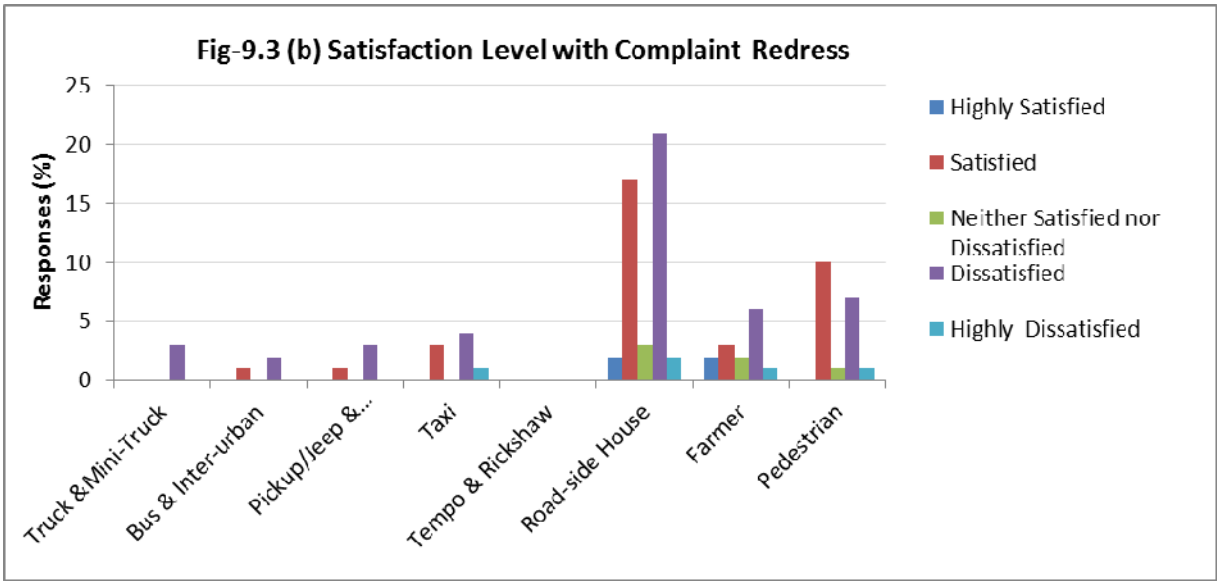
Complain....	Distribution of Responses								
	Drivers					Vulnerable Users			Overall
	Truck &Mini-Truck	Bus & Inter-urban	Pickup/ Jeep & Tractor	Taxi	Tempo & Rickshaw	Road-side House	Farmer	Pedestrian	
Yes	0	0	0	1	0	3	1	2	8
No	13	13	13	11	3	19	8	11	92
Satisfaction with complain redress.									
Highly Satisfied	0	0	0	0	0	2	2	0	5
Satisfied	0	1	1	3	0	17	3	10	36

Complain....	Distribution of Responses								
	Drivers					Vulnerable Users			Overall
	Truck &Mini-Truck	Bus & Inter-urban	Pickup/ Jeep & Tractor	Taxi	Tempo & Rickshaw	Road-side House	Farmer	Pedestrian	
Neither Satisfied nor Dissatisfied	0	0	0	0	0	3	2	1	6
Dissatisfied	3	2	3	4	0	21	6	7	47
Highly Dissatisfied	0	0	0	1	0	2	1	1	6

Source: -Field visit 2017, Sample size: 2862

From the above Table 9.3, only 8 percent of the respondents have ever made complain to road agencies regarding any type of road related problems, out of which only 5 percent were highly satisfied, 36 percent satisfied, 6 percent neither satisfied nor dissatisfied, 47 percent dissatisfied and 6 percent highly dissatisfied with the complaint redressal practices. Nearly 92 percent of the respondents have never made any complaint to road agencies.





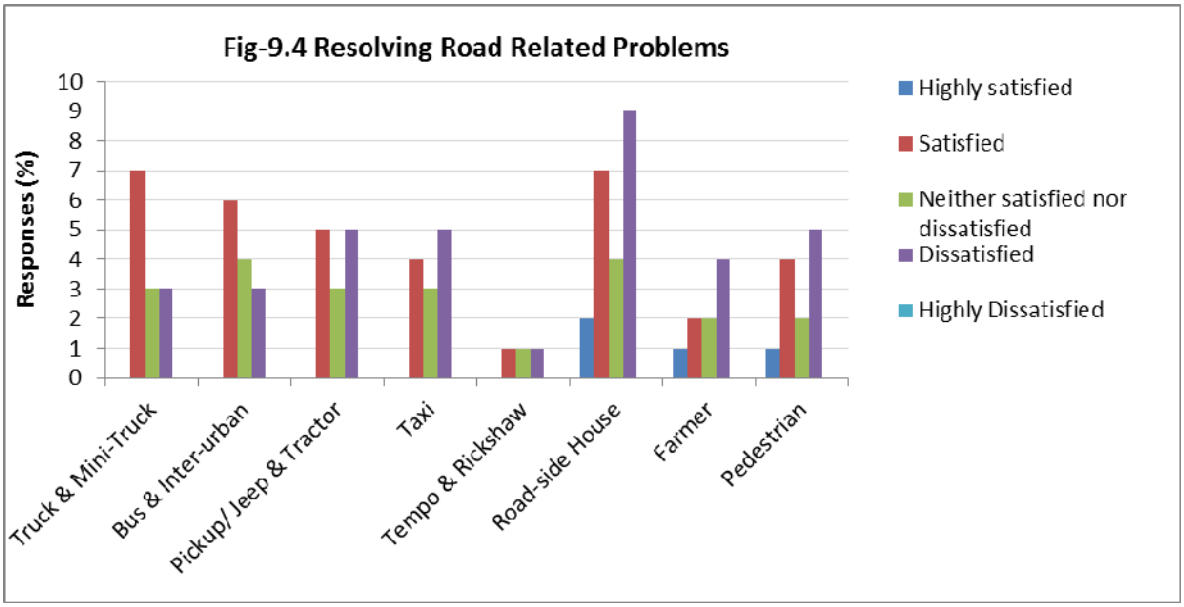
9.5 Resolving Road Related Problems

On enquiry to the respondents' level of satisfaction on resolving the maintenance, quality and repair of road related problems in time, responses from various road users' are shown in Table 9.4 and presented in chart as shown in fig. 9.4:

Table 9.4 Responses to resolving road related problems (All figures are in percentage)

Resolving problem in time.....	Distribution of Responses (%)								
	Drivers					Vulnerable Users			Overall
	Truck & Mini-Truck	Bus & Inter-urban	Pickup/ Jeep & Tractor	Taxi	Tempo & Rickshaw	Road-side House	Farmer	Pedestrian	
Highly satisfied	0	0	0	0	0	2	1	1	4
Satisfied	7	6	5	4	1	7	2	4	36
Neither satisfied nor dissatisfied	3	4	3	3	1	4	2	2	23
Dissatisfied	3	3	5	5	1	9	4	5	36
Highly Dissatisfied	0	0	0	0	0	0	0	0	2

Source: -Field visit 2017, Sample size: 2862



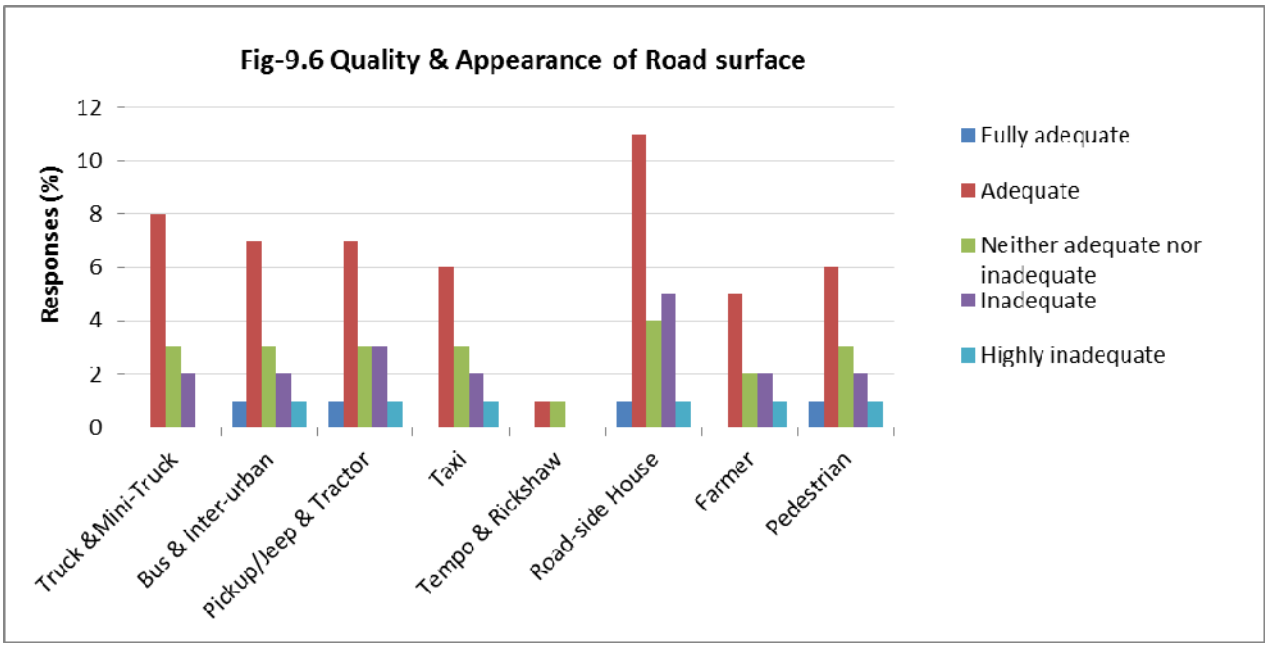
From Fig. 9.5, it is clear that the majority of respondents' satisfaction level is on average, i.e. nearly 4 percent 'highly satisfied' 36 percent were both 'satisfied' and 'dissatisfied' each and 23 percent neither 'satisfied' nor 'dissatisfied' and 2 percent 'highly dissatisfied'.

9.6 Quality and appearance of Road Surface

Table 9.6 shows the users' perception on quality and appearance of road maintenance works. Nearly 54% of the respondents were in opinion of adequate to very adequate, 22% 'neither adequate nor inadequate' and 24% inadequate to highly inadequate.

Table 9.6 Quality and appearance of Road Surface

Quality and appearance of Road Surface	Drivers								Overall
	Truck &Mini-Truck	Bus & Inter-urban	Pickup/Jeep & Tractor	Taxi	Tempo & Rickshaw	Road-side House	Farmer	Pede strian	
Fully adequate	0	1	1	0	0	1	0	1	4
Adequate	8	7	7	6	1	11	5	6	50
Neither adequate nor inadequate	3	3	3	3	1	4	2	3	22
Inadequate	2	2	3	2	0	5	2	2	19
Highly inadequate	0	1	1	1	0	1	1	1	5



9.7 Familiarization of Mobile App 'Merosadak'

During the survey work, each respondent was asked about the familiarization of the mobile App. 'Mero Sadak', but almost none of them were familiar with it. When the enumerator explained them, very few of them could understand the importance of the application and found it very useful. Table 9.7 shows nearly 2 % of the total sample size could understand and realize the use of this App. It is therefore urgently needed to mass familiarize this App to all road users.

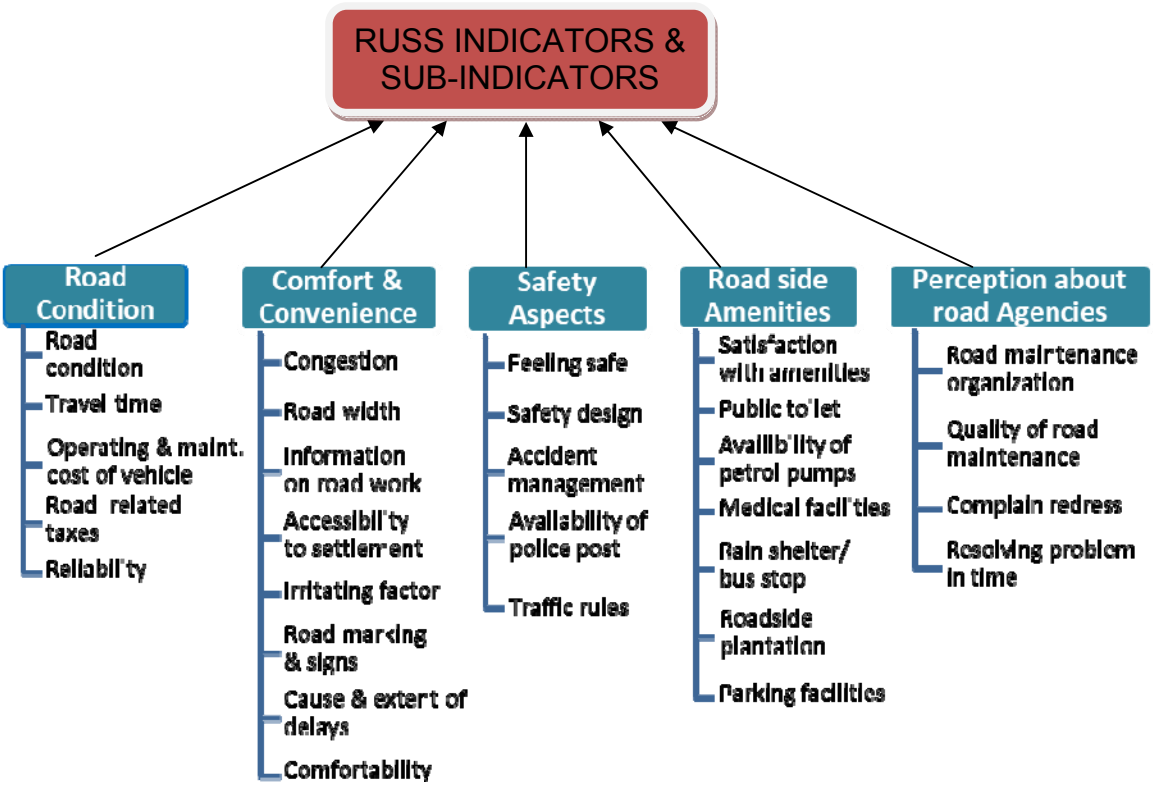
Table 9.7 Familiarization & Satisfaction of Mobile App 'Merosadak' (All figures are in percentage)

Acquaintance with 'Mero Sadak'	Drivers								Media man Academicians etc.	Overall
	Truck &Mini-Truck	Bus & Inter-urban	Pickup /Jeep & Tractor	Taxi	Tempo & Rickshaw	Road-side House	Farmer	Pedestrian		
Yes	0	0	1	0	0	0	0	0	1	2
No	14	14	13	11	4	22	9	13	7	98

10. OVERALL SATISFACTION

10.1 Analysis of Satisfaction Level

As discussed in chapter II, five major indicators with different sub indicators have been identified. In order to elicit the attributes or perceptions, road users have been categorized as; main users comprising 1585 numbers, vulnerable users comprising 1277 numbers and other road related associations/institutions constituting 245 numbers. They were interviewed in order to determine the overall satisfaction by means of five various indicators using 29 sub-indicators (variables) as shown in the following figure:



Ratings for users' responses to each sub-indicator have been made on a point scale depending upon the number of options provided to each question as given in **Annex II**, which expressed in percentage represent the users' satisfaction level on outcome/attributes to each variable.

10.2 Overall Satisfaction

Based upon the above scoring system, score for each of sub-indicators has been assigned to response received from the road users and a total score for each indicator is achieved from respective sub-indicators. Final score represented in percentage gives the users' overall satisfaction level on different indicators which is shown in Table 10.1:

Table 10.1 Overall Satisfaction Level

Indicator	Satisfaction Level (%)
Road Condition and its perceived impact	61
Comfort and Convenience	59
Safety	57
Travel Amenities	53
Perception about Road Agencies	60

From table 10.1, it is found that the satisfaction level of road users is 61 percent on road condition and its perceived impact, 59 percent on comfort and convenience aspect, 58 percent on safety aspect, 53 percent on travel amenities and 60 percent on perception about road agencies. These figures show the attributes on travel amenities aspect has the least perception whereas the Road Condition and its perceived impact has the highest. Present research work on RUSS-III shows that overall road condition and its perceived impact, comfort and convenience, safety aspects, travel amenities and perception about road agencies have all satisfactory attributes from road users.

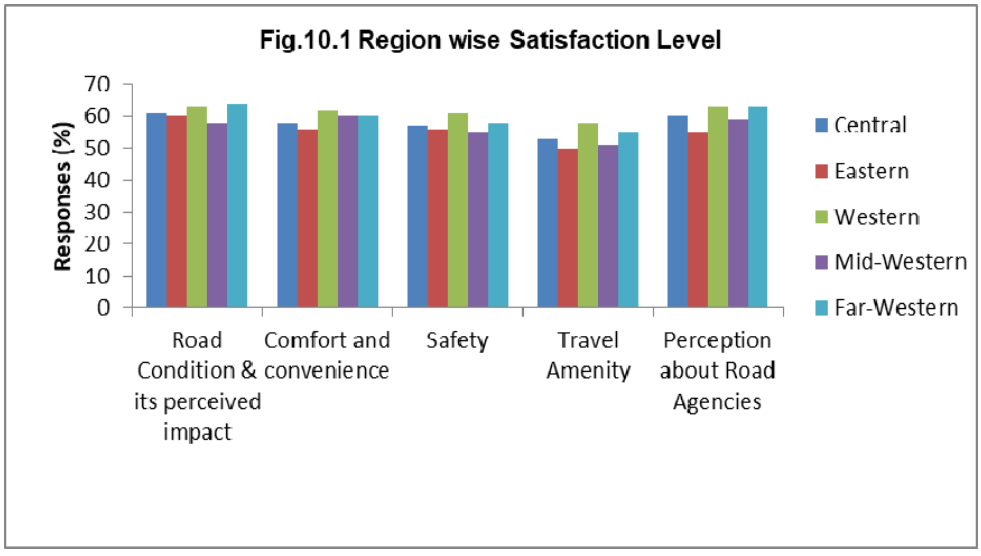
Overall satisfaction level of road users is distributed region, road category, terrain type and service center wise as given in the following sections:

10.2.1 Region Wise distribution

Region wise distribution of satisfaction is given in Table 10.2

Table 10.2 Region Wise Distribution of Satisfaction (All figures are in percentage)

Region	Road Condition & its perceived impact	Comfort and convenience	Safety	Travel Amenity	Perception about Road Agencies
Central	61	58	57	53	60
Eastern	60	56	56	50	55
Western	63	62	61	58	63
Mid-Western	58	60	55	51	59
Far-Western	64	60	58	55	63



With reference to Fig. 10.1, the users' perception on most of the factors in western region is relatively higher except road condition and its perceived impact which is higher in far western region. From these data it can be said that the users' perceptions are more or less regionally balanced.

10.2.2 Terrain type wise distribution

Terrain type wise distribution of satisfaction level of road users is shown in Table 10.3.

Table 10.3 Terrain Type Wise Distribution of Satisfaction (All figures are in percentage)

Region	Road Condition & its perceived impact	Comfort and convenience	Safety	Travel Amenity	Perception about Road Agencies
Hill	61	58	58	52	61
Terai	62	59	56	54	59

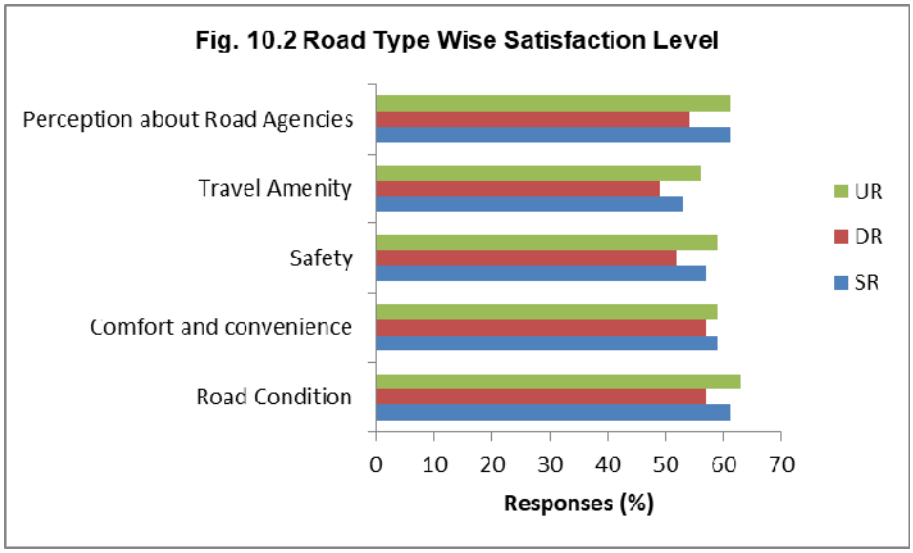
The outcome of survey resulted from the interview of road users shows that the satisfaction level of each aspect of roads are found more or less the same in the range of 59 to 61 percent in hill and terai terrain.

10.2.3 Road Type Wise distribution

Table 10.4 shows the satisfaction level of road users for different categories of roads. The survey result shows that the satisfaction level of road condition and its perceived impact, safety and travel amenities in urban roads are slightly better than in other roads. Most of the factors are more or less the similar in all types of roads.

Table 10.4 Road Type Wise Satisfaction Level (All figures are in percentage)

Road Type	Road Condition	Comfort and convenience	Safety	Travel Amenity	Perception about Road Agencies
SR	61	59	57	53	61
DR	57	57	52	49	54
UR	63	59	59	56	61



10.2.4 Service Centre Wise

The satisfaction level of respondents at different service center is shown in Table 10.5. The satisfaction level of road condition and its perceived impact; and comfort and convenience aspects was found comparatively better in Bharatpur and Pokhara city roads followed by Mugling (East) and Dadeldhura North, whereas the Safety was found better in Pokhara city roads followed by Dhankuta South. Similarly, the travel amenity was better in Bharatpur city roads followed by Attaria East. The perception about the road related agencies was better in Dadeldhura North followed by Mungling East and Syaule South.

Table 10.5 Overall satisfactions Service Center Wise (All figures are in percentage)

Service Center No.	Road Types	Road Condition & perceived impact	Comfort and convenience	Safety	Travel Amenity	Perception about Road Agencies
1	Lahan (West)	66	59	59	51	61
2	Biratnagar	53	52	49	54	51
3	Rajbiraj (Jamuni)	51	54	38	39	45
4	Bhardaha (south)	66	56	64	47	58
5	Mirchaiya (north)	58	57	54	46	54
6	Fickle (east)	66	56	62	53	61

Service Center No.	Road Types	Road Condition & perceived impact	Comfort and convenience	Safety	Travel Amenity	Perception about Road Agencies
7	Dhankuta (south)	62	60	65	52	55
8	Hile (West)	55	52	47	54	45
9	Chandranigahapur	61	59	55	51	55
10	Simara	62	57	54	51	56
11	Bharatpur	73	67	63	66	67
12	Dry Port, Sirsiya	59	50	51	46	60
13	Jaleshwore	51	54	49	44	51
14	Dhalkebar (west)	66	63	63	50	60
15	Hetauda (West)	63	57	55	52	63
16	Mugling (east)	68	64	64	59	67
17	Jorpati (North)	56	53	57	50	61
18	Lamidanda	44	51	49	53	49
19	Battisputali	58	58	58	53	62
20	Mangal Bazaar	55	52	50	50	54
21	Hetauda (North)	62	61	59	55	66
22	Taudaha	51	52	50	50	50
23	Galchhi (North)	53	57	61	53	59
24	Butwal (South)	62	59	50	65	64
25	Taulihawa	66	60	61	59	65
26	Pokhara City Roads	73	64	69	60	66
27	Abukhaireni (North)	57	57	60	52	61
28	Aryabhanjyang (East)	64	61	58	57	60
29	Tansen (West)	61	61	61	60	64
30	Pokhara (North)	63	59	58	58	62
31	Nepalgunj	59	60	58	58	58
32	Ghorahi (West)	59	59	53	55	64
33	Baghaudda	50	57	49	47	49
34	Surkhet (South)	64	62	59	59	64
35	Lamahi (South)	55	56	51	47	53
36	Chhinchu (East)	53	62	56	59	61
37	Attariya (East)	61	62	58	63	57
38	Syaule (South)	65	61	63	55	67
39	Dadeldhura (North)	70	64	64	56	70
40	Dungrai (Dadeldhura)	54	60	57	48	60

10.3 Multiple Linear Regression Analysis

In order to determine the Road Users' Satisfaction Index (RUSI), multiple linear regression analysis with 'Overall satisfaction' as dependent variable and five major indicators discussed above as independent variables has been carried out using Durbin-Watson Statistic. The regression model as determined from the analysis is given as:

Overall Satisfaction = 0.12*Road Condition & Perceived Impact + 0.21*Comfort & Convenience + 0.04*Safety + 0.16*Travel Amenity + 0.16*Perception about Road Agency + 1.10 (+/- 0.29)

Sample size: 2862

The above equation represents the Model Linear Relation between 'Overall Satisfaction' as dependent variable and five major indictors as the independent variables. The coefficient to each

indicator has been derived from multiple linear regression analysis using Durbin-Watson Statistics. Linear regression equation shows the error factor as +/- 0.29 at 95 % confidence level.

The output of the multiple regression analysis essentially provides the regression equation to predict the dependent variable given the values of independent variables. In the above case, overall satisfaction is the dependent variable and the other five major indicators; road condition and its perceived impact, comfort and convenience, safety, travel amenities and perception about road agency are independent variables. The curve represented by the above equation is a straight line that best fits the observed values of the independent variables and the constant figure 1.10 is the intercept by the straight line on the ordinate i.e. on dependent variable axis.

The coefficient to each independent variable of the linear equation signifies the degree of its contribution towards the change in overall satisfaction. That means the contribution of independent variable on Overall Satisfaction will be 12% of the perception in road condition & perceived impact, 21% of the perception in comfort & convenience, 4% of the perception in safety aspects, 16% each on travel amenities and perception about road agency. The significance of the intercept (+1.10) in the present analysis) is that even if the values for all the independent variables tend to zero, there is still some satisfaction amongst the road users due to only the presence of road. Present analysis in the attributes of road users' shows comfort and convenience has the highest and the safety aspect the least contribution towards overall satisfaction.

10.4 Road Users' Satisfaction Index (RUSI)

Road users' satisfaction indices have been prepared on the basis of '1' to '5' points rating scale, significant rating of each point being as given in the following table:

Point	Satisfaction Rating
5	Highly satisfactory
4	Satisfactory
3	Neither satisfactory nor dissatisfactory
2	Dissatisfactory
1	Highly dissatisfactory

The results are separately presented for different types of roads, hilly/rolling and terai terrain, five development regions and 40 service centers in the following sub-sections:

10.4.1 Overall RUS Index

Based upon the above rating scale Road Users' Satisfaction Index has been calculated from responses received from the road users and the overall RUSI is presented in the following Table 10.6:

Table 10.6 Overall RUS Index

Indicator	Overall RUS Index
Road Condition and its perceived impact	**3.05**
Comfort and Convenience	**2.95**
Safety	**2.85**
Travel Amenities	**2.65**
Perception about Road Agencies	**3.00**

Individual RUS index for each major indicator (Table 10.6) shows the lowest value was the perception about travel amenities especially parking facilities, public toilets, public water taps, rain

shelter/bus stops workshop/mechanics etc. Responsible road agencies are therefore required to give further attention on these aspects so as to increase the level of satisfaction. RUS Indices for all types of roads are found satisfactory.

10.4.2 RUSI – Road Category Wise

The RUS Index score are further distributed separately for motorized and non-motorized users on different categories of roads as shown in Table 10.7:

Table 10.7 RUS Index for different Categories of Roads (Figures are in Index score)

S. No.	Road type	Satisfaction level (Motorized users)	Satisfaction level (Non-motorized users)	RUS Index
1	Urban Roads (UR)	**2.90**	**3.12**	**3.00**
2	Strategic Roads (SR)	**2.86**	**3.00**	**2.92**
3	District Roads (DR)	**2.69**	**2.74**	**2.71**

Motorized users sample size: 1585; Non-motorized users sample size: 1277

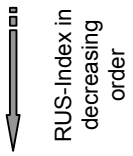
The index score shows the users' satisfaction index of both type of users (motorized and non-motorized users) is highest in urban roads, second highest in strategic roads and the least in district roads.

10.4.3 RUSI – Region Wise

From the result of users' satisfaction analysis, maximum overall index score has been achieved for western region and the least one for eastern region as shown in Table 10.8. The overall indices for other three regions were found to slightly differing. However the in-depth analysis shows a better perception on comfort and convenience, safety, improved road condition; and travel amenity aspects in central and western regions; whereas the perception about road agencies was better perceived in far-western region.

Table 10.8 RUS Index for five Development Regions (Figures are in Index score)

S. No.	Region	RUS Index
1	Western	**3.07**
2	Far-Western	**3.00**
3	Central	**2.89**
4	Mid-Western	**2.83**
5	Eastern	**2.77**



10.4.4 RUSI – Terrain Type Wise

Distribution of RUS index for different terrain types i.e. hill/rolling and Tarai is given in Table 10.9.

Table 10.9 RUSS Index for Hill/Rolling and Terai (Figures are in Index score)

S. No.	Terrain Type	RUS Index
1	Hill/Rolling terrain	2.90
2	Terai	2.90

Although the RUS indices for both the terrain types are the same, but the in-depth analysis shows the safety and travel amenities aspects in Terai region were found higher ratings by the road users.

10.4.5 RUSI – Service Centre Wise

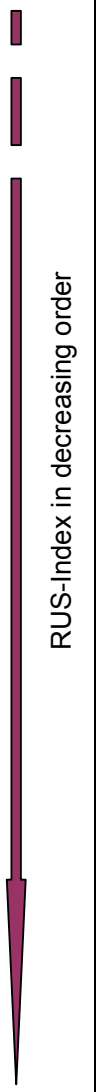
Road users' satisfaction indices at different service centers studied are presented separately in decending order as shown in table 10.10. From the table, it is observed that the overall satisfaction index at Bharatpur service center in Bharatpur city roads is found to be the highest whereas it is lowest at Rajbiraj – Balan district road. Unlike in region, road type and terrain type-wise RUS Index, there is comparatively bigger gap between the highest and lowest level of users' satisfaction which indicates road specific attributes of the users. Better roads have certainly the better perceptions to users. Service centers near well maintained roads have better rating towards users' perception.

However the in depth analysis shows the users' attributes on different outcome count differently at various service centers. Users' satisfaction level on road condition and its perceived impact is highest at Bharatpur city roads and the lowest at Lamidanda service center. Users' satisfaction level on comfort and convenience is again highest at Bharatpur city roads and lowest at Sirsiya Dry Port service center. Safety aspect is found best at Pokara city roads and worst in Rajbiraj-Balan road, Similarly the satisfaction level on travel amenities is found highest at Bharatpur & Butwal; and lowest in Mirchaiya (North) whereas the users at Dandeldhura (North) have better perception about road agencies and lowest at Hile (West) and Rajbiraj service center.

Service center wise RUS indices at different types of roads surveyed shows all the roads surveyed have the RUS indices above average i.e. towards satisfactory ratings except the last three district roads which have ratings slightly below average i.e. towards dissatisfaction.

Table 10.10 RUS Index for Different Service Centers (Figures are in Index score)

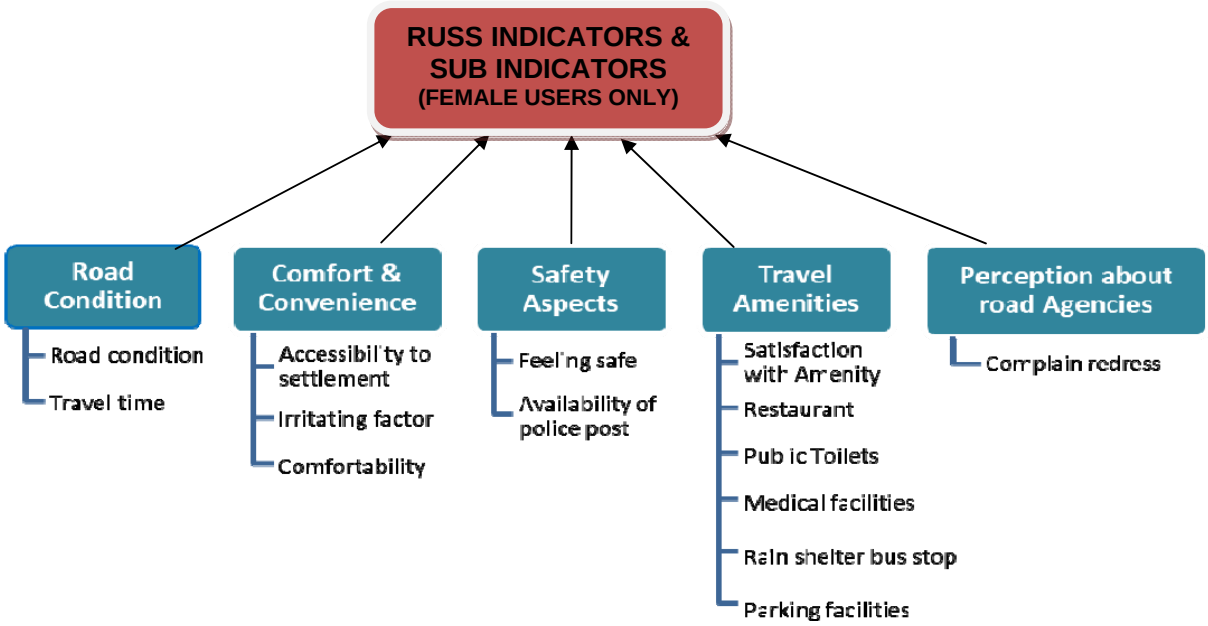
S.No.	Service Center	Road Link	RUS-III Index
1	Bharatpur	Bharatpur City Roads, UR	3.36
2	Pokhara City Roads	Pokhara City Road, UR	3.32
3	Dadeldhura (North)	MKRM (Dadeldhura – Khodpe), SR	3.24
4	Mugling (east)	PRM (Mugling-Malekhu), SR	3.22
5	Taulihawa	MRM Highway-Taulihawa, DR	3.11
6	Syaule (South)	Attariya – Syaule, SR	3.11
7	Surkhet (South)	RRM (Surkhet-Chhinchu), SR	3.08
8	Tansen (West)	Tansen-Ridhi-Tamghas, SR	3.07
9	Hetauda (North)	Samari Bridge (Hetauda-Bhainse), SR	3.03
10	Dhalkebar (west)	Ratubridge Dhalkebar – Nawalpur, SR	3.02
11	Attariya (East)	MRM (Attariya-Junga), SR	3.01
12	Butwal (South)	SRM (Butwal-Bhairahawa), SR	3.00
13	Pokhara (North)	Pokhara – Baglung at Yamdi Bridge, SR	3.00
14	Aryabhanjyang (East)	Aryabhanjyang –Rampur, DR	3.00
15	Fickle (east)	Fikkal – Pahupati Nagar, SR	2.98
16	Lahan (West)	MRM (Lahan-Mirchaiya), SR	2.96
17	Dhankuta (south)	KRM (Dhankuta Bhedetar), SR	2.94
18	Nepalgunj	Nepalgunj City Road, UR	2.93
19	Bhardaha (south)	MRM Bhardaha Rotary Towards Hanumannagar-Rajbiraj Road, SR	2.91
20	Chhinchu (East)	Chhinchu – Jajarkot, SR	2.91
21	Hetauda (West)	MRM (Hetauda-Narayanghat), SR	2.90
22	Ghorahi (West)	Ghorahi- Tulsipur, SR	2.90
23	Battisputali	Kathmandu City Road, UR	2.89
24	Abukhaireni (North)	Abukhaireni-Gorkha, SR	2.87
25	Galchhi (North)	Galchhi - Trishuli Road, SR	2.83
26	Chandranigahapur	MRM (Pathalaiya-Chandranigahapur), SR	2.81
27	Simara	TRP (Pathaliya-Birgunj), SR	2.80
28	Dungrai (Dadeldhura)	Dadheldhura-Bagakot, DR	2.79
29	Jorpati (North)	Jorpati-Sundarijal, SR	2.77
30	Mirchaiya (north)	Mirchaiya – Katari Road, SR	2.69
31	Dry Port, Sirsiya	Birgunj Thori, DR	2.66
32	Lamahi (South)	Lamahi – koilabas, DR	2.62
33	Mangal Bazaar	Lalitpur: Pulchowk-Mangal Bazar, UR	2.61
34	Biratnagar	Biratnagar Municipal Roads, UR	2.59
35	Taudaha	Chobhar-Dakshinkali Road, SR	2.53
36	Hile (West)	Hile – Bhojpur, DR	2.53
37	Baghaudda	Nepalgung – Baghaudda, DR	2.52
38	Jaleshwore	Jaleshwore – Matihani, DR	2.49
39	Lamidanda	Pachkhal–Melamchi Road, SR	2.46
40	Rajbiraj (Jamuni)	Rajbiraj – Balan, DR	2.27



10.5 Female Road Users' Satisfaction

In the present research study, there were 274 females (10%) out of 2862 total sample size. Out of 274 respondents 27 were the motorized users including drivers, whereas the rest were the non-motorized users. Satisfaction level of Female road users has been assessed on the basis of responses from female road users only.

As discussed above five major indicators followed by respective sub-indicators have been used in order to assess the overall satisfaction. However in assessing the female satisfaction, responses on those sub-indicators which are most relevant to females only are used as shown in the following figure:



Summary of overall satisfaction level of female respondents is presented in the following Table 10.11:

Table 10.11 Satisfaction Level of Female Road Users (All figures are in percentage)

Indicator	Sub-Indicator	Perceived Satisfaction Level
Road Condition and its perceived impact	Road condition	62
	Travel time	54
Comfort and Convenience	Accessibility to settlements	74
	Irritating factors	60
	Comfortability	54
Safety	Feeling safe	54
	Availability of police post	66
Travel Amenities	Satisfaction with amenities	56
	Medical facilities	58
	Rain shelter/ Bus stop	46
	Parking facilities	47
Perception about Road Agencies	Complaint redress	49

Sample size: 274

From the study of the above table, it is clear that the female attribute on road condition and its perceived impact including its sub-indicators is above average and quite satisfactory.

In comfort and convenience aspects, accessibility to settlements due to the presence of roads is quite high, (highest in all other sub indicators). Perception level of Irritating factor indicates the female travellers are quite often get irritated due to various reasons mainly the road side parking, narrow road, over speed, reckless overtaking, aggressive driving etc. along the roads in Nepal. Similarly the comfortability as a whole is also towards satisfactory level.

In safety aspects, overall safety feeling is above satisfactory while availability of police post is highly satisfactory. In travel amenity aspects, satisfaction with the road side travel amenities and availability of medical facilities is quite satisfactory. On the other hand the perception on other indicators namely rain shelter/bus stop and parking facilities etc. are towards dissatisfactory to female road users. Responsible road agency is therefore, required to properly address such issues during the construction of road and/or during upgrading/rehabilitation stage.

In female respondents' perception, the complaint redressal practices of various road agencies have been found slightly below average i.e. towards dissatisfactory.

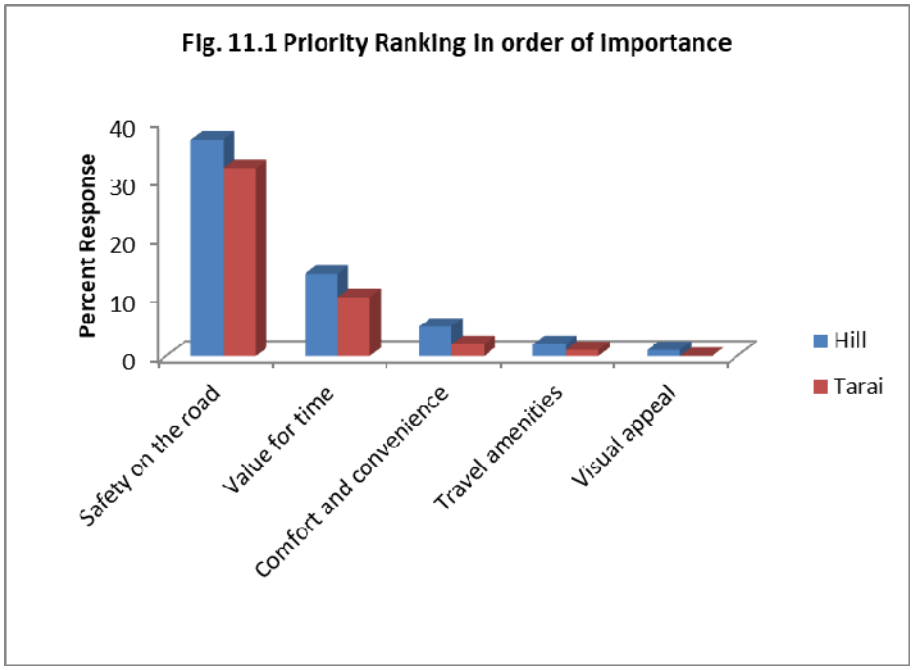
11. PRIORITY FOR IMPROVEMENT

11.1 Priority for Improvement for Better Road Services

Construction and maintenance of safe, reliable and comfortable roads in rugged terrain of Nepal is a challenging task. In these regards, the research work has been focused to elicit the attributes of different road users on priorities for improvements on better road services to be delivered by road agencies. Various factors considered were, value for time, comfort and convenience, safety on roads, travel amenities and visual appeal. Various respondents were asked to rank them in order of their importance while commuting on roads in Nepal. Ranks have been assigned from 1 to 5, where '5' being the most important, '4' for important and so on. Percentage response on ranking by the road users is shown in Table 11.1 and presented graphically in Fig. 11.1.

Table 11.1 Priorities for Better Road Services

Factors	Response				Total		Rank
	Hill		Terai		Nos	%	
	Nos	%	Nos	%			
Safety on the road	1072	37	906	32	1978	69	5
Value of time	399	14	300	10	699	24	4
Comfort and convenience	140	5	63	2	203	7	3
Travel amenities	61	2	17	1	78	3	2
Visual appeal	32	1	6	0	38	1	1



Majority of road users (69%) have given the first priority to **"*Safety on the roads*"** while traveling or driving on roads. The major concern of road agencies should thus be focused on improvement of safety aspect of road users. The second priority has been given to ***"value for time"*** and then to ***"Comfort and convenience"*** whereas the priorities given to other factors, ***"travel amenities" and "visual appeal"*** were insignificant.

11.2 Priorities for Better Road Management

As in section 11.1, research work has been focused to elicit the attributes of different road users on priorities for improvements on better road management by road agencies in terms of maintenance and additional facilities. Various factors considered were, construction of wider roads and widening of existing one, improvement of road width and curves, provision of additional road side facilities, enforcement of traffic rules and provision/installation of informatory/warning signs. Various respondents were asked to rank them in order of their importance while commuting on roads in Nepal. Ranks have been assigned from 1 to 6, where '6' being the most important then '5' for importance and so on. Percentage response on ranking by the road users in Hilly and Terai roads is shown in Table 11.2 and presented in Fig. 11.2.

Table 11.2 Priorities for Better Road Management

Priorities for better road management	Response				Total		Rank
	Hill		Terai		Nos	%	
	Nos	%	Nos	%			
Make significant road width	670	23	360	13	1030	36	6
Maintain the road in good condition	543	19	367	13	910	32	5
Widening/Improvement of Curves	443	15	213	7	656	23	4
Informatory/Warning Signs	241	8	180	6	421	15	3
Tougher road traffic rules enforcement	189	7	136	5	325	11	2
More road Side Facilities	188	7	91	3	279	10	1

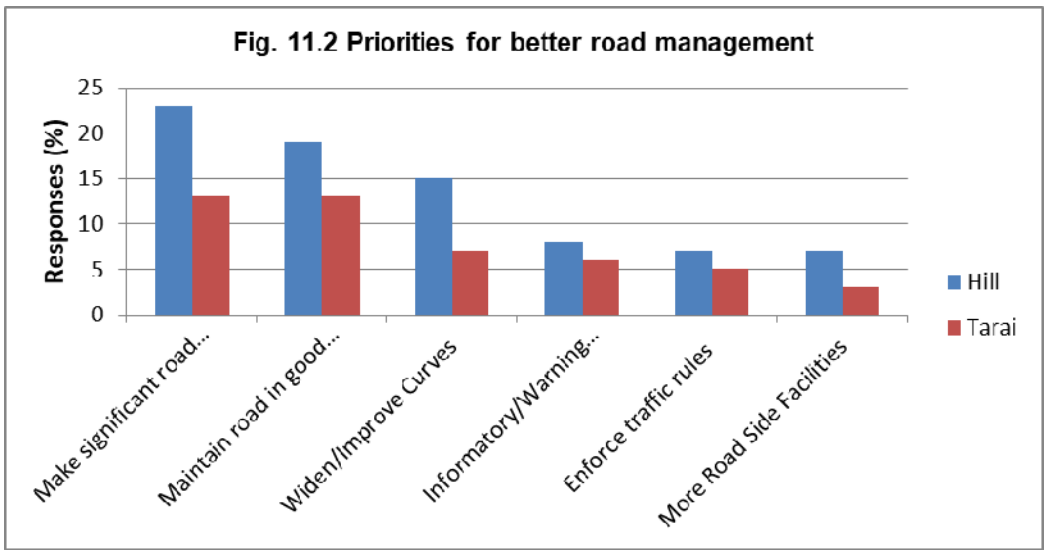


Figure 11.2 shows the road user's perception for better road management of various roads both in Hill and Terai regions.

Majority of road users (nearly 36%) have given the first priority to widening of existing roads and second priority to maintain the roads in good condition, while the third priority is given to widening/improvement of curves during maintenance. Priorities for provision of informatory /warning signs, enforcement of tougher traffic rules and more road side facilities are given similar but comparatively lower rankings.

12. COMPARISON BETWEEN RUSS-II & RUSS-III

12.1 Comparison of Satisfaction Level between RUSS-I, RUSS-II and RUSS-III

The first Road Users' Satisfaction Survey-I (RUSS-I) in Nepal was undertaken in 2006 and RUSS-II in 2012/13 whereas the present survey RUSS-III has been conducted in 2016/17. That means there is a gap of 6 years between the first two consecutive surveys and 4 years gap between the second and present one.

In this chapter, comparison between selected key variables which were common in RUSS-I, RUSS-II and RUSS-III has been presented.

12.1.1 Awareness of traffic rules and regulations

A comparison between the three surveys is shown in Table. 12.1. From this table, it is obvious that the awareness of traffic rules and regulations among the road users has substantially increased in RUSS-III since RUSS-I but slightly decreased since RUSS-II. However the difference between RUSS-II & III is very low.

Table 12.1 Awareness of traffic rules (All figures are in %)

Traffic Awareness	RUSS-I	RUSS-II	RUSS-III
Yes	43	85	83
No	57	15	17

12.1.2 Appropriate place for installing road signs

Outcome of the comparative response is shown in Table 12.2, which shows that the attribute to the appropriate place for installation of road signs at sharp bends and land slide areas has significantly increased in RUSS-III since the time RUSS-II was conducted. However the attributes in RUSS-III have reduced since RUSS-I which indicates additional road signs have been installed at those locations since RUSS-I was conducted.

Table 12.2 Appropriate place to install road signs

Appropriate Road Sign	RUSS-I	RUSS-II	RUSS-III
Near School	98	80	94
Near Hospital	95	73	82
Narrow Road	94	63	64
Sharp Bends	96	28	70
Pedestrians crossing	98	72	67
Land Slide Area	96	19	60
Highly accident Location	95	70	61

12.1.3 Medical Facilities

Table 12.3 shows the availability of medical facilities in RUSS-I, II & III. The outcome shows the availability of medical facilities remained more or less the same during the time of RUSS-II and III. It also shows the private hospital (mainly clinic) are more than the government ones.

Table 12.3 Availability of Medical Facilities

Medical Facilities	RUSS-I	RUSS-II	RUSS-III
Government hospital	61	45	43
Private hospital (mainly clinic)	33	54	55
None of above	6	1	2

12.1.4 Availability of Petrol Pumps

Table 12.4 shows the comparison of satisfaction level on availability of petrol pumps in RUSS-I, RUSS- II and RUSS-III. Satisfaction level on availability of petrol pumps in RUSS-II & III remained same (79%). However the dissatisfaction has increased from 2 to 16 percent in RUSS-III since RUSS-II.

Table 12.4 Availability of Petrol Pumps

Petrol Pump	RUSS-I	RUSS-II	RUSS-III
Satisfied	74	79	79
Neither Satisfy nor dissatisfied	17	19	6
Dissatisfied	8	2	16

12.1.5 Road Safety

The outcome of the result shows that the satisfaction level of road users on safety aspect has significantly increased in RUSS-III since RUSS-I & II consequently the reduction in dissatisfaction level. Furthermore the road users are gradually becoming more conscious about road safety aspects. Intermediate response such as 'neither good nor bad' remained almost same in RUSS-II & III. Table 12.5 shows the comparative satisfaction level of road safety in RUSS-I, RUSS-II & RUSS-III.

Table 12.5 Road Safety

Safety	RUSS-I	RUSS-II	RUSS-III
Good	21	38	68
Neither good Nor Bad	58	19	18
Bad	21	43	14

12.1.6 Road Width

Comparative Table-12.6 shows the satisfaction level on adequacy of road width has decreased in RUSS-III since RUSS-II, which may be due to increasing traffic volume with road width remaining the same. Comparatively district and urban roads widths were responded inadequate as compared to those of strategic roads.

Table 12.6 Road Width

Road Width	RUSS-I	RUSS-II	RUSS-III
Adequate	13	42	35
Neither Adequate nor inadequate	43	30	11
Inadequate	44	28	50

12.1.7 Road Reliability

Comparison of survey result as given in Table 12.7 shows that the road users are more satisfied with road reliability in RUSS-III since RUSS-I & II.

Table 12.7 Road Reliability

Road reliability	RUSS-I	RUSS-II	RUSS-III
Reliable	16	44	69
Neither reliable nor unreliable	63	45	15
Unreliable	21	11	17

12.1.8 Road Congestion

Table-12.8 shows the comparison of satisfaction level of road users on the issue of road congestion in RUSS-III, RUSS-II and RUSS-I. Nearly 59 percent respondents in RUSS-III against 33 percent in

RUSS-I and 41 percent in RUSS-III said that the roads are free from congestion while on the other hand, 24 percent said 'highly congested'. Thus, we can say that the satisfaction level on the issue of road congestion in RUSS-III has slightly improved since RUSS-I & II.

Table 12.8 Road Congestion

Congestion	RUSS-I	RUSS-II	RUSS-III
Free of congestion	33	41	59
Neither free nor congested	37	23	16
Highly congested	30	36	24

12.1.9 Quality of Road Maintenance

Table 12.9 shows the comparison of quality of road maintenance work in RUSS-I, RUSS-II & RUSS-III. The comparison shows a significant improvement on the quality of road maintenance work in RUSS-III as compared to RUSS-I, but only a marginal improvement since RUSS-II.

Table-12.9 Quality of Road Maintenance

Quality of Maintenance	RUSS-I	RUSS-II	RUSS-III
Satisfied	8	52	54
Neither satisfied nor dissatisfied	35	36	22
Dissatisfied	57	12	24

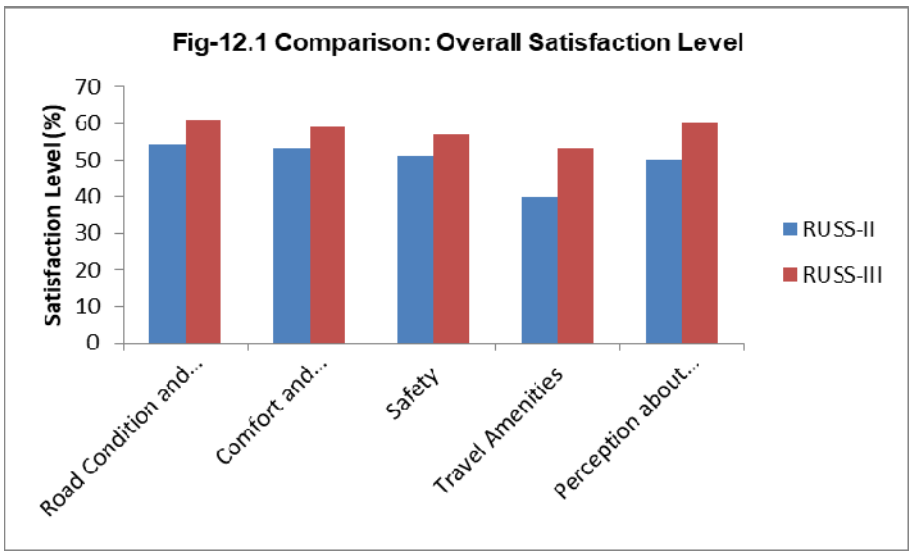
12.2 Comparison of Satisfaction Level between RUSS-II and RUSS-III

12.2.1 Overall Satisfaction

Comparison between the overall satisfaction levels on five main indicators is given in Table 12.10, which shows an improved level of satisfaction on all indicators in RUSS-III since RUSS-II.

Table 12.10 Overall Satisfaction Level

Indicator	Satisfaction Level (%)	
	RUSS-II	RUSS-III
Road Condition and its perceived impact	54	61
Comfort and Convenience	53	59
Safety	51	57
Travel Amenities	40	53
Perception about Road Agencies	50	60

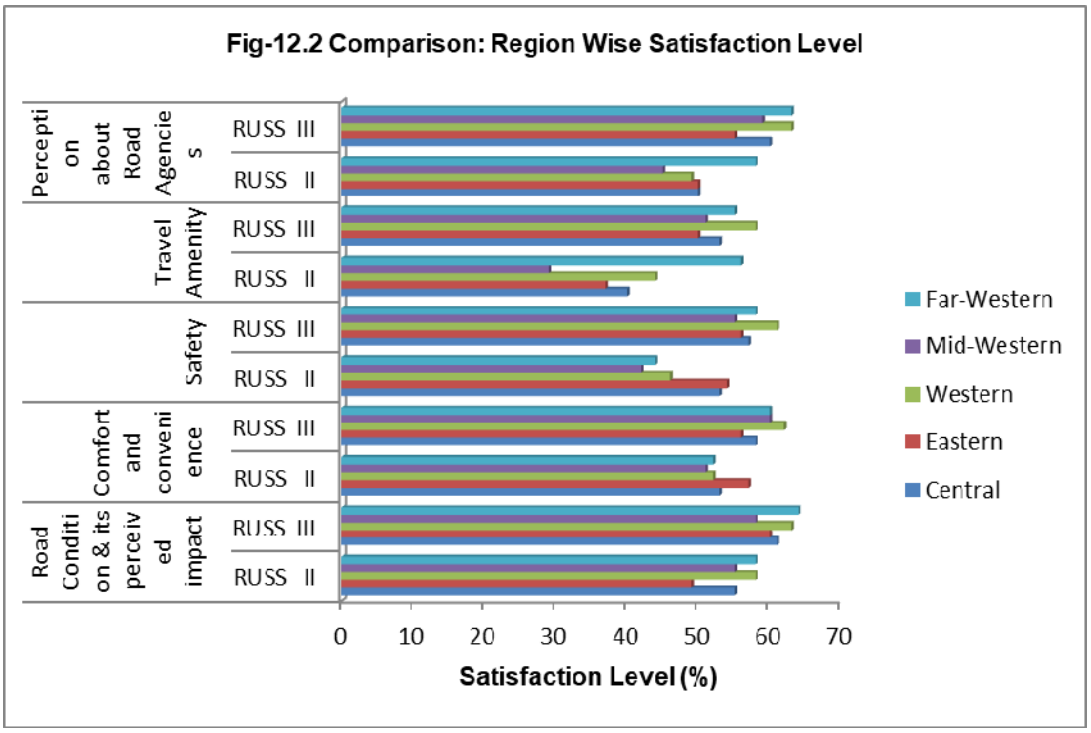


12.2.2 Region Wise distribution

Region wise distribution of satisfaction level is given in Table 12.11. Result shows slight improvement in satisfaction level in all regions in every aspect except in comfort and convenience in eastern region.

Table 12.11 Region Wise Comparison of Satisfaction Level (All figures are in percentage)

Region	Road Condition & its perceived impact		Comfort and convenience		Safety		Travel Amenity		Perception about Road Agencies	
	RUSS II	RUSS III	RUSS II	RUSS III	RUSS II	RUSS III	RUSS II	RUSS III	RUSS II	RUSS III
Central	55	61	53	58	53	57	40	53	50	60
Eastern	49	60	57	56	54	56	37	50	50	55
Western	58	63	52	62	46	61	44	58	49	63
Mid-Western	55	58	51	60	42	55	29	51	45	59
Far-Western	58	64	52	60	44	58	56	55	58	63



12.2.3 Terrain type wise distribution

Comparison of terrain type wise distribution of satisfaction level of road users is shown in Table 12.12, which shows slight improvement of satisfaction level of all the indicators both in hilly and Tarai terrain.

Table 12.12 Terrain Type Wise Comparison of Satisfaction (All figures are in percentage)

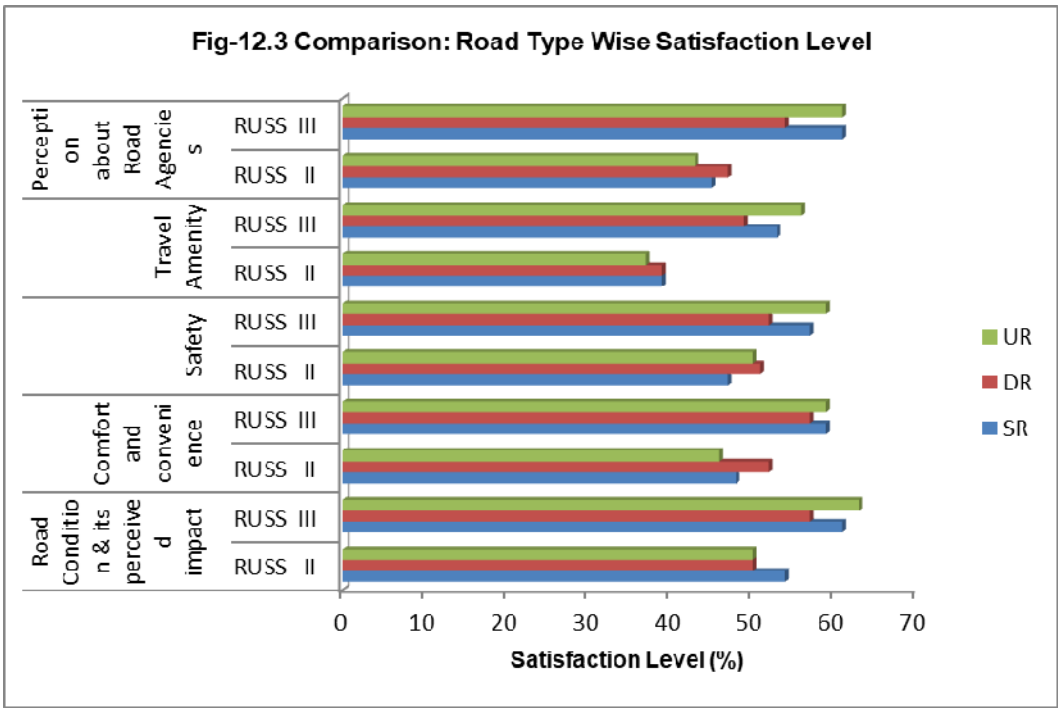
Region	Road Condition & its perceived impact		Comfort and convenience		Safety		Travel Amenity		Perception about Road Agencies	
	RUSS II	RUSS III	RUSS II	RUSS III	RUSS II	RUSS III	RUSS II	RUSS III	RUSS II	RUSS III
Hill	56	61	54	58	50	58	40	52	50	61
Terai	53	62	52	59	52	56	41	54	49	59

12.2.4 Road Type Wise distribution

Table 12.13 shows the comparison of road users' satisfaction level for different categories of roads. The survey result shows that the satisfaction level on all aspects are better in RUSS-III than in RUSS-II.

Table 12.13 Road Type Wise Comparison of Satisfaction Level (All figures are in percentage)

Region	Road Condition & its perceived impact		Comfort and convenience		Safety		Travel Amenity		Perception about Road Agencies	
	RUSS II	RUSS III	RUSS II	RUSS III	RUSS II	RUSS III	RUSS II	RUSS III	RUSS II	RUSS III
SR	54	61	48	59	47	57	39	53	45	61
DR	50	57	52	57	51	52	39	49	47	54
UR	50	63	46	59	50	59	37	56	43	61



12.2.5 Service Centre Wise

Comparison between RUSS-II and III of satisfaction level of respondents at different service center is shown in Table 12.14. The overall satisfaction level in the present study is found best in Bharatpur service center followed by Pokhara, while it was Lahan west in RUSS-II and the lowest satisfaction level is at Rajbiraj (Jamuni) service center, while it was Mirchaiya (North) in RUSS-II. Individual satisfaction level to each indicator shows better results in most of the service centers. However there are service centers where some of the indicators have declined since RUSS-II. Such results are highlighted in Table 12.14. As compared to RUSS-II, overall satisfaction has decreased in Lahan (West) and Dungrai (Dadeldhura) service centers while it has improved in all other service centers in RUSS-III.

Table 12.14 Overall satisfactions on Service Center Wise (All figures are in percentage)

Service Center No.	Region	Road Condition & perceived impact		Comfort and convenience		Safety		Travel Amenity		Perception about Road Agencies	
		RUSS II	RUSS III	RUSS II	RUSS III	RUSS II	RUSS III	RUSS II	RUSS III	RUSS II	RUSS III
1	Lahan (West)	69	66	70	59	57	59	48	51	70	61
2	Biratnagar	41	53	38	52	53	49	35	54	30	51
3	Rajbiraj (Jamuni)	27	51	42	54	47	38	26	39	21	45
4	Bhardaha (south)	34	66	36	56	61	64	30	47	30	58
5	Mirchaiya (north)	29	58	34	57	46	54	26	46	32	54
6	Fickle (east)	55	66	70	56	56	62	36	53	54	61
7	Dhankuta (south)	61	62	75	60	53	65	26	52	66	55
8	Hile (West)	32	55	41	52	49	47	27	54	34	45
9	Chandranigahapur	58	61	63	59	60	55	43	51	50	55
10	Simara	60	62	58	57	54	54	41	51	50	56
11	Bharatpur	63	73	64	67	46	63	39	66	55	67
12	Dry Port, Sirsiya	41	59	36	50	54	51	28	46	36	60
13	Jaleshwore	33	51	38	54	47	49	23	44	34	51
14	Dhalkebar (west)	51	66	53	63	62	63	45	50	49	60
15	Hetauda (West)	56	63	52	57	53	55	53	52	47	63
16	Mugling (east)	64	68	62	64	57	64	40	59	58	67
17	Jorpati (North)	46	56	37	53	42	57	42	50	36	61
18	Lamidanda	42	44	44	51	48	49	45	53	46	49
19	Battisputali	46	58	45	58	65	58	35	53	42	62
20	Mangal Bazaar	52	55	44	52	41	50	39	50	48	54
21	Hetauda (North)	63	62	65	61	51	59	31	55	58	66
22	Taudaha	42	51	35	52	52	50	30	50	39	50
23	Galchhi (North)	69	53	64	57	55	61	29	53	51	59
24	Butwal (South)	65	62	48	59	43	50	49	65	53	64
25	Taulihawa	62	66	50	60	40	61	42	59	49	65
26	Pokhara City Roads	50	73	45	64	42	69	48	60	42	66
27	Abukhaireni (North)	58	57	65	57	53	60	40	52	53	61
28	Aryabhanjyang, East	53	64	42	61	40	58	26	57	43	60
29	Tansen (West)	58	61	54	61	48	61	29	60	56	64
30	Pokhara (North)	65	63	67	59	48	58	52	58	52	62
31	Nepalgunj	52	59	50	60	43	58	26	58	43	58
32	Ghorahi (West)	61	59	57	59	45	53	35	55	53	64
33	Baghaudda	46	50	44	57	31	49	23	47	27	49
34	Surkhet (South)	51	64	44	62	47	59	33	59	46	64
35	Lamahi (South)	58	55	48	56	37	51	27	47	37	53
36	Chhinchu (East)	61	53	59	62	41	56	25	59	53	61
37	Attariya (East)	57	61	53	62	45	58	61	63	55	57
38	Syaule (South)	60	65	52	61	41	63	59	55	67	67
39	Dadeldhura (North)	46	70	46	64	35	64	47	56	42	70
40	Dungrai, Dadeldhura	67	54	53	60	50	57	55	48	57	60

12.3 Comparison of RUS-Index between RUSS-II and RUSS-III

12.3.1 Overall RUS Index

Comparison between the overall RUS Index on five main indicators is given in Table 12.15, which shows indices for different indicators are higher in RUSS-III than RUSS-II.

Table 12.15 Comparison of overall RUS Index

Indicator	Overall RUS Index	
	RUSS II	RUSS III
Road Condition and its perceived impact	**2.70**	**3.05**
Comfort and Convenience	**2.65**	**2.95**
Safety	**2.55**	**2.85**
Travel Amenities	**2.00**	**2.65**
Perception about Road Agencies	**2.50**	**3.00**

12.3.2 RUSI – Road Category Wise

A comparative list of RUS Index score for different categories of roads is presented in Table 12.16. From the result it can be observed that RUS index obtained from motorized users in strategic roads remained same in both the surveys, while it is increased for non-motorized users. In case of district and urban roads, it is found increased in RUSS-III for all road users since RUSS-II.

Table 12.16 Comparison of RUS Index for different Categories of Roads

S. No.	Road type	RUS Index (Motorized users)		RUS Index (Non-motorized users)		Overall RUS Index	
		RUSS II	RUSS III	RUSS II	RUSS III	RUSS II	RUSS III
1	Strategic Roads (SR)	**2.86**	**2.86**	**2.23**	**3.00**	**2.49**	**2.92**
2	District Roads (DR)	**2.30**	**2.69**	**2.70**	**2.74**	**2.52**	**2.71**
3	Urban Roads (UR)	**2.60**	**2.90**	**2.25**	**3.12**	**2.39**	**3.00**

All Figures are in Index score

Motorized users sample size: 1585; Non-motorized users sample size: 1277

12.3.3 RUSI – Region Wise

Comparative list of RUS indices region-wise is presented in table 12.17. From the table it is observed that the RUS indices in RUSS-III have increased in all five development regions since RUSS-II.

Table 12.17 Comparison RUS Index for five Development Regions

S. No.	Region	RUS Index	
		RUSS II	RUSS III
1	Far-Western	2.88	**3.00**
2	Western	2.67	**3.07**
3	Central	2.64	**2.89**
4	Eastern	2.60	**2.77**
5	Mid-Western	2.37	**2.83**

All figures are in Index score.

12.3.4 RUSI – Terrain Type Wise

Comparative table shows the RUS indices increased in RUSS-III since RUSS-II in both hilly and Tarai terrains.

Table 12.18 Comparison RUSS Index for Hill/Rolling and Terai

S. No.	Terrain Type	RUS Index	
		RUSS II	RUSS III
1	Hill/Rolling terrain	2.65	2.90
2	Terai	2.60	2.90

Figures are in Index score.

12.3.5 RUSI – Service Centre Wise

Comparative RUS indices for RUSS-II and III at different service centers studied are presented in table 12.19. From this comparison we can see the RUS index at four service centers, namely Lahan (West), Pokhara (North), Dungrai (Dandeldhura) and Chandranigahapur have slightly decreased in RUSS-III since RUSS-II, while it is increased in all other service centers. This indicates the road users' satisfaction has increased in most of the roads since RUSS-II.

Table 12.19 RUS Index for Different Service Centers (Figures are in Index score)

S. No.	Service Center	Road Link	RUS Index	
			RUSS II	RUSS III
1	Lahan (West)	MRM (Lahan-Mirchaiya), SR	3.28	2.96
2	Pokhara (North)	Pokhara – Baglung at Yamdi Bridge, SR	3.08	3.00
3	Dungrai (Dadeldhura)	Dadheldhura-Bagakot, DR	3.00	2.79
4	Syaule (South)	Attariya – Syaule, SR	2.98	3.11
5	Attariya (East)	MRM (Attariya-Junga), SR	2.95	3.01
6	Mugling (east)	PRM (Mugling-Malekhu), SR	2.93	3.22
7	Dhankutta (south)	KRM (Dhankuta Bhedetar), SR	2.91	2.94
8	Chandranigapur	MRM (Pathalaiya-Chandranigahapur), SR	2.89	2.81
9	Bharatpur	Bharatpur City Roads, UR	2.85	3.36
10	Fikkal (east)	Fikkal – Pahupati Nagar, SR	2.85	2.98
11	Abukhaireni (North)	Abukhaireni-Gorkha, SR	2.84	2.87
12	Hetauda (West)	MRM (Hetauda-Narayanghat), SR	2.81	2.90
13	Hetauda (North)	Samari Bridge (Hetauda-Bhainse), SR	2.79	3.03
14	Galchhi (North)	Galchhi - Trishuli Road, SR	2.78	2.83
15	Simara	TRP (Pathaliya-Birgunj), SR	2.78	2.80
16	Butwal (South)	SRM (Butwal-Bhairahawa), SR	2.76	3.00
17	Dhalkebar (west)	Ratubridge Dhalkebar – Nawalpur, SR	2.72	3.02
18	Ghorahi (West)	Ghorahi- Tulsipur, SR	2.66	2.90
19	Taulihawa	MRM Highway-Taulihawa, DR	2.63	3.11
20	Tansen (West)	Tansen-Ridhi-Tamghas, SR	2.55	3.07
21	Chhinchu (East)	Chhinchu – Jajarkot, SR	2.53	2.91
22	Pokhara	Pokhara City Road, UR	2.48	3.32
23	Mangal Bazar	Pulchowk-Mangal Bazar, UR	2.41	2.61
24	Lamidanda	Pachkhal–Melamchi Road, SR	2.40	2.46
25	Dadeldhura (North)	Dadeldhura – Khodpe, SR	2.39	3.24
26	Battisputali	Kathmandu City Road, UR	2.38	2.89
27	Surkhet (South)	RRM (Surkhet-Chhinchu), SR	2.33	3.08
28	Nepalgunj	Nepalgunj City Road, UR	2.28	2.93
29	Lamahi (South)	Lamahi – koilabas, DR	2.25	2.62
30	Jorpati (North)	Jorpati-Sundarijal, SR	2.21	2.77
31	Aryabhanjyang (East)	Aryabhanjyang –Rampur, DR	2.17	3.00
32	Biratnagar	Biratnagar Municipal Roads, UR	2.10	2.59
33	Taudaha	Chobhar-Dakshinkali Road, SR	2.06	2.53
34	Dry Port, Sirsiya	Birgunj Thori, DR	2.02	2.66
35	Bhardaha (south)	Bhardaha-Hanumannagar-Rajbiraj, SR	1.98	2.91
36	Hile (West)	Hile – Bhojpur, DR	1.94	2.53
37	Baghaudda	Nepalgung – Baghaudda, DR	1.93	2.52
38	Jaleshwore	Jaleshwore – Matihani, DR	1.84	2.49
39	Rajbiraj (Jamuni)	Rajbiraj – Balan, DR	1.79	2.27
40	Mirchaiaya (north)	Mirchaiya – Katari Road, SR	1.77	2.69

12.4 Comparison of Female Satisfaction Level between RUSS-II and RUSS-III

Summary of overall satisfaction level of female respondents is presented in the following Table 12.20.

Table 12.20 Satisfaction Level of Female Road Users (All figures are in percentage)

Indicator	Sub-Indicator	Perceived Satisfaction Level	
		RUSS II	RUSS III
Road Condition and its perceived impact	Road condition	**59**	62
	Travel time	**58**	54
Comfort and Convenience	Accessibility to settlements	**72**	74
	Irritating factors	**72**	60
	Comfortability	**64**	54
Safety	Feeling safe	**13**	54
	Availability of police post	**99**	66
Travel Amenities	Public toilet	**11**	56
	Restaurants	**89**	
	Public taps	**10**	
	Medical facilities	**70**	58
	Rain shelter/ Bus stop	**1**	46
	Parking facilities	**5**	47
Perception about Road Agencies	Complaint redress	**75**	49

From the study of the above comparative table, it is clear that the female attribute on various sub indicators has mixed outcome. As seen from the table, satisfaction level in some sub-indicators is increased while in others it is decreased in RUSS-III since RUSS-II. Considering the overall perception for main indicators, female satisfaction level in Road Condition and its perceived impact remained more or less the same in both surveys and increased in safety and travel amenities while it is decreased in comfort and convenience; and perception about road agencies.

13. IEC MATERIALS

13.1 Preparation of IEC Materials

In order to effectively disseminate and increase the level of awareness and alertness to road-users for rational use of the roads by all users, the consultant has prepared standard tools for Information, Education and Communication (IEC) to road users elaborating all relevant aspects of users' satisfaction.

The IEC material contains information dissemination tools like flyers of pamphlets, calendars, leaflets, brochures, slogans etc. Local FM radio and local channels in Television are taken as the modest way for effectively disseminating necessary knowledge and information to all road-users and stakeholders. These activities will have to be carried out by various road agencies in close coordination with the stakeholders, local government, traffic police, department of transport management and other responsible organizations/ peoples as required.

The complete IEC material is divided into **Three Sections**:

The **First Section** explains basic information about road, its types, maintenance strategies and concerned agencies of respective roads. It provides information to stakeholders about the different types of road, axel-load limit, road-maintenance modality of Roads Board Nepal and road maintenance provision. An overview of Roads Board Nepal is provided to increase public-awareness about RBN, its responsibility, duties, organizational structure and procedure, budgeting system, resource collection and mobilization.

The **Second Section** deals with educative material which will provide basic knowledge to the road users on rational use of the road. Basically it has given priority to prime stakeholder and concerned agencies for the use of road. It tries to educate through the respective right, responsibilities and obligations to the stakeholder. Priority and main focus is given to the drivers, operators, construction entrepreneurs, pedestrians, government agencies and road neighbor to educate them through the educative materials.

The **Third Section** deals with the communicative materials, which include a sample of public notice to increase awareness and rational use of the road, some effective slogans to share with co-workers and a concept of using Radio/FM for communicating the message.

It is very essential to conduct a detail survey and consultation of effectiveness of media and programme-design to be broadcasted by Roads Board Nepal. A detail working plan schedule and modality of Radio/ FM broadcasting is described. Radio/FM and TV are considered very effective medium of communication and comprises a large number of listeners. Radio/FM, its detail programme schedule, nature, cover-area, targeted group and rationality for the programme is mentioned in this section. It is suggested that before establishing its FM Station; Roads Board Nepal has to connect through national FM station negotiating certain peak time and broadcast programme with local FM stations. When Roads Board Nepal is able to establish its own FM station then it has to broadcast its own program in a full-fledged manner. It also has to raise public awareness through short-term advertisement in different popular electronic-media and television serials using popular actors and actresses. IEC Material is attached in Annex-VI.

14. FUTURE POLICY AND OPERATIONAL PRIORITIES

While conducting the field survey some queries were raised by team members in order to understand the road users' perceptions on future policy and operational priorities needed to be adopted by the various road agencies that would contribute for better attributes affecting the satisfaction level of stakeholders. It was a challenging task that needed to be adopted by the concerned road agencies. Based on discussions with various stakeholders; there are certain inputs pertaining to various policy initiatives to be under taken. These views will guide road agencies in streamlining their policies and operational management according to its relevance to different aspects of users' satisfactions such as road maintenance, road safety, traffic management and private sector participation.

14.1 Road Maintenance Aspects

Road-users' perceptions on various aspects concerning road-maintenance was based mostly on qualitative responses. However, users' responses to the quantitative questionnaires that will be relevant in prioritizing future policy for road-maintenances are highlighted below:

Timely procurement

Road users pointed out that the procurement process of maintenance works is mostly imitated at the last moment of the fiscal year. It takes quite long time in program approval, bidding and contract agreement. Road users' have therefore suggested the road agencies to early start of procurement process and it should be transparent to all stakeholders.

Timely Implementation of works

Road users have complaint that maintenance works is often carried out at the last moment of the year when rainy season already starts and gave their views the road maintenance and improvement works should be carried out regularly and timely by maintaining the specified quality of works effectively in time bound manner. Regular and strict supervision by the Engineer during the implementation, and effective monitoring and evaluation by the higher authorities should be conducted regularly in order to ensure the quality of works. Their main concerns were to incorporate strong policy, which encourages provision of reward and punishment to those who are involved in road maintenance works.

Wider and congestion-free roads with proper drainage system

Road users were also concerned that most of the roads especially district and urban roads are not wide enough for the alarming trend of traffic growth on existing roads and as such the safety and comfortability is gradually decreasing. Furthermore the situation is worsened on the event of heavy rainfall during monsoon season. Encroachments by local people living nearby the roads aggravate this situation adding more to congestion level. Such problems can be overcome by providing wider road and proper drainage system.

Right-of-way

As road agencies are facing problems due to encroachment of right-of-way, road users suggested that it can be made free from encroachment with the help of local NGOs/local political leaders, local administration and police so as to ensure the potentiality of further expansion of road width in future.

Proper coordination

Road users are mostly concerned about the sustainability and durability of maintenance works. In their responses, roads after being maintained are frequently damaged due to laying of utility infrastructure especially in urban roads. There is information/coordination gap between road agencies as well as other related organizations; mainly those responsible for utility service providers mainly water supply and sewerage, telecom and electricity. Proper coordination between these organizations has to be made during maintenance planning stage.

14.2 Road Safety Aspect

Awareness and Education Programs

There is a need to increased awareness about various aspects through a certain sustainable campaign such as raising road safety awareness programs on media/TV and including traffic education program in school curriculum. Participation of NGOs, schools, chambers of commerce, traffic police, media personnel and other community-based organizations etc. need to be encouraged in raising awareness for road traffic management. Safety awareness programs should be conducted for drivers and road users as well.

Enforcement of traffic rules and regulations

It is not enough to increase the awareness about safe road behavior; rather there is urgent need for effective enforcement of traffic rules and regulations with the help of traffic police. Complaints and grievances raised by road users are valid issues such as violating traffic regulations, reckless driving and crossing by pedestrian/cattle, alcohol-drunk drivers, over speed, liberal issue of license etc. which need to be taken care by enforcing traffic rules and regulations.

Road marking & traffic sign management, and physical Improvement

Most of the road users complained that road markings and traffic signs are mostly either at improper location or insufficient during day/night travel. Sufficient numbers of traffic signs are not placed at proper locations and critical places such as sharp bends, blind curves, diversions and road works in progress etc. Road marking paints are not visible thereby making it more difficult to maintain lanes and estimate the road edges. In order to avoid road accidents particularly during night travel, marking paints and sufficient traffic signs at proper locations need to be given proper attention especially on roads in hilly terrain. From the road safety point of view, improvement works such as widening of sharp and narrow roads need to be undertaken so as to meet the anticipated traffic volume, and separate lanes for pedestrian and non-motorized vehicles has to be provided.

14.3 Traffic Management

Speed limits

In plain terrain, over-speeding on narrow roads and curves result to fatal accidents. Road users suggested that speed limits should be specified for segments of roads at key locations like schools, hospitals, densely populated and city areas.

Removal of old vehicles

Road users complained that the concerned road agencies need to reform their policies with regards to pollutions resulting from old vehicular emissions. They said very old vehicles should be banned from the urban areas and stressed for regular inspection of vehicles by concerned authority.

Road Amenities

Road agency cannot provide all road amenities on its own but can act as a facilitator. Amenities like restaurants, public toilets, parking places, drinking water taps, medical facilities, police posts etc. can be constructed adequately at appropriate locations by persuading the local NGOs, local community-based organizations.

Private-Sector Participation

Road users raised their concerns regarding private-sector participation in the maintenance and improvement of road works. A few road users advocated for private-sector management of road maintenance, assuring quality and cost-economy resulting from competitive bidding when compared with the present system the road agencies have been adopting.

Mobile App 'Mero Sadak'

Mobile application recently developed by Roads Board Nepal has been found very useful to road users for providing road related information or complaining travel issues to RBN instantly. However, from the survey it has been found that almost none of the road users' was familiar with this application. Few of them could realize its importance only after our enumerators introduced it to them. Some of them have downloaded the application too. It is therefore required to mass introduce

it by RBN. Furthermore, the application could be downloaded in Android version only. It has to be upgraded so that the road users can download it in IOS version too. On the other hand RBN also should promptly address the issues raised through this application.

15. CONCLUSION AND RECOMMENDATIONS

For Road Users' Satisfaction Survey-III, a total of 2862 main and vulnerable road users; and 245 focused group users were interviewed through quantitative questionnaires and qualitative interaction/discussions on 40 different service centers covering 1123 km of strategic roads, 231 km district roads and 146 km urban roads throughout the kingdom of Nepal. Survey findings are elaborately explained and presented in various sections supplemented with relevant Tables and Charts in the previous respective chapters. Conclusion and recommendations on the basis of survey finding and analysis are made hereunder:

15.1 Conclusion

a. Respondents' Profile:

- Survey analysis shows that majority of respondents (71%) were below secondary level, 22% SLC and 10+2 and 7 % graduate and above. Among them household, farmers and pedestrians are found more educated than other respondents.
- Nearly 35% of the respondents have access to read newspaper, 27% listen FM radio, 45% watch TV and only 2% use internet.
- Majority of respondents (73%) adhere to traffic rules and regulations and follow them strictly in SR but only 9% respondents in DR and 18% respondents in UR adhere to these rules. Traffic rules violators were found mostly rickshaw pullers, motorcyclist, tempo drivers and bi-cyclist.
- Majority of the respondents, 59 percent are serving on temporary basis, 37 percent on permanent basis and only 4 percent are serving on contract basis.
- Most of the drivers, nearly 89% were having professional experience of more than 5 years and those below 5 years of experience were only 11 percent.

From the above respondent's profile it can be concluded that the concerned Road Agencies, Traffic Police and DoTM are required:

- To focus their awareness or training programs on the basis of users' education level.
- Broadcasting traffic related issues and information thorough TV and FM radio and publish in local newspaper are most effective.
- Traffic rules and regulations, and road signs be made simple and easy to understand by illiterate to just literate road users too.
- Reform and strictly enforce the traffic rules and regulations and traffic violators be instantly penalized.
- Legal policy document to be established to restrict driving more than 8 hours a day by a single driver.

b. Road Conditions and Perceived Impact:

- Inroad users' perception, road condition in the last two years has improved satisfactorily as expressed by 60% respondents in all types of roads, consisting of SR (49%), DR (4%) and UR (7%). In contrast to the improved road condition, many users (53%) responded increase in traveling time. Such contradiction may be due to various reasons such as accident, road block, maintenance, some bad sections en-route etc. at one or more spots which in terms of travel time affects the entire travel route thus increasing the overall travel time. For instance the Mungling-Narayanghat section was under maintenance during survey time which in spite of being other roads in good condition has nationwide impact on travel time.
- Significant percent of respondents (69%) agree that the traveling on roads in Nepal is reliable to reach their destination with majority of them (52%) from SR only. A major portion of the respondents attributed good condition of roads as indicative factor for the reliability of the road en-route.

- Many of the respondents concerned about the system's poor performance or increased likelihood of leakages in road maintenance works. They perceived private sector involvement in maintenance management and monitoring could improve the situation. All respondents however stressed on the quality of maintenance works in all types of roads.
- 28 percent of the respondents feel that toll charge and road related taxes are high, 63 percent feel it neither high nor low while 6 percent feel it low. Toll charge is the major source of funding for road maintenance works. In the present days, only three sections of the SRN are under toll charge which in addition to other sections are expected to continue in future too. Existing toll collection system is also sometimes difficult to manage properly and effectively. The main problem arises due to absence of alternative access routes for those who decline to pay it and for whom the time value is insignificant. Furthermore, most of the road users are unaware of the proper utilization of revenue collected from toll charge. RBN in coordination of MoPPW is therefore needed to revise toll charge policy, its management and proper use in a transparent manner.

c. Comfort and Convenience:

- **Congestion**: 59 percent of respondents feel that the roads in Nepal are free from congestion; 16 percent feel neither free nor congested and 24 percent congested. Normally the traffic congestion in strategic and some of urban roads is higher than in district roads. Based on both quantitative and quantitative responses, road users suggested the various interventions for congestion free roads such as proper road maintenance, widening at high-traffic roads, pedestrian facilities (footpaths, zebra-crossings and sub-ways / overhead crossings) and separate lanes for non-motorized vehicles.
- **Road quality and appearance:** Majority of respondents (55%) feel that the road quality and appearance of the road surface good to very good; 23% feel neither good nor bad while the rest 22% feel bad to very bad. Road-users pointed out during the qualitative responses various physical improvements for enhancing comfort and convenience to users. Their perceptions in this regard were mainly focused on timely-repairs, widening of narrow road & sharp bends, adequate drainage system, provision of street lightening in urban areas, sufficient parking places and safety barriers.
- **Irritating factors:** Significant number of respondents complained that while traveling, major irritating factors were poor road condition, narrow width of road, aggressive and unnecessary overtaking, and reckless road crossing by pedestrian and cattle, and road side parking especially in SR. Road users' level of attributes on various causes of irritation are over speed (44%), over taking (45%), aggressive driving (40%), bad condition of road (33%), parking on foot path/road side (27%) and narrow road width (29%).
- **Delays:** In road users' perception, major causes and extent of delays were due to inadequate road width, traffic congestion, poor or no information of maintenance works in progress, wrong parking by other vehicles, police checking and natural causes mainly land slide and flooding.
- **Road markings/signs:** Majority of the road users (58%) are dissatisfied with the adequacy and quality of existing road marking and distance signs on different roads. In their opinion road signs should be adequate and clearly visible at all times. Based on both quantitative and qualitative responses, users also pointed out need for adequate signs as one pre-requisite to improve road-safety. For an effective traffic-sign management DoTM in collaboration with DOR should review the existing signs and install accordingly to be useful to all road users.

d. Safety Aspects:

- **Safety feeling:** Nearly 68 percent road users feel safe while traveling on all types of roads. Comparatively, hill roads are more risky than Terai ones due to improper management (narrow road, sharp bends, poor road sign and inadequate attention to maintenance activities). All road-users emphasized on need for regular safety-awareness

programmes for all road-users. In terms of safety-issues, users pointed out the major factors as- unsafe driving behavior, over speed, reckless driving and reckless road-crossing by pedestrians/cattle. Concerned authority should therefore adopt these issues as specific topics in safety-awareness programmes. Such safety awareness programmes can be more effectively communicated to road users through TV, local FM radio, newspapers and on-the-job training/ workshops.

- In respondents' perception about road safety, majority of respondents (51%) feel that safety aspect of road construction is good, 21% respondents feel neither good nor poor and 28% respondents have rated as poor. Majority of the respondents viewed proper road maintenances and repair as the greatest contributor towards enhancing road-safety.
- Overall 78 percent respondents feel accident management and time to clear the road is quick. It includes nearly 60 percent respondents from SR only where accident management is comparatively better than other types of roads. However the users during quantitative responses raised the issues of non-motorised traffics mainly rickshaw pullers, cyclists, and even motor cyclists who frequently violet traffic rules are most vulnerable to accident. Department of Transport Management (DoTM) in collaboration with the Traffic Police should therefore conduct regular programmes to educate all drivers with special focus on non-motorized vehicle drivers.
- Almost all respondents are satisfied with the availability and accessibility of police post on all types of roads in Nepal. Comparatively Strategic Roads are better in this aspect.
- Availability of medical facilities in Nepal has been responded quite satisfactory. However the road users raised the issue of private clinics and hospitals along the road side being more business motivated rather than medical service provider. DoTM as well as the concerned road agency should therefore, regularly monitor and regulate to such private clinics and hospitals.

e. Travel Amenities:

- Almost 80% road users are satisfied with the availability of road-side amenities such as public toilets, restaurants/shop, public drinking water, medical facilities etc. The satisfaction level of perception about the availability of amenities is high in SR (62%). However many of the road users especially the female users attributed to high dissatisfaction with rarely available or poorly managed public toilets and drinking water facilities. Concerned road agency, DoR, DDC and municipality has to take necessary initiation to provide and manage such amenities.
- Majority of road users (73%) are not satisfied with parking facilities on all roads. District Roads and Urban Roads are comparatively better in this aspect. Concept of parking facilities is often overlooked in development of road infrastructures in Nepal. In fact the parking spaces should be a part of road infrastructure itself. With the growing traffic volume, parking places becomes equally important for convenient maneuver of traffics. DoTM should reform the policy document to make provision for parking spaces in highways and urban road network development and the concerned road agencies work accordingly. Unauthorized or road side/foot path/street parking should be strictly prohibited.
- Nearly 52 percent road users attributed that the road side plantation is adequate in all roads. Comparatively, the road side plantation is assessed to be better in SR. Quantitative responses pointed out the additional plantation and most importantly the preservation of existing ones is urgently needed.
- Significant numbers of road users were not aware of toll-charge and other road related taxes and its utilization in road repair and maintenance works. Many road users expressed their views that the prevailing toll-charge rate was low. They also strongly stressed upon its proper utilization on road maintenance works.
- Perception of female road users on public toilets, taps, rain shelter/bus stop and parking facilities is highly dissatisfactory. Responsible road agencies mainly DoR for SRN, DDC for district roads and Municipalities for urban roads have to adequately address these issues.

f. Perception about Road Agencies:

- With regards to users' perception about road agencies, many respondents (65 percent) regard the DOR as the main responsible agency for road maintenance activities, 13 percent of them are not sure about the organization responsible for road maintenance while 1% assume other agencies responsible for it. Level of attributes on DoLIDAR/DDC and Municipalities are 6 percent and 15 percent respectively.
- 78 percent respondents were satisfied with the quality of maintenance works carried out through road agencies, 16 percent neither satisfied nor dissatisfied and only 6 percent dissatisfied.
- In view of promptness to redress complaints, only 8 percent road users have so far made complains to road agencies regarding road related problems. Out of total respondents who made complaints, 41 percent road users were satisfied with their complaints redressed by road agencies and the rest 59 percent were dissatisfied.
- Respondents' level of satisfaction on timely resolving road related problems is nearly 40% satisfied, 23% neither satisfied nor satisfied and 38 percent dissatisfied.

Based upon the responses from various road users, following conclusion can be drawn on different road agencies.

- **Roads Board Nepal:** Many road-users were not aware about the Roads Board or had very little idea about its role and responsibility in road maintenance management. Road users who were aware about Roads Board stressed that this Agency needed to improve on its monitoring/supervision mechanisms. A significant number of users were unaware about the toll-process or how revenue thus generated was used in road maintenances and repairs. Toll collection and its distribution need to be made transparent to road users.
- **DOR/DDC/Municipality:** Most road-users were satisfied with the development of road access to settlements and quality of maintenance works carried out through road agencies even though the rate of progress was less satisfactory. Users emphasized that these agencies should focus on more regular and effective monitoring and supervision of their road works. Most users cited lack of transparency (and thus perceived leakages) as main point of concern regarding above agencies.
- **DoTM**: Regarding DoTM, most of the road users regarded it as an institution for vehicle registration and driving license issuer rather than traffic regulation and management in road network.
- **Traffic Police:** Most of the users attributed the traffic-police effective in managing and controlling traffic maneuver in roads. However some of the users were unsatisfactory especially the drivers of heavy vehicles due to unnecessary checking and harassment while in contrast, the driver of light-vehicles mostly appreciated them. All users however stressed that traffic-police needed to adequately and strictly enforce traffic management. Majority of respondents perceived that axle-load control mechanism was ineffective and needs to be effectively enforced.

g. Overall satisfaction:

In road-users' perceptions the overall satisfaction level was above average in all aspects of road service delivery in different road classes i.e. SR, DR and UR. Most of the users ranked the priorities for improvements in road service delivery as 'safety' in first priority, value for time as 'second', comfort and convenience as 'third', travel amenities as 'fourth' and visual appeal as 'fifth priority'.

Similarly the respondents perceived the priority ranking for improvements on road structures for better road services to be delivered by road agencies as 'make significant road width' as first priority, 'maintain roads in good condition' as second priority, 'widening/improvement of curves' as third, 'informatory/warning signs' as fourth, 'tougher road traffic rules enforcement' as fifth and 'more road side facilities' as sixth priority.

In quantitative responses, road users pointed out few points to be introduced for further enhancement of service delivery in different types of roads.

- **Strategic Road Network:** As opposed to current practice, contractors have to be made fully accountable for maintenance works. Effective monitoring from RBN and higher authority required for assuring quality works. Strong policy, which discourages corruption, should be introduced and effectively controlled. Technical as well as the public audit system has to be made mandatory in all major maintenance activities.
- **District Roads:** Many of the respondents were in favour of executing road-maintenances through users' committees. A number of respondents underlined the need for technical support to users committees in the area of technical supervision/monitoring either through training or collaboration with concerned agencies for maintenance-works. Basic technical documents such as drawings, specification, BoQ and work schedules should be mandatorily included in contract agreement and clearly briefed to the users' committee members. Many of the road users advocated that transparency and accountability should be maintained in maintenance works procured through local users' committee and DDC should monitor such works. Monitoring of maintenance works by RBN has also to be made from time to time.
- **Urban Roads:** Users' satisfaction level of urban roads is found above average. But some of the respondents stressed on effective monitoring and supervision of the road maintenances activities. Municipalities also needed to improve their implementation modality, record keeping, quality-control system and need to judiciously utilize available funds. Similar to district roads, municipalities has also to mandatorily include basic technical documents such as drawings, specification, BoQ and work schedules in contract agreement and clearly briefed to the users' committee/contractor. Unregulated urbanization is making urban-road maintenances difficult. Municipalities do not have fixed policy regarding urban-road maintenances. Generally the work done by contractor is perceived not to the standard required.

h. Comparison between RUSS-II and RUSS-III

- Comparative satisfaction level between RUSS-II and RUSS-IIII shows a noticeable improvements (10~16%) in road condition and its perceived impact, comfort and convenience, safety aspects and perception about road agencies while it is even more in travel amenities to 25 percent..
- Comparison between RUS indices in RUSS-II and RUSS-III shows an improved users' overall perception in RUSS-III since the time RUSS-II was conducted. However in some of the aspects, it shows declining tendency. Users perceived the adequacy of 'road width' decreased since RUSS-II which may be due to the increasing traffic volume while the road width remaining the same. In spite of improved road condition, overall travel time was responded increasing. Such increase may be due to other factors such as accident/road blockade or some bad sections en-route which ultimately affects the total travel time.
- From this comparison, we can say that the satisfaction level of road users on the issue of road condition and its services has slightly improved in RUSS-III since RUSS-II and as such the road maintenance issue is better managed.

i. Future Policy and Operational Priorities:

- Road users pointed out to adopt the procurement of works in timely and transparent manner. They supported e-bidding process and stressed on the quality of works.
- Most of respondents suggested that the illegal encroachment of right-of-way can be significantly reduced with the help of NGO/local political leaders/local administration and police.
- Road users perceived that many of the roads mainly the district and urban roads are not wide enough for catering the increasing traffic growth. They stressed to construct new roads on the basis of anticipated future traffic demand and widen existing roads as far as

possible and practicable so that the traffic can drive on these roads safely and comfortably.

- Road users also stressed on provision of proper drainage system in all types of roads.
- Road users attributed few points for minimizing pollution such as improvement of existing public transportation services, DoTM/Road Agencies to reform their pollution control policies, prohibition of pressure horn, ban on old vehicle from urban areas, regular vehicle inspection and services, provision of adequate parking facilities, control on axle load & speed limit and most importantly awareness building amongst road users.
- Respondents to the qualitative questionnaires stressed that DoTM needs to ensure that only competent applicants receive their driving-license.

j. Road safety Aspect:

- Road users suggested for campaigning programs for raising awareness of road safety aspects among road users by the use of various media like FM radio, television, display of posters with the help and participation of NGOs, community-based organization, schools, chambers of commerce, traffic police and strict enforcement of traffic rules and regulations.
- Road users stressed for sufficient and appropriate road signs to be installed at proper locations on all roads and critical places like sharp bends, blind curves, diversions, road works on progress etc.

k. Traffic management:

- Majority of road users suggested that the speed limits should be specified for segments of roads at key locations like schools, hospital, market places etc.
- Road users suggested reinforcing the prevailing policy to ban old vehicles from urban areas.
- Most users pointed out that the misuse of roads by using it as a home-yard particularly by non-motorized drivers and few road side households and garbage dumping in side drains is a major problem, which needs to be legally banned.
- Majority of road users were in favor of private-sector participation for the road maintenance works.
- Road users suggested discouraging overloaded / over passenger vehicles from all types of roads.

15.2 Recommendation and Suggestions

The matrix of users' perception and consultant's recommendation with suggestions are as follows:

S. No	Responsible Agency	Users' Perceptions	Recommendation and Suggestions
1	Roads Board Nepal (RBN)	1. Many of the road users are unaware of the role and responsibility of Roads Board Nepal. 2. RBN should allocate the budget for maintenance to different road agencies on the need basis and its performance. 3. RBN should monitor and evaluate the performance of road maintenance. 4. RBN should ensure that toll-charges are utilized in road maintenance works only. Some of road users said toll-charge is low and many are unaware of it. They also suggested including other roads under Toll system. 5. Road users were unfamiliar with RBN mobile application ***Mero Sadak***.	1. Maintenance fund collection and its adequate disbursement system by RBN to various road agencies has to be made clear and transparent to road users. 2. RBN should consider performance based budget allocation for maintenance to concerned road agencies like DOR divisions, DDC and Municipalities. 3. Maintenance and repair of all types of roads are carried out by different road agencies and the Roads Board should monitor and evaluate the performance of all works regularly. 4. RBN needs to inform the general public through media and television about the toll-charge so that they are convinced that their charged-money is properly utilized in road maintenance. The Board should be in a position to fix the toll-charge reasonably with regards to current inflation rate. RBN should also consider including other roads which are in good condition under toll system. 5. RBN should take initiation to introduce this application to more and more road users.
2	Department of Roads (DoR)	1. Program approval and procurement process is too lengthy and should be shortened. 2. DOR should continue the process of e-bidding for the procurement of maintenance works. 3. Road users suggested identifying illegal encroachment of right-of-way. 4. DOR should improve the road condition, road geometry, quality of road maintenance and implement the installation of sufficient road signs and road marking. 5. DOR should be alert for road accident management, and resolve other road related problems quickly.	1. DOR should expedite to shorten the time lapse in program approval and procurement process. 2. DoR has been continuing e-bidding process for a quite long time; it should be encouraged to continue for the elimination of all bidding hassles like cartelling to suppress competition, physical threat to bidders, tampering of tender files etc. 3. DOR should check illegal encroachment of right-of-way well in time with the help of NGO/local political/local administration and police force. 4. DOR should take up the study for the improvement of road condition and road geometry like sharp bends, improper curves and hair pin bends, narrow width to be widened, installation of sufficient road signs and road marking for reliable, safe and comfortable traveling on roads so that road accidents can be minimized in both hilly and Terai roads. 5. DOR has been initiating with its heavy equipment to clear the debris resulted from natural calamities and road accidents and should be alert as usual particularly during rainy season. DOR should improve the satisfaction level of road users by resolving the maintenance, quality and repair of road related problems in time.

S. No	Responsible Agency	Users' Perceptions	Recommendation and Suggestions
		6. Road users suggested constructing sufficient spaces for parking facilities, public toilets, taps, rain shelter and places for bus stop required along the strategic roads.	6. In response to respondents' satisfaction level with the parking facilities, DOR should initiate for the construction of parking places, public toilets, taps, rain shelter and places for bus stop along SR and city areas to avoid accidents and congestion.
3	District Development Committee (DDC)/ Municipality	1. Road users were concerned about Improvement of the road structures and installation insufficient road signs and road marking in both hilly and Terai roads.	1. As per the findings of road users' perceptions, DDC/Municipality should carry out detailed study for the improvement of all road geometry like sharp bends, improper curves and turns, narrow road, installation of sufficient road signs and road marking for reliable, safe and comfortable traveling on roads. Routine, recurrent and periodic maintenance and improvement works should also be taken up timely to keep the road free from potholes and cracks.
		2. Installation of required number of streetlights and construction of the parking facilities, public toilets, taps, rain shelter and places for bus stop along the roads. These aspects were more stressed in urban roads.	2. From the perspective of 'Safety', and 'Comfort and Convenience', DDC and Municipality should take up the detail study for the installation of streetlights and construction of parking facility, public toilets, taps, rain shelter and places for bus stop along the roads and within city areas.
		3. DDC and Municipality should provide information on road works on progress.	3. As road users have little information on road works, DDC and Municipality should provide detail information about the existing condition of roads and works in progress.
		4. DDC and Municipality should be ready for road accident management and clear it quickly.	4. DDC and Municipality should have trained technical man-power and sufficient equipment to deal with accident management and clear it as quickly as possible without interrupting the traffic.
		5. Plantation of trees along the roadsides.	5. Majority of road users feel that plantation of trees along the roadsides is not adequate. So, the LRA especially the Municipality should take initiatives for this work with the cooperation of NGOs and Department of forest.
		6. Excessive pollution and badly damaged roads in city areas was also a major concern of the road users.	6. Municipalities should pay full attention to reduce pollution in city areas. Inter departmental / ministerial coordination between related line agencies is most important in any construction / maintenance / installation of any road and public utility services.
4	Department of Transport Management (DoTM)	1. Raising awareness of road safety among road users.	1. DOTM should launch rigorous campaign for raising awareness of road safety aspects among road users with the co-ordination of Road agencies (RBN/DOR/DDC/ Municipality). Utilization of helping hands of various media, television, NGOs, community-based organization, school, chambers of commerce, traffic police can be effective.

S. No	Responsible Agency	Users' Perceptions	Recommendation and Suggestions
		2. Strict check on polluting vehicles and ban old vehicles in city areas and establish network linkage with police.	2. DOTM should check strictly on polluting vehicles in the city with cooperation from police and should reform the prevailing policy to ban old vehicles from urban areas. Also, DOTM should co-ordinate with traffic police to establish network linkage with them to establish network linkage between them for the management of accidents.
		3. DOTM should arrange on the job training to non-motorized vehicle drivers and road users, and reform the policy of license.	3. DOTM should arrange on-the-job training to drivers including non-motorized stakeholder and road users and should reform prevailing licensing-system so that only competent applicants get their driving licenses.
		4. Prohibition of heavy vehicles in the city.	4. DOTM should take initiative with regards to prohibition of heavy vehicles in other major cities too. For this purpose institutional strengthening of DOTM is needed to install and manage effective axle-load mechanism.
5.	Traffic Police.	1. Enforcement of traffic rules and regulations.	1. Traffic rules and regulations can be enforced effectively by the traffic police who need to mainly concentrate in controlling unsafe driving habits. Restriction on drink and drive in Kathmandu valley has been a tremendous success. Similarly other traffic rules can also be enforced.
		2. Penalizing the violators of traffic rules and regulations.	2. Violations of traffic rules and regulations should be strictly penalized and driving license should be confiscated on the event of violating traffic rules several times.

Consultant's Recommendations and Suggestions for concerned agencies are presented as follows:

1. Roads Board Nepal (RBN)

- Maintenance fund collection and its adequate disbursement system by RBN to various road agencies has to be made clear and transparent to road users.
- RBN should consider performance based budget allocation for maintenance to concerned road agencies like DOR divisions, DDC and Municipalities.
- Maintenance and repair of all types of roads are carried out by different road agencies and the Roads Board should monitor and evaluate the performance of all works regularly.
- RBN needs to inform the general public through media and television about the toll-charge so that they are convinced that their charged-money is properly utilized in road maintenance. The Board should be in a position to fix the toll-charge reasonably with regards to current inflation rate. RBN should also consider including other roads which are in good condition under toll system.
- RBN should take initiation to introduce this application to more and more road users.

2. Department of Roads (DoR)

- DOR should expedite to shorten the time lapse in program approval and procurement process.
- DoR has been continuing e-bidding process for a quite long time; it should be encouraged to continue for the elimination of all bidding hassles like cartelling to suppress competition, physical threat to bidders, tampering of tender files etc.
- DOR should check illegal encroachment of right-of-way well in time with the help of NGO/local political/local administration and police force.
- DOR should take up the study for the improvement of road condition and road geometry like sharp bends, improper curves and hair pin bends, narrow width to be widened, installation of sufficient road signs and road marking for reliable, safe and comfortable traveling on roads so that road accidents can be minimized in both hilly and Terai roads.
- DOR has been initiating with its heavy equipment to clear the debris resulted from natural calamities and road accidents and should be alert as usual particularly during rainy season. DOR should improve the satisfaction level of road users by resolving the maintenance, quality and repair of road related problems in time.
- In response to respondents' satisfaction level with the parking facilities, DOR should initiate for the construction of parking places, public toilets, taps, rain shelter and places for bus stop along SR and city areas to avoid accidents and congestion.

3. District Development Committee (DDC)/Municipality

- As per the findings of road users' perceptions, DDC/Municipality should carry out detailed study for the improvement of all road geometry like sharp bends, improper curves and turns, narrow road, installation of sufficient road signs and road marking for reliable, safe and comfortable traveling on roads. Routine, recurrent and periodic maintenance and improvement works should also be taken up timely to keep the road free from potholes and cracks.

- From the perspective of 'Safety', and 'Comfort and Convenience', DDC and Municipality should take up the detail study for the installation of streetlights and construction of parking facility, public toilets, taps, rain shelter and places for bus stop along the roads and within city areas.
- As road users have little information on road works, DDC and Municipality should provide detail information about the existing condition of roads and works in progress.
- DDC and Municipality should have trained technical man-power and sufficient equipment to deal with accident management and clear it as quickly as possible without interrupting the traffic.
- Majority of road users feel that plantation of trees along the roadsides is not adequate. So, the LRA especially the Municipality should take initiatives for this work with the cooperation of NGOs and Department of forest.
- Municipalities should pay full attention to reduce pollution in city areas. Inter departmental / ministerial coordination between related line agencies is most important in any construction / maintenance / installation of any road and public utility services.

4. Department of Transport Management (DoTM)

- DOTM should launch rigorous campaign for raising awareness of road safety aspects among road users with the co-ordination of Road agencies (RBN/DOR/DDC/ Municipality). Utilization of helping hands of various media, television, NGOs, community-based organization, school, chambers of commerce, traffic police can be effective.
- DOTM should check strictly on polluting vehicles in the city with cooperation from police and should reform the prevailing policy to ban old vehicles from urban areas. Also, DOTM should co-ordinate with traffic police to establish network linkage with them to establish network linkage between them for the management of accidents.
- DOTM should arrange on-the-job training to drivers including non-motorized stakeholder and road users and should reform prevailing licensing-system so that only competent applicants get their driving licenses.
- DOTM should take initiative with regards to prohibition of heavy vehicles in other major cities too. For this purpose institutional strengthening of DOTM is needed to install and manage effective axle-load mechanism.

5. Traffic Police

- Traffic rules and regulations can be enforced effectively by the traffic police who need to mainly concentrate in controlling unsafe driving habits. Restriction on drink and drive in Kathmandu valley has been a tremendous success. Similarly other traffic rules can also be enforced.
- Violations of traffic rules and regulations should be strictly penalized and driving license should be confiscated on the event of violating traffic rules several times.

Annex I

DoR 2015/016 Traffic Count Data of Strategic Roads

Summary of Traffic Count Survey: 2015/016

Station No.	Road Link	Location	Average Annual Daily Traffic (AADT)	AADT excl. MC, Rickshaws	AADT in PCUs	AADT in PCUs excl. MC & Rickshaws
1	F00101	Birtamod South	4545	1218	3591	1808
2	H0101	Charali East	8053	4016	9115	7071
3	H0102	Charali West	10065	5258	11357	8947
4	H0705	Charali North	6757	3102	5857	4000
5	F00201	Damak South	5389	956	3942	1629
6	H0105	Damak West	4202	1768	4520	3216
7	F03801	Fikkal East	1001	630	1030	843
8	H0707	Fikkal West	1805	978	1745	1332
9	H0709	Ilam North	1162	744	1274	1065
10	H0711	Phidim North	812	652	1212	1132
11	F03901	Biratnagar East	4568	1317	4528	2413
12	H0803	Ithari South	13101	5711	13882	9989
13	H0108	Ithari East	10141	5580	12343	10037
14	H0109	Ithari West	6227	4029	8435	7225
15	H0804	Ithari North	9884	3664	9417	6025
16	H0111	Koshi Barrage East	3411	2015	4849	4109
17	H0806	Dharan North	1965	891	2079	1542
18	F04004	Basantpur East	477	294	567	475
19	F04001	Hile North	1121	752	1331	1147
20	F01805	Pakhribas	639	383	691	563
21	F00301	Bhardaha South	2189	912	2497	1848
22	F00401	Rupani South	1868	575	1704	1044
23	H0115	Lahan East	5157	2143	5849	4312
24	H0901	Kadmaha North	2571	901	2565	1713
25	F00501	Chourhwa South	2399	691	2034	1178
26	F05201	Mirchaiya North	1727	628	1915	1356
27	F05203	Katari North	603	246	608	424
28	F10901	Dharapani South	341	132	319	211
29	H0604	Dhalkebar South	3458	1547	3968	3002
30	H0120	Dhalkebar East	3446	2018	5085	4357
31	H0121	Bardibas east	3915	2258	5960	5121
32	H0602	Dhudhmati Bridge	4225	1099	3436	1858
33	F11401	Bardibas South	1679	648	1561	1032
34	H0605	Bardibas North	1299	506	1343	943
35	F00601	Nawalpur South	1388	618	1696	1293
36	H0125	Karmaiya	4722	2675	7153	6120
37	F03204	Tamakoshi East	985	694	1478	1332
38	F03301	Tamakoshi South	824	550	1121	984
39	F00701	Chandranigahpur South	2117	1114	2680	2090
40	H0204	Pathalaiya South	4548	3108	8291	7567
41	H128	Pathlaiya East	3883	2518	6705	6022
42	H0129	Pathlaiya North	7420	3900	10148	8386
43	F01801	Birgunj East	1643	917	2207	1828
44	H0132U	Hetauda West	7913	4216	10866	9017
45	H0205U	Hetauda North	3233	1773	3454	2714
46	F01901	Bhainse Junction	1148	648	1076	826
47	F02001	Palung	663	269	609	412
48	H0134	Narayanghat East	7795	4745	12522	10975
49	F07301	Narayanghat West	8983	4628	11679	9408
50	H0503	Mugling South	6177	5301	12905	12468
51	H0404	Mugling East	6788	5255	12130	11364
52	H0405	Mugling West	3924	2613	5673	5018
53	H0310	Dhulikhel East	3752	2688	5845	5307
54	H0610	Dhulikhel South	2314	1534	3274	2850
55	F02901	Banepa South	3632	1457	3820	2732

Station No.	Road Link	Location	Average Annual Daily Traffic (AADT)	AADT excl. MC, Rickshaws	AADT in PCUs	AADT in PCUs excl. MC & Rickshaws
56	H0311	Panchkhal-Police Chauki	3903	2619	5875	5230
57	F03001	Panchkhal-Helambu	2145	1470	3374	3036
58	F02301	Satdobato South (Chapagaun)	21698	6468	16083	7819
59	F02401	Satdobato Junction South	26866	13677	28879	22276
60	H01614	Ring Road (Manohara Bridge)	37343	13985	32788	21109
61	H1602	Ring Road (Balkhu East)	33871	14740	33512	23946
62	F02801	Kharipati	4779	1274	3490	1753
63	H0305	Hanumante Bridge	34345	13487	33743	23313
64	H0303	Manohara Bridge	69945	23340	56098	31936
65	H01602	Ring Road (Sinamangal)	44211	18581	38261	25008
66	F02602	Chabahil East	59002	15911	42256	20700
67	F02701	Jorpati North	10273	2711	7676	3890
68	H01606	Ring Road (Narayan Gopal Chowk)	26000	13236	27947	21557
69	F02502	Gangalal Hospital North	41830	14573	34470	20831
70	F02103	Balaju Bypass North	29011	8081	21424	10289
71	H01608	Ring Road (Banasthali)	33868	15725	33466	24392
72	F02201	T.U. Gate	13915	5647	12181	8047
73	F02202	Taudaha	5340	1953	4354	2661
74	H0214	Nagdhunga	10692	8769	22096	21135
75	F03201	Lamosangu	476	258	609	901
76	F03101	Dolalghat	611	331	731	591
77	H0315	Lamosangu/Barabise North	1103	480	1135	824
78	H0212	Naubise West (TRP)	580	374	770	666
79	F06901	Galchhi North	1623	903	1881	1521
80	F03401	Malekhu North	888	460	1000	786
81	F02106	Ranipauwa	767	370	918	719
82	F00801	Bardhaghat South	1839	730	1909	1325
83	H0141	Bardhaghat West	5276	3101	8170	7058
84	F00901	Sunwal South	1584	601	1525	1018
85	H0138	Gaidakot	8421	3861	9958	7570
86	F04401	Bhairahawa West	3802	1360	3566	2330
87	F04501	Lumbini West	1404	666	1602	1231
88	H0144	Butwal East	8054	3655	9124	6900
89	H1002	Butwal South	16209	6854	17350	12632
90	H0146	Butwal West	13696	5145	13335	9043
91	H1004	Butwal North	4471	2403	6569	5505
92	H0149	Jitpur West	2981	1660	3844	3178
93	F01001	Jitpur South	1354	507	1317	882
94	H0150	Gorusinge West	2814	1821	4687	4187
95	F01201	Chanauta South	3069	1340	3596	2692
96	H0151	Chanauta West	4164	2198	5546	4435
97	F01102	Gorusinge North	781	493	1021	877
98	F04301	Tansen West	1907	802	1997	1445
99	H01007	Bartung North	1226	592	1426	1109
100	F03601	Dumre North	1944	643	1801	1151
101	F03501	Abukhaireni North	1602	879	1990	1628
102	H0411	Pokhara East	9499	6642	13841	12413
103	H01012	Pokhara South	4680	2111	4452	3166
104	F04101	Pokhara West	1189	555	1023	706
105	F04102	Pokhara North	5371	2809	5645	4364
106	F04204	Kusma West	1899	979	2118	1657
107	F01401	Chakchake East	383	185	465	365
108	F01303	Chakchake North	361	160	415	314
109	H0155	Bhalubang West	3203	1764	4601	3855
110	F01301	Bhalubang North	1116	506	1225	920
111	F01501	Lamahi North	1627	1291	2377	2208

Station No.	Road Link	Location	Average Annual Daily Traffic (AADT)	AADT excl. MC, Rickshaws	AADT in PCUs	AADT in PCUs excl. MC & Rickshaws
112	F01505	Tulsipur East	3975	1322	3958	2617
113	H1101	Ameliya North	809	581	982	866
114	H0157	Ameliya West	1254	1063	2717	2622
115	H1103U	Tulsipur North	3417	1250	3201	2078
116	F04602	Nepalgunj West	5905	3538	6381	4858
117	H1204	Kohalpur South	7100	4246	7727	6239
118	H0159	Kohalpur East	3410	1834	4417	3519
119	H0160	Kohalpur West	3878	2178	4955	4089
120	H1205	Kohalpur North	3790	2228	4014	3182
121	F01601	Bhuri Gaun South	583	133	467	239
122	F04701	Chinchu East	1146	686	1611	1382
123	H1208	Chinchu North	1308	1050	1825	1696
124	H1301	Surkhet West	2464	552	1875	913
125	F04801	Surkhet North	446	340	585	513
126	F01701	Junga South	1893	616	1884	1162
127	H01402	Attariya South	6621	3075	6793	5013
128	H0165	Attariya East	4781	2147	5366	3914
129	H0166	Attariya West	4125	1493	4355	2904
130	H01403	Attariya North	1988	1049	2470	1942
131	H01818	Sanfebagar South	446	347	637	588
132	F014601	Safebagar North	280	241	420	400
133	F05101	Silagadhi Junction	100	83	209	201
134	H01406	Syaule South	807	597	1284	1179
135	H01501	Syaule East	592	439	850	773
136	H01407	Syaule North	736	509	1012	899
137	F05001	Satbanjh West	312	239	439	403
138	H01411	Satbanjh North	260	208	377	351
139	F04901	Khodpe East	244	177	347	314
140	H1409	Khodpe North	395	302	562	516
141	H0704	Charali south	1406	627	1382	986
142	F06801	Parawanipur West	1624	1001	2313	2000
143	F06201	Harichamod South	2329	878	2336	1543
144	F014001	Salyan North (Shital pati West)	688	359	789	624
145	F05401	Duhabi West	3603	1455	3502	2212
146	F01101	Taulihawa North	640	220	600	370
147	F13003	Bhairahawa East	5401	2400	6460	4951
148	F05301	Urlabari South	1710	544	1460	876
149	F06001	Basantapur North	1790	468	1473	702
150	F02108	Bidur North	4688	899	3554	1659
151	F04206	Baglung North	926	351	763	476
152	H1106	Shital pati North	364	219	483	411
153	H1304	Khulalu South	216	168	312	287
154	H1607	Narayan Gopal Chowk west	41751	16774	36259	23771
155	F02501	Narayan Gopal Chowk South	43211	14880	31939	17774
156	F07501	Sitapaila South	42705	20036	42736	30889
157	H1610	Kalanki	27734	14223	29861	22809
158	F07201	Gwarko East	34374	7264	23393	9761
159	F09401	Byasi Chowk North	5178	1612	4526	2744
160	H1613	Satdobato North	45121	18124	42192	28693

Source: Traffic data from HMIS Unit, DoR.

Annex II

Survey Questionnaire/Checklists

Roads Board Nepal
Road User's Satisfaction Survey-III
Questionnaire
(Information from the Passenger, Pedestrian, Farmer & Road-side Households)

Date: .....

Name of Road Section: …… Type of Road:……. (*NH-1, FR-2, DR-3 & UR-4*)

Service Center: …… District: ……..... Region: …….....

1. General information:

   Name of Respondent: …….. Age: ……. Sex: ..... (*M/F*)

   Address: …….. Education*: ……. Occupation**: ……

2. How many times do you travel on this road in a week?

   a) Only once b) 2-4 times c) 5-8 times d) Above 8 times

3. Mostly, what is your purpose of traveling on this road?

   a) Business/ Job/ Agricultural work

   b) Visiting relatives/friends c) Shopping d) Sight-seeing/ touring/ leisure

   e) Others …….. (Specify)

4. How frequently do you get the public vehicles when you want to make a travel?

   a) <10 min c) 11-25 min c) 26-40 min

   d) 41-60 min e) >60 min

5. What is your perception about the condition of this road since last two years?

   a) Improved substantially b) Improved marginally c) Remained same

   d) Declined e) Substantially declined

6. What do you feel about present travel time compared with past two years?

   a) Substantially reduced b) Reduced marginally c) Remained same

   d) Increased e) Increased substantially

7. How satisfied are you with the road and transportation services delivered on this section?

   a) Highly satisfied b) Satisfied c) Neither satisfied nor dissatisfied

   d) Dissatisfied e) Highly dissatisfied

8. How do you feel while traveling on this road?

   a) Very comfortable b) Comfortable c) Neither comfortable nor uncomfortable d) Uncomfortable

   e) Highly uncomfortable

***Education: Illiterate: - 1, literate: - 2, Primary: - 3, Secondary: - 4, SLC to Inter:-5, BA & above: - 6**

****Occupation: Agriculture:-1, Business: - 2, Service: - 3, Student: - 4, Labour: - 5, Others: - 6**

9. How reliable is this road to reach your destination on time?

a) Very reliable b) Reliable c) Neither reliable nor unreliable

d) Unreliable e) Highly unreliable

10. What is your perception about the behavior of public vehicles' staff to passenger?

a) Very good b) Good c) Neither good nor bad

d) Bad e) Very bad

11. How is vehicle congestion on this Road?

a) Absolutely free from congestion b) Free from congestion c) Neither free nor congested

d) Congested e) Highly congested

12. What do you think about the width of this road?

a) Fully adequate b) Adequate c)Neither adequate nor inadequate

d) Inadequate e) Highly inadequate

13. Whenever there is any maintenance/improvement works in this road section, do you find appropriate sign/s explaining the work-in-progress?

a) Yes b) No

14. What do you think about quality and appearance of road-surface on this road?

a) Very good b) Good c) Neither good nor poor

d) Poor e) Very poor

15. How satisfied are you with the maintenance of road?

a) Highly satisfied b) Satisfied c) Neither satisfied nor dissatisfied

d) Dissatisfied e) Highly dissatisfied

16. How convenient is it to access settlements like work places/ residence/ shops/ school/ hospital/farms with the help of this road?

a) Very convenient b) Convenient c) Neither convenient nor inconvenient

d) Inconvenient e) Highly inconvenient

17. How satisfied are you with the durability/quality of roads construction?

a) Highly satisfied b) Satisfied c) Neither satisfied nor dissatisfied

d) Dissatisfied e) Highly dissatisfied

18. What do you think about the post-crash response when an accident occurs on this road?

a) Very quick b) Quick c) Neither quick nor late

b) Late e)Very late

19. Do you have any suggestion to reduce accidents?

.....

.....

20. Are you satisfied with the present installed road signs? Yes ( ) No ( )

21. Where do you find the road signs most effective? **(Multiple Choice Question)**

SN	Road sign	Tick
1	Near to the school	
2	Near to the hospital	
3	Narrow road	
4	Sharp bends	
5	Pedestrian crossing	
6	Speed breaker	
7	Land slide/hazardous area	
8	High accident area	
9	Others [Specify] ……..	

22. Are you aware of the general traffic rules? Yes ( ) No ( )

Which of the traffic signals do you find most effective?

a) Traffic Lights/ Signs b) Zebra Crossing c) Using Subway

d) Lane-follow e) Land slide/hazardous area f) Others *(mention)* ……..

23. Do you find any difficulty to follow the traffic rules and regulation? Yes ( ) No ( )

24. Are you satisfied with the present Road-side amenities? (*E.g. Tea & Coffee shops, Restaurant, Hospital etc.)*

a) Yes ( ) b) No ( )

25. Are there any medical facilities available on this road section? Yes ( ) No ( )

26. What type of medical facilities does the user get on this road?

a) Govt. hospital b) Private hospital c) Health posts

d) Clinic e) None of above

27. What kinds of problem do you face due to this road? ***(Multiple response possible)***

a) Air pollution b) Noise pollution c) Fear of accidents d) Drainage

e) slope/embankment failure f) No problem g) others *[Mention]*……..

28. How safe do you feel while traveling on these roads?

a) Very safe b) Safe c) Neither safe nor unsafe

d) Unsafe e) Very unsafe

29. Considering the safety aspect mark the following factors *(Note-1 for most unsafe and 5 for least unsafe)*

SN	Factor	Mark
1	Over speed	
2	Unusual overtaking	

3	Heavy goods carrying vehicles	
5	Lack of awareness of traffic rules	
6	Bad condition of road	
7	Absence of sufficient road signs	
8	Aggressive driving	
9	Narrow road	
10	Careless driving	
11	Unfit vehicles	

30. Do you get irritated while traveling on this road? Yes ( ) No ( )

If yes mark the following from 1 to 5 (note-1 for most irritating and 5 for least irritating)

SN	Major irritating factor	Mark
1	Over speed	
2	Unusual overtaking	
3	Aggressive driving	
4	Pedestrian/cattle crossing	
5	Bad condition of road	
6	Traffic Congestion	
7	Noise/Air pollution	
8	Missing side walk	
9	Parking on the footpath	
10	Narrow road	
11	Others	

31. Have you ever experienced any theft/ robbery on this road?

a) Never b) few times d) Frequently

32. Do you find the availability and accessibility of police posts/ Police patrolling vehicle on this road?

a) Yes b) No

33. What is your satisfaction level on following facilities?

SN	Facilities	Found		Satisfaction
		Yes	No	Level
1	Public toilets/ bathrooms			
2	Eating food/ drinks at restaurants/ shops			
3	Public taps/ Drinking Water			
4	Medical facilities			
5	Rain shelter-cum-Bus stop			
6	Others			

*'**1**' for 'very satisfied', '**2**' for 'satisfied', '**3**' for 'neither satisfied nor dissatisfied',*
*'**4**' for' Dissatisfied', '**5**' for 'very dissatisfied'*

34. What do you think about the road side plantation on this road?

a) Very adequate b) Adequate c) Neither adequate nor inadequate

c) Inadequate e) Highly inadequate

35. Please could you rank the following in order of importance that you consider while traveling on this road section?

Please rank them 1 to 5 where 1 being most important and 5 being least important.

SN	Factor	Rank
1	Value for time (Total time taken in journey, availing facilities, etc)	
2	Comfort & Convenience (Road Condition, smooth ride, congestion level, etc)	
3	Safety on the road (Safety from land sliding, signage, police posts, medical aid availability, emergency telephone availability, etc)	
4	Travel amenities (Food, water, toilets, bathrooms, mechanics availability, etc)	
5	Visual appeal (Beautification, landscaping, planting trees, greenery, etc)	

36. Are you satisfied with the road maintenance organization? Yes ( ) No ( )

37. Do you know who is responsible for road maintenance work?

a) DOR b) DoLIDAR/DDC c) Municipality

d) Any other agency *[mention]……* e) Do not know

38. Have you ever made complaint to Government/Road authorities regarding any type of problem faced while traveling on this road?

a) Yes b) No

If yes, how satisfied are you with the complaint redressal system of DOR/Road agencies?

a) Highly satisfied b) Satisfied c) Neither satisfied nor dissatisfied

d) Dissatisfied e) Highly dissatisfied

39. How satisfied are you with DOR or responsible road agencies resolving maintenance, quality and repairing related problem in time?

a) Satisfied b) Somewhat satisfied c) Neither satisfied nor dissatisfied

d) Dissatisfied e) Highly Dissatisfied

40. How can the road agencies deliver better road service? Prioritize the following action.

Please Mank them from 1 to 5 where 1 being most important and 5 being least important.

SN	Actions	Mark
1	Make significant road width	
2	Maintain the road in good condition	
3	Widening/improvement of curves	
4	More road side facilities	
5	Tougher road traffic rules enforcement	
6	Informatory/Warning Signs	

41. How safe do you feel to travel at night?

a) Very safe b) Safe c) Same as during day time d) Unsafe

e) Very unsafe

42. What time of the day is the most difficult for you to avail public transport facilities in this road?

a) 5am–8:30am b) 8:30am–12noon c) 12 noon–3pm d) 3pm–6pm

e) 6pm–9pm f) 9 pm beyond

43. Do drivers fully follow the traffic rules and regulations while driving?

a) Yes b) No

44. Do you know about 'MERO SADAK' mobile app launched by Road Board Nepal?

a) Yes b) No

If yes, how useful do you found it?

a) Very useful b) Useful c) Neither useful nor useless d) Useless e) Very useless

45. Do you have any suggestions/comments? Explain

……

……

……

……..

Field Researcher …… Research supervisor ……

Roads Board Nepal
Road User's Satisfaction Survey-III
Questionnaire
(Information from the Drivers & Vehicle owner)

Date: .....

Name of Road Section: ……..... Type of Road: ..... (*NH-1, FR-2, DR-3 & UR-4*)

Service Center: …… District: ……..... Region: …….....

1. General Information

Name of the Respondent: …… Age: …….. Sex: …….. (*M/F)*

Education*: ……. Profession: …….. Experience: …… Married *[Y/N]*: .....

2. Type of vehicles

a) Bus b) Mini-bus c) Truck/ Tanker d) Private car jeep e) Taxi

f) Micro-bus g) Tempo h) Tractor i) Utility van j) others.....

3. Is this your own vehicle? Yes ( ) No ( ) **If yes go to question No.-5**

4. On what basis do you work?

a) Permanent b) Temporary/daily c) contract

5. How much do you earn in a month? ……

6. Do you use different media to get traffic related information? Yes ( ) No ( )
If yes chose the following:

a) Newspaper b) Watching TV c) Listening Radio d) Others *[mention]* ……..

7. Generally, how many hours do you drive a day? ……

8. How many times do you take a break in a day? ……..

9. How do you feel while driving on this road?

a) Very comfortable b) Comfortable c) Neither comfortable nor uncomfortable

d) Uncomfortable e) Highly uncomfortable

10. How reliable is this road to reach your destination on time?

a) Very reliable b) Reliable c) Neither reliable nor unreliable d) Unreliable

e) Highly unreliable

If unreliable identify reasons from below?

a) Landslide b) Road-block c) Poor road condition d) Traffic jam e) Others ……..

11. What is the impact of restriction to blow horn while driving?

a) Feel safer b) Easier driving c) More difficult for driving d) More unsafe e) No impact

Sign: *Education: Illiterate: - 1, literate: - 2, primary: - 3, secondary: - 4, SLC to Inter:-5, BA & above: - 6

12. What is your opinion on the decision for complete restriction to blow horn?

a) Very good b) Good c) Neither good nor bad d) Bad e) Very bad

13. How is vehicle congestion on this road?

a) Absolutely free from congestion b) Free from congestion c) Neither free nor congested

d) Congested e) Highly congested

14. What do you think about the width of this road?

a) Very adequate b) Adequate c) Neither Adequate nor inadequate

d) Inadequate e) Highly inadequate

15. Whenever there is any maintenance/improvement works in this road section, do you find appropriate sign/s explaining the work-in-progress?

a) Yes b) No

16. What do you think about quality and appearance of this road-surface?

a) Very good b) Good c) Neither good nor poor d) Poor

e) Very poor

17. How satisfied are you with the maintenance/improvement of this road?

a) Highly satisfied b) Satisfied c) Neither satisfied nor dissatisfied

d) dissatisfied e) Highly dissatisfied

18. How do you rate the followings for the safety and convenience on this road?

SN	Factor	Rating
1	Quality of road markings on this road (such as painted lines, reflection signs, pedestrian crossing markings, etc.)	
2	Adequacy of warning / road signs	
3	Visibility of warning/ roads signs during day and night	
4	Positioning/ location of warning / road signs	
5	Adequacy of milestones / distance signs	
6	Availability of streetlights on this road	

*Rating: '**1**' for Very good; '**2**' for Good; '**3**' for Neither good nor poor; '**4**' for Poor '**5**' for Very poor*

19. On an average, how much delay do you experience due to following reasons?

SN	Reason	Delay time (use code)
1	Traffic Congestion	
2	Road works/ maintenance in progress	
3	Uncompromising drivers	
4	Insufficient road capacity/narrow stretches	
5	Police checking	

SN	Reason	Delay time (use code)
6	Accidents	
7	Pedestrians/ animals crossing the roads	
8	Wrong parking of other vehicles	
9	Bad weather/ fog	
10	Natural calamity/ land sliding/flooding/snowfall	
11	Others [Specify]……	

Time code: *'**1**'- No delay; '**2**'- 1-30 min; '**3**' - 31-60 min; '**4**'- 1-2 hrs.; '**5**' - More than 2 hrs.*

20. What do you think about the post-crash response when an accident occurs on this road?

a) Very quick b) Quick c) Neither quick nor late c) Late

e) Very late

21. Are you satisfied with the present road signs? Yes ( ) No ( )

22. Where do you find the road signs most effective? **(Multiple Choice Question)**

SN	Road sign	Tick
1	Near the school	
2	Near the hospital	
3	Narrow road	
4	Sharp bends	
5	Pedestrian crossing	
6	Speed breaker	
7	Land slide/hazardous area	
8	High accident area	
9	Others *[Specify]* ……..	

23. Do you feel any difficulty to follow the traffic rules and regulation? Yes ( ) No ( )

24. Are you satisfied with the present road side amenities? (E.g. Tea shop, restaurant, fuel station & toilet)

a) Yes b) No

25. What type of medical facilities do the users get on this road section?

a) Govt. hospital b) Private hospital c) Clinic d) Health post d) None of them

26. How satisfied are you with the availability of petrol pump on this Road?

a) Highly satisfied b) Satisfied c) Neither Satisfy nor Unsatisfied d) Unsatisfied

e) Highly unsatisfied

27. How safe do you feel while driving on these roads?

a) Very safe b) safe c) Neither safe nor unsafe

d) Unsafe e) Highly unsafe

28. Considering the safety aspect mark the following factors *(Note-1 for most unsafe and 5 for least unsafe)*

SN	Factor	Mark
1	Over speed	
2	Unusual overtaking	
3	Heavy goods carrying vehicles	
4	Lack of awareness of traffic rules	
5	Bad condition of road	
6	Absence of sufficient road signs	
7	Aggressive driving	
8	Narrow road	
9	Careless driving	
10	Unfit vehicles	
11	Other if any..	

29. Do you feel irritated while driving on this road? Yes ( ) No ( )

If yes Mark the following from 1 to 5 (note-1 for most irritating and 5 for least irritating)

SN	Major irritating factor	Mark
1	Over speed	
2	Unusual overtaking	
3	Aggressive driving	
4	Pedestrian/ cattle crossing	
5	Bad condition of road	
6	Congestion	
7	Noise/Air pollution	
8	Road diversion	
9	Parking on roadside	
10	Narrow road	
11	Others *[Specify]* …….	

30. What do you think about road safety measures on this road?

e) Very good b) Good b) Neither good nor bad

c) Bad Very bad

31. Have you ever experienced any theft/ robbery on this road?

a) Never b) few times c) Often d) Frequently

32. Do you find the availability and accessibility of police posts/ Police patrolling vehicle on this road satisfactory?

a) Yes b) No

33. What is your satisfaction level on following facilities?

SN	Facilities	Found		Satisfaction
		Yes	No	Level
1	Public toilets			
2	Restaurant/ shop			
3	Public taps/Drinking water			
4	Medical facilities			

SN	Facilities	Found		Satisfaction
		Yes	No	Level
5	Rain shelter-cum-Bus stop			
6	Mechanics/ tow-vehicles services			

*Satisfaction level: '**1**' for 'very satisfied', '**2**' for 'satisfied', '**3**' for 'neither satisfied nor dissatisfied', '**4**' for 'Dissatisfied', '**5**' for 'very dissatisfied'*

34. Please could you rank the following in order of importance that you think while driving on this road section*? Please rank them in between 1 to 5 where 1 being most important and 5 being least important*.

SN	Factor	Rank
1	Value for time (Total time taken in journey, availing facilities, etc)	
2	Comfort & Convenience (Road Condition, smooth ride, congestion level, etc)	
3	Safety on the road (Safety from land sliding, signage, police posts, medical aid availability, emergency telephone availability, etc)	
4	Travel amenities (Food, water, toilets, bathrooms, mechanics availability, etc)	
5	Visual appeal (Beautification, landscaping, planting trees, greenery, etc)	

35. What is your perception about the various kinds of road related taxes on this Road section?

a) Very high b) High c) Neither high nor low d)low e) Very low

36. What is your perception about the condition of this road since last two years?

a) Improved substantially b) Improved marginally c) Remained same

d) Declined e) Substantially declined

37. How do you feel about present travel time compared with last two years?

a) Substantially reduced b) Reduced marginally c) Remained same

d) Increased e) Increased substantially

38. Due to the condition of this road the fuel consumption of your vehicle increased or decreased?

a) Increased substantially b) Increased c) Neither increased nor decreased

d) Decreased e) Decreased substantially

39. Due to the condition of this road the overall maintenance cost of your vehicles increased or decreased?

a) Highly increased b) Increased b) Neither increased nor decreased

d) Decreased e) Substantially decreased

40. Is there sufficient parking places for vehicles? Yes ( ) No ( )

41. Are you satisfied with the road maintenance organization?

a) Highly satisfied b) Satisfied b) Neither satisfied nor dissatisfied c) Dissatisfied

e) Highly dissatisfied

42. Do you know who is responsible for road maintenance work?

a) DOR b) DoLIDAR/DDC c) Municipality d) Any other *[Specify]* ……

e) Do not know

43. Have you ever made complaint to Government/Road authorities regarding any type of problem faced while commuting on this roads?

a)Yes b) No

If yes, how satisfied are you with the complaint redressal system of road agencies?

a) Highly satisfied b) Satisfied c) Neither satisfied nor dissatisfied d) Dissatisfied

e) Highly dissatisfied

44. How satisfied are you with DOR or responsible Road agencies in resolving the maintenance, quality and repairing related problems in time?

a) Highly satisfied b) Satisfied c) Neither satisfied nor dissatisfied

d) Dissatisfied e) Highly dissatisfied

45. How road agencies can deliver better road services? prioritize the following.
[*Please mark them in between 1 to 5 where 1 being more important and 5 for least important.]*

SN	Actions	Mark
1	Make significant road width	
2	Maintain the road in good condition	
3	Widening/improvement of curves/grades	
4	More road side facilities	
5	Tougher road traffic rules enforcement	
6	Informatory/Warning Signs	
7	Any others *[Mention]* ……	

46. How safe do you feel to drive at night?

a) Very safe b) Safe c) Same as during in day time d) Unsafe

e) Very unsafe

47. Do you know about 'MERO SADAK' mobile app launched by Road Board Nepal?

a) Yes b) No

If yes, how useful do you found it?

a) Very useful b) Useful c) Neither useful nor useless d) Useless e) Very useless

48. Do you have any suggestions/comments? Explain

……

……

……

Field Researcher ……Research supervisor ……

Roads Board Nepal

Road User's Satisfaction Survey-III
Questionnaire

(**Information from the Chamber of Commerce, Industrialist, Media, NGO, Academician, Insurance**)

1. General information: Date: .....

Name of Respondent: …… Sex: ..... *[M/F]*

Age: ..... Office: ……..... Position: ……

Service center: ..... District: …… Region: ……..……...

2. How do you feel while traveling on this road?

a) Very comfortable b) Comfortable c) somewhat comfortable

d) Uncomfortable e) Very uncomfortable

3. How reliable is this road to reach your destination on time?

a) Very reliable b) Reliable c) Neither reliable nor unreliable d) Unreliable

e) Highly unreliable

4. Are you satisfied with the present road sign? Yes ( ) No ( )

5. Are the existing road signs useful? Yes ( ) No ( )

6. Do you agree that good traffic signs help to reduce accident? Yes ( ) No ( )

7. Where do you find the road signs most effective? **(Multiple Choice Question)**

SN	Road sign	Tick
1	Near the school	
2	Near the hospital	
3	Narrow road	
4	Sharp bends	
5	Pedestrian crossing	
6	Speed breaker	
7	Land slide/hazardous area	
8	High accident area	
9	Any other *[Specify]*	

8. Are you aware of the general traffic rules and regulations? Yes ( ) No ( )

9. In your opinion, how effective are the existing traffic rules and regulations?

a) Very effective b) Effective c) Neither effective nor ineffective

d) Ineffective e) Highly ineffective

10. Are there any medical facilities available on this road section? Yes ( ) No ( )

11. What type of medical facilities does the road user get in the road?

a) Govt. hospital/Health post b) Private hospital c) Nursing homes d) Clinic

e) None of above

12. Are there parking facilities available on road side? Yes ( ) No ( )

If yes, what types of parking facilities available?

a) On street b) Off street

13. Do you feel that separate lane is necessary in major road for none- motorized vehicles?

a) Yes b) No

14. How safe do you feel while traveling on this road?

a) Highly safe b) Safe c) Neither safe nor unsafe d) Unsafe e) Highly unsafe

15. Which of the following measure should be taken to improve the road safety?
Mark the following from 1 to 5 in term of priority where 1 being more important than 2 and so on.

SN	Measure for safety improvement	Mark
1	Install signal at crossing/ junction	
2	Restriction on 'Drink and Drive'	
3	Maintain road and bridge in time	
4	Provide white paint on hump	
5	Higher enforcement of traffic rules	
6	Reduce the number of bends	
7	Checking overloaded vehicles	
8	Provide side walk	
9	Provide pedestrian-crossing facility	
10	Install road signals where needed	
11	Add lane at high traffic roads	
12	Improve quality of work	
13	Check over speed and license	
14	Education/Awareness (driver, road users & children's)	

16. Which factors irritate you while driving/ traveling on this Road?

Mark the following from 1 to 5 where 1 being most irritating and 5 being least irritating.

SN	Major irritating factor	Mark
1	Over speed	
2	Unusual overtaking	
3	Aggressive driving behavior	
4	Pedestrian/ cattle crossing	
5	Bad condition of road	
6	Traffic Congestion	
7	Noise/Air pollution	
8	Missing side walk	
9	On street parking	
10	Narrow road	
11	Others	

17. Which of the following factor lead to accident?
Mark the following from 1 to 5 in term of priority where 1 being more important than 2 and so on.

SN	Factor contributing to accident	Mark
1.	High speed	
2	Bad weather	
3	Bad condition of road	
4	Pedestrian crossing	
5	Wild/domestic animal crossing	
6	Absence of sign at dangerous location	
7	Use of alcohol while driving	
8	Increase of vehicle volume	
9	Night travel	
10	Absence of street light	
11	Others	

18. What is your monthly business transaction? .....

19. Do you provide the following insurance? **Only for insurance agency.**

SN	Insurance	Yes	No
1	Travel insurance		
2	Vehicles insurance		
3	Freight insurance		

20. Are you satisfied with the road maintenance organization?

a) Highly satisfied b) Satisfied c) Neither satisfied nor dissatisfied d) Unsatisfied

e) Highly unsatisfied

21. Do you know who is responsible for road maintenance work?

a) DOR b) DDC/DoLIDAR c) municipality

d) Any other agencies *[Mention]* ..... e) Do not know

22. Has DOR/DDC/Municipality improved their performance these days?

Yes ( ) No ( )

23. How safe do you feel to travel at night?

a) Very safe b) Safe c) Same as during day time d) Unsafe

e) Very unsafe

24. Do you know about 'MERO SADAK' mobile app launched by Road Board Nepal?

a) Yes b) No

If yes, how useful do you found it?

a) Very useful b) Useful c) Neither useful nor useless d) Useless e) Very useless

25. How satisfied are you with the road and transportation services delivered on this section?

b) Highly satisfied b) Satisfied c) Neither satisfied nor dissatisfied

e) Dissatisfied e) Highly dissatisfied

26. What kind of roles have to be played by DOR/DDC/Municipality or Road agencies for better road service?

……

……

……

27. How can the traffic related awareness program be effective?

.....

.....

……..

28. What is your perception about involvement of private sector in road maintenance?

.....

.....

.....

.....

29. Do you have any suggestion to reduce accident?

……

……

……..

30. What should be done to minimize the vehicles pollution of the road?

……

……

31. Do you have any suggestions / comments? Explain

……

……

……..

Field Researcher ……Research supervisor ……..

Roads Board Nepal
Road User's Satisfaction Survey-III
Questionnaire
(**Information from the Vehicles manufacture/ Workshops**)

1. General information: Date: .....

Name of Respondent: …… Sex: ..... (*M/F*)

Age: ..... Service center: ..... District: …….....

Region: …….....

2. How long have you been in this profession? .....Years

3. How often vehicle owners do services of their vehicles?

a) Bus, Truck etc. [Vehicles with more than 4 wheels].....

b) Car, pick-ups etc. [4 wheels Vehicles].....

c) Motor Bikes/Scooters [2 wheels].....

4. Due to the condition of this road, what is the impact on the maintenance cost of vehicles?

a) Decreased substantially b) Decreased c) Remained same d) Increased

e) Increased substantially

5. What is your monthly business income? NRs……....

6. How satisfy are you happy with the road side amenities? (E.g. Tea & coffee center, restaurant, fuel station & hospital)

a) Very satisfy b) satisfy c) neither satisfy nor unsatisfied

d) unsatisfied e) Very unsatisfied

7. Are you satisfied with the present installed road signs? Yes ( ) No ( )

8. Where do you find the road signs most effective? **(Multiple Choice Question)**

SN	Road sign	Tick
1	Near to the school	
2	Near to the hospital	
3	Narrow road	
4	Sharp bends	
5	Pedestrian crossing	
6	Speed breaker	
7	Land slide area	
8	High accident area	
10	Others [Specify] ……..	

9. Are there any medical facilities available on this Road? Yes ( ) No ( )

10. What type of medical facilities does the user get on this road?

a) Govt. hospital / Health Post b) Private hospital c) Nursing homes d) Clinic

f) None of above

11. Which type of vehicles causes accident frequently?

a) Bus b) Mini-bus c) Truck/ Tanker d) Private car jeep e) Taxi

f) Micro-bus g) Tempo h) Tractor i) Utility van j) Bikes

12. Are there sufficient parking facilities along this road? Yes ( ) No ( )

13. Do you feel that separate lane in necessary in major road for non- motorized vehicles?

a) Yes b) No

14. How do you feel about road safety in this road compare to other roads?

a) Very Safe b) Safe c) Neither safe nor unsafe d) Unsafe

e) Very unsafe

15. Considering the safety aspect mark the following factors *(Note-1 for most unsafe and 5 for least unsafe)*

SN	Factors	Mark
1	Over speed	
2	Unusual overtaking	
3	Heavy goods carrying vehicles	
4	Lack of awareness of traffic rules	
5	Bad condition of road	
6	Absence of sufficient road signs	
7	Aggressive driving	
8	Narrow road	
9	Careless driving	
10	Unfit vehicles	
11	Other if any..	

16. Do you get irritated while driving or travelling on this road? Yes ( ) No ( )
If yes mark the following from 1 to 5 (note-1 for most irritating and 5 for least irritating)

SN	Major irritating factor	Mark
1	Over speed	
2	Unusual overtaking	
3	Aggressive driving behavior	
4	Pedestrian/ cattle crossing	
5	Bad condition of road	
6	Traffic Congestion	
7	Noise/Air pollution	
8	Missing side walk	
9	On street parking	
10	Narrow road	
11	Others	

17. Which of the following measure should be taken to improve the road safety?
Please Mark the following from 1 to 5 where 1 being most important and 5 being least important.

SN	Measure for safety improvement	Mark
1	Install signal at crossing/ junction	
2	Restriction on 'Drink and Drive'	
3	Maintain road and bridge in time	
4	Provide white paint on hump	
5	Higher enforcement of traffic rules	
6	Reduce the number of bends	
7	Checking overloaded vehicles	
8	Provide side walk	
9	Provide pedestrian-crossing facility	
10	Install road signals where needed	
11	Add lane at high traffic roads	
12	Improve quality of work	
13	Check over speed and license	
14	Education/Awareness (driver, road users & children's)	

18. How is the vehicles congestion on this road?

a) Absolutely free from congestion b) Free from congestion c) Neither free nor congested

d) Congested e) Highly congested

19. What do you think about quality and appearance of road-surface on this road?

a) Very good b) Good c) Neither good nor poor d) Poor

e) Very Poor

20. How satisfied are you with the improvement of road?

a) Highly satisfied b) Satisfied c) Neither satisfied nor dissatisfied

d) Dissatisfied e) Highly dissatisfied

21. Do you know who is responsible for road maintenance work?

a) DOR b) DDC/DoLIDAR c) Municipality d) Any other agency……

b) Do not know

22. Are you satisfied with the work of Road maintenance organization? Yes ( ) No ( )

If yes, the DOR/DDC/Municipality performance improved?

a) Yes b) No

23. How satisfied are you with DoR or Road agencies performance in resolving maintenance and repairing related problem in time?

a) Highly satisfied b) Satisfied c) Neither satisfied nor dissatisfied

d) Dissatisfied e) Highly dissatisfied

24. How safe do you feel to travel at night?

a) Very safe b) Safe c) Same as during day time d) Unsafe

e) Very unsafe

25. Do you know about 'MERO SADAK' mobile app launched by Road Board Nepal?

a) Yes b) No

If yes, how useful do you found it?

a) Very useful b) Useful c) Neither useful nor useless d) Useless e) Very useless

26. What is your perception about involvement of private sector in road maintenance?

.....

.....

……

27. Do you have any suggestion to reduce accident?

……

……

……

28. Do you have any suggestions / comments? Explain

……

……

……

Field Researcher ……Research supervisor …….

Roads Board Nepal
Road User's Satisfaction Survey-III
Questionnaire
Focus Group Discussion on Vehicles Stakeholder
(Bus, Truck & Tractor Counter/Syndicate, Freight Forward Agencies, Service providers)

1. General information: Date: .....

   Respondent Name: .....

   Age: ……. Sex *[M/F]* ……...

   Occupation: ……Education: …….

   Service center: ..... District: .....

   Region: .....

2. How long have you been in this profession? .....

3. How many times does driver take breaks during long travel in a day?

   a) One time b) Two times c) Three or more than three times

4. Do you feel safe when there is provision for two or more drivers in long journey? Yes ( ) No ( )

5. Generally, at which time driver start their journey?

   a) Morning b) Afternoon c) Night d) Any time

6. Do drivers follow the traffic rule and regulation while driving?

   Yes ( ) No ( )

7. Which mode of transport do you primary use for your trade? **(Only for freight forwarder)**

   a) Land transport b) Air transport c) both

8. How confident will you be that the vehicle will reach the destination uninterrupted and in time?

   a) Highly confident b) Confident c) Not sure d) Non- confident

   e) Highly non-confident

9. What types of insurances are made during a journey?

   a) Vehicle b) Driver c) Passenger d) Goods *[For goods carrier]*

10. Are freights insured before forwarding? *[Only for Freight forwarder]*

    Yes ( ) No ( )

11. From the past experience, what is the situation of insurance claims in vehicle travel/transportation?

    a) Very high b) High c) Average d) Rare

    e) None

12. Are there sufficient and appropriate Road signs along the roads?

    Yes ( ) No ( )

13. Where do you find the road signs most effective? **(Multiple Choice Question)**

SN	Road sign	Tick
1	Near the school	
2	Near the hospital	
3	Narrow road	
4	Sharp bends	
5	Pedestrian crossing	
6	Speed breaker	
7	Land slide/hazardous area	
8	High accident area	
9	Any other [Specify]	

14. How did you feel while traveling on this road?

a) Very comfortable b) Comfortable c) Neither comfortable nor uncomfortable

d) Uncomfortable e) Very uncomfortable

15. How reliable is this road to reach your destination on time?

a) Very reliable b) Reliable c) Neither reliable nor unreliable

d) Unreliable e) Very unreliable

16. How is the situation regarding road congestion?

a) Absolutely free from congestion b) Free from congestion c) Neither free nor congested

d) Congested e) Highly congested

17. What do you think about the width of this road?

a) Very adequate b) Adequate c) Neither Adequate nor inadequate

d) Inadequate e) Very inadequate

18. How satisfied are you with the durability/ quality of road construction?

a) Very satisfied b) Satisfied c) Neither satisfied nor dissatisfied d) Dissatisfied

e) Highly Dissatisfied

19. What do you think about the post-crash response when an accident occurs on this road?

a) Very quick b) Quick c) Neither quick nor late c) Late e) Very late

20. Due to the condition of this road, have the maintenance cost of vehicles increased or decreased?

a) Highly decreased b) Decreased c) Neither decreased nor increased

d) Increased d) Highly increased

21. Do you have any suggestion to reduce accident?

.....

.....

22. Which type of vehicles causes accident frequently?

a) Bus b) Mini-bus c) Truck/ Tanker d) Private car jeep e) Taxi

f) Micro-bus g) Tempo h) Tractor i) Utility van j) Bikes

k) Bicycle

23. Are there sufficient road side parking facilities for all types of vehicles along the road?

Yes ( ) No ( )

24. Do you feel separate lane is necessary in major road for non- motorize vehicles?

a) Yes b) No

25. What do you feel about road safety of this road compared to other?

a) Very safe b) Safe c) Neither safe nor unsafe d) Unsafe e) Very unsafe

26. Do you get irritated while driving/ traveling on this road? Yes ( ) No ( )

If 'Yes' rank the following between 1 to 5 (1 being most irritating & 5 being least irritating)

SN	Major irritating factor	Priority
1	Over speed	
2	Unusual overtaking	
3	Aggressive driving behavior	
4	Pedestrian/ cattle crossing	
5	Bad condition of road	
6	Traffic Congestion	
7	Noise/Air pollution	
8	Missing side walk	
9	On street parking	
10	Narrow road	
11	Others	

27. Which of the following measure can be taken to improve the road safety?
Mark the following between 1 to 5 where 1 being more important and 5 for least important.

SN	Measures safety improvement	Mark
1	Install signal at crossing/ junction	
2	Restriction on 'Drink and Drive'	
3	Maintain road and bridge in time	
4	Provide white paint on hump	
5	Higher enforcement of traffic rules	
6	Reduce the number of bends	
7	Checking overloaded vehicles	
8	Provide side walk	
9	Provide pedestrian-crossing facility	
10	Install road signals where needed	
11	Add lane at high traffic roads	
12	Improve quality of work	
13	Check over speed and license	
14	Education/Awareness (driver, road users & children's)	

28. Which of the following factor lead to accident?
Mark the following from 1 to 5 in term of priority where 1 being more important than 2 and so on

SN	Factor contributing to accident	Mark
1.	High speed	
2	Bad weather	
3	Bad condition of road	
4	Pedestrian crossing	
5	Wild/domestic animal crossing	
6	Absence of sign at dangerous location	
7	Use of alcohol while driving	
8	Increase of vehicle volume	
9	Night travel	
10	Absence of street light	
11	Others	

29. Do you know who is responsible for road maintenance work?

a) DOR b) DoLIDAR/DDC c) Rural/municipality d) Any other agency …… ….

e) Do not know

30. Are you satisfied with the road maintenance organization?

Yes ( ) No ( )

31. How safe do you feel to travel at night?

a) Very safe b) Safe c) Same as during in day time d) Unsafe

e) Very unsafe

32. Do you know about 'MERO SADAK' mobile app launched by Road Board Nepal?

a) Yes b) No

If yes, how useful do you found it?

a) Very useful b) Useful c) Neither useful nor useless d) Useless e) Very useless

33. How satisfied are you with the road and transportation services delivered on this section?

c) Highly satisfied b) Satisfied c) Neither satisfied nor dissatisfied

f) Dissatisfied e) Highly dissatisfied

34. What kind of roles DOR/DDC/Municipality or other road agency has to be play for better road services?

……

……

35. What should be done to minimize the vehicles pollution of the road?

……

……

……

36. Do you have any suggestions / comments? Explain

……

……

Field Researcher ……Research supervisor ……..

Annex III

Statistics of Strategic Road Network 2016 (DoR)

DOR
Statistics of Strategic Road Network, SSRN 2015/016

Total SRN Length, Influenced Population and Area in Districts/Zones/Regions

SN	District/Zone/Region	Total Population (2011)	Total Area (Km^2)	Total Road Length (Km.)	Population Influenced per Km. Road (Nos.)	Road Density (Km/100 Km^2)
1	Taplejung	128547	3646	68.50	1877	2
2	Panchthar	198362	1241	220.86	898	18
3	Ilam	295824	1703	250.95	1179	15
4	Jhapa	810636	1606	196.60	4123	12
Total in Mechi Zone		**1433369**	**8196**	**736.91**	**1945**	**9**
5	Morang	964709	1855	216.22	4462	12
6	Sunsari	751125	1257	193.83	3875	15
7	Dhankuta	164133	891	134.68	1219	15
8	Terhathum	101709	679	125.07	813	18
9	Sankhuwasabha	159649	3480	190.10	840	5
10	Bhojpur	183918	1507	107.00	0	7
Total in Koshi Zone		**2325243**	**9669**	**966.90**	**2405**	**10**
11	Solukhumbu	106772	3312	37.20	0	1
12	Okhaldhunga	148320	1074	134.90	1099	13
13	Khotang	209130	1591	200.46	0	13
14	Udayapur	321962	2063	249.16	1292	12
15	Saptari	646250	1363	246.50	2622	18
16	Siraha	643136	1188	144.93	4438	12
Total in Sagarmatha Zone		**2075570**	**10591**	**1013.15**	**2049**	**10**
Total in Eastern Region		**5834182**	**28456**	**2716.96**	**2147**	**10**
17	Dhanusha	768404	1180	203.14	3783	17
18	Mahottari	646405	1002	185.03	3494	18
19	Sarlahi	768649	1259	181.42	4237	14
20	Sindhuli	294621	2491	278.60	1058	11
21	Ramechhap	205312	1546	107.90	1903	7
22	Dolakha	188186	2191	149.75	1257	7
Total in Janakpur Zone		**2871577**	**9669**	**1105.84**	**2597**	**11**
23	Sindhupalchok	289455	2542	206.67	1401	8
24	Kavrepalanchok	389959	1396	155.12	2514	11
25	Lalitpur	466784	385	131.39	3553	34
26	Bhaktapur	303027	119	115.06	2634	97
27	Kathmandu	1740977	395	247.70	7028	63
28	Nuwakot	278761	1121	211.38	1319	19
29	Rasuwa	43798	1544	66.20	662	4
30	Dhading	336250	1926	219.08	1535	11
Total in Bagmati Zone		**3849011**	**9428**	**1352.60**	**2846**	**14**
31	Makwanpur	427494	2426	329.34	1298	14
32	Rautahat	696221	1126	120.83	5762	11
33	Bara	701037	1190	186.58	3757	16
34	Parsa	601701	1353	87.82	6852	6
35	Chitwan	566661	2218	233.39	2428	11
Total in Narayani Zone		**2993114**	**8313**	**957.96**	**3124**	**12**
Total in Central Region		**9713702**	**27410**	**3416.40**	**2843**	**12**
36	Gorkha	269388	3610	213.24	1263	6
37	Lamjung	169104	1692	106.84	1583	6
38	Tanahu	330581	1546	179.49	1842	12
39	Syangja	288040	1164	171.58	1679	15
40	Kaski	490429	2017	128.96	3803	6

SN	District/Zone/Region	Total Population (2011)	Total Area (Km^2)	Total Road Length (Km.)	Population Influenced per Km. Road (Nos.)	Road Density (Km/100 Km^2)
41	Manang	6527	2246	30.00	0	1
Total in Gandaki Zone		**1554069**	**12275**	**830.11**	**1872**	**7**
42	Mustang	13799	3573	194.00	0	5
43	Myagdi	113731	2297	44.00	2585	2
44	Parbat	147076	494	92.11	1597	19
45	Baglung	270009	1784	228.13	1184	13
Total in Dhaulagiri Zone		**544615**	**8148**	**558.24**	**976**	**7**
46	Gulmi	283577	1149	205.14	1382	18
47	Palpa	269372	1373	248.88	1082	18
48	Nawalparasi	635793	2162	375.73	1692	17
49	Rupandehi	886706	1360	169.85	5221	12
50	Kapilbastu	570612	1738	232.97	2449	13
51	Arghakhanchi	200446	1193	170.91	1173	14
Total in Lumbini Zone		**2846506**	**8975**	**1403.48**	**2028**	**16**
Total in Western Region		**4945190**	**29398**	**2791.83**	**1771**	**9**
52	Pyuthan	235165	1309	169.43	1388	13
53	Rolpa	227075	1879	170.41	1333	9
54	Rukum	210878	2877	158.40	1331	6
55	Salyan	243575	1462	175.66	1387	12
56	Dang	557852	2955	366.22	1523	12
Total in Rapti Zone		**1474545**	**10482**	**1040.12**	**1418**	**10**
57	Banke	493017	2337	226.41	2178	10
58	Bardiya	426946	2025	211.42	2019	10
59	Surkhet	360104	2451	264.14	1363	11
60	Dailekh	263835	1502	275.23	959	18
61	Jajarkot	172565	2230	158.00	1092	7
Total in Bheri Zone		**1716467**	**10545**	**1135.20**	**1512**	**11**
62	Dolpa	36701	7889	0.00	0	0
63	Jumla	108734	2531	96.00	1133	4
64	Kalikot	141620	1741	106.00	1336	6
65	Mugu	55311	3535	28.00	0	1
66	Humla	51008	5655	60.00	0	1
Total in Karnali Zone		**393374**	**21351**	**290.00**	**1356**	**1**
Total in Mid-Western		**3584386**	**42378**	**2465.32**	**1454**	**6**
67	Bajura	135506	2188	50.00	2710	2
68	Bajhang	196277	3422	101.08	1942	3
69	Achham	258022	1680	144.00	1792	9
70	Doti	211827	2025	224.46	944	11
71	Kailali	770279	3235	311.60	2472	10
Total in Seti Zone		**1571911**	**12550**	**831.14**	**1891**	**7**
72	Kanchanpur	444315	1610	155.42	2859	10
73	Dadeldhura	141543	1538	161.08	879	10
74	Baitadi	252116	1519	238.62	1057	16
75	Darchula	133464	2322	121.42	1099	5
Total in Mahakali Zone		**971438**	**6989**	**676.54**	**1436**	**10**
Total in Far-Western		**2543349**	**19539**	**1507.68**	**1687**	**8**
Total of Nepal		**26620809**	**147181**	**12898.20**	**2064**	**9**

SRN Length with category and Pavement

(in Kilometer)

Road category	Region	BT	GR	ER	Tot	UC	PL
National Highway	Eastern	634.1	68.5	115.0	817.7	29.0	80.0
	Central	847.3	28.8	0.00	876.1	0.0	142.8
	Western	478.1	0.00	0.00	478.1	0.0	0.0
	Mid-Western	724.4	8.00	2.66	735.1	0.0	0.0
	Far-Western	518.0	0.00	50.0	568.0	0.0	93.3
	Sub-Total	**3202.1**	**105.3**	**167.6**	**3475.2**	**29.0**	**316.1**
Feeder Road	Eastern	633.6	311.5	394.0	1339.2	0.0	131.5
	Central	1115.7	548.9	478.5	2143.2	73.9	375.0
	Western	726.6	98.0	1213.4	2038.1	8.0	195.0
	Mid-Western	563.5	238.6	500.0	1302.2	156.4	366.0
	Far-Western	281.0	149.1	332.3	762.4	0.0	434.0
	Sub-Total	**3320.5**	**1346.3**	**2918.3**	**7585.2**	**238.3**	**1501.6**
Mid-Hill Road	Eastern	48.0	128.0	248.0	424.0	0.0	0.0
	Central	47.0	47.0	54.0	148.0	33.0	80.0
	Western	62.0	13.0	140.0	215.0	0.0	27.0
	Mid-Western	0.00	32.0	296.0	328.0	0.0	0.0
	Far-Western	20.0	0.00	61.0	81.0	0.0	0.0
	Sub-Total	**177.0**	**220.0**	**799.0**	**1196.0**	**33.0**	**107.0**
Postal Road	Eastern	23.0	63.0	50.0	136.0	16.0	9.0
	Central	39.0	147.0	63.0	249.0	16.5	12.5
	Western	0.00	58.5	2.00	60.5	0.0	8.0
	Mid-Western	24.0	52.0	24.0	100.0	3.0	8.0
	Far-Western	37.7	52.0	6.50	96.2	27.5	3.0
	Sub-Total	**123.7**	**372.5**	**145.5**	**641.7**	**63.0**	**40.5**
Grand Total		**6823.4**	**2044.2**	**4030.5**	**12898.**	**363.3**	**1965.2**

Annex IV

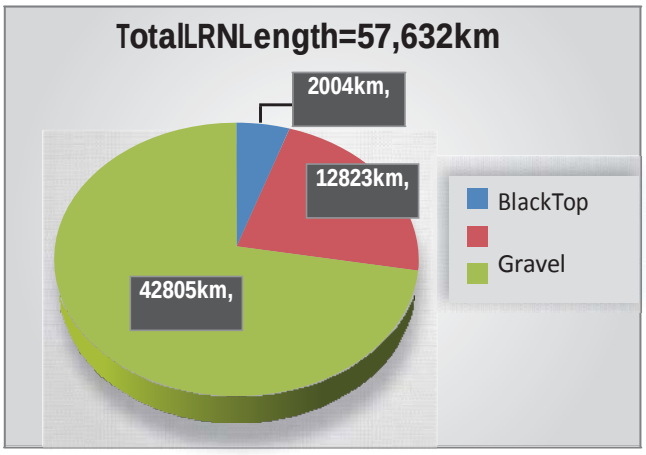
Statistics of Local Road Network 2016 (DoLIDAR)

GovernmentofNepal

MinistryofFederalAffairsandLocalDevelopment

DepartmentofLocalInfrastructureDevelopmentandAgriculturalRoads(DoLIDAR)

Statistics of Local Road Network (SLRN) 2016



December,2016

Statistics of Local Road Network (SLRN; 2016)

1. Introduction

TheDepartmentofLocalInfrastructureDevelopmentandAgriculturalRoads(DoLIDAR),MinistryofFederalAffairsandLocalDevelopmenthadpublishedRuralRoadRecordsin2069(2012)forthefirsttime. Sincethen,DoLIDARhasbeenupdatingtheLocalRoadNetwork(LRN)Inventoryeveryyearbasedonprogressreportofeachfiscalyearbutwasnotofficiallyreleasedasbook.Thisdocumentisanupdatedversion of LRN Inventory **"Statistics of Local Road Network (SLRN) 2016"**

This document has been organized as follows:

- Preface from the Secretary of MoFALD
- Foreword from the Director General of DoLIDAR.
- Abbreviations/Acronyms
- Table of Contents
- Introduction of Statistics of Local Road Network (SLRN; 2016)
- Brief History of DoLIDAR
- List of DoLIDAR DGs andTenure
- Central Level Programmes/Projects on LocalTransportationSector under DoLIDAR
- LRN Data (Summary andAnalysis Charts)
- Map of NepalTransport Sectors.
- District-wise LRN Data (DRCN andVillage Roads) with Maps
- District-wise existing and proposed DRCN data and Maps with other features.
- List of Local Road Bridges, other features and their status

2. Geographic Information System (GIS)

ThisdocumentispreparedbasedonGeographicInformationSystem(GIS)data.Someofthevillageroadsdon't have GIS data and are enlisted the name and the featuresonly.

FormostofroadnetworkGISdatahavebeencreatedfromtheGPSdatacollectedinthefieldduringDTMPpreparationofrespectivedistrict.Therearesomevillageroadswithout GISdataandalignments andthereforelistedonlythename,lengthandotherfeatures.Thelengthofproposed(newconstruction) roadsareonthebasisoftentativealignmentsetinthetopographicalmap.Theactuallengthmayvaryafterdetailed survey design reports is prepared.

3. DataTables and Maps of LRN Network

DatatablesforeachproposedProvincesandGeographicalRegionhavebeencompiledandpresentedseparately.Datatablesandmapsofcorrespondingdistrictsfallingundertheproposedprovincesandgeographicalregionsarealsopresentedindetail.Themapsconsistoftwotypes,oneshowingLRNRoadsasper GISdataasavailableandotherisDRCNRoadswithproposednewconstructionlengthandotherfeatures supported by GIS data.

The road categories included are:

- Existing District Road Core Network (DRCN),
- New Construction District Road Core Network (DRCN),
- ExistingVillage Roads (VRCN),

Abrief details of each category mentioned above are given in following sub-sections.

3.1 District Road Core Network (DRCN; Existing):

ThedataofexistingDistrictCoreNetwork(DRCN)areextractedfromtheupdatedDistrictTransportMasterPlan(DTMPs)ofall75districts.SincetheDTMPsofsomedistrictswereupdatedthreeyearsback.Thedatareceivedfromthosedistrictswerethoroughlycheckedwiththe DTMPdataandnewupdateswereincorporatedinthisdocument.TheDRCNarecategorisedintoBituminous/Blacktop(BT),Gravelled(GR)andEarthen(ER)roadsurface. Thesearefurthercategorisedintoall-weather

(AW)andfair-weather(FW)roads.Theexistingaswellasnewproposed DRCNroadshavebeenassignedwithroadcode asperDTMPReports.ThetotalexistingDRCNreachesto25,728kmof whichblacktoppedis1,311km(5%),gravelledsurfacedis5,869km(23%)andtheearthenroadtrackis18, 548km(72%).Similarlyall-weatherroadsis7,180km(28%)andfair-weatherroadsis18,548km (72%).

3.2 New Construction DRCN:

DTMPenvisagesthatall VDCsshouldbeconnectedwithatleastoneDRCNroadandthose VDCs withoutroadaccessneedtoplanforroadconnectionwithnewDRCN.Tillthisdocumentpreparationtime ,368 VDCshavenotyetbeenconnectedwithroadaccess. Toconnect368inaccessible VDCs,approximately4,885kmnewroadisrequiredaspertheDTMPreports.SomeHimalayandistricts haddecidedthattheVDCshavinghightouristpotentialarea,theimprovementoftrekkingtrailhavepropo sedinsteadofmotor-ableroadconstruction.Theproposedlengthandalignmentofnew DRCNroads are tentative only and may vary once detailed survey/design report being prepared.

3.3 Village Roads (VRCN; Existing):

ThelocalroadsotherthanDRCNhavebeencategorisedasvillageroads. TheGISdataofalllisted villageroadsarenotavailableandhenceonlythoseroadshavingGISdataareincludedinmap.The total existing village roads reaches to 31,904km of which black topped surface is 693 km (2%),gravelledsurfaceis6,954km(22%)andtheearthenroadtrackis24,257km(76%).Inthiscase,all-weatherroadsis7,647km(24%)andfair-weatherroadsis24,257km(76%).Asmentionedabove,the DTMPs of some districts were prepared 3 to 4 years back, the data of village roads has been up-datedwiththerecentlyreceiveddatafromthedistricts.Thenewconstructionrequirementofvillageroads are not considered due to unavailability of adequate data.

4. Data of Local Road Bridges:

ThedataoflocalroadbridgesfallingunderDRCNandvillageroadshavebeencompiledfromtherecentlyupdate d“BridgeInformationManagementSystem(BIMS)”maintainedbyLocalRoadBridgeProgramme(LRBP).T hedatarevealsthatatotalof488bridgesfallsonlocalroads,ofwhich196bridgeshavebeencompleted and 292 bridges are ongoing at various stages of construction.

5. Availability of Data

Theroadnetworkdatahasbeenproducedaspresentdocumentinhardcopyandisalsoavailableindigital formatintheDoLIDAR.ThePDFformatofthisdocumentcanalsobedownloadedfromthedepartmental website www.dolidar.gov.np.

Province-wise Summary of Strategic Road Network (SRN)

RoadClass	Totalle ngth;Km	BlackTop	Gravel	Earthen	Allweather	Fair weather	New Construction
Province 1	2,247.63	978.49	378.58	890.56	1,357.07	890.56	-
Province 2	1,353.77	730.07	451.77	171.93	1,181.84	171.93	-
Province 3	2,380.26	1,511.88	302.51	565.87	1,814.39	565.87	-
Province 4	1,666.92	588.73	73.14	1,005.05	661.87	1,005.05	-
Province 5	2,287.65	1,241.18	335.97	710.50	1,577.15	710.50	-
Province 6	1,132.03	470.47	24.00	637.56	494.47	637.56	-
Province 7	1,405.68	848.16	162.12	395.40	1,010.28	395.40	-
TotalofSRN-Nepal	**12,473.94**	**6,368.98**	**1,728.09**	**4,376.87**	**8,097.07**	**4,376.87**	**-**
		51.1%	**13.9%**	**35.1%**	**64.9%**	**35.1%**	

Province-wise Summary of Urban Roads (UR)

RoadClass	Totalle ngth;Km	BlackTop	Gravel	Earthen	Allweather	Fair weather	New Construction
Province 1	-	-	-	-	-	-	-
Province 2	-	-	-	-	-	-	-
Province 3	363.26	201.30	100.00	61.96	301.30	61.96	-
Province 4	5.13	3.05	1.07	1.01	4.12	1.01	-
Province 5	-	-	-	-	-	-	-
Province 6	-	-	-	-	-	-	-
Province 7	-	-	-	-	-	-	-
TotalofUR-Nepal	**368.39**	**204.35**	**101.07**	**62.97**	**305.42**	**62.97**	**-**
		55.5%	**27.4%**	**17.1%**	**82.9%**	**17.1%**	

Province-wise Summary of District Road Core Network (DRCN)

Nos.of Roads	RoadClass	Totalle ngth;Km	BlackTop	Gravel	Earthen	All weather	Fair weather	New Construction
335	Province 1	5,715.40	261.95	817.41	4,636.05	1,079.35	4,636.05	949.59
223	Province 2	2,519.28	67.14	1,603.44	848.70	1,670.58	848.70	-
341	Province 3	5,230.42	287.06	851.89	4,091.46	1,138.96	4,091.46	389.67
309	Province 4	4,082.38	180.51	594.25	3,307.62	774.76	3,307.62	405.58
312	Province 5	4,080.67	432.95	1,214.22	2,433.50	1,647.17	2,433.50	414.51
163	Province 6	1,671.25	9.99	136.83	1,524.43	146.82	1,524.43	1,281.71
207	Province 7	2,428.79	71.14	651.25	1,706.40	722.39	1,706.40	1,592.58
1890	**TotalofDRCNRoads**	**25,728.18**	**1,310.74**	**5,869.29**	**18,548.16**	**7,180.02**	**18,548.16**	**5,033.63**
			5.1%	**22.8%**	**72.1%**	**27.9%**	**72.1%**	

Note 1: LRN Data of Nawalparasi District has been included in Province4 (No exact demarcation of district in Province 4 and 5)
Note 2: LRN Data of Rukum District has been included in Province 5 (Noexact demarcation of district in Province 5 and 6)

Province-wise Summary ofVillage Road Network (VRCN)

Nos.of Roads	RoadClass	Totalle ngth;Km	BlackTop	Gravel	Earthen	All weather	Fair weather	New Construction
923	Province 1	6,121.64	142.27	1,616.54	4,362.83	1,758.82	4,362.83	
713	Province 2	3,175.93	15.31	1,176.20	1,984.42	1,191.51	1,984.42	-
2194	Province 3	9,248.60	289.29	1,722.77	7,236.53	2,012.06	7,236.53	-
1054	Province 4	6,831.32	128.53	696.87	6,005.91	825.40	6,005.91	-
813	Province 5	4,470.53	97.88	1,467.63	2,905.02	1,565.51	2,905.02	-
138	Province 6	857.25	9.36	23.07	824.82	32.43	824.82	-
216	Province 7	1,198.60	10.81	250.63	937.16	261.44	937.16	-
6051	**TotalofVillageRoad**	**31,903.86**	**693.45**	**6,953.72**	**24,256.69**	**7,647.17**	**24,256.69**	**-**
	Percentage	**100%**	**2.2%**	**21.8%**	**76.0%**	**24.0%**	**76.0%**	
7941	**TotalLRN(DRCN &VR)**	**57,632.04**	**2,004.19**	**12,823.00**	**42,804.85**	**14,827.20**	**42,804.85**	**5,033.63**
	TotalLRN(in Percentage)		**3.5%**	**22.2%**	**74.3%**	**25.7%**	**74.3%**	

Note 1: LRN Data of Nawalparasi District has been included inProvince 4 (No exact demarcation of district in Province 4 and5) Note 2: LRN Data of Rukum District has been included in Province

Geographical Region-wise Summary Strategic Road Networks (SRN)

RoadClass	Totallength;Km	BlackTop	Gravel	Earthen	Allweather	Fair weather	New Construction
Mountain Region (16 Districts)	1,644.96	614.36	95.10	935.50	709.46	935.50	-
Hills Region (39 Districts)	6,593.15	3,183.56	567.25	2,842.34	3,750.81	2,842.34	-
Terai Region (20 Districts	4,235.83	2,571.06	1,065.74	599.03	3,636.80	599.03	-
Nepal Total	**12,473.94**	**6,368.98**	**1,728.09**	**4,376.87**	**8,097.07**	**4,376.87**	**-**
		51.1%	**13.9%**	**35.1%**	**64.9%**	**35.1%**	

Geographical Region-wise Summary: Urban Roads (UR)

RoadClass	Totallength;Km	BlackTop	Gravel	Earthen	Allweather	Fair weather	New Construction
Mountain Region (16 Districts)	-	-	-	-	-	-	-
Hills Region (39 Districts)	368.39	204.35	101.07	62.97	305.42	62.97	-
Terai Region (20 Districts	-	-	-	-	-	-	-
Nepal Total	**368.39**	**204.35**	**101.07**	**62.97**	**305.42**	**62.97**	**-**
		55.5%	**27.4%**	**17.1%**	**82.9%**	**17.1%**	

District Road Core Networks (DRCN)

Nos.of Roads	RoadClass	Totallength;Km	BlackTop	Gravel	Earthen	All weather	Fair weather	New Construction
321	Mountain Region (16 Districts)	3,262.58	49.77	198.78	3,014.03	248.56	3,014.03	2,597.94
1038	Hills Region (39 Districts)	15,418.04	422.58	1,313.49	13,681.98	1,736.06	13,681.98	2,283.30
531	Terai Region (20 Districts	7,047.56	838.39	4,357.02	1,852.16	5,195.41	1,852.16	152.39
1890	**Nepal Total**	**25,728.18**	**1,310.74**	**5,869.29**	**18,548.16**	**7,180.02**	**18,548.16**	**5,033.63**
			5.1%	**22.8%**	**72.1%**	**27.9%**	**72.1%**	

Village Road Networks (VRN)

Nos.of Roads	RoadClass	Totallength;Km	BlackTop	Gravel	Earthen	All weather	Fair weather	New Construction
700	Mountain Region (16 Districts)	4,884.66	1.80	81.17	4,801.69	82.97	4,801.69	-
2943	Hills Region (39 Districts)	16,202.36	181.28	604.56	15,416.52	785.84	15,353.32	-
2408	Terai Region (20 Districts	10,816.84	510.38	6,267.99	4,038.47	6,657.43	4,134.10	-
6051	NepalTotal	31,903.86	693.45	6,953.72	24,256.69	7,526.24	4,289.11	-
7941	**TotalofDRCNandVRCNRoads**	**57,632.04**	**2,004.19**	**12,823.00**	**42,804.85**	**14,706.26**	**42,837.27**	**5,033.63**
			3.5%	**22.2%**	**74.3%**	**25.5%**	**74.3%**	
	TotalofSRN,DRCNandVRCNRoads	**70,105.98**	**8,373.17**	**14,551.09**	**47,181.72**	**22,803.33**	**47,214.14**	**5,033.63**
	NepalSummary-All Network	**70,474.37**	**8,577.52**	**14,652.16**	**47,244.69**	**23,108.75**	**47,277.11**	**5,033.63**

Annex V

IEC Material

सडक प्रयोगकर्ताहरुका निम्ति सूचना, शिक्षा तथा सञ्चारमुलक सामग्रीहरु

(Informative, Educative and Communicative Materials for Road Users)

सडक प्रयोगकर्ताहरुलाई ट्राफिक चिन्हहरुबारे जानकारी, सडकको सहि व्यवस्थापन, उचित प्रयोग, मर्मत सम्भार र यसको समुचित प्रयोग र सडक सुरक्षाको बारेमा जनचेतना अभिवृद्धि गराउने सूचना, शिक्षा तथा सञ्चारमुलक सामग्रीहरु यसमा समावेश गरिएको छ ।

खण्डहरू :

IEC Materialलाई ३ खण्डमा विभाजन गरिएको छ :

(१) **प्रथम खण्ड : सूचनामुलक सामग्रीहरु**

लक्षित वर्ग : सडक प्रयोगकर्ताहरु र सरोकारवालाहरु ।

(२) **द्वितीय खण्ड : शिक्षामुलक सामग्रीहरु**

लक्षित वर्ग : बस/ट्रक/ट्याक्सी/निजी सवारी चालक तथा परिचालकहरु, सवारीधनीहरु, यातायात व्यवसायीहरू, निर्माण व्यवसायीहरू, सडक किनारमा बस्ने सर्वसाधारण, पैदलयात्री र सम्बन्धित सरकारी तथा अन्य निकायहरु ।

(३) **तृतीय खण्ड : संचारमुलक सामग्रीहरु**

लक्षित वर्ग : सडक प्रयोगकर्ता तथा सरोकारवालाहरु

प्रथम खण्ड : सूचनामुलक सामग्रीहरु

सूचनामुलक सामग्रीहरुले नेपालका सडकहरुको संक्षिप्त परिचय तथा तिनीहरुको मर्मत सम्भार कार्यमा सडक बोर्ड नेपालको भूमिका बारे सडक प्रयोगकर्ताहरुलाई सूचना प्रदान गर्दछ ।

१. नेपालमा रहेका सडकका प्रकारहरु :

(क) राजमार्ग

नेपाल अधिराज्यको पूर्व देखि पश्चिम सिमासम्मको सडक, काठमाडौं उपत्यका लगायत मुख्य मुख्य उपत्यका जोड्ने उत्तर-दक्षिण सडक वा कुनै एउटा राजमार्ग देखि क्षेत्रिय सदरमुकाम जोड्ने सडक राजमार्ग अन्तरगत पर्दछन् ।

(ख) सहायकमार्ग

राजमार्ग र जिल्ला सदरमुकाम वा प्रमुख व्यापारिक, पर्यटकीय, औद्योगिक, कुनै ठूलो विद्युत परियोजना रहेको ठाँउलाई जोड्ने सडक, राजमार्गसँग जोडिएको प्रतिदिन कम्तिमा सयवटा सवारी साधनहरु गुड्ने सडक सहायकमार्ग अर्न्तगत पर्दछन् ।

(ग) जिल्ला सडक

जिल्ला भित्रको कुनै प्रमुख वस्ती, जिल्ला सदरमुकाम वा अन्य कुनै प्रमुख सडक वा व्यापारिक ठाउँसँग जोड्ने सडक जिल्ला सडक अर्न्तगत पर्दछन् ।

(घ) शहरी सडक

कुनै पनि नगर क्षेत्रभित्र रहेका सडकहरु शहरीसडक अन्तरगत पर्दछन् ।

(ङ) ग्रामीण तथा कृषि सडक

जिल्ला भित्रको कुनै एउटा गाँउलाई अर्को गाँउ, कुनै स्थानीय बजार, कुनै उद्योग, विद्यालय, चिकित्सालय, सामुदायिक वन, मिल, कलकारखाना आदि रहेको ठाँउ वा कुनै जिल्ला सडक वा सो भन्दा माथिल्लो तहको सडकसँग वा कुनै एउटा गाँउ वा वस्तीलाई कुनै सानो बजार केन्द्र वा कृषि उत्पादन केन्द्र वा सो को बजारसँग जोड्ने सडक ग्रामीण तथा कृषि सडक अन्तर्गत पर्दछन् ।

२. सडकका मर्मत सम्भार र सुधार सम्बन्धि जानकारी

२.१. परिचय

सडकको मर्मत सम्भार कार्यको दिगो व्यवस्थापन गर्न आवश्यक आर्थिक श्रोत जुटाई सम्बन्धित सडक निकायहरूमा वितरण गर्न सडक वोर्ड नेपालको प्रमुख भूमिका रहेको छ ।

२.२. सडक मर्मत सम्भारका प्रकारहरु :

(क) नियमित मर्मत सम्भार

सवारी संख्यामा निर्भर नहुने, वातावरणमा निर्भर नहुने र वर्षभरि नै लगातर गरिरहनु पर्ने कार्यलाई नियमित मर्मत सम्भार भनिन्छ, जस अनुसार निम्न कार्यहरु पर्दछन्:

- ☞ सडक किनारको मर्मत सम्भार
- ☞ सडकमा उम्रेको झारपात तथा घाँस सफा गर्ने
- ☞ सडक किनारको ढल सफा गर्ने
- ☞ कल्भर्ट सफाई
- ☞ ढललाई सामान्य रुपमा फेरवदल गर्ने
- ☞ पुलको सफाई
- ☞ सडक वढार्ने कार्य
- ☞ सामान्य खालको पहिरो वा भु-स्खलन हटाउने
- ☞ सडकमा राखिएका अन्य संरचनाको सफाई

(ख) पटके मर्मत सम्भार

सवारी संख्यामा भर पर्ने र वर्षभरिमा पटक पटक गर्नुपर्ने मर्मत सम्भार कार्यलाई पटके सम्भार कार्य भनिन्छ । यस अर्न्तगत निम्न कार्यहरु पर्दछन् :

१. सामान्य कार्यहरु

- ☞ कालोपत्रे तथा ग्राभेल सडकमा पटहोल प्याचिङ्ग, सडक किनारा तथा सोल्जरको मर्मत सम्बन्धी कार्य
- ☞ नाली, कलभर्ट, पहिरो सफा गर्ने
- ☞ सडक किनार, माटे ढल मर्मत
- ☞ Delineators, सडक चिन्ह र Drain cover वदल्ने
- ☞ Parapet wall, Delineators, Kilometer Post, कलभर्टकोHead wall, Retaining wall, फुटपाथचेक ड्याम, Embankment, Bio-engineering कार्यको मर्मत गर्ने

२) विशेष कार्यहरु

- ☞ कालोपत्रे सडकमा विस्तृत प्याच वर्क, रिटेनिङ्ग वाल तथा अन्य स्लोप स्टाविलाईजेशन सम्बन्धी काम गर्ने
- ☞ वायो ईन्जिनियरिङ्ग
- ☞ साना कस ड्रेनको पुनर्स्थापना
- ☞ थप डेलिनेटर र ट्राफिक चिन्ह राख्ने

- ☞ सडक किनारा सुधार र सडक छेउको ढल पुनर्स्थापना
- ☞ नदी नियन्त्रण तथा संरक्षण सम्बन्धी काम
- ☞ सडकको संरक्षण सम्बन्धी कार्य गर्ने

(ग) आवधिक मर्मत सम्भार

निश्चित अवधि पुगेपछि गर्नुपर्ने कार्य जस्तो रिसिलिङ्ग, रिग्राभेलिङ्ग, आदिलाई आवधिक मर्मत सम्भार कार्य भनिन्छ ।

- ☞ तराईको कालोपत्रे सडक प्रत्येक ७ वर्षमा
- ☞ पहाडी कालोपत्रे सडक प्रत्येक ६ वर्षमा
- ☞ तराईको ग्राभेल सडक प्रत्येक ४ वर्षमा
- ☞ पहाडी ग्राभेल सडक प्रत्येक ३ वर्षमा

(घ) आकस्मिक मर्मत सम्भार

कुनै कारणले सडक बन्द भएमा वा सडकलाई हानी नोक्सानी भएमा यथासिघ्र सडक खोल्न र अवरुद्ध यातायात संचालन गर्न तथा सडकलाई थप नोक्सानी हुनबाट जोगाउन गरिने कार्य आकश्मिक मर्मत सम्भार हुन् । यस अर्न्तगत निम्न कार्यहरु पर्दछन् :

- ☞ आकस्मिक पहिरो सफा गर्ने
- ☞ क्रस ड्रेन स्ट्रक्चर सहित डाईभर्सन निर्माण गर्ने
- ☞ आकस्मिक स्लोप स्टाबिलाईजेसन गर्ने

३. सडक सम्भार र सुधार सम्बन्धी जिम्मेबार निकायहरुको जानकारी :

सडक वोर्डको कोषबाट संचालन हुने राजमार्ग र सहायकमार्गहरुको मर्मत संभारको जिम्मेवारी सडक विभागको रहेको छ । अन्य सडकहरुको हकमा नगरपालिका र जि.वि.स. अन्तर्गत आ-आफ्नो क्षेत्रभित्रका शहरी, ग्रामिण र जिल्ला स्तरीय सडकहरुको मर्मत संभारको जिम्मेवारी सम्बन्धित निकायहरुले नै वहन गर्ने व्यवस्था रहेको छ ।

४. सडक वोर्ड नेपाल सम्बन्धी जानकारी

४.१ परिचय

सडक वोर्ड नेपाल सडक मर्मत गराउने, सडकको मर्मत सम्भार गर्दा लाग्ने खर्चमा न्युनिकरण गर्ने तथा सडकको मर्मत सम्भार कार्यलाई पारदर्शी एवं प्रभावकारी बनाउने तथा मर्मत कार्यको अनुगमन तथा मूल्याङ्कन गर्ने उद्देश्यले सडक वोर्ड ऐन २०५८ अनुसार स्थापित एक स्वायत संस्था हो । यसको मुख्य उद्देश्य योजनावद्ध तवरले दिगो सडक मर्मत सम्भार गराउनु रहेको छ र यस संस्थामा विभिन्न सरकारी, व्यवसायी र सरोकारवालाहरुको प्रतिनिधित्व रहने प्रावधान छ ।

४.२ कार्य क्षेत्र

सडक वोर्ड नेपालको कार्यक्षेत्र भित्र पर्ने सडकहरु :

- ☞ सबै राजमार्ग तथा सहायक राजमार्गहरु
- ☞ कालोपत्रे भएका सबै शहरी तथा जिल्ला सडकहरु
- ☞ न्यूनतम आवश्यक सवारी चाप भएका सबै ग्रामीण सडकहरु

४.३ आयस्रोत

सडक वोर्ड नेपालले हाल प्राप्त गरेको आयस्रोत निम्नानुसार छन् :

- ☞ सडकको उपयोग गरेवापत लिने दस्तुर
- ☞ सवारी साधानमा प्रयोग हुने इन्धनमा लगाईने दस्तुर
- ☞ सवारी दर्ता प्रमाण पत्रमा लगाईने दस्तुर

द्वितिय खण्ड : शिक्षामुलक सामग्री

क) लामो दुरीका बस/ट्रक चालक तथा परिचालकहरुलाई

- ☞ ट्राफिक नियमको पूर्ण जानकारी हासिल गरी मात्र सवारी चलाउनुहोस् ।
- ☞ सवारी साधनको क्षमता भन्दा बढी तौल बोकी सवारी नचलाउनुहोस् ।
- ☞ आफु भन्दा साना सवारी साधन, पैदलयात्री, बुढाबुढी तथा केटाकेटी प्रति सचेत रही सवारी चलाउनुहोस् ।
- ☞ आफ्नो सवारी साधनको नियमित जाँच गरी वातावरण प्रदुषण घटाउन सहयोग गर्नुहोस् ।
- ☞ सवारी चालक अनुमति पत्र र गाडीका अत्यावश्यक कागजपत्रहरु सधैँ साथमा राखी सवारी चलाउनुहोस् ।
- ☞ मादक पदार्थ सेवन गरी सवारी नचलाउनुहोस् ।
- ☞ तिव्र गतिमा सवारी नचलाउनुहोस् ।
- ☞ ट्राफिक नियमको पालना गर्नुहोस्।
- ☞ सवारी साधन चलाउँदा मोवाइल फोनको प्रयोग नगर्नुहोस् ।
- ☞ आफ्नो लेनमा मात्र सवारी साधन चलाउनुहोस् ।
- ☞ सडक कर र सवारी साधनमा लाग्ने दस्तुर नियमित रुपमा तिर्नुहोस् ।
- ☞ सवारी साधन निश्चित ठाँउमा मात्र पार्किङ्ग गर्नुहोस् ।
- ☞ सवारी साधन बिग्रीएमा सडक बाहिर संकेत सहित पार्किङ्ग गर्नुहोस्
- ☞ डिजेल तथा मोविल बाटोमा नपोख्नुहोस्, यसले बाटो बिगार्नुका साथै दुर्घटनाको संभावना बढाउँछ ।
- ☞ सवारी साधनको लाईट र इन्डिकेटर सधैँ सही अवस्थामा राख्नुहोस् ।
- ☞ सवारी साधनको सिट क्षमता भन्दा बढी र छतमाथि तथा ढोकामा झुन्डिएर यात्रा नगराउनु होस् ।
- ☞ सडकमा एम्बुलेन्स, दमकल जस्ता आकस्मिक सेवाका सवारी साधनहरुलाई सधैँ पहिलो प्राथमिकता दिनुहोस् ।
- ☞ सवारी चलाउँदा यात्रुको समय, गन्तव्य स्थान र सुरक्षाप्रति ध्यान दिनुहोस् ।
- ☞ यात्रुहरूसँग सधै शिष्ट व्यवहार गर्नुहोस् ।
- ☞ सडक हामी सबैको साझा सम्पत्ति हो यसको संरक्षणमा सहभागी बन्नुहोस् ।

(ख) शहरभित्र चल्ने सवारी साधनका चालक /परिचालकहरू

- ☞ ट्राफिक नियमको सहि पालना गरी सवारी हाकौँ ।
- ☞ सवारी साधनको ढोका बन्द गरी सिट वेल्टको प्रयोग गरी सवारी चलाऔँ ।
- ☞ यात्रु चढाउदाँ र ओराल्दा बस बिसौनीमा मात्र चढाउने र ओराल्ने गरौँ ।
- ☞ सवारी साधन चलाउदा ट्राफिक नियम पालना गरि आफ्नो लाइनमा चलाऔ ।
- ☞ सवारी साधन चलाउदा अनावश्यक ओभर टेकिङ्ग नगरौँ ।
- ☞ सडकको पेटिमा अनावश्यक पार्किङ्ग नगरौँ ।
- ☞ सवारी साधानको क्षमता भन्दा बढि यात्रु नराखौँ ।
- ☞ मादक पदार्थ सेवन गरी सवारी साधन नचलाऔ ।
- ☞ ट्राफिक जाम हुने अति व्यस्त सडकमा सधैँ वैकल्पिक सडकको प्रयोग गरौँ ।
- ☞ जेब्रा क्रेसिङ्ग भएको ठाँउमा पैदल यात्रीलाई प्राथमिकता दिई सवारी चलाऔँ ।
- ☞ कम सन्तुलन भएका सवारी प्रति सजग भई चलाऔँ ।
- ☞ जेब्रा क्रसिङ्गमा पदयात्रीलाई प्राथमिकता दिऔँ ।
- ☞ पदयात्री हिंड्ने फुटपाथमा मोटरसाईकल, स्कूटर आदि नचलाऔँ ।

(ग) सवारी धनी/यातायात व्यवसायीलाई

- ☞ आफ्नो सवारी साधनको क्षमता र सडकको अवस्था हेरेर मात्र सामान ढुवानी गर्नुहोस् ।

- ☞ सरकारद्वारा निर्धारित एक्सल लोडअनुसारको तौल बोकीसडक तथा सवारीको समेत आयु र अवस्थालाई सुरक्षित राख्न सहयोग गर्नुहोस् ।
- ☞ सवारी धनीले चालक रोज्दा अनुभवी एवम् धैर्यता भएको चालकलाई प्राथमिकता दिनुहोस् ।
- ☞ सवारी साधनको नियमित जाँच तथा परिक्षण गरी वातावरण प्रदुषण न्युनीकरण गर्नुहोस् ।
- ☞ सवारी चालकलाई समय समयमा सडक सुरक्षा र ट्राफिक नियमको बारेमा तालिम दिनुहोस् ।

(घ) निर्माण व्यवसायीलाई

- ☞ सडक निर्माणमा प्रयोग गरिने सामग्रीहरु प्रयोग गरिसकेपछि उचित ठाउँमा राखी सडकलाई सुरक्षित राख्नुहोस् ।
- ☞ सडक मर्मत कार्य गर्दा उक्त क्षेत्रको नियमित अनुगमन गनुहोस् ।
- ☞ सडक मर्मत/निर्माण गर्दा गुणस्तरमा बढी ध्यान दिनुहोस् ।
- ☞ आफनो निर्माण/मर्मत क्षेत्र भित्रपर्ने सडकलाई निरन्तर मर्मत गरी दिनुहोस् ।
- ☞ तपाईको सानो असावधानीले कसैको ज्यान पनि जान सक्छ, त्यस तर्फ संवेदनशील भईदिनुहोस् ।

(ङ) सडक किनारामा बसोवास गर्ने सर्वसाधारणलाई

- ☞ सडकमा केटाकेटीलाई खेल्न दिने, पशु-चौपाया छोड्ने, विस्कुन सुकाउने, निर्माण सामग्री राख्ने नगर्नुहोस् ।
- ☞ सडकमा बसेर अनावश्यक गफ गर्ने र सडकलाई अतिक्रमण गरी व्यापार गर्ने कार्य नगर्नुहोस् ।
- ☞ सडकमा भएका सडक चिन्हहरुको उचित रेखदेख र यसको संरक्षण गर्न सहयोग गर्नुहोस्।
- ☞ सडकको अवस्थाको जानकारी राख्न र सडक मर्मत सम्भारको नियमित अनुगमन गर्न सहयोगी बन्नुहोस् ।
- ☞ सडकलाई आफ्नो निजी कार्यकालागि प्रयोगगरी सडक अतिक्रमण नगर्नुहोस् ।
- ☞ सडकमा दुर्घटना भइहालेमा तुरुन्त उद्धार गरी नजिकको उपचार केन्द्रमा पुऱ्याउन सहयोगी बन्नुहोस् ।
- ☞ सडकमा हुने आकश्मिक दुर्घटना, बाढी पहिरो र यात्रुवर्गमा पर्ने समस्या प्रति सदैव सहयोगी बन्नुहोस् ।
- ☞ सडक चिन्ह भिकेर वा पोस्टर टाँसेर दुर्घटना ननिम्त्याउनु होस् ।
- ☞ अनुमति विना सडक तथा पेटी नखन्नुहोस् ।
- ☞ सडकमा फोहोर फाल्ने काम नगर्नुहोस् ।
- ☞ घरको पानी तथा कुलो र नहरको पानी सडकमा बग्न नदिनुहोस् ।
- ☞ सडकमा छेउको नाली बन्द नगर्नुहोस् ।

(च) पैदल यात्रीहरुलाई

- ☞ सडक पेटीमा बसेर अनावश्यक गफ नगरौं ।
- ☞ आकाशे पुल र सब-वे भएको स्थानमा जहिले पनि त्यसको प्रयोग गरौं ।
- ☞ सडकमा रहेका सडक चिन्हको सधै सदुपयोग र संरक्षण गरौं ।
- ☞ हरियो ट्राफिक लाईट बलेपछि र जेब्रा-क्रेसिङ्ग भएको ठाँउमा उक्त चिन्ह प्रयोग गरी बाटो पार गरौं ।
- ☞ सडकमा रहेका सार्वजनिक सम्पत्तिको संरक्षण र रेखदेखमा सहयोगी बनौं ।
- ☞ अन्धा अपाङ्ग, असक्त, वालबालिका र वृद्ध व्यक्तिलाई सडक पार गर्न सहयोगी बनौं ।
- ☞ सडकमा केटाकेटीलाई एक्लै हिँड्न नदिऔं ।
- ☞ बाटोमा हिँड्दा सदैव पैदलयात्री हिँड्ने पेटीबाट हिंडने गरौं ।
- ☞ पेटी नभएमा दायाँबाट हिडौं ।

तृतिय खण्ड : समाचारमुलक सामग्रीहरु

संचारमुलक सामग्रीहरुले सडक प्रयोगकर्ताहरुलाई सडक सम्बन्धि सुचना दिने तथा सचेत गराउने गर्दछ ।

१. दैनिक तथा अन्य समाचारमुलक पत्रप्रत्रिका लागि दिन तयार गरिएको सामाग्री

सडक वोर्ड नेपाल (Roads Board Nepal) को अनुरोध
नेपाल अधिराज्यभर रहेका सम्पूर्ण सडकहरुलाई चुस्त दुरुस्त राख्न, दिगो सडक मर्मत सम्भारका लागि नियमित सहयोग र अनुगमन गर्न, सवारी साधनको नियमित जाँच गरी क्षमता अनुसारको तौल बोक्न, ट्राफिक नियमको पालना गरी सवारी हाँक्न, सडकलाई अनाधिकृत रुपमा प्रयोग नगर्न र सडक तथा सवारी साधनमा लाग्ने दस्तुर समयमा तिरी दिगो मर्मत र सडक सम्पत्तिको जगेर्ना गर्ने कार्यमा सहयोगी बन्न सम्पूर्ण सडक प्रयोगकर्ता तथा सरोकारवालाहरूमा सडक वोर्ड नेपाल हार्दिक अनुरोध गर्दछ ।

२ होर्डिङ्ग वोर्ड तथा पम्पप्लेटका लागि तयार गरिएका सामग्रीहरु

- ☞ म मेरा छोराछोरीलाई सडकमा खेल्न दिन्न, किनकी मलाई उनीहरुको अत्यन्तै माया लाग्छ ।
- ☞ सडकको उचित मर्मतसम्भार र प्रयोगले मेरो यात्रा र जीवन सुरक्षित हुन्छ, त्यसैले सडक मर्मत सम्भार र यसको प्रयोग प्रति म जिम्मेवार छु ।
- ☞ म आफ्नो सवारी साधनको क्षमता अनुसारको तौल बोक्ने र नियमित रुपमा जाँच गराउने गर्छु । तपाईंनि ?
- ☞ म सडक अतिक्रमण गर्ने र अनाधिकृत रुपमा प्रयोग गर्ने गर्दिन, किनकी यसले सबैको जीवनसँग सरोकार राख्दछ ।
- ☞ म कहिल्यै पनि छतमा यात्रा गर्दिन, गराउन्न ।
- ☞ सडकसँग म र मेरो परिवारको भविष्य गाँसिएको छ ।
- ☞ मेरो नियमित कर तिराईले सडक मर्मत सुधार व्यवस्थित र सुरक्षित राख्न सहयोग गर्छ ।
- ☞ होशियार चालकदाई, सबैको हाई हाई ।
- ☞ ज्यान नै नरहे, जीवनको के अर्थ ?
- ☞ लापरवाही ड्राईभिङ, जीवनको छैन भर।
- ☞ सबैले एकआपसमा मद्दत पुऱ्याए मात्र सुरक्षित यात्रा गर्न सकिन्छ ।
- ☞ एउटा चालकको होसियार हकाईमा हाम्रो ज्यानमा सुरक्षित रहन सक्छ ।
- ☞ मेरो एकै छिनको हतारले परिवारसँग विछोड हुन सक्छ ।
- ☞ मेरो हकाईबाट धेरैको ज्यान सुरक्षित राख्नु छ ।सबै यात्रुको सुरक्षा मेरो जिम्मेवारी हो ।
- ☞ क्षणिक आवेगमा जिन्दगी खेर नफालौं ।
- ☞ भविष्य लामो छ, सानो हेलचेक्राईले खेर नफालौं ।
- ☞ एउटा दुर्घटनाले कसैको जिन्दगी नै बरबाद हुनसक्छ ।

साबधान !!!

के तपाईं र तपाईंका बालबच्चा यसरी यात्रा गर्दा सुरक्षित हुन्छन् त ???

सोचौं त!!!

सडक पेटिको ब्यापारले हामीलाई त फाईदा पुर्याउला नै,
तर, पैदल यात्रीको सडक पेटीबाट हिंड्ने अधिकारको हनन् भएन र???

विचार पुर्याउने हो कि!!!

सडक पेटिमा यसरी छोडिएका चौपायाका कारण सवारी साधन, यात्री र स्वयं चौपायालाई नै जोखिम हुँदैन त ???

सोच्ने हो कि !!!

सडक बिचमै हुने यस्ता गतिविधिका कारण निम्तिन सक्नेदुर्घटनाको जिम्मेवार हामी आफैं होइनौं र ???

३. विद्युतिय संचारको उपयोग

सडक वोर्ड नेपालले आफ्नो सडकको बारेमा सडक प्रयोगकर्ताहरुलाई जानकारी दिनको लागि विभिन्न संचार माध्यमको सहयोग लिनु आवश्यक छ । यस अध्ययनमा प्रायः धेरै जसो सडक प्रयोगकर्ताहरुले संचार माध्यमको रुपमा रेडियो/एफ.एम. रटि. भि. को प्रयोग प्रचुर मात्रामा गरेको पाइएकोले सडक वोर्ड नेपालले आफ्नो सडक प्रयोगकर्तालाई सडकको अवस्था, सुरक्षाको अवस्था तथा अन्य जानकारीमुलक सूचना प्रंदान गर्नका लागि समय-समयमा ट्राफिक नियम सम्वन्धि सडक नाटक र जनचेतनामुलक कार्यक्रमको आयोजना गर्नु पर्छ । यसको लागिसडक वोर्ड नेपालले रेडियो/एफ.एम.तथाटि. भि. च्यानलमा निश्चित समय र अवधिका लागि यस किसिमका कार्यक्रम प्रसारण गर्नुका साथै छुट्टै एफ.एम. को सञ्चालन गर्नुपर्ने आवश्यकता देखिन्छ ।

२.२ कार्यक्रमको प्रकृति

सडक वोर्ड नेपालले स्थानीय एफ.एम.तथा टि. भि. च्यानलहरुको संयोजनमा विशेष गरी समाचारमुलक र सूचनामुलक कार्यक्रम आफ्ना प्रयोगकर्तालाई प्रसारण गर्नु पर्छ ।

- ☞ सडकको अवस्था सम्बन्धि जानकारी,
- ☞ दुर्घटना सम्बन्धि जानकारी,
- ☞ सवारी साधनको पर्याप्तता,
- ☞ ट्राफिकको अवस्था सम्बन्धि जानकारी,
- ☞ सवारी साधन छुट्ने र गन्तव्यस्थान सम्म पुग्ने समयतालिका,
- ☞ सवारीसाधनको चाप,
- ☞ निर्माणाधिन सडकको बारेमा जानकारी,
- ☞ सवारी बन्द भएको खवर, खुल्ने समय
- ☞ सडक सम्बन्धि तत्काल भए गरेका विकास निर्माणका कार्यक्रम,
- ☞ आकस्मिक घटनाका खवरहरु र
- ☞ सुरक्षित यात्राको लागि वैकल्पिक उपायहरु

२.३ कार्यक्रम प्रसारणको समय

कार्यक्रम प्रसारण गर्दा सबै भन्दा बढी श्रोताको ध्यानाकर्षण हुने गरी फुर्सद समयमा गर्नु पर्छ । सकेसम्म सुचनामुलक र समाचार मुलक कार्यक्रम विहान ६ देखि ७ बजे, दिउँसो १२ देखि १ साँझ ६ देखि ७ गरि प्रत्येक पटक करिब आधा घण्टा अवधिको दैनिक ३ पटक प्रसारण गर्न उपुयक्त हुने देखिन्छ ।

२.४ समेटिनुपर्ने क्षेत्र

कार्यक्रम प्रसारण गर्दा सकेसम्म सबै सडकका उपभोत्ताहरुको पहूँच हुनेगरी प्रसारण गरिनु पर्छ । कार्यक्रम प्रसारण गर्दा प्रमुख राजमार्गहरु, सहायकमार्ग तथा लामो र छोटो दुरीका सवारी साधन चल्ने सडकहरु समेटिनुपर्ने देखिन्छ ।

सडक प्रयोगकर्ताहरुले सडक प्रयोग गर्दा ध्यान दिनुपर्ने कुराहरु :

पैदल यात्रीले सडक पेटीबाट मात्र यात्रा गर्नुँ । जेब्रा क्रसिंगबाट मात्र सडक पार गर्नुँ

सवारी साधनहरुले बीच सडकमा जथाभाबी यात्रु चढाउने र ओराल्ने नगर्नुँ

मालबाहक सवारी साधनले आफ्नो क्षमता र आयतन अनुसारको मात्र मालसामान बोक्ने गर्नुँ

गलत र निषेधित स्थानमा सवारी साधन नरोक्नुँ

सडक बीच वा सडक छेउमा बसी खुद्रा व्यापार नगर्नुँ

सवारी साधनमा झुन्डिएर यात्रा नगर्नुँ

Annex VI

Photographs

Taking interview with businessman, Toudaha

Taking interview with businessman, Toudaha

Interviewing at a shop, Toudaha

Interviewing with truck driver, Toudaha

Discussion of survey team with Ms. Chetana Thapa of Roads Board Nepal, Toudaha

Discussion of survey team in the field with Ms. Chetana Thapa of Roads Board Nepal

On going construction work, Galchhi-Trisuli Road

Interview with mechanic, Galchhi

Interview with Drivers, Galchhi

Interviewing with truck driver, Galchhi

Interviewing in a Medical Shop in Sirsiya, Birgunj

Muddy road condition along Thori-Sirsiya road

Junction of Hile-Bhojpur road

Worse Road condition at Hile

Mircahiya_Katari Section (Pot holes)

Road sign of landslide on Dhankuta-Bhedetar section

Maintained raod (fikkal)

Fikkal- Pasupatinagar (Visual Appeal)

Condition of Road on the way to Snatiban & Bigyan Kendra (Biratnagar)

Recently maintained raod (Biratnagar)

Drainage Construction Biratnagar

On-going repair of vehicles (Hanumannagar-Rajbiraj)

Large pot hole filled with water at Hanumannagar-Rajbiraj road

Overloaded Vehicles, Mirchaiya

Bridge Railing broken on EW Highway, waiting for repair (Lahan-Mirchaiya)

Haphazard Road crossing Lahan (bazaar area)

Street shops on highway(lahan)

Road width extension at Lahan

Mirchaiya- Katrri road (North from Junction)

Pot holes at Mirchaiya- Katari

Riding Motorcycle without Helmet (Jaleswor)

Interview with Media Person (Jaleswor Patrakar Mahasangh)

Interview with Traffic Police (Hetauda)

Interview with Truck Driver (Hetauda)

Interview with Freight Forward Agencies (Hetauda)

Pedestrain crossing the road (Missing Zebra Crossing)

Milestone (Hetauda Narayanghat road)

Hapahazard Overtaking, Hetauda

Unsafe riding ,Hetauda

A view of Samari Bridge (Hetauda Bahainse road)

Road side Water Tap Condition (Samari Pul)

Interview with Buisnessman (Samari Pul)

Causeway at Baghjhor, Hetauda

Parking at Fikkal

A Glimpse of Lahan- mirchiya road section

Pessenger Waiting for Bus, Hetauda

Cattle on highway (Chapur- Pataliya Road Section)

Lengthworker at site, patlaiya

Interviewing with Businessman, Pokhara Yamdi Road

Interviewing withFarmers, Taulihawa

Interviewing with Businessman, Mugling

Butwal bhairahawa road under construction

Maintenance supervisor on surkhet road

Condition of butwal bhairahawa road section

Interviewing Micro bus driver, Mugling

Undisciplined business at road, Abukhaireni

Removing the road side debris, Abukhaireni

Interview with hotelier, Abukhaireni

Cleaning the side drain on Pokhara Baglung road

Patchwork on Pokhara city roads

Road sign on the way to tansen from pokhara

Road sign on the way to tansen from pokhara

Interviewing with traffic police, Harthok, Palpa

Interviewing with cloth shopkeeper and driver at Harthok

Wel planned Zebra crossing on Butwal-Bhairawa road

A temporary diversion at Taulihawa road

Interviewing Hotel person, Lamai-koilabas road section

Interviewing Shopkeeper, Surkhet

Interviewing with bus driver at Surkhet buspark

On going repair work (Chhinchu-surkhet section)

Cattle and goats on the road, Bagauda, Nepalgung

Interview with two businesssmen at Nepalgunj, Bagauda

Interview with police person, Nepalgunj, Bagauda

Cattle staying on the mid of Bheri Suspension Bridge (Who is responsible to control this……?)

A police check post near at Birendranagar, Surkhet

A newly constructed road with median at Birendranagar, Surkhet

A view of continuing routine maintenance work

Interviewing at a Bus counter, Chhinchu

A road signboard at Tulsipur

Interview with Academician, Tulsipur

Interviewing with Farmer, Koilabas

Theft of the mirror, which was kept on side of the road to reduce road accident.

Interviewing with Local people at Dandeldhura, Bagarkot

Taking interview with traffic police(Khodpe Baitadi road)

Interviewing with shopkeeper, Attariya,

Cascading construction for safe disposing of cross drainage water, Attariya – Syaule road

Dadeldhura – Bagarkot road under construction

Public toilet at Attaria, a good example of road side amenity

Interview with a Hotel person, Dadheldhura-Syaule road section

Interview in a Hotel, Attaria

Although not in good condition, there exists Pratikshyala at Attariya

Dadekdhura – Bagarkot Road section, which is under construction

Although not in hygienic condition and safe, a public toilet is seen at Attariya - Syaulue road section

Interviewing at a hotel, Khodpe