Road Safety

Realities & Challenges

Outcome of a study

Editor Hossain Zillur Rahman





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Outcome of a PPRC-BRAC Study

Preface

Road accidents are the new 'epidemic' sweeping across much of the developing world. For Bangladesh too with its rapid urbanization and exponential growth of transport networks, safety on the roads has emerged as an inescapable priority. BRAC with a strong record of engagement on the issue commissioned Power and Participation Research Centre (PPRC) to undertake a causal study on road safety to inform an appropriate advocacy strategy on this crucial national concern. PPRC with its long track record of innovative research on issues of national priority carried out study during late 2013 and early 2014. A team comprising of Dr. Waliur Rahman of RHD, Motiar Rahman and K. Baksh Chowdhury formerly of Bangladesh Police, Dr. Abul Hossain, K. Shakhawat Ali, and Ambassador Liaquat Ali Choudhury carried out various components of the study under the leadership of PPRC Executive Chairman. PPRC field research team and data management team undertook the burden of field research and data analysis for the study while Syed Ziauddin Ahmed provided invaluable administrative and liaison back-up. Excellent co-operation was received from the BRAC team as well as a host of interviewees and FGD participants from various stakeholder groups including former chairman BRTA, ARI Director and his colleagues, Professor Tahmina Banu and Dr. Qausarul Matin of Chittagong Medical College and Hospital. The report was finalized by Hossain Zillur Rahman with assistance from Liaquat Ali Choudhury.

It is our belief that the report will serve to sharpen the road safety agenda for Bangladesh and also enable the Government of Bangladesh and its related departments as well as BRAC and other stakeholders to pursue a pro-active advocacy and action agenda on making roads in Bangladesh more safe.

Hossain Zillur Rahman Executive Chairman, PPRC

Dhaka, July 7, 2014

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Why is Road Safety a Major Concern?

1

37.7 A new epidemic?

At the turn of the century, global leaders set an ambitious goal for humanity encapsulated in the now ubiquitous MDGs or millennium development goals. As the end date of 2015 for realizing those goals nears, there are justifiable grounds for celebration. Many of the scourges of the past such as diseases and epidemics have either been eliminated – polio – or are being tamed – malaria, HIV/AIDS etc. In Bangladesh, anti-diarrheal deaths have been drastically reduced. However, as these successes are celebrated a new epidemic has reared its head. Road accident is a new epidemic blighting the developing world. The World Health Organization (WHO) has identified road traffic injuries as the eighth leading cause of death globally and the leading cause of death for young people within the age bracket 15-29.

The numbers underscore this unsettling development: over 1.24 million annual deaths due to road accidents and an additional 20 to 50 million non-fatal injuries that often lead to economic ruin for the affected families.¹ The bulk of these road traffic deaths are in the low and middle income countries: 18.3 and 20.1 per 100,000 population in low and middle income countries respectively compared to 8.7 deaths per 100,000 population in high income countries.²

1.2 Consequences not just humanitarian but also economic

The calamity of road traffic accidents is not only humanitarian but also economic: road traffic injuries are estimated to cost low and middle-income countries between 1-2% of their GDP at about US\$100 billion annually.³ The prospect of economic ruin looms large particularly for poor and vulnerable households who are unable to withstand the loss of earning members of the family or bear the cost burden of post-accident care. Death is not the only tragedy emanating from road accidents. Earlier cited WHO report of 2013 points out that for every road fatality, there are at least 20 people who sustain non-fatal injuries.⁴ Each of these survivors and their families may also be facing economic ruin in the absence of adequate support for post-accident medical care. A further element of worry is that non-fatal injuries are poorly documented so that the actual scope may be much higher.

1.3 Road fatalities are not inevitable

As mobility becomes a necessary marker of progress for the new aspirational classes multiplying across the developing world, motorization and the concomitant issue of road safety assumes ever greater significance. Some could argue that the new epidemic of road traffic fatalities is an unfortunate price of growth-inducing road development. Developments on the ground belie this argument. Since the joint launch of the World Report on Road Traffic Injury Prevention by the World Health Organization (WHO)

¹ World Health Organization, Global Status Report on Road Safety 2013, Geneva

² ibid

³ ibid

⁴ ibid

and the World Bank in 2004, the annual toll of over a million road traffic deaths has not declined but neither have they soared despite a 15% global increase in the number of registered vehicles. Eighty-eight countries saw a reduction in the number of deaths between 2007 and 2010 whereas another group of eighty-seven countries – primarily low and middle income countries – saw an increase in their road deaths over the same period.⁵

1.4 Urgency of prioritizing road safety

Such statistics underscore the fact road deaths are not an inevitable concomitant of development but in fact can be addressed and minimized through judicious and timely action. Indeed, the WHO 2013 report on road safety projects saving of 5 million lives over the decade 2010-2020 if remedial action is implemented.⁶ The global community has responded to this realization: in 2010 UN General Assembly adopted resolution 64/255 which proclaimed a Decade of Action for Road Safety (2011-2020). The resolution calls for action at global and national levels and also for monitoring progress on the ground. Bangladesh is one of the countries at risk in this regard. Not only are the statistics a cause of concern but the policy discourse too appears not to have prioritized the issue adequately. This report undertakes a reality check on the trends at work as well as assesses what remedial actions have been initiated and more importantly what remains to be done.

⁵ ibid

⁶ ibid

PPRC-BRAC Study on Road Safety

2

2.1 Objective of the Study

The issue of road safety has long been a BRAC priority. With rapid urbanization, spread of transport networks and accidents frequenting headlines, greater attention to the issue has arguably become a key national priority. This, however, appears unlikely to happen without a strong effort at policy advocacy. Responding to this imperative, BRAC has commissioned PPRC, a policy research centre, to undertake a holistic Causal Analysis of Road Safety Study. In undertaking the study, PPRC too, with its strong track record in policy research, has found the task very timely as it feeds effectively into its chosen priority issues of sustainable urbanization and governance that works.

General objectives

- i. Provide a researched understanding of the state of road safety in Bangladesh and the causal factors impinging on it, and,
- ii. Extract key advocacy issues from this researched knowledge for a scaled-up advocacy campaign.

Specific objectives

- Identify the range of factors, including economic imperatives, regulatory and governance failures, and behavioural deficits that render roads severely unsafe in Bangladesh.
- Develop an institutional landscape of key actors and stakeholders whose engagement is central to any effective redressal of unsafe roads.
- Situation of road traffic injury care, rehabilitation and institutional support of victims and households.
- Through a wide-ranging consultation process, establish a holistic road safety agenda and action plan that can inform and shape a major advocacy initiative.

2.2 Scope

A multitude of factors impinge upon the issue of road safety. Key issues covered in the study include:

- Engineering aspects of road safety
- Road and traffic laws
- Traffic management and enforcement
- Vehicle management

- Road-users: drivers and pedestrians
- Accident trends and accident investigation
- Victim care and support
- Governance and political economy of the road transport sector
- Advocacy challenges.

2.3 Research strategy

The Study followed a mixed-method approach with primary emphasis on qualitative approaches. There were four research components (Table 1.1):

Component	Scope	Details/Remarks
Component 1 Desk Review	 Engineering related issues Road and traffic laws Traffic management and enforcement issues Road safety education and awareness strategies Vehicle-management-related issues Driver licensing and training related issues Accident data-base Post-accident related issues Political economy analysis 	 An extensive inventory of literature on the subject was compiled (Annex 5) The review task was distributed amongst the research team members as per their area of expertise Literature on some issues such as pedestrian behavior has been scanty
Component 2 Consultations	FGDs Institutional consultations Key informant interviews	 Community FGDs on selected routes Drivers Police personnel Transport owners Accident Research Institute (ARI), BUET R&H Department LGED Former Chairman, BRTA Founder, Nirapad Sarak Chai Andolon Transport union leader Trauma doctor
	-	
Component 3 Survey of drivers	 Questionnaire survey of 102 drivers selected from six bus/truck/taxi terminals in Dhaka city Sample included 52 bus-drivers, 15 mini- bus drivers, 25 truck drivers and 10 rent- a-car drivers Sampling methodology followed a stratified cluster sampling (stratification criterion: vehicle type, cluster choice 	 Gabtoli bus terminal Mohakhali bus terminal Kawranbazar truck stand Sayedabad bus terminal Moghbazar rent-a-car stand Aminbazar truck stand

Table 1.1 Research Strategy

	criteria: geographic spread) approach in which individuals were randomly chosen in each cluster and finalized on the basis of willingness and availability	
Component 4 Site research	• Two highways were chosen for the site research	- Dhaka-Aricha highway - Dhaka-Tangail highway
	• Two spots were chosen in each of the selected highways	 Dhaka-Aricha: Savar bazar Tepra bazar & Uthali bazar, Manikganj Dhaka-Tangail: Chandra Mor, Kaliakor Taratia bazar to Bamna mor, Tangail
	 3 tasks in each spot 	 Community FGDs Observation report In-depth interviews

3

Road Accidents in Bangladesh: Magnitude and Trends

3.1 Magnitude of the problem

Relevant data on road accidents in Bangladesh is based on a single data source namely police data and the same processed and made available by the Accident Research Institute of Bangladesh University of Engineering and Technology (BUET), Dhaka. The recording process is activated if a police case is lodged regarding the accident. This may not always happen if affected parties are reluctant to become embroiled in police procedures or are otherwise disinclined or if police themselves fail to record the case. There is thus an in-built element of under-reporting whose magnitude and variation is difficult to assess. However, if the accident results in spot fatalities a police case is likely so that data on fatalities can be taken to be a reasonable approximation of realities. The same is not true for non-fatal injuries for which data is poorly recorded but whose economic consequences can be grave for the affected parties.

Figure 1 and Annex Table A1 describes the trend in accidents in Bangladesh based on police cases. During the period 2000-2012, annual average of road deaths as recorded in police records stood at 3137. As per the police data, recent years have seen a slight drop in the number of road deaths.





No. of accident related deaths in Bangladesh in cases of accidents filed by police

The incidence of recorded fatalities is low by international comparison but the possibility of underreporting has to be kept in mind. The WHO 2009 report on road safety had suggested fatalities nearer to 20,000. Be that as it may, most available studies tend to stress that road accidents data are likely to be indicative and not comprehensive due to weaknesses in data recording. An authoritative BUET study⁷ makes the following pertinent observation in this regard:

⁷ Ahsan, H.M., M.A. Raihan, M.S. Rahman & N.H. Arefin, BUET, 'Reporting and recording of road traffic accidents in Bangladesh' in 4th Annual Paper Meet and 1st Civil Engineering Congress, December 22-24, 2011, Dhaka, Bangladesh

'------ the current Accident Report Form (ARF) is not comprehensive enough to conduct an in-depth investigation. The form contains 69 fields of information from which only the characteristics analysis of accidents can be carried out. ----- the form is quite hard for the police officers to understand and they are unable to fill it properly. Pictures are very important for post accident investigation but in the form there is no field to include such type of information. ----- police officers do not have the option to take photographs of the accident scenario because the police stations do not have any camera to capture the moment. In order to identify the accident spots police is using an old chainage inventory prepared in 1996 which is incapable of identifying the actual locations ----. Furthermore, police stations record those accidents only in which cases are filed but in most cases, the accidents that occur in our country every day, no cases are filed at police stations and subsequently no records are documented'.

Mindful of the possibility of under-reporting as indicated above, reports based on newspaper scanning was also looked at as prepared by the advocacy group Nirapad Sarak Chai (Table 3.1). This gives a higher figure of 5162 accident related deaths in 2013 which also include deaths en route to hospital and deaths after release from hospital. Actual figure could be higher. Indeed, focus group discussions during site research on Savar and Tangail highways carried out as part of this study indicated that typically more than half the incidence of accidents may go unreported.

Variable	Number
No. of accidents	2750
No. of injuries	8914
No. of deaths	3462
No. of deaths en route to hospital	891
No. of deaths after release from hospital	809
Total accident deaths in 2013	5162

Table 3.1Accident Data, 2013 as scanned from 4 national dailies

Source: Nirapad Sarak Chai, Nirapad News (online news portal)

3.2 Fatality index : Accident trend vis-à-vis vehicle growth

The trend in the magnitude of the problem of road accidents can also been seen through a juxtaposition with the growth in the number of vehicles on the road. Table 3.2 describes the growth in the number of vehicles on the roads and the corresponding incidence of accidents during the same period. During 2000 and 2011, number of vehicles on the roads grew from 0.45 million to 1.28 million. The corresponding official accident statistics, however, show a plateauing rather than a rise. The number of road deaths per 10,000 vehicles thus shows a drop from 76 in 2000 to around 20 in 2011 (Figure 2).

Year	No. of vehicles	No. of accident related deaths	No. of accident related deaths per
			10,000 vehicles.
2000	451368	3430	75.99
2001	485228	3109	64.07
2002	526309	3398	64.56
2003	566194	3289	58.09
2004	606770	2968	48.91

Table 3.2Road deaths vis-à-vis Vehicles on the road

2005	654964	3187	48.66
2006	729642	3193	43.76
2007	824948	3749	45.45
2008	929760	3765	40.49
2009	1038885	2958	28.47
2010	1159870	2646	22.81
2011	1280585	2546	19.88

Source: Vehicle data from Statistical Year Book of Bangladesh 2012, accident death data from police First Information Reports (FIRs)

Figure 2

No. of road accident related deaths per 10,000 vehicles



However, if the earlier point about under-reporting is taken into account, there can be no ground for complacency. Indeed, anecdotal and media reporting underline the continuing severity of the problem.⁸

3.3 Accident spots: A detailed analysis

Majority of road accidents in Bangladesh occur on the national and regional highways though a significant percentage also occurs on city streets.⁹ Table 3.3 describes the length of the road network in 2012.

Table 3.3 Length of Road Network, 2012

Road type	Number
National highways	3580
Regional highways	4276
Zila and Upazila road	13509
Total	21365

Source: Statistical Yearbook, 2012, Bangladesh Bureau of Statistics

⁸ Daily Star, Forum Issue 7, Volume 6, 2012; Daily Star, the Star, 14 March, 2014

⁹Tahera Anjuman, Shahnewaz Hasanat-E-Rabbi, Chowdhury KawsarArefin Siddiqui and Md. MazharulHoque, Road Traffic Accident: A Leading Cause of the Global Burden of Public Health Injuries and Fatalities' in the *Proceedings of the International Conference on Mechanical Engineering 2007*, (ICME2007) 29-31 December, 2007 Dhaka, Bangladesh; Naila Sharmeen & Md. Rabiul Islam- Road Accidents: Contemporary Scenario and Policy Issues in Bangladesh' *Journal of Bangladesh Institute of Planners* Vol. 4. December 2011, pp. 45-55; Dr. Md. Mazharul Hoque et al, 2010, *Improving Highway safety in Bangladesh: Road Impporvement and the Potential Application of iRAP*, Dept. of Civil Engineering, BUET (mimeo)

Data on location of accidents show five districts to have the highest number of accident deaths (Table 3.4). Each of these straddles the major national highways: Dhaka, Chittagong, Comilla, Tangail and Sirajganj.

Table 3.4
Districts with highest number of accident deaths in 2012

District	Number of accident deaths
Comilla	124
Dhaka	105
Tangail	102
Sirajganj	96
Chittagong	95

Source: Statistical Yearbook, 2012, Bangladesh Bureau of Statistics, p 220

Accident Research Institute has prepared a detailed list of accident spots which is appended as Annex 2. The accident spot data has been analyzed by the PPRC Study Team focusing on 5 spots in each of the major highways that recorded the maximum accident deaths (Annex 3). Two findings stand out.

Though most accidents occur on the highways, it is not the case that the entire length of the highway is accident-prone. The PPRC analysis shows that the *bulk of the accidents were concentrated within a total length of only 54.7 kilometres of the highway network* (Figure 3). The conclusion arising from this finding is that if vigilance and strict enforcement of traffic rules were to be applied to this length 54.7 kilometres of highway, incidence of accidents could decline dramatically.



Figure 3

Accident-prone highway length

Source: Analysis of ARI accident spot data by PPRC team member K. Baksh Chowdhury

The second finding from the PPRC analysis of the accident spot data is equally dramatic (Table 3.6 and Figure 4).

Name of the highway	Number Bus Stand of		Road Inter section		Bazar		Others		
	accident	no	%	no.	%	no	%	no	%
	spots								
N-1 Dhaka-Chittagong	38	20	52.63	9	23.68	5	13.16	4	10.53
N-2 Dhaka-Sylhet	34	12	35.29	5	14.17	11	32.35	6	17.65
N-3 Dhaka-Mymensingh	10	0	0	3	30	5	50	2	20
N-4 Gazipur-Tangail-Jamalpur	14	2	14.28	3	21.43	7	50	2	14.29
N-5 Dhaka-Aricha	22	16	72.73	2	9.09	2	9.09	2	9.09
N-6 Nnaragbari-Banglabandh	38	17	44.74	8	21.05	12	31.58	1	2.63
N-7 Nagarbari-Rajshahi	24	6	25	3	12.5	13	54.17	2	8.33
N-8 Daulatdia-Jhenaidah-Khulna	16	4	25	4	25	3	18.75	5	31.25
N-9 Dhaka-Mawa-Barisal	4	3	75	0	0	1	25	0	0
N-405 Jamuna Bridge approach	8	5	62.5	0	0	0	0	3	37.5
road									
Total 10 Roads	208	85	40.87	37	17.79	59	28.36	27	12.98

Table 3.6 Classification of Accident spots according to their type and identity

Source: Analysis of ARI accident spot data by PPRC team member K. Baksh Chowdhury

Even though accidents are mostly on the highways, the actual spots on the highways where the bulk of the accidents occur are bus stands (41%), road inter-section (17.8%) and market-place (28%). Contrary to popular perceptions, it appears majority of accidents occur in crowded spots or inter-sections rather on isolated stretches of the highways. This again points towards where the priority for vigilance and traffic enforcement lie.

Figure 4

Classification of Accident spots



3.4 Accident timing

A BUET study covering the period 2000 to 2006 and utilizing police data on three major national highways – N1, N2 and N3 – provides some interesting insights into the time period during a day when incidence of accidents is comparatively higher.¹⁰ Table 3.7 summarizes the findings of the BUET study. Bulk of the accidents – 74.4% - occur during day-time (6 a.m. – 6 p.m.). Highest percentage of accident occurrence is during the time band 10 a.m. – 12 p.m. (15.5%).

Time period	%
12 – 2 a.m.	5.7
2 – 4 a.m	4.8
4 – 6 a.m.	7.5
6 – 8 a.m.	10.4
8 – 10 a.m.	10.2
10 a.m – 12 p.m.	15.5
12 p.m. – 2 p.m	13.1
2 – 4 p.m.	11.9
4 – 6 p.m.	13.3
6 – 8 p.m.	6.3
8 – 10 p.m.	6.3
10 p.m – 12 a.m	5.2
Full day	100

Table 3.7 Timing of Accidents on Highways N1, N2 and N3

Source: Md. Mizanur Rahman et al, 2012, 'Comparative accident study on some selected national highways of Bangladesh', International Journal of Civil Engineering (IJCE), Vol 1, Issue 2, November, 2012, pp, 7-14

¹⁰ Md. Mizanur Rahman, Md. Shafikul Ahsan & Md. Hadiuzzaman, 2012, 'Comparative accident study on some selected national highways of Bangladesh', *International Journal of Civil Engineering (IJCE)*, Vol 1, Issue 2, November, 2012, pp, 7-14

Victims and Perpetrators

4.1 Accident victims

Who are the victims of road accidents? Global data indicate that vulnerable road-users – pedestrians, motorcyclists and cyclists – constitute more than half of road traffic deaths.¹¹ Such percentages are comparatively higher in low and middle income countries where vulnerable road-users also include non-motorized transport users as well as users of motorized two or three wheelers. Bangladesh data confirms such a pattern.

Anjuman et al¹² suggest that pedestrians are the most vulnerable road user group in Bangladesh accounting for 49% of all reported fatalities in the accidents data base. The latest available police data of 2009 as quoted in the Global Status Report on Road Safety, 2013 confirm these observations (Figure 3). Pedestrians account for 41% of road accident followed by bus/car passengers (19%) and two/three-wheeler passengers (16%).





Source: Global Status Report on Road Safety 2013

17

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¹¹ WHO, ibid

¹²Tahera Anjuman, Shahnewaz Hasanat-E-Rabbi, Chowdhury Kawsar Arefin Siddiqui and Md. Mazharul Hoque – Road Traffic Accident: A Leading Cause of the Global Burden of Public Health Injuries and Fatalities' in the *Proceedings of the International Conference on Mechanical Engineering 2007 (ICME2007)* 29-31 December, 2007 Dhaka, Bangladesh.

Data on the nature of accidents also confirm the preponderance of pedestrians among accident victims (Table 4.1).

Accident types	%
Pedestrian hit	42
Head on collision	19
Over-turned vehicle	13
Rear-end hit	9
Side swipe	6
Others	11
All	100

Table 4.1
Accident Types

Source: Md. Mizanur Rahman et al, 2012, 'Comparative accident study on some selected national highways of Bangladesh', *International Journal of Civil Engineering (IJCE)*, Vol 1, Issue 2, November, 2012, pp, 7-14

Inadequate recording of accident data poses a barrier to further analysis of victim characteristics. The BUET study¹³ of 2007 cited earlier offers some additional analysis suggesting the vulnerability of children to road accidents. According to this study, 21% of accident victims during the study period 1998-2005 were children. Another micro study on a district hospital (Sylhet) on road death victims indicated that 42% of the 100 road accident victims, 42% were in the age group 20-30 while another 22% were in the age group 10-20.¹⁴

There is not much of documentation of the economic consequences of road accidents particularly of nonfatal injuries. It is primarily media reporting that brings to occasional notice the silent ruin faced by families who have lost earners in the family or whose injuries have led to crippling financial burden. Accidents which lead to loss of limbs and other traumas and require sustained medical care and assistive devices are an often ignored part of the road safety agenda. A few of such media reports are provided below.



¹³ Ibid

¹⁴ R.N. Islam, M.A. Monsur & M. Asaduzzman, 2011, 'An analysis of 100 road traffic accident victims' in *Dinajpur Medical College Journal*, July 2011: 4 (2): pp 67-70

4.2 Accident Perpetrators

The relevant data and literature on road accidents in Bangladesh indicate relative over involvement of heavy vehicles i.e. trucks and buses in accidents.¹⁵ Data from police records for 2012 confirms these findings (Figure 4). Of the accident perpetrators in 2012, buses are the dominant vehicle category (38.1%) followed by trucks (30.4%). Motor-cycles account for 12% while cars/jeeps account for 10.5% and three-wheelers a further 9%. The comparative picture for each of the years 2000 to 2012 is described in Annex table A2.

Recent research on road accidents also refer to operational hazards posed by new types of low cost vehicles known as Nasimons and Karimons plying on regional and rural roads.¹⁶ These indigenous vehicles are locally-assembled improvised three wheelers run by shallow diesel engine. They have high centre of gravity and inadequate breaking devices and are often driven by untrained and occasionally under aged local youth. They pose a traffic risk while plying on highways. An even more recent addition to such risky transports is the battery-driven rickshaw increasingly seen on city streets. Anecdotal evidence from hospitals and clinics in major cities such as Dhaka and Chittagong suggest an increasing incidence of non-fatal but often severe injuries caused to the passengers of such transports due to the severely inadequate braking facilities of such transports.





% share of whicle types in accident

¹⁵ T. Anjuman et al, Ibid

¹⁶ ASMJ Chowdhury, MsAlam, SK Biswas, RK Saha, AR Mandol, MM Rahman and MA Khair- 'Road Traffic Accidents by 'Nasimon' and 'Karimon' –A Study in Faridpur Medical College Hospital', *Faridpur Medical College Journal*, 2012,7(1): 06-09

Post-accident Realities: Investigation, Medical Facilities and Victim Care

5.1 Accident data

The Road Traffic Accident database is being maintained and updated by BRTA and ARI on the basis of police MAAP (Micro-Computer Accident Analysis Package) information. Accident Report Form (ARF) was first introduced in 1995 and promoted through sectoral projects funded by The World Bank and DFID.¹⁷ The system was made nationwide by 1998. The responsibility of collecting the data devolved on the police department for whom the task became obligatory after the passage of Regulation 254(B). The software package MAAP5 for storing the accident related data was developed by the Transport research Laboratory of UK.

There are three components to the recording of the accident data: victim identity, vehicle particulars and circumstances of the accident. The ARF on which the data is recorded has been made an integral part of the First Information Report (FIR) filed by the police. The computerized data is shared with the Accident Research Institute (ARI) at BUET.

Though the police have been given the responsibility for recording the accident data, there has not been any corresponding effort to providing the necessary capacity, knowledge, equipment and competence to investigate the road accidents. Typically, the recording personnel inspects the vehicle that too after a considerable interval rather than the place of occurrence relying more on hearsay evidence rather than scientific investigation. It is not surprising that accidents rarely travel to courts of law due to the paucity of credible evidence.

The problem of under-reporting and of inadequate documentation is yet to gain policy priority amongst policy-makers. The initiative by the Indonesian government may be instructive here.

Box 1

Indonesia addresses under-reporting of accident data

In 2009, the Indonesian government initiated a multi-sectoral approach to improving the quality of data on road traffic injuries and under-reporting. A national law specifying new regulations for data collection was passed that included collecting and coordinating fatality data from multiple sources to supplement police data, in particular data from hospitals and from insurance companies.

¹⁷ H.M Ahsan et al, ibid

5.2 Investigation and redress

There are two clear legal responsibilities in the aftermath of accidents: i) investigation and ii) prosecution. FGDs with police personnel underscored a conclusion derived from other sources too that currently the investigation process is very weak with a marked absence of technically competent personnel. Poor investigation is one of the major causes of prosecution failures. There is no specialization on traffic management within the police. General police are rotated on such jobs. The investigation process is further weakened by the fact that management and enforcement are separate departmental responsibilities with poor or no coordination.

FGDs also brought out a disturbing trend, namely, a progressive weakening of legal provisions for punishing reckless drivers responsible for road accidents. FGD participants were frank in their assessment that the political economy is currently hostile to dealing rationally with investigating and prosecuting accidents.

5.3 What happens after an accident: 3 case studies

Case Study 1

Mr. Kamal (not real name), a retired high-ranking government officer, incurred an accident on 7 February, 2014 in front of Ramna Thana. Mr. Kamal's driver was at fault having hit another car in front. On arrival, police suggested amicable settlement on vehicle damage. Mr. Kamal's son-in-law, also a high-ranking educationist, arrived on the scne and paid 50% of the agreed amount to the other vehicle. Mr. Kamal himself was taken to the nearby Holy Family hospital but after a long wait was informed that necessary treatment was not available. Mr. Kamal, also an asthmatic patient, was taken to another hospital and after a three day stay in a cabin, was operated upon. Being well off, Mr. Kamal's own driver who caused the accident and necessitated the medical treatment. The driver had proved a bad driver previously too but had been kept in service because of loyalty to Mr. Kamal's family. Due to a previous accident, the driver had even injured his leg. While the family scolded him for his bad driving, they did not let him go because finding a good driver is difficult due to a great shortage of trained and reliable drivers. The car itself had no problem. Bad driving was the root cause of the accident.

Several lessons emerge from this case study:

- a. Finding a good and reliable driver is difficult in Bangladesh. Even though, family suffered due to the bad driving, they valued his loyalty and kept him in service.
- b. After an accident, if there is no fatalities, tendency is to promote amicable settlement on the question of damages.
- c. Police do not play any role in taking accident victim to hospital in normal cases.
- d. Though injury was not fatal, follow-up treatment has been necessary. Even though the family has been able to afford the treatment, the costs has impacted the family psychologically and financially.

Case Study 2

On October 22, 1993, Jahanara Kanchan, wife of noted film actor, Iliyas Kanchan, met with a fatal accident while travelling from Dhaka to Bandarban where her husband was in a film shoot. She was travelling in a rent-a-car with her young children. Saving on time is often a priority for such drivers and unless strictly controlled the driving can be reckless. The driver was also overworked. Sudden appearance of a non-motorized transport on an isolated stretch led to a violent swerving by the driver leading to a fatal accident. There was no immediate facility for treatment and she died en route to the Chittagong Medical College Hospital. Since a police case would have required a post-mortem, the family avoided a police case on the incident. Police on their own did not file a report. However, the tragedy galvanized the husband to spearhead a civic movement on road safety which has graduated to a national advocacy platform under the name *Nirapad sarak Chai.* Eventually, their efforts led to the declaration of 22 October as the National Safe Road Day.

Case Study 3

On 13 August, 2011, noted film-maker Tareque Masud and cinematographer Mishuk Munir met with a fatal road accident while returning to Dhaka from Manikganj on the Dhaka-Aricha highway after visiting a filming location. His microbus collided head-on with an oncoming passenger bus. Tareque's wife Catherine Masud, painter Dhali Al Mamun, his wife Dilara Begum Jolly and film production staff Saidul Islam were injured in the accident. The victims were initially taken to nearby Manikganj hospital. After receiving primary treatment, the injured members travelled to Dhaka with the dead bodies. Severe traffic congestion delayed their journey but because of their national reputation, highway police assisted them so they could arrive at Square Hospital in Dhaka for emergency treatment. The event galvanized national attention so that the survivors were given the required treatment immediately. One of the survivors had to go to Bangkok for further treatment and eventually incur medical costs amounting to 65-70 lacs takas. Support came from both government and private sector. The key cause of this accident was faulty road design that had a dangerous curve where previous accidents had also occurred. Such black spots have now come in to focus and many have been made more safe. However, reckless driving was also a contributory factor with the colliding bus-driver trying for a reckless over-taking in railny conditions.

Several lessons from this high-profile accident have emerged:

- a. Police have been pro-active in arresting offending driver and producing an investigative report. But such alacrity is more the excepton than the rule.
- b. The importance of heli-lift for emergency treatment was underscored. It may be mentioned that two former Finance Minister died in road accidents in which emergency care could not be made available.
- c. For sending money abroad for medical purposes, the requirement for central bank approval is not known widely. This requires greater dissemination.
- d. Unused legal provisions have been pursued by the family of the victims. On February 13, 2012, two cases were filed before the Motor Accidents Claims Tribunal, Manikganj under section 128 of the Motor Vehicles Ordinance of 1983 and subsequently transferred to High Court Division under Article 110 of the Constitution. This ground-breaking civil case has brought to attention long-neglected legal

provision that make not only the driver but also owners and insurers liable for claims. $^{\ensuremath{^{18}}}$

5.4 Medical facilities and victim care

The impact of an accident on a victim can be both brutally short and agonizingly long. The impact is not only on the immediate victim but also on his/her family. Immediate needs include first aid, transportation, emergency medical treatment, and protection of people, vehicles, and public property. The longer-term needs can include long-term treatment, assistive devices, rehabilitation, psychosocial and emotional support, and economic support and employment. Tables 5.1 and 5.2 describe requirements of victims in the short and long-term and how these are optimally met.

What are the services?	Who will provide them?	How?
First Aid for victims	Nearby people	General first aid awareness
		campaign
	Vehicle staff	Train bus staff on first aid
	Road side petrol pump staff	Train petrol pump staff on first aid,
		and make all medical services
		(facilities) info available on site
	Roadside medical shops	Train medical shop staff
	Law enforcement agencies	Require a first aid box in each highway vehicle
	Representatives of adjoining	Equip Upazila and Union Level
	Union Parishads	govt. health facilities on required
		immediate victim support
Transportation for carrying	Nearby people, Vehicle,	Provide general awareness on
victims and immediate treatment	Petrol pump & Roadside medical	carrying victims
	shop staff	
	Law Enforcement agencies	Involve law enforcement agencies
		in awareness campaign
	Insurance companies	Extend insurance coverage to
		cover immediate treatment and
Desta et e a cula conhista e		transport costs
Protect people, venicles,	Law enforcement agencies	Provide general awareness on
and awareness on		protecting people, vehicles, and
protecting public property		public property
	Local leaders	in the protection of people and
		n the protection of people and
Compensation for victim	Legal aid agencies	Negotiate with insurance
		companies and transport
		companies

Table 5.1 Short-term/Immediate needs of accident victims

¹⁸ Daily Star, the Star Magazine, 14 March 2014, article by Amitava Kar, 'Putting a price on the priceless'

Table 5.2Long-term needs of accident victims and their families

Victim

What are the services?	Who will provide them?	How?	
Compensation	Courts, legal aid agencies	Compensation claims are allowed within law but has not been practiced. Precedent-creating judgments are necessary. Also people need to be made aware o the provisions within law tha allows claims.	
Long term treatment support	Government, family	Provide grants for rehabilitation	
Appropriate assistive devices	Insurance companies	Extend insurance to cover devices	
Rehabilitation	Social Activists	Social Rehabilitation fund	
Psycho-social/emotional support	Social Activists		
Community support	Private initiatives		
Income generation skills for disabled	Social entrepreneurs, NGOs	Provide necessary skill training to victims	

Family

What are the services?	Who will provide them?	How?
Employment for alternative suitable members	Government	
Education and skill support for suitable members	NGOs	

While the above spells out what is required for victim support, the more pertinent issue is the state of medical and support facilities now. The Global Status Report on Road Safety 2013 has some interesting information on post-crash care in Bangladesh. Information is this regard presented in the table below highlight a less than satisfactory level of post-crash care facilities/arrangement in Bangladesh (Table 5.3).

Table 5.3

Post-Crash Care in Bangladesh		
Vital registration system	Yes	
Emergency Room based injury surveillance system	No	
Emergency access telephone number(s)	No	
Seriously injured transported by ambulance	≤10%	
Permanently disabled due to road traffic crash	13%	
Emergency medicine training for doctors	No	
Emergency medicine training for nurses	No	

In-depth interview of trauma doctor at the Chittagong Medical College and Hospital also brought out a number of interesting observations on the reality of post-crash care:

- Accident treatment has three stages: primary, secondary and tertiary. In Bangladesh, the secondary stage is missing.
- There are only a few trauma centres in the country. A policy decision to set up a few trauma centres alongside highways has seen the establishment of physical structure as for example at the trauma centre at Mirasarai on Dhaka-Chittagong highway but it is poorly functional due to non-availability of equipment and manpower.

- Absence of medics is a problem. A medic is someone who can take care of emergency needs but need not be full time doctor.
- On the spot initial treatment in terms of stopping blood flow or providing CPR is a largely missing capacity. The first 6 hours after an accident is not surprisingly called the *golden hour* i.e. the period from the accident spot to tertiary care during basic treatment such as CPR or prevention of blood loss can determine the eventual chances of survival. An important issue here is general awareness on such basic treatment such as CPR on which training at school and among the general population via local governments and road-side market associations should be a priority.
- Many of the accident deaths occur during transfer. Transfer arrangement has to be a key focus of improvement.
- Major hospitals need to have disaster response teams within their organizational set-up.
- Actual layout of facilities in major hospitals have not given due consideration to emergency care. For example in the Chittagong Medical College and Hospital, emergency care unit is on ground floor while the orthopedic centre is on the 5th floor. An additional concern is obstructions in access ramps. Unruly traffic often hampers quick transfer of accident victims in to the emergency care room.
- Critical care medicine needs to be developed as a discipline. Management of severe trauma is an emerging specialization and adequate capacity in this regard needs to be developed within the country.
- Small steps can bring big dividends in terms of improving emergency care. For example, on-site preparation of ID tags which specifies name, age, blood group, immunization needs to be undertaken while the victim is still conscious.
- It is important to develop a universally valid national access emergency number much like 911 in the United States which people can access for signaling emergency..

Road-Users: A Survey of Drivers

6.1 Introductory background

Drivers loom large in the road safety agenda. Their quality, their adequacy, their attitudes and motivations, their sense of responsibility vis-à-vis rules and regulations as well the pressures under which they work have a strong bearing on how safe the roads are likely to be. It is thus important to know who the drivers are – their socio-economic profiles – as well as their viewpoints on the causes of accidents and how these may be better prevented. To this end, this Study undertook a purposive survey of drivers with two important sampling criterion in mind – i) vehicle types and ii) highway routes. A total of 102 drivers in the five major bus and truck terminals in Dhaka city plying on the major highway routes as well as key rent-a-car spots were surveyed. From the standpoint of sampling strategy, the terminals constituted the clusters while vehicle types constituted the stratification criterion. Within each cluster and vehicle category, the final choice of respondents followed the random principle. Details of the sample are provided in Table 6.1.

Table 6.1 Driver Survey Sample

Cluster	s	Vehicle types	Driver sample
Bus/truck stands	Rent-a-car spots		
 Mohakhali bus terminal 	•Lake circus	●Bus	• 52 bus drivers
•Gabtoli bus terminal	 Maghbazar 	•Truck	•15 mini-bus drivers
 Sayedabad bus terminal 	●Mirpur 1	 Covered van/mini-bus 	•25 truck drivers
 Amin Bazar truck stand 	●Pallabi	●Car	 10 rent-a-car drivers
 Tejgaon truck stand 	 Jatrabari 		

6.2 Driver Profiles

Age

The overwhelming majority of the surveyed drivers are in the age bracket 24-50 with only 5% above the 50+ age range (Table 6.2). Nearly half (47%) are within a younger age bracket of 24-35 while 21% are within 36-40 years and the remaining 28% within the 41-50 age bracket.

Table 6.2 Age composition of drivers

Age in years	%
24-35	47.0
36-40	20.6
41-50	27.5
51 and above	4.9
All	100

6

Educational Qualification

Contrary to popular perception, 80% of the surveyed drivers had some education (Table 6.3). The single highest education group among the drivers was secondary or equivalent education (48%). Only 8% were wholly illiterate.

Educational qualification	%
Illiterate	7.8
Can read and write	11.8
Primary	30.4
Secondary/equivalent	48.0
SSC/equivalent	1.0
HSC/equivalent	1.0
All	100

Table 6.3Educational qualification of drivers

Demographic profile: average family size and number of earners

The demographic profile of the surveyed drivers show that their family sizes are typically 3-4 (40%) or 5-6 (43%) (Table 6.4). However, the majority -70% - are single earner families.

Table	6.4
Formaile .	01-0

Family Size				
Family size	%		Number of	%
1 member	1.0		earners	
2 member	1.0		1 earner	69.6
3-4 member	40.2		2 earners	21.6 7.8
4-6 member	43.1		3-4 earners	7.81.0
7 and above	14.7		4-6 earners	1.0

Housing status

Of the surveyed drivers, only a miniscule -4% - live in their own residence in Dhaka city (Table 6.5). A third -33% - live in rented premises while another 21% live in rented dormitories popularly known as 'mess'. The largest group -41% - are those who may have rural residences but sleep in the vehicles they drive while in Dhaka city.

Table 6.5
Housing status in Dhaka

Type of residence	%
Own residence	3.9
Rental house	33.3
Mess	20.6
Vehicle/Bus/Car	41.2
Others (Garage/hotel etc.)	1.0
All	100

Income status

Information was sought on the reported monthly income of the surveyed drivers. Average reported monthly income of the surveyed drivers stood at is Taka 21950. However, there is considerable variation in monthly income of the surveyed drivers (Table 6.6). The lowest monthly income bracket is Taka 10-15000 and this is enjoyed by 19% of the sample while a small percentage (3%) enjoy monthly income above Taka 50000. The largest group -47% - belongs to the Taka 15-20,000 income bracket.

A corroborating information on the few high income earners indicates that they may also be owning a vehicle and having dual earning as driver as well as owner. One of the surveyed drivers revealed that he had obtained a taka 30 lac loan to purchase two vehicles for one of which he employs a driver while driving the other himself.

Income range (taka)	%	Mode of remuneration*	%
10250-15000	18.6	Regular monthly salary	8.8
15001-20000	47.1	Monthly trip-based payment	85.3
20001-25000	15.7	Payment on a commission basis per month	11.8
25001-50000	15.7	Monthly meal/food allowance	22.5
50000+	2.9	Extra monthly income over monthly salary	54.9
All	100		
Average monthly inco	ome: Tk. 21950		

Table 6.6Reported monthly income & mode of payment

* Sum of percentages is more than 100 as some drivers had multiple responses

What the details in the above table do not capture is that most of the drivers do not have fixed monthly income. They earn more only if they make more trips on a contractual basis. As the table below shows only 8.8% of the respondent drivers have regular monthly salaries and 22.5% of them get monthly meal or food allowances.

Indebtedness

Nearly half of the surveyed drivers (45%) reported being in debt. Average debt for all surveyed drivers (minus the single one who had taken out a large loan of Taka 30 lacs to finance purchase of his own vehicles) stood at Taka 21822.

Self-assessed poverty status

PPRC has always found it useful to supplement economic status indicators of households by an indicator that provides household's own self-assessed poverty status. Findings on this indicator show that only 7.8% assess their own status as being of extreme poverty i.e. 'always deficit' (Table 6.7). The great majority (51%) assess their status as being 'vulnerable non-poor' while over a quarter (26.5%) assess themselves as 'surplus'.

Self-assessed status	%
Always deficit	7.8
Occasional deficit	14.7
Break-even but vulnerable	51.0
Surplus	26.5
All	100

Table 6.7 Self-assessed poverty status

6.3 Licensing

The issue of driver licensing is an important element of the road safety agenda. The driver survey sought some information pertaining to the issue. The information, however, is limited only to the driver's viewpoint without the scope for any independent verification.

By the drivers' own testimony, nearly all drivers have a license (Table 6.8). The overwhelming majority of licenses -75% - is for driving heavy vehicles.

Type of license	%
For light vehicle (Private car/Jeep/Pickup)	6.9
For medium sized vehicle (Microbus/Minibus)	15.7
For heavy duty vehicles (Bus/Truck/Lorry etc.)	74.5
Does not have authorized license	2.9
All	100

Table 6.8Type of license held by surveyed drivers

80% of the surveyed drivers reported undergoing mandatory testing before obtaining their license. However, the remaining 20% admitted to obtaining their licenses without any test (Table 6.9). Interestingly, nearly half the licenses were obtained from BRTA district offices. A popular perception is that district offices suffer from lax standards. Be that as it may, a majority – 61% - also reported facing some form of harassment during the process of obtaining a license. Paying a bribe over and above due fees appears to be, by the drivers' testimony, an almost universal problem (92% reporting such a problem) while the other forms of harassment include time delay (53%) and the need to take the help of middlemen (39%). A small percentage (5%) faced a further problem in that the middlemen cheated them with fake licenses.

Process	Details	%
	2 0 10110	,,,
Driving test	Underwent test	80.4
	License without any test	19.6
	•	
Location from where license obtained	Dhaka	51.0
	District office	49.0
Problems in obtaining license	Faced harassment	60.8
	No harassment	39.2
Nature of harassment*	Had to pay bribe	91.9
	Had to make repeated visits	53.2
	Had to take help of middlemen	38.7
	Middlemen gave fake license	4.8

Table 6.9 Licensing: process details

*Multiple responses; do not add up to 100

6.4 Trade union membership

The overwhelming majority of the surveyed drivers -80% - have membership of one or more trade unions operating in the sector. Only 20% are outside any trade union membership.

6.5 Training

How does a driver become a driver? Table 6.10 looks at the process through which the driving skills were obtained. Only 2% of the surveyed drivers learned their driving skills through a process of formal training. The overwhelming majority -81% - have acquired their driving skills through a process of informal learning. An additional 17% obtained their driving skills through a combination of both processes.

Mode of learning driving skills	%	Type of trainer	%	Average training hours
Formal training	2.0	Friends/Relatives	3.2	614
Informal learning	81.4	Ustad	78.4	1541
Combination of both	16.7	Government Institutions	4.8	6
All	100	Private Institutions	9.6	93
		Others	4.0	141

Table 6.10 Learning driving skills

Table 6.10 also provides further information of the type of 'trainers' who provide the training. The dominant category is the 'ustad' or mentor who is usually an older and experienced driver. Drivers who learned at the hand of the 'ustad' usually join as informal 'helpers'. Average 'learning' period in such informal mentoring is about 1500 hours which can spread over 3 to 6 months. In contrast, formal training by private institutions is availed by around 10% of the surveyed drivers and the training hours in such a scheme are on average 93 hours.

Only 19.6% of the surveyed drivers incurred costs for learning their driving skills. Table 6.11 provides the information on the average expenses incurred by those who paid for their lessons. For the informal training-providers i.e. ustads and friends/relatives, the lesson fees averaged around Taka 4000. For the institutional training-providers both private and others, the average fee ranged between Taka 6 to 7 thousand.

Source/mode of training	Number of drivers out of the total of 102 surveyed who had to pay for training	Average expense on training (Taka)
Friends/Relatives	2	4000
Ustads	3	3667
Private Institutions	12	6125
Others	3	7500

Table 6.11 Costs of driving training

Even though much of the learning process on driving skills is informal, the perception of the surveyed drivers in majority cases is that the process is relatively effective in teaching driving skills and learning traffic signals and rules. 70% of the surveyed drivers expressed confidence that they had fully learned on issues of traffic signals and rules while the remaining 30% were moderately confident of their learning in this regard (Table 6.12). In terms of perceptions on the usefulness of the learning process on ability to drive, 84% were fully confident in their driving abilities with another 14% moderately confident. Only 2% felt that the training process had not been useful.

Table 6.12	
Drivers' perception on efficacy of training	I

Perception on efficacy	%				
	Learned fully well	69.6			
Learning of traffic signals/rules	Learned moderately well	30.4			
	All	100			
	Can drive well	84.0			
Ability to drive	Can drive moderately well	14.4			
	Training was not useful	1.6			
	All	100			

6.6 Work-load

How much of a workload do drivers have to bear? Table 6.13 describes the findings in this regard. In terms of the weekly work-load, 41.2% of surveyed drivers work for up to 4 days a week while another 42.2% swork 5-day weeks. A smaller percentage - 16.7% - bears a higher load of 6-7 days work-week. In terms of the daily work-load, 32.4% work up to 8 hours a day while nearly half (48.9%) work between 9 and 12 hours a day. A smaller but nevertheless significant percentage - 18.6% - bears an onerous daily work-load of 13-16 hours.

Table 6.13 Work-load of drivers

Days worked in a week	%	Hours worked in a day	%
Up to 4 day	41.2	Up to 8 hours a day	32.4
5 days	42.2	9-12 hours a day	48.9
6-7 days	16.7	13-16 hours a day	18.6
All	100	All	100

The general picture that emerges is that around a fifth of drivers are extremely over-worked with 6-7 days weekly work-load and 13-16 hours daily work-load. For the remaining, the work-load appear to leave reasonable room for breaks and rests in between assignments.

6.7 Mobile-phone use while driving

The use of mobile-phones while driving has been recognized as a safety hazard. The PPRC driver survey brought out the ground realities in this regard (Table 6.14). About two-fifths of the surveyed drivers use mobile while driving and they do so because they feel it does not interfere with their driving.

Table 6.14 Use of mobiles while driving

Issue	Answer	%
Use mobiles while driving	Yes	42.2
	No	57.8
	All	100
Feel mobile-use interferes with driving	Yes	62.8
	No	37.2
	All	100

The findings underscore not only a behavior problem i.e. mobile-use while driving, but also a perception problem in that the 40% of drivers who do use mobiles while driving do so on the perception that this is no safety hazard. Clearly, there is a major awareness-building task also implicit here.

6.8 Condition of vehicles

Even if the drivers were skilled and fully conscientious, safety hazards would remain if they vehicles they are driving are unsafe. Information was sought from the drivers on the condition of the vehicles they drove. A caveat here is of course the possibility that drivers may exaggerate the fitness of their vehicles. Bearing this in mind, table 6.15 describes the condition of the vehicles on the road as reported by the drivers.

Issue	Answer	%
Vehicle condition	Very good	47.1
	Moderately good	49.0
	Unfit	3.9
	All	100
Regular servicing	Regular	70.6
	irregular	29.4
	All	100

Table 6.15 Condition of vehicles

Around half the respondents (47%) assessed their vehicles to be in very good condition while the other half only assessed them as in moderately good condition. 4% were candid enough to say that their vehicles were unfit to ply on the roads. In terms of regular servicing, 71% reported that their vehicles were regularly serviced while 29% were only irregularly serviced.

The overall picture is thus a mixed one though not as scary as some perceptions would have it.

6.9 Accident experience of drivers

An important focus of the PPRC driver survey was to gain in-depth knowledge of the accident-related experience of the drivers. The driver survey revealed that of the 102 surveyed drivers, 50 drivers or 49% were involved in a total of 78 accidents (Table 6.16). However, taking account only of last 1 year, the percentage of drivers involved in accidents drops to 22%. Of those involved in accidents, 13% sustained personal injuries.

Drivers plying buses, particularly long-distance buses, are involved the most in accidents (48.7%). They are followed by mini-bus/truck drivers (23.1%) and heavy truck drivers (21.8%) respectively.

A majority of the accidents, however, are minor in nature. Table 6.16 shows that 58% of the incurred accidents were minor in nature with no fatalities and with minor damage to vehicle. However, what the information does not reveal is the frequency of non-fatal injuries. Fatalities are involved in 19.2% of the accidents. Significant damage to vehicle occurred in 21.8% of incidents.

Table 6.16Accident experience of drivers

Accident-related issues	Answer	Value			
	% of drivers involved in accidents	49%			
Incidence of accidents	% involved in last I year	22%			
	Total number of accidents surveyed drivers involved in	78			
	% of drivers injured in accidents in last 5 years	13%			
	Bus	48.7%			
Types of vehicles involved in	Mini-bus/truck	23.1%			
accidents	Truck	21.8%			
	Micro-bus	3.8%			
	Covered van	2.6%			
	All	100%			
	Fatalities and damage to vehicle	5.1%			
Damage type	Fatalities with no damage to vehicle	14.1%			
	No fatalities with moderate damage to vehicle	16.7%			
	No fatalities with minor damage to vehicle	57.7%			
	No damage to vehicle	6.4			
	All types	100%			

What happens to the drivers in the aftermath of accidents? Table 6.17 looks at some of the consequences for the drivers following accidents.

Table 6.17
Accident aftermath

Accident aftermath	Answer	Value		
Penalties incurred	Faced no penalty	42.3%		
	Paid a fine	34.6%		
(Multiple answers: percentages do	Faced court case	10.3%		
not add up to 100)	Temporarily released from duty	7.7%		
	License impounded	1.3%		
	Others	15.4%		
	Assistance not required	47.4%		
Assistance received	Cost of litigation/fine	25.6%		
	Re-instatement after temporary dismissal	10.3%		
(multiple answers)	Legal assistance	5.1%		
	Partial family allowance during treatment	1.3%		
	Others	14.1%		
Treatment of injured drivers	Private clinics	53.8%		
(13 drivers of the total of 102 were	District hospital	23.1%		
injured in accidents)	Pharmacy	23.1%		
	Road Transport Workers' Union	42.2%		
Unions providing support	District Bus/Minibus Worker's Union	26.5%		
	Bangladesh Inter District Truck/Covered Van Owners	15.7%		
	Association			
	Bangladesh Inter District Truck Drivers' Union	10.8%		
	District light vehicle Transport Workers' Union	2.4%		

From the testimonies of the surveyed drivers, it would appear that as a group drivers are little affected by penalties flowing from accident occurrences. 42.3% of drivers involved in accidents, which can be both major and minor, faced no penalty. The principal penalty paid is the payment of a fine. 34.6% of drivers involved in accidents paid such a fine. The more striking finding is that though the proportion of accidents that caused fatalities were nearly a fifth of the total (Table 6.16), drivers faced court cases in only 10% of incidents. The impounding of licenses occurred in an even far smaller number of instances – 1.3%.

Given that a majority of the accidents are minor in nature, the governance failure implicit in the above statistics can be argued to be not so serious after all. However, this would be a wrong reading of the ground realities. A big unknown is the exact nature of the 'minor' accidents many of which may be causing non-fatal injuries that can be equally consequential in terms of economic and health burdens for the victims (see case studies in Chapter 4).

The other interesting finding from Table 6.17 is the support network provided by union membership. Types of assistance received include covering cost of litigation or fine payment, legal assistance and reinstatement after temporary dismissal. Interestingly, the small number of drivers who were injured in accidents sought medical treatment at private clinics more than at government hospitals.

7

Why do Road Accidents Happen?

7.1 Overview of causal factors

Though road accidents occur due to a multitude of factors and a holistic perspective on the issue is necessary, the causal factors are clearly identifiable and remedial actions on each are possible. Available literature generally agree that causal factors fall within four major clusters: i) driving habits ii) road-related factors iii) vehicle-related factors and iv) socio-economic environmental factors.

The 2013 WHO Global Report on Road Safety highlights five causal factors and remedial action areas: i) excessive speed ii) drunk driving iii) non-use of motorcycle helmets iv) non-use of seat belts v) non-use of child constraints. While all these are relevant, for countries like Bangladesh there are a number of additional factors at work that need to be taken into consideration. Table 7.1 summarizes these respective concerns.

Global and Local Concerns on Road safety		
zed globally for remedial action	Causal factors seen as contex	

Table 7 1

Causal factors prioritized globally for remedial action	Causal factors seen as contextually relevant for Bangladesh
 Speeding Drunk driving Non-use of motorcycle helmets Non-use of seat-belts Non-use of child restraints 	 Reckless driving Untrained drivers Unfit vehicles Simultaneous operation of motorized and non-motorized vehicles without separation and adequate rules Vulnerable road-side activities Faulty road design Poor traffic enforcement Lack of road safety awareness Culture of impunity and poor logal redress
	 Culture of impunity and poor legal redress

Tahera Anjuman et al¹⁹ identify 'adverse roadway roadside environment, poor detailed design of junctions and road sections, excessive speeding, overloading, dangerous overtaking, reckless driving, carelessness of road users, failure to obey mandatory traffic regulations, variety of vehicle characteristics and defects in vehicles and conflicting use of roads' as the major contributing factors to accidents in Bangladesh. They particularly highlight that "adverse roadway elements contributing to highway accidents were substandard road way alignment or geometry, lack of shoulders and shoulder defects, absent or inappropriate pedestrian facilities, narrow and defective lanes and bridges/bridge approaches, roadside hazards, undefined pavement centre and edge lines, poor sight distances and visibility, unmarked and inappropriate design of intersections, serious delineation deficiencies along the route, haphazard bus shelters/stops, and others. In many of these cases 'running-off-road' accidents involved vehicles leaving the carriageway and falling down the unprotected steep drops into ditches, accounting for nearly 60

¹⁹ Tahera Anjuman et al, ibid

percent of total, 'running-off-road' and 'out-of-control' accidents". The same experts also identify low level of awareness of the safety problems and regulations and traffic law enforcement and sanctions as important contributing factors to road accidents in Bangladesh.

Naila Sharmeen & Md. Rabiul Islam²⁰ also refer to many of the above causes of accidents. However, they also identify driver incompetency as an important cause for road accidents. They thus note 'Public transport drivers have no formal training, they are excessively overworked. Unqualified drivers get licenses through unfair means. ---- sometimes, helpers take over wheels with fake license and little or no training.' They also identity negligence of traffic police as a significant aggravating factor of accidents. Furthermore highlighting the importance of road safety audit to detect accident prone points on highways, where road accidents are frequent Sharmeen and Islam refer to the list of 200 accident prone points, termed as black spots, on ten major highways in Bangladesh prepared by ARI of Bangladesh University of Engineering Technology (BUET) and shared with the Roads and Highway Department. Significantly, they also 'note that road design and safety circle of RHD have neither the manpower nor logistics to conduct safety audit on highways and treat the faulty spots'. In the literature on road traffic accidents in Bangladesh defects in enforcement of strict vehicle road worthiness standards, corrupt practices prevalent in the issuance of driving license have also been identified as significant contributing factors enhancing the risk of road accidents.²¹

7.2 Insights from FGDs

To gain further depth to the causal analysis and remedial priorities, focus group discussions were held with key stakeholder groups. These included retired senior police personnel with extensive experience in traffic management, leadership of the Bangladesh Truck and Covered Van Owners' Association, drivers and local community. Insights from these FGDs are summarized in Table 7.2.

The juxtaposition of both management and user viewpoints confirms many of the causal factors identified earlier. However, several new areas of emphasis emerge that merit closer attention. A common theme emerging is the pressures under which drivers operate on Bangladesh roads. Mostly lacking formal training, drivers have to contend with high levels of financial and mental pressures arising from the need to maximize time-use for financial gain while also dealing with random police harassment. Lack of awareness of rules and casual disregard of the same exacerbate their negative image. A second theme is the absence of supplementary facilities on the roads – footpaths, hard shoulders, bus bays, helpful signals and markings, access roads etc. that compound the road chaos and increase the likelihood of accidents. It is worth remembering the bulk of the accidents occur at bus/truck stands and road intersections rather than on highway stretches. The third theme is the general lack of awareness about road safety across all categories of road-users. A fourth theme is the challenge for the road safety agenda arising from burgeoning road-side economic activities. A bureaucratic perspective that simply negates an urbanizing and economically growing rural society while developing the road safety agenda has and will prove to be ineffectual. The focus rather has to be on governance and engineering solutions that builds road safety elements into a growing meso-economy.

²⁰Naila Sharmeen & Md. Rabiul Islam- Road Accidents: Contemporary Scenario and Policy Issues in *Bangladesh' Journal of Bangladesh Institute of Planners* Vol. 4. December 2011, pp. 45-55

²¹ Syed Rakib Uddin and Dr. Md. Shamsul Hoque, 'Study of Heavy Vehicles' Driver Behavior in Road Accidents of Bangladesh', in the *Proceedings of the 26th Australasian Transport Research Forum*, Wellington New Zealand 1-3 October, 2003.
Issue	Stakeholder viewpoint						
	Police personnel	Transport owners	Drivers	Local community			
causes of accidents	 Speeding Deficiency of drivers Violation of signals Over-taking Over-loading by trucks Random line change Mental annoyance of drivers for multiple reasons Black spots (dangerous curves) Over-speeding for time saving Unfit vehicles Bad roads Slow and fast vehicles on same roads Impunity for offences 	 No road dividers on most roads Huge increase in number of vehicles on the road Owners negligent on vehicle fitness Poor knowledge of traffic rules by drivers Poor knowledge of traffic rules by pedestrians Unlicensed drivers Lack of quality driving schools Unsecured railway crossings Harassment by police leading to mental pressure on drivers Road-side markets Motorized and non-motorized transports on same lanes Poor stoppage facilities for bus drivers 	 Derective venicles Over-taking and speeding Untrained drivers Lack of sleep and tiredness Radom presence of informal transports without indicator lights Careless pedestrian use of roads Absence of road markings and signals Excessive roadside markets and shops Police harassment and random stops Drunk driving Too many and unnecessary speed-breakers Mental pressure on drivers due to financial obligations 	 Too many vehicles vis-à-vis road space, inadequate bus stands Increasing presence of unauthorized 3-wheelers Absence of well-identified parking spots Haphazard parking Jaywalking by pedestrians Police harassment and random stoppages for extortion Too many unmarked turning points on highway Lack of hard shoulders and sudden drop on the sides Lack of foot path forces people to walk on streets Road-side vegetation blocking views at curves Uncovered sand trucks create problem for motor-cyclists who are blinded by flying sand 			

Table 7.2Causal factors highlighted by different stakeholders

Laws and Institutions

8

8.1 Laws

The most important government legal instrument guiding all matters relating to road traffic and road safety is the Motor Vehicle Ordinance, 1983 as modified up to 1990. This is a comprehensive instrument covering a comprehensive range of issues such as matters relating to i) licensing of drivers of motor vehicles (Chapter II of the Ordinance) ii) licensing of conductors of stage carriage or contract carriage (Chapter III), iii) registration of motor vehicles including the issue of certificate of fitness (Chapter IV), iv) control of transport vehicles (Chapter V), v) construction, equipment and maintenance of motor vehicles (Chapter VI), vi) control traffic (Chapter VII), vii) motor vehicles temporarily leaving or visiting Bangladesh (Chapter VIII), viii) insurance of motor vehicles against third party risk (Chapter IX), ix) offenses, penalties and procedures (Chapter X) and finally x) miscellaneous matters (Chapter XI).

The other relevant legal and administrative instruments relevant for road traffic and road safety include a) The Bengal Motor Vehicles Rules, 1940 and Motor Vehicles Rules-1984, b) Metropolitan Acts and Ordinances such as : Dhaka Metropolitan Police Ordinance, 1976, Chittagong Metropolitan Police Ordinance, 1978, Khulna Metropolitan Police Ordinance, 1985 Rajshahi Metropolitan Police Act, 1992, 1992, Barisal Metropolitan Police Act, 2009, Sylhet Metropolitan Police Act, 2009, Police Act, 1861 and the High Way Police Rules, 2009. Some sections of Penal Code, 1860 are also relevant for penalties for RTA related offenses and fatalities. In Bangladesh the BRTA, Metropolitan Police, Highway Police and the District Police are the main agencies vested with the enforcement all the relevant laws, regulations and administrative orders on the above broad range of issues. The formation of the highway police in 2005 and a subsequent regulation in 2009 was a major institutional step by the government to improve road safety.

There has not been any major recent academic work on the adequacy of the Bangladesh traffic/road safety relevant legislation(s). Future work in this area may benefit from the following data and information, though incomplete, compiled in the relevant sections of the Global Status Reports on Road Safety, 2013 as below (Table 8.1)

Institutional Framework						
Lead agency	National Road Safety Council					
Funded in National budget	No					
National road safety strategy	Yes					
Funding to implement strategy	Partially funded					
Fatality reduction targets set	Yes (2008-2023)					
Fatality reduction target	10% per year and 50% by 2023					
Safer Roads and Mobility						
Formal audits required for new road construction	Yes					

Table 8.1 An Assessment of Bangladesh road safety arrangement: Global Status Report on Road safety, 2013

Regular inspections of existing road infrastructure	Yes
Policies to promote walking or cycling	No
Policies to encourage investment in public transport	Yes
Policies to separate road users to protect VRUs	Sub national
Safer Vehicles	
Total registered vehicles (2010)	1624862
Cars and 4-wheeled light vehicles	529215
Motorized 2-and 3-wheelers	975682
Heavy trucks	81561
Buses	38101
Other	303
Vehicle standards applied	
UN World forum on harmonization of vehicles standards	No
New car assessment programme	No
Vehicle regulations	
Front and rear seat-belts required in all new cars	Yes
Front and rear seat-belts required all imported cars	Yes
Safer Road Users	
Penalty/demerit point system in place	Yes
National speed limits	Yes
Local authorities can set lower limits	Yes
Maximum limit urban roads	50 km/h
Enforcement	012(3)45678910
National drink-driving law	Yes
BAC limit-general population	-
BAC limit-young or novice drivers	-
BAC limit-professional/commercial drivers	-
Random breath testing and/or police checkpoints	-
Enforcement	-
% road traffic deaths involving alcohol	-
National motorcycle helmet law	Yes
Applies to drivers and passengers	Yes
Helmet standard mandated	No
Enforcement	0123(4)5678910
Helmet wearing rate	-
National seat-belt law	Yes
Applies to front and rear seat occupants	No
Enforcement	012 (3) 45678910
Seat-belt wearing rate	-
National child restraint law	No
Enforcement	-
National law on mobile phones while driving	Yes
law prohibits hand-held mobile phone use	Yes
Law also applies to hands-free mobile phones	Yes

In addition to the gaps which become evident from the above, it is worth noting that in most developed countries there are provisions of entry of details on punishments/fines in the license booklets of offending drivers. The perpetrators of penal actions are made visible to and readily available as information to the enforcement authorities. Where drivers are frequent violators of traffic rules, their licenses without exception show the details of the fines and punishment meted out to them. Such drivers may be liable to the forfeiture of their licenses. In Bangladesh no such provisions exist which may need to be looked into. As particularly highlighted on the 2013 Global Status Reports on Road Safety, the Bangladesh rules and

regulation also do not contain relevant provisions on special measures to be taken to ensure the safety of children in private and public vehicles From a review of relevant instruments and ground level reality on institutional arrangement it also appears that an inadequate, over-centralized, under-staffed and overburdened institutional arrangement for monitoring and ensuring vehicle fitness also need corrective steps for much needed improvements.

An important new development worth noting is the move towards the drafting of a new law to supersede the MVO of 1983. A World Bank funded Clean Air and Sustainable Environment project (CASE) has been authorized by the government to draft such a law. Reportedly, the draft of such a law titled Road Transport and Traffic Act (RTTA) 2011 has been prepared but is currently in abeyance due to reported opposition from transport owners and worker associations.²² An issue here is the absence of any meaningful consultative process by which the broader public can provide inputs into such a major legislative initiative and help to overcome undue impediments by vested interests. Reportedly accident investigation has been included as a requirement under RTTA 2011 and use of helmets and seat-belts made mandatory. However, it is not clear how much of policy consensus has been built to ensure quick passage of such a major legislative undertaking on road safety. What appears to be an immediately useful task is to initiate a comprehensive consultative on this both to inform and to stimulate a required debate that ensures that on passing the law does not merely sit on the shelf.

8.2 Institutions

There are three major regulatory institutions and two engineering institutions with responsibilities bearing on road safety. The regulatory institutions are the Bangladesh Road Transport Authority (BRTA) responsible for vehicle management and driver licensing, the Road Transport Committee (RTC) appointed by BRTA responsible for route franchising and the Police department - Metropolitan police, Highway police and District police – responsible for traffic management and enforcement.

The two engineering institutions are the Roads and Highways Department (RHD) responsible for the highways and the Local Government Engineering Department (LGED) responsible for the feeder roads.. In addition, the Accident Research Institute (ARI) at BUET is mandated to maintain an accident database. In 1995, the National Road Safety Council (NRSC) was established to provide a strategic vision on the theme of road safety.

BRTA

The Bangladesh Road Transport Authority (BRTA), established in 1983 under MVO 1983 under the Ministry of Communication is the apex government organization in the road transport sector mandated to regulate registration of motor vehicles, issuance of fitness certificate of motor vehicles, issuance of route permit for transport vehicles, issuance of motor driving Licenses, issuance of motor driving Instructors' License, registration of motor driving training schools, inspection of motor vehicles involved in road accidents, inspection of government vehicles for repair etc. Besides, BRTA takes different measures in order to promote road safety and coordinates road safety prevention activities undertaken by different agencies/organizations. BRTA prepares the Annual Report of Road Traffic Accidents on the basis of reported data on road traffic accidents from Bangladesh Police.

²² M.S. Siddiqui, 2014, 'Waiting for a suitable traffic law', *The Financial Express*, April 30, 2014

As per revised organogram of BRTA, total number of circle is 62 (57 District Circle + 5 Metro Circle). At present 57 circles are working where 61 AD (Engg.) is posted as head of the office. Rest of the sanctioned circles are administered from nearby circles (57 circles). According to revised organogram the number of sanctioned office staff is 815 out of which 479 are working presently & Vacant Post 336. Circle offices of BRTA are headed by Assistant Director (Engg.) and the divisional offices by Deputy Director (Engg).

Notwithstanding the formal jurisdiction of BRTA, the de facto rules of the game show that driver licensing, particularly of trucks and buses, is controlled by the trade union leaders of the sector and has been the case for long. The sectoral association leader is currently an influential cabinet member. Licensing examinations are typically waived for bus and truck drivers on the recommendation of the association leaders. For their part, participants in the FGD with bus/truck owners' association stressed that BRTA licensing procedure is too time-consuming and largely fails the large and growing demand for such licenses.

RTC

The Road Transport Committee (RTC), appointed by BRTA, has jurisdiction over route permits for buses. This committee typically suffers from a problem of political capture by ruling party members.²³ Over time, membership of this body has become a prime vehicle for rent-seeking.

Police: Metropolitan Police (MP), Highway Police and District Police Traffic wings

The police department recruits personnel like Constable, Sub-Inspectors/ Sergeant and Assistant Superintendent of police in accordance with the laid down principles. Among them, the sergeant is recruited mainly for the management of traffic anywhere in Bangladesh. They undergo the basic training for six months at Bangladesh Police Academy. After the successful completion of training, they are posted at traffic divisions of various police units. They may also be deployed to non-traffic units such as police outpost or police station for other police works. It is to be mentioned that Sub-inspector and sergeants recruited at the mid-level tier are of the same status but the basic difference is that the sergeant has not been entrusted with the legal power to investigate any criminal case even if it is a case of accident whereas the Sub-Inspector can investigate. However, lack of technical capacity on accident investigation is a glaring weakness.

Constable who stands at the lowest rank of police hierarchy may be drafted for deployment in the traffic division if he has a special traffic training from the traffic training centre. However, he may be transferred out of traffic unit to other police units after a certain period. Similarly, armed Assistant Sub-Inspector may also be posted for a period of time in the traffic division and he may be posted out to other police units. Sergeants promoted to Inspectors may be retained in the traffic divisions or posted out to other police units. All other officers above the rank of Inspectors such as ASP, Additional SP, SP, Additional DIG and DIG may be assigned to supervise the traffic management but they are generalist. They do not have special training on traffic management.

Highway police is a separate police range headed by a DIG and is divided into 4 major regions namely Gazipur, Comilla, Bogra and Madaripur each headed by the Superintendent of police. The region is

²³ Abul Hossain, 2007, Political economy report on urban bus operations, Dhaka (mimeo)

divided into zones headed by ASP, zones into police stations headed by Inspectors as Officer in charge and police stations into outpost headed by Sergeant. There are 9 zones, 28 Police Stations and 44 outposts. Sergeant is responsible to Officer in charge who is accountable to ASP. Likewise ASP is responsible to SP. SP is finally under the control of DIG Highway. DIG is directly accountable to IGP. The total sanctioned strength is 2138 which is quite insufficient in the consideration with the area coverage and volumes of traffic and other duties. ASP and above do not have any formal training on traffic management. Others receive training at traffic and driving school located at Mill barrack.

The traffic and driving school of Bangladesh police is located at Mill barrack, Dhaka. This is the sole traffic training institute of Bangladesh police. It is headed by the Commandant in the rank of Additional DIG and the Deputy Commandant in the rank of SP. There are other officers who act as trainers in the school. The school offers training on traffic management for 42 days. The trainees are sub-inspector, Sergeant, ASI and Constable. On the other hand, all metropolitan police arrange orientation courses on traffic management purely on ad hoc basis in their respective units.

NRSC & DRSCs

The National Road Safety Council (NRSC) was established in 1995 with a mandate to establish a strategic vision on road safety for the country. Starting with its first National Road Safety Strategic Action Plan covering the period 1997-1999, NRSC has produced a number of follow-up plans. Current strategic action plan is the sixth in the series and covers the period 2011-13 (Annex 5). NRSC operates through the Road Safety Cell (RSC) located within BRTA and the District Road Safety Committees (DRSC) at district and metropolitan levels. However, much of the above remain more on paper.

The 6th National Road Safety Action Plan identifies nine priority sectors for improvement. These are: i) planning, management and coordination ii) accident data system iii) road engineering iv) traffic legislation v) traffic enforcement vi) driver training and testing vii) vehicle safety viii) education and publicity and ix) medical services. For implementation purpose, seven leading agents have been nominated: a) Roads and Highways Department (RHD) b) Dhaka City Corporation (DCC) c) Bangladesh Police d) ; Road Safety Cell (RSC) e) Bangladesh Road Transport Authority (BRTA) f) the Ministry of Education and g) the Ministry of Health.

ARI

Initially established as the Accident Research Centre in 2002, the entity was upgraded to Accident research Institute (ARI) under the Ministry of Education at BUET. It is primarily mandated to maintain an accident data-base based on police data.

Road Safety Units at RHD and LGED

As the two major engineering institutions having a bearing on road safety issues, separate road safety units were established within these institutions in 1999 and 2005 respectively. However, these suffer from logistical and manpower inadequacies. In LGED, the unit is located within the Road Maintenance of Road Safety Unit (RMRSU). LGED has also established a Central Road Safety Committee to provide coordination and advisory services to RMRSU.

Improving Road Safety

Road safety is increasingly being recognized as a priority national agenda. While some of the problems are entrenched, the challenge lies in developing a realistic vision of progress on improving road safety. Setting realistic targets as for example in reducing road accidents fatalities by 50% in next ten years and incidence of accidents in general by 30% merit serious consideration. Key pillars for a viable road safety strategy have entered the discourse that include road safety management, safer roads, safer vehicles, safer road-users and post-crash response. Such pillars have been translated into an action agenda that includes accident black spot treatments, road safety audits and road inspections and assessments. There are many dimensions to the agenda of improving road safety some of which are reviewed below.

9.1 Recent progress and setbacks

Road safety surfaces as a periodic national concern particularly after gruesome accidents that claim many a lives as in the recent death of school children on a Jessore feeder road in south-western Bangladesh. While each such incident generates intense but short-lived introspection, it is a moot point to what extent they lead to a consolidation of a sustainable agenda of improving road safety. While the adoption of paper plans such as the 6th National Road Safety Strategic Plan (appended as Annex 5 to this report) indicate that government is engaged on the issue, it is important to subject such well-meaning plans to a reality check. The survey of drivers provides such a reality check in terms of a ground-level assessment by a key constituency on recent progress and setbacks on the road safety agenda (Table 9.1).

	Perceptions on progress	% of responses	Perceptions on setbacks	% of responses
•	New roads built and others repaired	84.4	 Increased extortion on highways by police and ruling party activists 	61.8
•	Road dividers & introduction of one-way system	34.4	 Increased traffic of unlicensed informal transports (nasimon/karimon/easy bikes) 	43.1
•	Building of fly-overs and over-bridges	32.3	 Proliferation of road-side markets 	39.2
•	Increase in number of police including highway police	20.8	 Improper and irregular road repair and maintenance 	20.6
•	Strategic placing of signboards carrying awareness-related messages	19.8	 Illegal truck stands and parking on highways 	19.6
•	Some road curves have been straightened	19.8	 Vehicle density relative to roads has increased 	12.7
•	Number of trained drivers and good vehicles is increasing	5.2	 Inactive and unaccountable highway police 	10.8
•	Awareness-building activities	4.2	 Proliferation of unfit vehicles on 	10.8

 Table 9.1

 Perceptions of drivers on progress and setbacks on road safety agenda (multiple responses)

in terminals	the roads	
	Needless speed-br without clear ma signs covered by po	reakers and 8.8 arking/traffic osters
	Lack of awareness/foot of not used	pedestrian 7.8 over-bridges

As assessed by drivers, recent progress and setbacks on road safety fall into two neat boxes. The observed progress has mainly been in infrastructural areas i.e. new roads, road dividers, fly-overs and over-bridges, straightening of road curves, bill-boards on safety messages etc. Setbacks, on the other hand, have mainly been in governance and regulatory failures as well as road environmental factors i.e. increased extortion and insecurity on highways, proliferation of unlicensed and unfit vehicles, illegal truck/bus stands and proliferation of unplanned road-side economic activities. Regulatory failure also extends to poor planning and utility of speed-breakers on highways.

In many ways, the above observations gleaned from drivers speak of a broader conclusion. While there has been progress on many infrastructural gaps in the road safety agenda, severe gaps remain, indeed there have been further setbacks, in key governance, regulatory and awareness areas of the road safety agenda.

9.2 Gaps in law and policy

The earliest law on the road transport sector was the 1914 Motor Vehicles Act enacted by the British colonial rulers. This was replaced by a new law the Motor Vehicle Act of 1939 which underwent three name changes – East Pakistan Motor Vehicle Act of 1947, The Motor Vehicles Act of 1972 and finally the Motor Vehicles Ordinance (MVO) of 1983. The last remains the current law in force. While the names changed, the need for an updated law fulfilling the needs of present-day economy and society remains an unfinished task.

Key weaknesses of the MVO 1983 include²⁴: i) absence of any provision for regulating manufacturing and assembling of vehicles ii) lack of legal clarity on permissible transports i.e. absence of provision on slow-moving vehicles (SMV) and battery and gas-driven informal transports that have mushroomed in recent times iii) no provision for authorizing BRTA on license issuance and renewal iv) registration procedures and issuance of number plates not in conformity with the law v) no provision for phasing out of vehicles or fixing age limit of vehicles and vi) absence of provision to set standards on air pollution, carbon emission.

Policy-makers have recognized these weaknesses and the need for an updated law. This has eventually led to the drafting of a new law the Road Transport and Traffic Act (RTTA), 2011. Among other things, the new law covers all categories of road users including pedestrians, fixes the role local governments in the preparation and enforcement of some regulatory functions, provides legal backing for preparation and use of Highway Code and Traffic Sign Manual. A particular focus of the law is regulating pedestrian use of roads and highways though it is not clear whether there are any counter provisions regarding prevention of encroachment of footpaths and road-side land that make appropriate pedestrian behavior difficult if not impossible.

²⁴ M.S. Siddiqui, 2014, Waiting for a suitable traffic law', in the Financial Express, Wednesday April 30, 2014, Dhaka

An interesting aspect of the law is that it has dropped the MVO 1983 provision for 'on spot fines'. Defined offences under the 1983 law are minor in nature and financial penalty given are also minor. Since nature of offences are contingent on changing technological and social circumstances, RTTA, 2011 has wisely opted to exclude this issue from the law itself and earmarked it to be included in the Rules to be formulated later under the law.

An important gap in MVO 1983 was the absence of any provision on manufacturing and commerce in motor vehicles. This has been rectified in the proposed RTTA, 2011 to ensure obligations of the manufacturers, assemblers and dealers as well as buyers' privileges. In other areas, accident investigation has been included as a legal requirement while the use of helmets and seat belts has been made mandatory and the use of mobile phones and ear plugs barred. Very importantly, the driver and in some cases the owner has been made liable for paying compensation in case of hit and run accidents.

An item completely missing in the earlier law, namely on parking, has been included in the proposed new law to ensure unobstructed traffic flow. Rights of emergency vehicles, pedestrian crossing, obligations of non-motorized transports have also been incorporated.

As the above analysis of the RTTA, 2011 shows, the proposed new law if enacted can go a long way to fill the glaring gaps in law and policy in the road transport sector. However, the disquieting fact is that preparation of a draft law has proved the easier task. The law is yet to be enacted and is currently in a legal stalemate due to objections of powerful vested groups. An additional disquieting factor has been the absence of an effective consultative process that could have mobilized critical stakeholder groups to bring pressure to bear on the authorities for early passage of the law. Such a consultative exercise merits being taken up as an urgent advocacy challenge.

Beyond the RTTA, 2011, there are some additional gaps in law and policy that also require attention. One of them is the differences in rules pertaining to highways under the purview of RHD (Roads and Highways Department) and the feeder roads in the countryside under the purview of LGED (Local Government Engineering Department). With the rapid economic transformation of rural Bangladesh and a burgeoning urbanization process, roads under LGED are also becoming as busy as national highways. Need for a uniformity of rules covering both road categories requires an urgent review.

The issue of parking has been touched in RTTA, 2011. This is as much a legal as a governance challenge and is crucial to the effective resolution of the road safety agenda. In any consultative exercise on the RTTA, 2011, this issue merits an in-depth discussion and more importantly a move towards an effective consensus. Speed-breakers too need be brought more systematically under policy discussion. A view highlighted in the site research carried out under this study was the poor utility of speed-breakers – either too many or non-optimally located or without clear markings to warn oncoming drivers.

Perhaps the most contentious issue is that pertaining to allocation of route permits. A political economy analysis carried out as part of this study identified this as a core mis-governance area. The mandated RTC (Road Transport Committee) nominally under the BRTA has invariably suffered from political capture by ruling party influentials and other vested groups. Strengthening the law with the aim of addressing such political capture of route permit allocations has to be a priority.

9.3 Institutional and governance issues

Besides the law itself, the other policy instrument aimed at improving road safety is the National Road Safety Strategic Plan issued by the NRSC (National Road Safety Council) under the Ministry of Communication. The current one, 6th in the series, covers the period 2011-13. While it is a moot point to what extent such plans influence ground realities, they are nevertheless important in providing an insight into how priorities are being viewed in official circles. The 6th National Road Safety Strategic Plan projects eight priorities: i) planning, management and coordination of road safety ii) road traffic accident data system iii) road safety engineering iv) road and traffic legislation v) traffic enforcement vi) driver training and testing vii) vehicle safety viii) road safety education and publicity and ix) medical services for road traffic accident victims. The document spells out priorities and action plans on each of the above.

An important issue often lost out in the debate is the funding of road safety initiatives. The 6th Strategic Plan included mobilization of donor assistance for road safety funding as an action priority. A corollary issue here is the absence of an Economic Code for road safety in the current budgetary framework. Road safety projects are usually subsumed under civil works but in the process lose the required sense of priority. Provision of a sub-code will allow road safety to be adopted as independent projects.

The 2011-13 6th Strategic Plan on road safety makes it amply clear that on paper required institutional oversight and monitoring bodies are already in existence such as road safety committees at national, district and upazila levels i.e. the NRSC, DRSCs and URSCs. The key issue here is the pro-activeness of such bodies. Ground realities suggest much progress is required in this matter.

An encouraging development has been the directive to include road safety components in all important road projects of RHD and LGED. As explained earlier, this positive development needs to be supplemented with a small change in budgetary procedures whereby an independent economic code for road safety can allow projects to be undertaken separately rather than as a component of civil works. It is encouraging that the 6th Road Safety Strategic Plan has identified setting up a record system on completed road safety schemes as an action priority.

A thrust area for remedial measures has been on the improvement of accident spots or more commonly known as black spots. Such improvement appears to be an ongoing process though there can be more strategic thrust to it. The 6th Plan also specifies the production of a Road Safety Engineering Manual for advising on identification of accident sites, their analysis and improvement.

Vulnerable road users have been specifically mentioned in the 6th Strategic Plan. However, a review of the listed action priorities again brings to the fore the uncomfortable conclusion that much of such planning by the government remains a paper exercise. For example, pedestrian facilities such as footpaths are noted as a priority and progress described as 'ongoing'. In reality, the virtual disappearance of foot-paths due to unrelenting encroachment under political patronage is a more accurate description of the ground reality. The issue, therefore, is not merely of institutions but more importantly of governance. Among the many FGDs carried out under this Study, one common point made by all the stakeholders was that many good laws and plans eventually fail at the stage of enforcement. Such failures occur not

primarily because of a lack of capacity but due to a combination of a lack of will, lack of coordination and the entrenched power of vested interests who benefit from the prevailing situation.

9.4 Engineering issues

Alongside institutional and governance issues, engineering solutions to road safety improvement are an integral part of the agenda. The priority list of engineering issues pertaining to road safety includes:

- Geometric design standard: Significant improvement works have taken place on national and regional highways, zilla and local roads all over the country. These include construction of new and strategic roads, re-alignment of existing roads, widening of roads, surface treatments, shoulder improvement, removal of vision obstruction. From an engineering point of view, safe road design is important. RHD geometric design manual addresses the safety issues like the AASHTO Green Book which is a widely accepted geometric design standard.
- Horizontal and vertical *curves*: Curves in roads and highways are essential elements sometimes provided intentionally to enable transition and super-elevation. It is imperative to follow design standards of RHD Manual or AASHTO Green Book in this regard.
- Width of the road: road width is normally fixed by traffic volume as well as vehicle sizes. Road width of 2-lane National Highway is 7.3 m. However, if annual average daily traffic (AADT) exceeds 14000, the highway should be a 4-lane highway. Most of the major highways in Bangladesh such as, Dhaka–Chittagong (N1), Dhaka-Tangail (N2), Dhaka-Mymensingh (N3) should have been converted to a 4-lane highway long before on this consideration.
- Intersection design: Intersections should be avoided in highways. Flyovers, Interchanges, elevated
 and depressed portions of highways are provided to avoid intersections. In Bangladesh, intersections
 in highways so far could not be avoided due to various reasons such as, road side activities all along
 the highways, poor access control, poor or no prediction of future road and land use, inadequate
 survey and research, incompleteness of projects, inadequate funds as well as budgeting and
 presentation by inexperienced as well as non-technical officers, above all bureaucracy and lack of
 proper education and training provided to the officers and engineers involved in implementation
 process.
- Grade separation for interchanges and for different modes of traffic: Highways should be free from pedestrians, non-motorised or slow moving vehicles. However, in Bangladesh because of the socioeconomic condition it is not possible to prohibit these kinds of vehicles to enter the highway. Therefore, separate road will have to be provided for these vehicles through grade separation. Separate roads have been provided in Nolka Hatikamrul road (Sirajganj Natore) and will be provided in Gazipur –Tangail road.
- Using *dividers, islands, flares, tunnels* for safe management of traffic: Dividers can only be provided in highways with at least 4-lanes. Islands guide the traffics to desired directions. Flares are very useful in intersections for uninterrupted flow of through traffics. Construction of tunnels is expensive

and should only be provided where other grade separations are difficult to construct according to geometric design standards.

- Designing of roads considering *sight distances*: Sight distance means the distance to allow the
 drivers to control the vehicles, such as, stopping sight distance and overtaking sight distance. These
 are considered during positioning the road furniture such as, road signs, islands or dividers as well as
 designing the curvature of the roads.
- Fixing speed limits depending on the designs: Speed limits are provided in roads depending on the
 road condition like, condition of road surface, traffic congestion, use of traffic lanes, horizontal and
 vertical curves in roads. In Bangladesh, there are speed limits in some of the roads; however, so far
 these limits have been ignored both by the drivers as well as by law enforcing agencies. Separating
 different modes of traffic and lane management is required for effective use of speed limits that
 reduces accidents.
- Quality of Road Structures: Potholes, rutting, cracking and ravelling of road surface. Potholes means
 depression in roads, rutting is deformation along the wheel path of the vehicles, cracking and
 ravelling are visible failures in roads in relatively larger areas. These conditions in roads may result in
 losing of control of the vehicle by the drivers resulting in accidents.
- Skid resistance of road surface: Sometimes a little roughness in roads proves to be helpful in resisting the skid of vehicle wheels particularly in narrow roads.
- Hard shoulder of roads: In Bangladesh, most of the highways do not have hard shoulders because of limited space and fund constraints. Hard shoulders are normally constructed to provide extra space for the vehicles to avoid collisions as well as provide space for broken down vehicles. Hard shoulders are not in any case provided for slow moving vehicles.
- Signs, Road marking and Signals: Providing standard sign boards (Digital Boards) are for information
 of road ahead, such as, intersections, curves, exits, service stations, direction and distance of
 important locations, weather condition, road surface conditions, maintenance works etc. Road
 markings, studs, cats eyes are very important for managing the discipline of traffic system, lane
 discipline, improved vision for drivers at night time etc. Red, amber and green signals at the
 intersections or traffic police are provided to control the movement of traffic. Design of timing of the
 signals and enforcing law is very important for road safety.
- Access Control and Road Side Activity: Access control is very important particularly for highways. Access of traffic to highways, if needed, should be provided with proper structure following geometric standards
- Road-side activities: As minimum as possible road side activities should be allowed in the highways, however, if essential, proper access controls have to be provided. In Bangladesh, generally, there are many market places all along the highways. These markets or bazaars are often remains crowded. Pedestrians, passengers of slow moving vehicles, vendors, buyers are always remains vulnerable to become victims i.e. likely to be run over by fast moving vehicles.

- Facilities for pedestrians: Pedestrians are the most vulnerable group among the road users and as such proper road crossing facilities and barriers have to be provided for pedestrians. However, building awareness amongst pedestrians is also important so that the built facilities are appropriately used. The structures too should be designed in a way that ensures the use of the structures by the pedestrians.
- Facilities for disabled people: In Bangladesh, no consideration is given for access and use of roads and footpaths by disabled people. This is now time for thinking about the issues that can help mobility of disabled people such as there should be ramps in particular intervals on footpaths so that the wheel chair users can use the footpaths without any disruption and safely.
- Road safety audit and examples of safety measures: One issue which has already got attention from the engineers is that of 'black spots'. RHD Road Safety Division has identified 209 such black spots of which remedial measures have been completed for only 17 such spots. The vulnerable T-junction near Jatiyo Smirity Shoudho has been rectified by channelization of directions and so far no recorded accident occurs after that. The curvature on the Manikganj highway at which renowed film-maker Tareque Masud and journalist Mishuk Munir met tragic deaths has since been rectified. Planning Commission is currently reviewing a project proposal for rectification of 144 black spots.

Typical engineering safety measures include incorporation and treatments of i) road shoulders ii) pedestrian facilities (segregated footways, crossings) iii) junction improvements iv) treatment of hazards v) speed control devices vi) median barriers vii) access control viii) channelization ix) traffic islands x) skid resistance treatment xi) improved delineation devices xii) safety zones etc. including provision of divided roads. However, many of the national and regional highways in Bangladesh lack these safety measures. Some of the good examples are shown below.



1,2) Solid carriage way line and dotted centre line (overtaking allowed) / 3) Solid centre line on curve for caution about overtaking / 4) Solid double line for no overtaking and channelization in front / 5) Dotted centre line with no shoulder 6) sign showing a curve.



Highway with median

Separate lane for non-motorized vehicles Highway under a bridge of good clearance and clearly marked carriage way with guard rails

An important new engineering concept for road safety is *road safety audit*. Safety audits are carried out at discrete stages of the road development projects, namely, at feasibility stage, preliminary design stage, detailed design and pre-opening stage. Safety audit checklists are a key instruments and typically includes i) design consideration/approach ii) alignment: curvature, grades, visibility iii) intersections: layout, detailed geometric design, visibility, traffic controls iv) pedestrian facilities: provision for crossings, footpaths, refuge, segregation v) cycle/non-motorized vehicle facilities: segregated/shared bicycle paths vi) motorcycle facilities: motorcycle lane, lane segregation vii) traffic signs and markings: sign location, visibility, delineation viii) road furniture: lighting, physical obstacles, bridge/culverts and ix) traffic management and operation: network management, parking, safety zone.

9.5 Awareness, advocacy and community participation

Awareness-building is an integral component of the road safety agenda and has indeed been recognized as such in official documents such as the 6th National Road Safety Strategic Plan. While there have been a number of project-based sporadic awareness campaigns, the challenge lies in building sustainable initiatives and institutions that can serve to mainstream the road safety agenda within the policy debates and simultaneously transform various groups of road-users into full partners in the road safety agenda.

Currently awareness programs targeted to drivers, school children, local community are undertaken by the two road sectors government departments RHD and LGED as well as by NGOs and advocacy platforms particularly BRAC and the civic group *Nirapad Sarak Chai*. BRAC has also undertaken a number of assessments of the LGED and RHD awareness projects.²⁵

²⁵ BRAC, 2004, "Launch of International Guidance on Community Road Safety Education," Seminar Report, Organized by BRTA, BRAC and Transport Research Laboratory (TRL), October, 2004. BRAC, 2004, "Promoting Road Safety Through Community Education Programmes : Study Report Betia (Bangladesh)," BRAC, April, 2004. BRAC, 2005, Road Safety Public Awareness Campaign on Dhaka-Sylhet Highway: A GO-NGO Collaboration," Workshop Report, Organized by Roads and Highways Department and BRAC, June 2005. GOB, 2005, "Road Safety Public Awareness Campaign On Dhaka-Sylhet Highway," Government of the People's Republic of Bangladesh, Ministry of Communications, RRMP-III, Roads and Highways Department, Final Report, Volume-I, June 2005. BRAC, 2007, "Road Safety Awareness Campaign for School Students under LGED's RIIP-RDP-25 in Barisal and Khulna Division," Final Report, BRAC, April 2007. BRAC, 2007, "Road Safety Research," organized by Advocacy for Social Change BRAC, April, 2013

BRAC has built a track record of engagement on the safe road agenda. BRAC is a member of the Bangladesh Road Safety Coalition Project which also includes the Centre for Injury Prevention Research Bangladesh (CIPRB), Chevron and the Accident Research Institute (ARI). BRAC has also undertaken many assessments and awareness programs. It has also established a driving school albeit with a small intake but with a larger objective of developing suitable driving manual. This goal was initially pursued by the Accident Research Institute (ARI) at BUET but has since been taken up by BRAC.

Nirapad Sarak Chai (movement for safe roads) comes closest to a sustained civic campaign on the road safety agenda. Born of a personal tragedy (see case study in Chapter 4) and led by a public personality in the form of a film star, NSC started as an individual effort and slowly graduated to a civic platform with support of social, corporate and government organizations. The platform recently launched a web portal dedicated to the safe road agenda. The platform has built local-level committees at district and upazila level. The platform organizes meetings, publicity events, marches and human chains to build greater awareness and pressure for the safe road agenda. Ilias Kanchon, the face of NSC, also initiated a training program for drivers but it has not graduated to a regular activity.

An important insight emerging from the review of road safety advocacy efforts is that these have focused more on general awareness-building rather than on a sharply targeted policy agenda. It is indeed a great surprise that a potentially momentous legislative initiative such as the RTTA, 2011 has not occasioned a vigorous public debate on its details.

Keeping the above in view, four priority advocacy areas are suggested (Box 2).



Box 2 Advocacy Priorities

Beyond advocacy efforts per se, the issue of community participation in specific road safety solutions also merits attention. There are no systematic opportunities for such participation. However, some examples were noted during the site research carried out as part of this Study on the Tangail highway at Chandra Mor. The spot in question housed a number of garment factories whose workers numbering over ten

thousand faced considerable risks of accidents in crossing the highway to reach their factories. Since late 2013, the factory owners undertook an initiative to deploy their security guards as community police for safe passage of their workers during three peak hours – morning (7.30-8.30 a.m.), lunch period and evening when the work hour end. The designated community police use whistles, red flags and red ropes to facilitate safe passage. Earlier, there were fatalities nearly every month in this spot. But partly due to the community traffic policing initiatives, such incidents have declined noticeably.

9.5 Political economy factors

While there is considerable momentum on the road safety agenda in Bangladesh in terms of new ideas, new plans and a burgeoning discourse, results on the ground remain limited due to entrenched political economy factors. Such factors rarely find their way into 'official' or even academic analysis. However, the mass media is quite vocal on these issues and often bring out the real barriers to the road safety agenda. A report in the Daily Janakantha of 23 Fenruary, 2014 identifies elected representatives, both members of parliament and city councillors, as the main impediment to the implementation of road safety plans developed at the ministry level. The sincerity of police who are tasked with enforcement is also questioned. Two particular areas where remedial action is making little headway are i) occupied footpaths and road-side land and illegally-established bus and truck stands and ii) removal of unfit vehicles from the roads. Eviction drives against illegal structures alongside highways frequently get stalled due to the transport trade.

Another report in the leading Bangla daily Prothom Alo on 19 February, 2014 highlight the virtual dominance of the transport trade by ruling party MPs and political leaders. These powerful lobbies have ensured that the Strategic Transport Plan (STP) adopted in 2008 has simply remained stalled. Key Ministers who are simultaneously leaders of transport worker unions as well a host of powerful ruling party leaders also own major transport companies. As a result, route franchising remains a highly mis-governed arena with rampant rent-seeking and scant regard for bringing discipline into the sector. An equally pernicious problem is the rampant occupation of foot-paths facilitated by a police-political leader nexus that make a mockery of the road safety agenda.

Many other media reports echo these points. The overall conclusion arising out of these media exposure is that government's effective attention is to protect the interests of transport owners and workers and very little with the interests of passengers

Recommendations

10.1 Findings that matter for the road safety agenda

The preceding chapter has reviewed at length the steps required to take forward the road safety agenda in Bangladesh. The purpose of this chapter is to crystallize that discussion into a focused set of recommendations. Before that, however, it is worth reiterating six key findings that inform the road safety debate and the suggested recommendations.

Key findings 1 Accident spots

Road accidents are occurring not across all the length of the highways and streets but in a finite number of 'black spots' that see repetitive accidents. An analysis carried out for this study shows that accidentprone length of the highways total to around 57 km. RHD road safety division has identified a list of 209 such 'black spots' though it should be added that regular updating of such a list is necessary as more and more of former rural roads are carrying sharply increased road traffic.

Key findings 2 Intersections/bus stands and dangerous curves dominate black spots

High frequency of accidents occur not on isolated stretches of highways but in poorly planned and poorly regulated crowded intersections and bus stands. Curves with poor visibility also claim a high share of accidents.

Key findings 3 Pedestrians and vulnerable road-users are the major accident victims

Vulnerable road-users constitute 76% of accident victims. The single most at-risk group is pedestrians (41%) followed by passengers of light vehicles (19%) and motor-cyclists/3 wheelers (16%). Not surprisingly accident types confirm these findings: 42% of accidents are 'hit-and-run', 19% are head-on collisions and 13% due to over-turned vehicles.

Key findings 4 Multiple causes of accidents necessitate a holistic safety agenda

Improving road safety and reducing accidents require a multi-pronged approach because there are nine major causal factors at work. These include reckless driving, untrained drivers, unfit vehicles, simultaneous operation of motorized and non-motorized vehicles without separation and adequate rules, vulnerable road-side activities, faulty road design, poor traffic enforcement, lack of road safety awareness and a culture of impunity with poor legal redress.

Key findings 5 There are significant gaps in law and policy

Road transport sector has grown phenomenally in Bangladesh but without the benefit of updated laws and regulations. The principal legal instrument – Motor Vehicle Ordinance 1983 – is essentially a colonial hangover and is grossly out-of-date. However, move towards a new law is taking place without a comprehensive consultative process.

10

Key findings 6 Political economy factors are a major impediment to safe road agenda

While there are many initiatives to make roads safer, many of these are routinely frustrated due to entrenched power nexus that prevent action against unfit vehicles, irrational route permits, encroachment on and occupation of road-side public land and appropriate penalties for accident perpetrators. Ownership of many transport companies as well as control of transport sector worker unions is dominated by influential political leaders. The problem is compounded by either the complicity or inaction by the police.

10.2 Ten priority recommendations

While a holistic road safety agenda necessarily has to include a multiplicity of recommendations (see matrix in next section), it is useful to highlight the key priorities for the attention of policy-makers and advocates. Ten priorities are recommended as in Box 3 below.

Recommendation	Responsibility
National dialogue on RTTA 2011 for early passage of an appropriately updated road traffic law	PPRC-BRAC in association with Ministry of Communication and The World Bank
• Regular updating of the list of accident black spots and priority engineering action plan on black spot improvement together with targeted awareness initiatives.	 RHD on engineering action plan Advocacy groups on awareness program
• Improved road engineering solutions with priority attention to geometric standard, intersection design, grade separation, access control on highways, pedestrian facilities, defined parking spots, regular maintenance and adoption of road safety audit approach	 RHD and LGED Local government institutions and advocacy groups on road safety audits
Comprehensive study on optimal resolution of road-building and road-side economic activities	PPRC-BRAC
 Introduction of an independent economic code for road safety projects in the budgetary process and mobilization of funds including donor assistance for such projects 	 Ministry of Finance PPRC-BRAC for the policy advocacy
Promotion of quality driving training schools	 Social entrepreneurs BRTA BRAC Private sector
 Scaling up a national road safety awareness program in partnership with NGOs and civic platforms active on the agenda. Such a program to be targeted to drivers and vulnerable road-users 	 Ministry of Communication, RHD, LGED City corporations NGOs and civic platforms
 Establishment of a National Traffic Training Academy along with a comprehensive review of current approach to traffic planning and management by police 	 Police department Ministry of Communication

Box 3 10 Priority Recommendations.

•	Promotion of effective community traffic policing solutions to irrational traffic congestion and safe use of roads	 City governments Civic platforms/NGOs Police Private sector
•	Improving trauma facilities with priority attention to capacity building on emergency and critical care, institution of a universal emergency access number and affordable provision of assistive devices	 Ministry of Health Association of Critical Care BRAC

10.3 Recommendations Matrix

Issues	Sub-issues	Recommendations			
A.Governance in road safety	1. Laws and policy	 Undertake immediate and effective comprehensive consultation on proposed Draft Road Transport and Traffic Act 2011 (RTTA) meant to replace currently operational traffic law MVO1983 Updated and effective traffic legislation to replace MV Act of 1983 (proposed Draft RTTA to be finalized after due consideration by all relevant stakeholders) 			
	2. Institutions	 Review progress on implementation of National Road Safety Strategic Action Plan 2011-2013. Coordination Role of the National Road Safety Council (NRSC), DRSC and URSC should be fully activated. Capacity-building of the road safety divisions at RHD and LGED. 			
	3.Traffic management and enforcement	 Comprehensive review of current system of traffic management by police with a view to professionalization and dedicated traffic management. Establishment of National Traffic Training Academy. Strengthen highway police capacity and performance. Promote effective community policing pilots on traffic congestion in major cities of the country and at accident black spots on the highways. 			
	4. Budgeting	 In order to ensure proper and sustained funding of the road safety related concerns being dealt with by specific ministries, government institutions, create separate economic code and budget head for predictable allocation of resources for road safety related concerns and activities. Mobilize funds including donor assistance. 			
B. Engineering aspects of road safety	1. Road design	 Adopt geometric design standard (AASTHA Green Book) in all highway projects. A national workshop of all stakeholders including especially engineers may be convened to consider road designing priorities in Bangladesh to ensure maximum road safety standards and prepare a set of guidelines to be taken into account in designing and maintaining the roads with safety concerns adequately being addressed 			
	 Quality of road structures Signs, road- markings and signals 	 All major highways need to be improved to 4-lane with dividers, this will reduce head on collisions. Regular maintenance should be prioritized to ensure that road surfaces are free from potholes, undulations, rutting, cracking. Bridges in highways should be well maintained and safe. Grade separation should be implemented in major intersection with proper engineering design Treatment of shoulders Grade separation for non-motorized vehicles and designated truck/bus lanes. Adopt Road Safety Audit approach. Road signs are very important to guide the driver in his desired directions, alert the driver for upcoming road situations, to show the directions, speed limits etc. Reflecting signs are very effective to guide the driver at night. Road signals are particularly important in intersections. Automated signals at any intersection and most importantly at level crossings are very important. Road markings, cat eye are also essential to keep the driver in lane, show the direction of road, particularly at night. 			

	4. Access control and road-side activity	 A certain level of realistic access control of highways has to be implemented. Road side barriers should be provided wherever possible, large bus bays and their proper use are also important. Traffic management in bazaar sections, bus stands, residential / industrial / commercial areas, schools and other educational organisations needs to be of good standards, such as, prominent road markings, signs, signals have to be provided and enforcement of law should be strictly followed. Major road side activities in market areas of highways should be reduced or enforcing legislation that market and other major infrastructures cannot face the highway or direct access from the highway should be restricted. Access or exit from a minor highway to a major highway should be provided with proper engineering applications such as, merging or diverging. If a crossing needs to be provided without grade separation, a roundabout, rumble strips, give way signs, road median, channelization etc. required to be provided for safe passage of vehicles. Pedestrian access to highways is difficult to restrict in Bangladesh, however, there should be some control such as, in important locations foot over bridges or tunnels or zebra crossings with traffic calming arrangements should be provided
	5. Pedestrian facilities	 provided. Incorporate pedestrian facilities including for disabled people in all road projects. Ensure optimal location of foot-overbridges and their adequate numbers. Avoid wasteful structures that are cost-heavy but pedestrian-unfriendly. Ensure political drive against encroachment of foot-paths and similar pedestrian facilities Undertake pilot programs on dedicated cyclist paths on city streets.
	6. Accident spots	 Updating of current list of accident black spots. Road safety audits at regular intervals to ensure routine updating list of black spots. Fast-tracking new project proposal by RHD to undertake improvement of identified black spots. Promoting awareness-building and community policing programs at identified black spots.
C.Vehicle	1 Vehicle licensing	Indertake and implement a comprehensive plan for capacity upgradation and
management		 Ondertate and implemental completensive plan for capacity oppraation and professionalization of BRTA to provide quicker service, avoid corruption and ensure that unfit vehicles have no opportunity for registration. Ensure inclusion of vehicle licensing and standards issues in the proposed new road transport and traffic law. Vehicle testing program may be outsourced to accredited and technically competent technicians or companies.
management	2. Vehicle safety standards	 Ondertate and implemental completensive plan for capacity oppraation and professionalization of BRTA to provide quicker service, avoid corruption and ensure that unfit vehicles have no opportunity for registration. Ensure inclusion of vehicle licensing and standards issues in the proposed new road transport and traffic law. Vehicle testing program may be outsourced to accredited and technically competent technicians or companies. Weighing stations should be set up on all national highways to control overloading of trucks. Trucks carrying more weight than permitted, damage roads, destroy bridges and cause road accidents. Locally made bus bodies are not built to specification, resulting in over-turning at high speed. This has to be re-examined thoroughly for the sake of safety.
management	2. Vehicle safety standards	 Ondertate and implementate completensive plan for capacity oppraation and professionalization of BRTA to provide quicker service, avoid corruption and ensure that unfit vehicles have no opportunity for registration. Ensure inclusion of vehicle licensing and standards issues in the proposed new road transport and traffic law. Vehicle testing program may be outsourced to accredited and technically competent technicians or companies. Weighing stations should be set up on all national highways to control overloading of trucks. Trucks carrying more weight than permitted, damage roads, destroy bridges and cause road accidents. Locally made bus bodies are not built to specification, resulting in over-turning at high speed. This has to be re-examined thoroughly for the sake of safety.
D. Road-users	2. Vehicle safety standards 1. Drivers	 Ondertate and implemental completensive plan for capacity upgradation and professionalization of BRTA to provide quicker service, avoid corruption and ensure that unfit vehicles have no opportunity for registration. Ensure inclusion of vehicle licensing and standards issues in the proposed new road transport and traffic law. Vehicle testing program may be outsourced to accredited and technically competent technicians or companies. Weighing stations should be set up on all national highways to control overloading of trucks. Trucks carrying more weight than permitted, damage roads, destroy bridges and cause road accidents. Locally made bus bodies are not built to specification, resulting in over-turning at high speed. This has to be re-examined thoroughly for the sake of safety. Current loop-holes that allow obtaining licenses without tests or fake licenses through bribery have to be addressed seriously as part of a major overhaul of BRTA performance. Promote establishment of quality driving schools with a strict process of accreditation with BRTA. Undertake regular awareness- building programs targeted to drivers at major bus/truck terminals with a focus on safety issues.
D. Road-users	 Vehicle incensing Vehicle safety standards Drivers Pedestrians 	 Ondertate and implementation completensive plant of capacity upgraduation and professionalization of BRTA to provide quicker service, avoid corruption and ensure that unfit vehicles have no opportunity for registration. Ensure inclusion of vehicle licensing and standards issues in the proposed new road transport and traffic law. Vehicle testing program may be outsourced to accredited and technically competent technicians or companies. Weighing stations should be set up on all national highways to control overloading of trucks. Trucks carrying more weight than permitted, damage roads, destroy bridges and cause road accidents. Locally made bus bodies are not built to specification, resulting in over-turning at high speed. This has to be re-examined thoroughly for the sake of safety. Current loop-holes that allow obtaining licenses without tests or fake licenses through bribery have to be addressed seriously as part of a major overhaul of BRTA performance. Promote establishment of quality driving schools with a strict process of accreditation with BRTA. Undertake regular awareness- building programs targeted to drivers at major bus/truck terminals with a focus on safety issues. Undertake on a regular basis awareness-building programs implemented jointly by government and civic platforms targeted to pedestrians and local community. Develop and deliver a focused social communication package on road safety issues including use of zebra crossing, foot-overbridges, standing at safe distances, meaning of signs and symbols and the importance of following them.
D. Road-users	2. Vehicle safety standards 1. Drivers 2. Pedestrians	 Ondertate and implement a completensive plan to capacity upgraduation and professionalization of BRTA to provide quicker service, avoid corruption and ensure that unfit vehicles have no opportunity for registration. Ensure inclusion of vehicle licensing and standards issues in the proposed new road transport and traffic law. Vehicle testing program may be outsourced to accredited and technically competent technicians or companies. Weighing stations should be set up on all national highways to control overloading of trucks. Trucks carrying more weight than permitted, damage roads, destroy bridges and cause road accidents. Locally made bus bodies are not built to specification, resulting in over-turning at high speed. This has to be re-examined thoroughly for the sake of safety. Current loop-holes that allow obtaining licenses without tests or fake licenses through bribery have to be addressed seriously as part of a major overhaul of BRTA performance. Promote establishment of quality driving schools with a strict process of accreditation with BRTA. Undertake regular awareness- building programs targeted to drivers at major bus/truck terminals with a focus on safety issues. Undertake on a regular basis awareness-building programs implemented jointly by government and civic platforms targeted to pedestrians and local community. Develop and deliver a focused social communication package on road safety issues including use of zebra crossing, foot-overbridges, standing at safe distances, meaning of signs and symbols and the importance of following them.

		and not on the place of occurrence.					
	2. Medical facilities	 Strengther energency care in all major hospitals Introduce an universal access number like 911 in USA to call for emergency assistance Increase trauma treatment facilities and ensure adequate trained manpower for such facilities on all major highways and major urban centres. Introduce a basic training program on CPR targeted to the local community in selected pilot areas and gradually scale up across the country. Introduce an awareness program on on-site preparation of ID tags of accident victims for optimal utilization of the post-accident 'golden hour' and minimize delays in tertiary treatment 					
	3. Victim support	 Strengthen legal provisions for compensation claims by accident victims. Review the accident insurance sector and ensure a more victim-friendly operation of the sector Review the options for an effective support program for required post-traumatic treatment. Include post-accident treatment as an issue in the emerging UHC agenda. 					
	4. Data-base	 Update the accident data-base utilizing both MAAP data and other credibl sources (refer to Indonesian example for effective use of multiple sources) Improve the current accident report form for better information and greate usability. Develop a realistic strategy to overcome the problem of under-reporting. 					
		,					
		 Undertake regular awareness- building programs targeted to drivers at major bus/truck terminals with a focus on safety issues. Undertake on a regular basis awareness-building programs implemented jointly by government and civic platforms targeted to pedestrians and local community. 					
E Advocacy	1 Awareness-	Linderteke regular ewarenese, building programe targeted to drivere at major					
Challenges	building	 Ordentake regular awareness- building programs targeted to drivers at major bus/truck terminals with a focus on safety issues. 					
		• Undertake on a regular basis awareness-building programs implemented jointly by government and civic platforms targeted to pedestrians and local community					
		Develop a road safety module as part of civic education for school children.					
	2. Policy advocacy	 Undertake a national dialogue on the proposed RTTA, 2011. Review workshops on progress of various action plans of the National Road Safety Strategic Plan. 					

Annex Tables

	1					
Years	Total number of	No. of fatal	No. of severe	No. of not	No. of deaths in	
	accidents on which	cases	cases	severe cases	fatal cases of	
	cases were lodged				accidents	
2000	4357	2866	1112	379	3430	
2001	4091	2811	1009	271	3109	
2002	4918	3166	1310	442	3398	
2003	4749	3028	1199	522	3289	
2004	3917	2808	847	262	2968	
2005	3955	2929	820	206	3187	
2006	3794	2854	709	231	3193	
2007	4869	3448	1132	289	3749	
2008	4427	3186	1002	239	3765	
2009	3381	2482	706	193	2958	
2010	2827	2203	512	112	2646	
2011	2667	2084	511	72	2546	
2012	2637	2062	473	101	2538	

Table A1Year wise number of road accidents in Bangladesh on which police cases were lodged

Source: Police First Information Reports (FIRs)

Year Total Bus Trucks Car/Jeep Baby Taxis Motor cycles

Table A2

No. of vehicle in Bangladesh by types involved in accidents according to recorded police data

Annex 2

List of Highway Accident Spots

Source Accident Research Institute (ARI), BUET

SL.	NAME OF LOCATION	KM	KM	Distance	ACCIDENT NO.		NO. OF CASUALTIES			
NO.				(KM)	Fatal	Non	Total	death	Injure	Total
						Fatal			d	
1	Madhya Bauchia Bus Stand	36.0	36.6	0.7	26	18	44	43	51	94
2	Narayanganj Road Intersection	11.7	12.2	0.6	45	10	55	49	25	74
3	MeghnaGhat Intersection	27.3	27.6	0.4	24	6	30	40	23	63
4	Feni-Laxmipur Intersection	157.0	157.5	0.6	28	11	39	40	16	56
5	Fazilpur Madrasa/ Bus Stand	170.1	170.4	0.4	7	8	15	9	40	49
6	Before Feni Level Crossing	147.8	148.0	0.3	10	7	17	18	28	46
7	Muhuriganj Bus Stand/	172.7	173.0	0.4	8	7	15	19	23	42
	Intersection									
8	Bandartaki Bus stand	164.6	165.2	0.7	10	7	17	24	16	40
9	Fatikchori Intersection	207.0	207.5	0.6	17	6	23	23	16	39
10	Nurani Madrasa Bus Stand	158.6	159.1	0.6	11	5	16	12	26	38
11	Baroyar Bazar	178.4	179.0	0.7	13	4	17	23	14	37
12	Chandina-Debidwar	73.0	73.6	0.7	15	4	19	18	18	36
	Intersection									
13	Next to Gazaria Bus Stand	29.5	29.7	0.3	12	13	25	12	22	34
14	Nayabari Bus Stand	14.7	15.1	0.5	12	5	17	16	12	28
15	Borotakia Bazar/ Bus Stand	209.7	210.0	0.4	8	5	13	12	15	27
16	Md. Ali Bazar/ Bus Stand	142.0	142.4	0.5	6	10	16	7	19	26
17	Eliotganj Bus Stand	58.7	59.0	0.4	8	2	10	15	10	25
18	Chandpur-Comilla Intersection	94.9	95.5	0.7	10	7	17	14	10	24
19	Haratoli Primary School/Bus	92.7	93.2	0.6	10	3	13	16	7	23
	Stand				1.0					
20	149 KM Post	149.0	149.1	0.2	10	7	17	15	7	22
21	Shitakundo Bazar	226.6	227.0	0.5	8	5	13	10	12	22
22	Banshbaria Bazar	235.3	235.6	0.4	11	2	13	13	9	22
23	Kumira Bazar	239.7	239.9	0.3	10	1	11	14	6	20
24	Mahipal Intersection	157.8	158.2	0.5	7	4	11	8	11	19
25	Harikhola Bus Stand	71.0	71.5	0.6	8	2	10	9	9	18
26	ComillaMainamati Intersection	90.3	90.8	0.6	8	3	11	13	4	17
27	Dhanghat Bazar/ ?Bus Stand	176.0	176.4	0.5	10	1	11	11	4	15
28	Haji Fakir Hat Bus Stand	213.3	213.8	0.6	7	3	10	9	5	14
29	BRAC Office Bus Stand	149.5	150.1	0.7	8	2	10	11	2	13
30	End of Feni By Pass	160.7	161.6	1.0	6	4	10	8	5	13
31	ShitalpurHigh School	245.3	245.7	0.5	8	2	10	9	2	11
1		12.0	Т	otal = 16.5		6	10	11	16	27
1	Daudkandi Bus Stand	42.9	-	-	6	6	12	11	16	27
2	Boropa Bus Stand	4/.6	-	-	8	1	9	15	8	21
5	Dippur Bus Stand	53.0	-	-	6	1	/	11	8	19
4	Chnilonia Bus Stand	162.0	-	-	5	3	8	/	11	18
5	Ansar Battalion Office	198.0	-	-	6	1	10	12	6	18
6	Madanpur Bus Stand	16.6	-	-	8	2	10	10	7	17
7	Dariakandi Bus Stand	21.2	-	-	5	2	7	6	4	10

N-1 DHAKA-CHITTAGONG HIGHWAY

SL.	NAME OF LOCATION	KM	KM	Distance	ACCIDENT NO.			NO. OF CASUALTIES			
NO.				(KM)	Fatal Non Total		death	Injure	Total		
						Fatal			d		
1	ShahbandarBauchia Bus Stand	215.3	215.5	0.3	6	3	9	12	17	29	
2	Bhulta Bazar/ Bus Stand	27.0	27.2	0.3	6	5	11	14	10	24	
3	Before 86 Km Post	85.9	86.5	0.7	15	2	17	18	2	20	
4	Islampur Bazar	111.0	111.3	0.4	3	4	7	5	14	19	
5	Shahbajpur Bazar	99.7	99.9	0.3	6	1	7	12	6	18	
6	Kusumbag Market	212.1	212.6	0.6	8	4	12	10	5	15	
7	Kamalpur Bazar	220.9	221.1	0.3	5	3	8	8	6	14	
8	Baruita Bazar/ Bus stand	97.0	97.1	0.2	6	0	6	14	0	14	
9	JagannathpurPrimary School	209.3	209.6	0.4	4	3	7	4	9	13	
10	Sherpur Bazar	236.0	236.5	0.6	7	2	9	8	4	12	
11	Shahbajpur/Bus Stand	99.2	99.4	0.3	7	1	8	8	1	9	
12	Srimangal Thana Health Complex	195.1	195.3	0.3	6	1	7	6	2	8	
13	Hafizpur Bus Stand	165.5	165.8	0.4	3	4	7	3	4	7	
				Γ otal = 5.1							
1	Brahmanbaria Intersection	93.3	-	-	9	4	13	26	22	48	
2	Shaheprotap Intersection	50.0	-	-	14	8	22	18	20	38	
3	Bhelanagar Bazar	53.0	-	-	10	8	18	25	13	38	
4	Near Ashuganj Rice Mill	92.0	-	-	14	0	14	23	5	28	
5	Baro cha Bus Stand	74.7	-	-	8	3	11	13	15	28	
6	Sarail Road Intersection	93.7	-	-	9	3	12	15	10	25	
7	Morjal Bazar	70.0	-	-	7	4	11	7	12	19	
8	Kaliabazar Bus Stand	197.5	-	-	8	1	9	10	8	18	
9	Islamabad Bus Stand	95.9	-	-	6	0	6	13	4	17	
10	Kararchar	53.7	-	-	9	1	10	12	3	15	
11	Sayednagar	57.0	-	-	6	0	6	8	6	14	
12	Nayabazar Bus Stand	171.2	-	-	6	0	6	6	8	14	
13	Bahubal Intersection	168.6	-	-	3	4	7	3	10	13	
14	Itakhola	56.4	-	-	4	5	9	6	6	12	
15	Panchdona Bazar	45.5	-	-	3	3	6	6	5	11	
16	Shekherchar Bazar	43.4	-	-	6	2	8	6	4	10	
17	Panchrukhi Bazar	32.8	-	-	3	3	6	4	6	10	
18	Kariala Bus Stand	87.3	-	-	8	1	9	8	1	9	
19	Narshingdi Intersection	49.2	-	-	5	2	7	5	4	9	
20	Raipur/Nilkuthi Bus Stand	81.4	-	-	5	2	7	6	3	9	
21	Mokam Bazar Bus Stand	205.9	-	-	4	2	6	4	4	8	
22	Giasnagar Bazar	203.9	-	-	4	2	6	4	3	7	

N-3 DHAKA-MYMENSINGH HIGHWAY

SL	NAME OF LOCATION	KM	KM	Distance	AC	CIDENT	NO.	NO. OF CASUALTIES					
NO.				(KM)	Fatal	Fatal Non		death	Injur	Total			
				. ,		Fatal			ed				
1	Bharaduba Bazar	85.0	85.3	0.4	14	4	18	21	12	33			
2	Mymensingh Polytechnic	118.7	119.2	0.6	4	3	7	4	9	13			
3	Tongi Market	21.6	21.8	0.3	6	1	7	6	3	9			
4	Tongi Station Road Intersection	22.7	22.9	0.3	6	1	7	6	1	7			
	Total = 1.6												
1	Gilarchala Bazar	57.4	0	0	7	1	8	10	2	12			
2	Goforgaon Road Intersection	80.4	0	0	8	0	8	9	1	10			
3	26 KM Post	26	0	0	5	2	7	5	5	10			
4	Board Bazar	28.9	0	0	6	2	8	6	3	9			
5	Seed Store Intersection	72.1	0	0	4	4	8	4	5	9			
6	Porabari Bazar	40.9	0	0	7	0	7	8	0	8			

N-4 GAZAPUR-TANGAIL-JAMALPUR HIGHWAY

SL	NAME OF LOCATION	KM	KM	Distance	ACC	CIDENT	NO.	NO. OF CASUALTIES			
NO.				(KM)	Fatal	Non	Total	death	Injured	Total	
						Fatal					
1	Rupali Flour Mill	99.0	99.3	0.4	8	4	12	28	28	56	
2	Shohagpur Bazar	61.2	61.4	0.3	9	3	12	13	10	23	
3	Latifpur Bazar	53.8	54.2	0.5	11	3	14	11	5	16	
4	Nabinagar Intersection	50.8	51.0	0.3	7	3	10	11	3	14	
5	TangailTown Intersection	94.3	94.5	0.3	9	4	13	9	4	13	
6	Korotia Bazar	87.6	87.8	0.3	6	1	7	11	2	13	
7	Chanda Picnic Spot	50.0	50.4	0.5	6	0	6	6	0	6	
				Total = 2.6	ō						
1	Deohata Bazar	64.7	-	-	16	5	21	16	21	37	
2	Jamurki Bus Stand	77.2	-	-	6	1	7	29	6	35	
3	Kurni Bazar	71.0	-	-	8	1	9	21	12	33	
4	Dhalla Bus Stand	73.8	-	-	7	2	9	8	10	18	
5	Boardghar Bazar	59.7	-	-	5	8	13	5	12	17	
6	Bhyanpur Intersection	104.9	-	-	6	5	11	11	5	16	
7	Natiapara Bazar	80.4	-	-	6	1	7	7	4	11	

SL	NAME OF LOCATION	KM	KM	Distance	ACC	CIDENT	NO.	NO. OF CASUALTIES			
NO.				(KM)	Fatal	Non	Total	death	Injured	Tota	
						Fatal				1	
1	Pukhuria Bus Stand	73.4	73.6	0.3	15	14	29	22	55	77	
2	Teara Bus Stand	82.2	82.7	0.6	26	11	37	28	25	53	
3	Golora/ Kamta Bus Stand	57.5	58.0	0.6	11	10	21	20	32	52	
4	Chamrai/ Dhulivita Bus Stand	39.4	40.0	0.7	13	5	18	16	34	50	
5	Borongail Bus Stand	77.3	78.0	0.8	14	7	21	21	14	35	
6	Kamardia Bus Stand	60.0	60.4	0.5	8	7	15	8	26	34	
7	KM 57 (Near Bridge)	56.5	56.7	0.3	8	3	11	14	20	34	
8	Bathuli Bus Stand	50.7	51.4	0.8	12	7	19	16	17	33	
9	Manikganj Police Line	62.3	62.6	0.4	7	6	13	11	22	33	
10	Joypara bus Stand	41.9	42.0	0.2	15	1	16	23	9	32	
11	BaniJhuri Bus Stand	70.5	71.0	0.6	7	6	13	9	21	30	
12	Manikganj Intersection	63.2	63.4	0.3	9	12	21	10	17	27	
13	Savar Bazar Bus Stand	25.5	26.0	0.6	16	4	20	17	7	24	
14	Taraghat Bus Stand	68.0	68.5	0.6	13	3	16	17	6	23	
15	Nabi Nagar Bus Stand	33.5	34.0	0.6	11	3	14	12	11	23	
16	Mohadevpur Bus Stand	76.7	76.9	0.3	6	6	12	6	17	23	
17	Borobaria Bazar	54.0	54.5	0.6	8	2	10	9	5	14	
				Total= 8.8							
1	Muljan Bus Stand	65.0	-	-	8	5	13	15	19	34	
2	Hemayetpur-Shingair Intersection	19.0	-	-	7	4	11	9	14	23	
3	Nayadingi Bus Stand		-	-	7	3	10	13	7	20	
4	Falsatla Bus Stand/Bazar	80.2	-	-	8	6	14	8	9	17	
5	Kalampur/ Shaturia Bus Stand	45.3	-	-	7	2	9	7	7	14	

SL	NAME OF LOCATION	КМ	КМ	Distance	AC	CIDENT	NO.	NO. OF CASUALTIES			
NO.				(KM)	Fatal	Non	Total	death	Injure	Tot	
						Fatal			ď	al	
1	Kalitala Bus Stantd	263.7	264.0	0.4	9	1	10	18	11	29	
2	Laldighi Bazar/Bus Stand	290.8	291.3	0.6	2	6	8	2	26	28	
3	Mithapukur Intersection	305.5	306.0	0.6	9	3	12	12	14	26	
4	Komorpur Bazar	266.3	266.5	0.3	10	1	11	11	14	25	
5	Katakhali Bazar	260.1	260.3	0.3	6	1	7	9	15	24	
6	Kamarpukur Bazar/Bas Stand	364.6	365.0	0.5	10	1	11	17	5	22	
7	Sonka Bazar/Bus Stand	190.2	190.7	0.6	13	1	14	15	5	20	
8	Chandakona Bazar	181.3	181.5	0.3	9	3	12	11	8	19	
9	Borodargah Bus Stand	293.0	298.2	0.3	7	2	9	8	9	17	
10	KakoliBeluahat Bazar	259.4	259.6	0.3	6	1	7	11	6	17	
11	Nine Mia Hat/Bus Stand	204.9	205.0	0.2	5	1	6	5	9	14	
12	Nasirunnesa School/Intersection	198.0	198.3	0.4	6	1	7	6	7	13	
13	Fasitala School/Bus Stand	249.0	249.5	0.6	9	0	9	11	1	12	
14	Garadoha Bus Stand	143.9	144.0	0.2	8	0	8	10	1	11	
15	Dharmadesh Bus Stand	320.8	321.2	0.5	7	1	8	7	4	11	
16	Salander Chowdhury Hat	441.2	441.3	0.2	9	0	9	10	1	11	
17	Gobidaganj Thana Intersection	254.6	254.7	0.2	6	1	7	6	5	11	
18	Boalia Bazar	159.5	159.7	0.3	9	0	9	9	1	10	
19	Taraganj Intersection	355.4	355.6	0.3	4	3	7	6	4	10	
20	Bus Terminal	365.6	366.0	0.5	7	1	8	7	2	9	
21	KhochabanChotoDeuri Bus Stand	432.1	432.3	0.3	8	1	9	8	1	9	
	•		,	Total= 7.9							
1	Shahebganj Bazar	166.9	-	-	10	2	12	16	11	27	
2	Khochabari Bazar	430.4	-	-	8	2	10	10	11	21	
3	Mirzapur Bazar	193.8	-	-	6	2	8	11	7	18	
4	29 Mile Bus Stand	427.6	-	-	8	0	8	14	3	17	
5	Sholo Mile Intersection/ Bus Stand	179.0	-	-	4	2	6	10	7	17	
6	Ghurka Bazar/ Bus Stand	170.9	-	-	10	2	12	12	4	16	
7	Ekarchali Bazar/ Bus Stand	349.0	-	-	4	3	7	7	8	15	
8	Hatikamrul Bazar/ Bus Stand	165.7	-	-	6	1	7	9	4	13	
9	Baghopara Bazar	228.9	-	-	5	0	5	13	0	13	
10	GhogaBridge/ Bus Stand	185.8	-	-	4	3	7	7	5	12	
11	Pirganj Bazar	287.9	-	-	7	0	7	7	4	11	
12	Domdoma Bazar/ Bus Stand	317.5	-	-	2	4	6	2	9	11	
13	Bhulyangati Bazar Intersection	174.8	-	-	4	3	7	5	5	10	
14	Thakurgaon Intersection	437.3	-	-	2	4	6	2	8	10	
15	Dhayerhat Bazar/ Bus Stand	279.0	-	-	5	2	7	5	4	10	
16	Gobindoganj Bazar	254.1	-	-	7	1	8	7	1	8	
17	DhakkamaraMor, Ruhia	472.7	-	-	4	2	6	4	3	7	
	Intersection										

N-6 NAGARBARI BANGLABANDHA HIGHWAY

SL	NAME OF LOCATION	KM	KM	Distance	AC	CIDENT N	NO.	NO. OF CASUALTIES			
NO.				(KM)	Fatal	Non	Total	death	Injure	Tot	
						Fatal			d	al	
1	Jhalmalia Bazar	231.0	231.4	0.5	15	1	16	18	6	24	
2	Chandpur Bazar	223.0	223.5	0.6	8	2	10	14	9	23	
3	Pullapukur Bus Stand	243.8	244.2	0.5	5	4	9	6	16	22	
4	Maligacha Bus Stand	160.7	161.0	0.4	6	2	8	9	13	22	
5	Puthya Bazar	233.3	233.4	0.2	7	7	14	13	9	22	
6	Kalapur Intersection	148.0	148.3	0.4	11	2	13	13	5	18	
7	Baneswar Bazar	242.9	243.0	0.2	9	5	14	12	6	18	
8	Bonpara Bus Stand	197.6	197.9	0.4	10	4	14	10	7	17	
9	Ahmedpur Bazar	203.8	204.1	0.4	10	1	11	10	6	16	
10	Chargabindapur Bazar	119.9	120.4	0.6	8	0	8	9	6	15	
11	Natore Police Line	213.7	214.0	0.4	5	3	8	9	5	14	
12	Gomati Bazar	186.0	186.3	0.4	8	0	8	9	4	13	
13	Ataikola Bazar	135.4	135.8	0.5	7	2	9	9	3	12	
14	Gorosthan Bazar	224.5	224.8	0.4	8	1	9	9	2	11	
15	Tebunia Bazar	162.0	162.4	0.5	6	1	7	6	2	8	
			,	Total= 6.4							
1	Kapasia Bazar/ Bus Stand	249.0	-	-	4	3	7	12	11	23	
2	Hazratpur Bazar	207.6	-	-	10	2	12	12	6	18	
3	Dashuria Intersection	175.4	-	-	9	0	9	12	4	16	
4	Durgapur Intersection	240.7	-	-	4	3	7	9	5	14	
5	Chinakhora Bazar	123.0	-	-	5	3	8	6	5	11	
6	Dariapur Bus Stand	114.6	-	-	6	2	8	8	1	9	
7	GanguhatiSchool	129.2	-	-	6	1	7	7	2	9	
8	Tarapur Bazar/ Bus Stand	235.8	-	-	3	4	7	4	5	9	
9	Madpur Bazar	133.1	-	-	5	3	8	5	3	8	

N-7 NAGARBARI RAJSHAHI HIGHWAY

SL	NAME OF LOCATION	KM	KM	Distance	AC	CIDENT N	NO.	NO. OF CASUALTIES			
NO.				(KM)	Fatal	Non	Total	death	Injure	Tot	
						Fatal			d	al	
1	239 KM Post	239.0	239.5	0.6	6	4	10	9	26	35	
2	Hat Gopalpur Bazar/Bus Stand	190.0	190.4	0.5	11	2	13	13	10	23	
3	Goalando Bus Stand	104.5	104.7	0.3	9	4	13	10	11	21	
4	Ujan Char tala Bus Stand	105.3	105.6	0.4	12	2	14	12	7	19	
5	Khoertola	271.5	272.0	0.6	7	7	14	8	11	19	
6	Jhenaidah Police Station	228.4	229.0	0.7	11	2	13	14	5	19	
7	TNO Office/Thana Road	244.1	244.6	0.6	13	1	14	14	4	18	
	Intersection										
8	Rajghat Bazar/ Bus Stand	305.5	306.0	0.6	10	1	11	12	5	17	
9	Narial Intersection / Hospital	176.1	176.4	0.4	6	4	10	6	9	15	
10	Lakpur Bus Stand	342.5	342.6	0.2	6	1	7	8	7	15	
11	RupshaGhat Intersection	335.4	335.7	0.4	6	5	11	7	5	12	
12	Noapara Bus Stand	344.3	344.7	0.5	6	4	10	8	4	12	
			r	Total= 5.8							
1	DauladiaHigh School	101.0	-	-	8	3	11	8	9	17	
2	Magura Police Line	177.7	-	-	6	1	7	9	4	13	
3	Rajarhat Bazar/Chuknagar	279.3	-	-	5	3	8	5	6	11	
	Intersection										
4	Kanaipur Bazar/ Bus Stand	135.2	-	-	5	1	6	5	6	11	

N-8 DAULATDIA-JHENAIDAH-KHULNA HIGHWAY

N-9 DHAKA-MAWA-BARISAL HIGHWAY

SL	NAME OF LOCATION	KM	KM	Distance	AC	CIDENT	NO	NO OF CASUALTIES			
NO				(KM)	Fatal Non		Total	death	Injure	Tot	
						Fatal			d	al	
1	Maligram Bus Stand	59.1	59.3	0.2	9	2	11	10	4	14	
2	Rahmatpur Bus Stand	246.8	247.3	0.5	3	5	8	3	11	14	
3	Dullah Bus Stand	215.0	-	-	7	1	8	8	6	14	
4	Abdullahpur Bazar	14.0	-	-	6	1	7	7	2	9	

N-405 JAMUNA BRIDGE APPROACH ROAD

SL	NAME OF LOCATION	KM	KM	Distance	AC	CIDENT N	NO.	NO. OF CASUALTIES				
NO.				(KM)	Fatal	Fatal Non T		death	Injure	Tot		
						Fatal			d	al		
1	Konaban Bus Stand	32.0	32.3	0.4	19	3	22	73	25	98		
2	Madhya Bhadraghat	35.0	35.6	0.7	6	3	9	11	18	29		
3	Dhopakandi	42.6	42.7	0.2	6	1	7	6	7	13		
4	Panchlia Bazar	40.7	41.1	0.5	8	1	9	9	3	12		
5	Nalka Bus Stand	37.9	38.2	0.4	6	2	8	6	5	11		
			,	Total= 2.2								
1	KoddorMor	27.2	-	-	11	6	17	13	22	35		
2	Shalla Bus Stand	7.9	-	-	5	5	10	12	17	29		
3	Saydabad Bus Stand	25.3	-	-	8	2	10	10	7	17		

Annex 3

Analysis of Accident Spots by PPRC Team

N-1 DHAKA-CHITTAGONG HIGHWAY

5 high	nest	st NAME OF LOCATION				KM	Distance	ACCIDENT NO. NO					O. OF		
accid	ent						(KM)				CAS	SUALT	IES		
record	ded							Fatal	Non	Total	death	Inju	Total		
spots;	SL.								Fatal			red			
NO).														
2		Nara	yangan	ij Road	11.7	12.2	0.6	45	10	55	49	25	74		
		Inters	section												
1		Madl	hya Ba	uchia Bus	36.0	36.6	0.7	26	18	44	43	51	94		
		Stand	1												
4		Feni-	Laxmi	pur	157.0	157.5	0.6	28	11	39	40	16	56		
		Inters	section												
3		Megl	nnaGha	at Intersection	27.3	27.6	0.4	24	6	30	40	23	63		
13		Next	to Gaz	aria Bus Stand	29.5	29.7	0.3	12	13	25	12	22	34		
			SU	JMMARY OF T	HE ACC	LIDENT	SPOTS AND	RELAT	ED INFOI	RMATIO	N;				
				I	,										
Type o	of spot		No	Nar	nes of sp	ots with	serial numbe	r shown i	n the prepa	ared chart			% of		
where accident								31	+7=38						
occurre	ed														
Bus Stand20Madhya Bauchia Bus Stand(1),						tand(1), 1	Fazilpur Mad	rasa/ Bus	Stand(5),	Muhuriga	inj Bus	5	2.63%		
				Stand/ Intersect	tion(7), I	Sandarta	ki Bus stand(a	8), Nuran	Madrasa	Bus Stand	1(10), Nex	at			
				to Gazaria Bus	Stand(1)	$\frac{1}{1}$, Nayat	bari Bus Stan	d(14), Bo	rotakia Ba	zar/ Bus S	Stand(15),				
				Stand(10) Harikhola Bus Stand(25) Haji Fakir Hat Bus Stand(28) DDAC Office Bus											
				Stand(19), Hari	IKNOIA BI	us Stand	(25), Haji Fak	ar Hat Bu	is Stand(28) $d(2/22)$	5), BRAC		15			
				Stand(29), Dau Stand(2/24), Cl	dkandi E	Sus Stand	1(1/32), BOIO]	pa Bus St	and $(2/33)$,	Dippur E	ius Irondi Duv				
				Stand $(5/34)$, CI	innoma	Bus Stan	a(4/55), Mad	anpur Би	s Stand(0/	57), Daria	ikandi bus	5			
Road			0	Narayangani P	ood Inte	reaction	2) MaghnaG	hat Intere	action(3)	Foni I av	minur	21	05%		
Interse	ection	R-	2	Intersection(4)	Fatikch	ori Inters	(2), we gin a (2)	andina-D	ebidwar Ir	tersection	n(12)	21	.0370 T		
Label (Crossi	~ nσ		Chandpur-Com	illa Inter	section(18) Mahinal	Intersection	on(24) Co	millaMai	namati		2.0370		
Lucci	010000			Intersection(26).	section	ro), manpa	menseen	011(21), 00	/11111111111111	inainati	=2	23.68%		
				1110150011011(20)	/,							-			
				Before Feni Le	vel Cros	sing(6).									
Bazar			5	Baroyar Bazar(11), Shit	akundo l	Bazar(21), Ba	nshbaria	Bazar(22)	, Kumira	Bazar(23)	, 1	3.16%		
Dhanghat Bazar/ ?Bus Stand(27),								ŕ							
Other s	spots		4	149 KM Post(2	0), End	of Feni I	By Pass(30),	Shitalpur	High Sch	ool(31), A	Insar	1	0.53%		
	-			Battalion Offic	e(5/36)		•	-	-						
4 types	s; 3		38	All accident	spots are	places v	where people	gather in	large num	bers; no fi	reeway to		100%		
identic	al and	l		rash and neg	ligently o	drive; no	scope for ove	er-speedir	ng, no scop	pe for cras	sh in high				
cross-c	cutting	5		speed; high	speed is	not at al	l a factor for	accident,	rather low	speed, st	ationary				
				pos	position and taking off from parking caused all these accidents.										

SL.	NAME	C OF LO	DCATION	KM	KM	Distance	AC	CIDENT	NO.	NO. OF	CASUAL	TIES
NO.						(KM)	Fatal	Non	Total	death	Injure	Tot
								Fatal			d	al
2/15	Shaheprotap	o Interse	ection	50.0	-	-	14	8	22	18	20	38
3/16	Bhelanagar	Bazar		53.0	-	-	10	8	18	25	13	38
3	Before 86 K	Im Post		85.9	86.5	0.7	15	2	17	18	2	20
4/17	Near Ashug	anj Rice	e Mill	92.0	-	-	14	0	14	23	5	28
1/14	Brahmanbar	ria Inter	section	93.3	-	-	9	4	13	26	22	48
	SUMMARY OF THE ACCIDENT SPOTS AND RELATED INFORMATION;										-	
Type of	f spot where	No		Names of	spots wit	h serial number	r shown in	the prepare	ed chart		%	of
accider	accident occurred										13+22	2=35
Bus Sta	and	12	ShahbandarBau	ichia Bus S	Stand(1), H	Bhulta Bazar/ B	Bus Stand(2	2), Baruita	Bazar/ Bus	stand(8),	35.2	29%
			Shahbajpur/Bu	s Stand(11), Hafizpur Bus Stand(13), , Baro cha Bus Stand(5/18), Kaliabazar								
			Bus Stand(8/21), Islamabad Bus Stand(9/22), Nayabazar Bus Stand(12/25), Kariala Bus								
D 11		-	Stand(18/31), 1	Raipur/Nilkuthi Bus Stand(20/33), Mokam Bazar Bus Stand(21/34)								11.07
Road In	ntersection	5	Brahmanbaria I	ntersection	n(1/14), SI	haheprotap Inte	ersection(2	(15), Sarail	Road		14.	/1%
D		11	Intersection(6/	(4), Bahub	al Intersec	$\frac{13}{26}$, Na	arshingdi I	ntersection	(19/32)	7) (1		250/
Bazar		11	Islampur Bazar	(4), Shaht	bajpur Baz	ar(5), Kusumb	ag Market	(6), Kamal	pur Bazar(/), Sherpur	32.	35%
			Bazar(10), Bhe	elanagar Ba	azar(3/16)	, Morjal Bazar	(7/20), Pai	nchdona Ba	azar(15/28)	,		
0.1			Shekherchar Ba	azar(16/29)), Panchru	khi Bazar(1//3	0), Giasna	gar Bazar(2	22/35)		15.65	
Other spots; 6 6 Before 86 Km Post(3), Srimangal Thana Health Complex(12)), Near Ash	iuganj Rice	Mill(4/17)	, 17.65	%	
types; A	types; All Bus Kararchar(10				agar(11/2	4), Itakhola(14)	(27),					
stands												
Total		34									10	0%

N-2 DHAKA-SYLHET HIGHWAY

N-3 DHAKA-MYMENSINGH HIGHWAY

SL	NAME	OF LO	CATION	KM	KM	Distance	AC	CIDENT	NO.	NO. 0	F CASU	ALTIES
NO.						(KM)	Fatal	Non	Total	death	Injur	Total
						()		Fatal			ed	
1	Bharaduba	Bazar		85.0	85.3	0.4	14	4	18	21	12	33
1/5	Gilarchala	Bazar		57.4	0	0	7	1	8	10	2	12
2/6	Goforgaon	Road In	tersection	80.4	0	0	8	0	8	9	1	10
4/8	Board Baza	ar		28.9	0	0	6	2	8	6	3	9
5/9	Seed Store	Intersect	ion	72.1	0	0	4	4	8	4	5	9
Type of where	Type of spot No Names of spots with serial number shown in the prepared chart where accident No Names of spots with serial number shown in the prepared chart									% of 4+6=10		
Bus S	Stand	0										0%
Road Inter	section	3	Tongi Statio Intersection(n Road In 5/9).	tersection	(4), Goforgaon	Road Inte	ersection(2/e	5), Seed Ste	ore		30%
Baza	Bazar5Bharaduba Bazar(1), Tongi Market(3), Gilarchala Bazar(1/5), Board Bazar(4/8), Porabari Bazar(6/10)									50%		
Othe	Other spots; 2 Mymensingh Polytechnic(2), 26 KM Post(3/7)									20%		
Total		10										100%

N-4 GAZAPUR-TANGAIL-JAMALPUR HIGHWAY

SL	NAME (OF LOC	ATION	KM	KM	Distance	ACC	CIDENT	NO.	NO.	OF CASUA	ALTIES
NO.						(KM)	Fatal	Non	Total	death	Injured	Total
								Fatal			-	
1/8	Deohata Baz	zar		64.7	-	-	16	5	21	16	21	37
3	Latifpur Baz	zar		53.8	54.2	0.5	11	3	14	11	5	16
5	TangailTow	n Interse	ction	94.3	94.5	0.3	9	4	13	9	4	13
5/12	Boardghar E	Bazar		59.7	-	-	5	8	13	5	12	17
1	Rupali Flou	r Mill		99.0	99.3	0.4	8	4	12	28	28	56
SUMMARY OF THE ACCIDENT SPOTS AND RELATED INFORMATION; Type of spot No where accident Names of spots with serial number shown in the prepared chart occurred No									% of 7+7=14			
Bus	Stand	2	Jamurki Bu	us Stand(2	/9), Dhall	a Bus Stand(4/	11)					14.28%
Road 3 Nabinagar Intersection(4), Tangail Town Intersection(5), Bhyanpur Intersection(6/13) 2 Intersection 3 1 <									21.43%			
Baza	Bazar7Shohagpur Bazar(2), Latifpur Bazar(3), Korotia Bazar(6), Deohata Bazar(1/8), Kurni Bazar(3/10), Boardghar Bazar(5/12), Natiapara Bazar(7/14),								50%			
Othe	er spots;	2	Rupali Flo	ur Mill(1),	, Chanda I	Picnic Spot(7)						14.29%
Total		14										100%

N-5 DHAKA-ARICHA HIGHWAY

SL	NAME C	OF LOC	ATION	KM	KM	Distance	ACC	CIDENT	NO.	NO. OF	CASUA	LTIES
NO.						(KM)	Fatal	Non	Total	death	Injure	Total
								Fatal			d	
2	Teara Bus Sta	and		82.2	82.7	0.6	26	11	37	28	25	53
1	Pukhuria Bus	Stand		73.4	73.6	0.3	15	14	29	22	55	77
3	Golora/ Kamt	ta Bus Sta	and	57.5	58.0	0.6	11	10	21	20	32	52
5	Borongail Bu	s Stand		77.3	78.0	0.8	14	7	21	21	14	35
12	Manikganj In	tersection	n	63.2	63.4	0.3	9	12	21	10	17	27
SUMMARY OF THE ACCIDENT SPOTS AND RELATED INFORMATION;												
Type o	f spot where	No		Name	es of spots	with serial nu	mber show	wn in the p	prepared c	hart		% of17
accide	nt occurred											+5=22
Bus S	Stand	16	Pukhuria Bu	is Stand(1), Teara B	Sus Stand(2), C	Golora/ Ka	mta Bus S	tand(3), C	hamrai/ Dhu	ilivita	72.73
			Bus Stand(4), Borong	all Bus St	and (5) , Kamai	ana Bus S	tand(6), B	athuli Bus	Stand(8), Jo	ypara	
			Dus Stand(1	Due Stord	uff Dus S u(15) Mol	hadounur Dug	f Dazar D Stond(16)	us Stand(I Mulion E	Die Stand(1/18 Novo	u(14), lingi	
			Rus Stand(3	$\frac{1}{2}$ (20) Kala	(13), Wo mnur/Sh	aturia Bus Star	nd(5/22)	, wujan L	ous Stallu(1/10), Naya	illigi	
Road		2	Manikganj	Intersectio	n(12), He	mayetpur-Shir	ngair Inter	section(2/	19)			9.09
Tutemand's m												
									0.00			
Bazar 2 Borobaria Bazar(17), Falsatia Bus Stand/Bazar(4/21)									9.09			
Othe	Other spots; 2 KM 57 (Near Bridge)(7), Manikganj Police Line(9),											9.09
Total		22										100%

N-6 NAGARBARI BANGLABANDHA HIGHWAY

SL	NAME	COF LOCATION KM KM Distance ACCIDENT NO. NO. OF CASUAL										
NO.						(KM)	Fatal	Non	Total	death	Injured	Total
								Fatal				
7	Sonka Baza	ar/Bus S	Stand	190.2	190.7	0.6	13	1	14	15	5	20
3	Mithapuku	r Inters	ection	305.5	306.0	0.6	9	3	12	12	14	26
8	Chandakon	na Bazar	r	181.3	181.5	0.3	9	3	12	11	8	19
1/22	Shahebgan	j Bazar		166.9	-	-	10	2	12	16	11	27
6/27	Ghurka Ba	zar/ Bu	s Stand	170.9	-	-	10	2	12	12	4	16
SUMMARY OF THE ACCIDENT SPOTS AND RELATED INFORMATION;												
Type of spot No Names of spots with serial number shown in the prepared chart										% of		
where accident									21+17=38			
occurred												
Bus S	Stand	17	Kalitala Bus	Stantd(1)	, Laldighi	Bazar/Bus Sta	und(2), Ka	marpukur I	Bazar/Bas	Stand(6), S	onka	44.74%
			Bazar/Bus St	tand(7), B	orodargal	n Bus Stand(9)	, Nine Mia	1(15) Hat/Bus S	Stand(11),	Fasitala Sc	hool/Bus	
			Stand(13), G	aradona E	Sus Stand	(14), Dharmad	esn Bus St	and (15) , K	nochabany	I Degen/ I	Bus	
			Stand(21), 22 Stand(7/28)	9 Mile Du Hatikamr	s Stanu(4 ul Bazar/	(23), Gliurka i Bus Stand($8/2$	9) Ghoga	$\frac{1}{2}$ Bridge/ Bi	/), EKarcii 1s Stand(1)	$\frac{111}{31}$ Dom	ous	
			Bazar/ Bus S	tand(12/3)	(3) Dhave	rhatBazar/ Bu	s Stand(15	5/36)	is Stand(1)	<i>5/51)</i> , Dom	uoma	
Road		8	Mithapukur	Intersection	on(3). Nas	sirunnesa Scho	ol/Intersec	(12), (12), (12)	obidagani	Thana		21.05%
Intern		-	Intersection(17), Tarag	ganj Inters	section(19), Sh	olo Mile I	ntersection	/ Bus Stan	d(5/26), Bł	nulyangati	
Inters	section		Bazar Interse	ection(13/	34), Thak	urgaon Interse	ction(14/3	5), Dhakka	maraMor,	Ruhia		
			Intersection(17/38)		-						
Bazar	r	12	Komorpur B	azar(4), K	atakhali l	Bazar(5), Chan	dakona Ba	azar(8), Ka	koliBeluah	at Bazar(1	0),	31.58%
Salander Chowdhury Hat (16), Boalia Bazar(18), Shahebganj Bazar(1/22), Khochabari												
Bazar(2/23), Mirzapur Bazar(3/24), Baghopara Bazar(9/30), Pirganj Bazar(11/32), Gobindoganj												
		1	Bazar(16/37))								2 (20)
Other	spots;	1	Bus Termina	u(20),								2.63%
Total		38										100%

N-7 NAGARBARI RAJSHAHI HIGHWAY

SL NO.	NAME	OF L	OCATION	KM	KM	Distance (KM)	AC	CIDENT	NO.	CAS	NO. OF SUALTIE	ES
							Fatal	Non	Total	death	Injur	Tot
								Fatal			ed	al
1	Jhalmalia B	azar		231.0	231.4	0.5	15	1	16	18	6	24
5	Puthya Baza	ır		233.3	233.4	0.2	7	7	14	13	9	22
7	Baneswar B	azar		242.9	243.0	0.2	9	5	14	12	6	18
8	Bonpara Bu	s Stand		197.6	197.9	0.4	10	4	14	10	7	17
6	Kalapur Inte	ersection	n	148.0	148.3	0.4	11	2	13	13	5	18
	SUMMARY OF THE ACCIDENT SPOTS AND RELATED INFORMATION;											
Type o accider	f spot where nt occurred	No		Names of spots with serial number shown in the prepared chart							15-	% of +9=24
Bus Sta	and	6	Pullapukur Bus Stand(1/16), Da	Stand(3), riapur Bu	Maligach s Stand(6/	a Bus Stand(4), 21), Tarapur Ba	Bonpara I azar/ Bus S	Bus Stand(8 Stand(8/23)), Kapasia	Bazar/ Bus	3 2	25%
Road In	ntersection	3	Kalapur Intersec	ction(6), E	Dashuria Iı	ntersection(3/18	3), Durgap	ur Intersecti	on(4/19),		11	2.5%
Bazar	Bazar13Jhalmalia Bazar(1), Chandpur Bazar(2), Puthya Bazar(5), Baneswar Bazar(7), Ahmedpur Bazar(9), Chargabindapur Bazar(10), Gomati Bazar(12), Ataikola Bazar(13), Gorosthan Bazar(14), Tebunia Bazar(15), Hazratpur Bazar(2/17), Chinakhora Bazar(5/20), Madpur Bazar(9/24)									54	.17%	
Other s	pots;	2	Natore Police L	ine(11), G	anguhati l	School(7/22)					8.3	3%
Total	Total 24									1	00%	

SL NO.	NAME	OF L	OCATION	KM	KM	Distance (KM)	AC	CIDENT	NO.	CAS	NO. OF UALTIE	ES
							Fatal	Non Fatal	Total	death	Injur ed	Tot al
4	Ujan Char ta	ala Bus	Stand	105.3	105.6	0.4	12	2	14	12	7	19
5	Khoertola			271.5	272.0	0.6	7	7	14	8	11	19
7	TNO Office/Thana Road Intersection			244.1	244.6	0.6	13	1	14	14	4	18
6	Jhenaidah P	olice St	ation	228.4	229.0	0.7	11	2	13	14	5	19
2	Hat Gopalpu	ur Baza	/Bus Stand	190.0	190.4	0.5	11	2	13	13	10	23
Type or	SUMMARY OF THE ACCIDENT SPOTS AND RELATED INFORMATION; Type of spot where No Names of spots with serial number shown in the prepared chart									12	% of	
Bus S	Stand	4	Goalando Bus S Stand(12),	Stand(3), U	Jjan Char	tala Bus Stand((4), Lakpur	Bus Stand	(10), Noap	oara Bus	12-	25%
Road 4 TNO Office/Thana Road Intersection(7), Narial Intersection / Hospital(9), RupshaGhatIntersection(11), Rajarhat Bazar/Chuknagar Intersection(3/15), 2									25%			
Bazar	Bazar 3 Hat Gopalpur Bazar/Bus Stand(2), Rajghat Bazar/ Bus Stand(8), Kanaipur Bazar/ Bus Stand(4/16)							/16) 18	8.75%			
Other	Other spots; 5 239 KM Post(1), Khoertola(5), Jhenaidah Police Station(6), Dauladia High School(1/13), Magura Police Line(2/14),							ura 31.	25%			
Total	Total 16 1									00%		

N-8 DAULATDIA-JHENAIDAH-KHULNA HIGHWAY

N-9 DHAKA-MAWA-BARISAL HIGHWAY*

SL NO	NAME	OF L	OCATION	KM	KM	Distance	AC	CIDENT	NO		NO OF	
NU						(KNI)	Fatal	Non	Total	CAS dooth	Juiur	LS Tot
							Гата	Fatal	Total	ueatii	ed	l ot al
1	Maligram B	us Stan	d	59.1	59.3	0.2	9	2	11	10	4	14
2	Rahmatpur Bus Stand				247.3	0.5	3	5	8	3	11	14
3	Dullah Bus Stand				-	-	7	1	8	8	6	14
4	Abdullahpu	r Bazar		14.0	-	-	6	1	7	7	2	9
Type of acciden	SUMMARY OF THE ACCIDENT SPOTS AND RELATED INFORMATION; Type of spot where No Accident occurred No								%	% of 4		
Bus S	Stand	3	Maligram Bus S	Bus Stand(1), Rahmatpur Bus Stand(2), Dullah Bus Stand(3),								75%
Road Inters	Road ⁰ Intersection									0		
Bazar	Bazar 1 Abdullahpur E										2	25%
Other	spots;	4										
Total											1	00%

• This list contains only 4 accident sites and hence the 5th one could not be annexed
SL NO.	NAME OF LOCATION		KM	KM	Distance (KM)	ACCIDENT NO.			NO. OF CASUALTIES				
							Fatal	Non	Total	death	Injur	Tot	
								Fatal			ed	al	
1	Konaban Bus Stand		32.0	32.3	0.4	19	3	22	73	25	98		
1/6	KoddorMor		27.2	-	-	11	6	17	13	22	35		
2/7	7 Shalla Bus Stand		7.9	-	-	5	5	10	12	17	29		
3/8	Saydabad B	us Stan	d	25.3	-	-	8	2	10	10	7	17	
2	Madhya Bh	adragha	t	35.0	35.6	0.7	6	3	9	11	18	29	
Type of	f spot where	No	SUMMARY OF THE ACCIDENT SPOTS AND RELATED INFORMATION; Names of spots with serial number shown in the prepared chart							%	of		
Bus Stand		5	Konaban Bus Stand(1), Panchlia Bazar (4), Nalka Bus Stand(5), Shalla Bus Stand(2/7), Saydabad Bus Stand(3/8)								62.	62.5%	
Road		0									0		
Intersection													
Bazar		0										0	
Other spots;		3	Madhya Bhadraghat(2), Dhopakandi(3), KoddorMor(1/6)							37.	37.5%		
Total		8									10	0%	

N-405 JAMUNA BRIDGE APPROACH ROAD

Annex 4	
Inventory of Road Safety Related Literature	e

Sl.	Article	Author	No of
No.			Page
1.	Road Safety Progress in Bangladesh	Md. Sabuj Uddin Khan	57
2.	Road accident trends in Bangladesh: A	Mohammad Shah Alam	10
	comprehensive study	S.M. Sohel Mahmud	
		Md. ShamsulHoque	
3.	An Analysis of 100 Road Traffic Accident	*Islam RN,1 Monsur MA,2 Asaduzzaman M3	4
	Victims		
4.	Enhancing Urban Safety and Security Global	UnitedNationsHumanSettlementsProgramme	16
	Report on Human Settlements 2007		
5.	Road traffic accidents; An observational and	Tabish Hussain1, Li Yu Shu1, Tumenjavkhlan	6
	analytical study exploring the	Sosorburam2, A.Seid Adji3, Ali Hassan Khan4, Asim	
	hidden truths in Pakistan and South East-	Farooq	
	Asian Countries	Raja5	
6.	Road safety research in Bangladesh:	S.M. Sohel Mahmud	10
	constraints and requirements	Md. Shamsul Hoque	
7.	Reporting and recording of road traffic	H.M. Ahsan, M.A. Raihan, M.S. Rahman & N.H. Arefin	7
	accidents in Bangladesh		
8.	Study of Heavy Vehicles' Driver Behavior	Syed Rakib Uddin,,	6
	In Road Accidents of Bangladesh	Dr. Md. Shamsul Hoque,	
9.	Road Traffic Injuries: an Emerging Problem in	SK Biswas	1
	Bangladesh		
10.	Road Traffic Accidents by 'Nasimon' and	ASMJ Chowdhury1, MS Alam2, SK Biswas3, RK Saha4,	4
	'Karimon'-A Study in Faridpur	AR Mandol5, MM Rahman6, MA Khair7	
	Medical College Hospital.		
11.	Road Accidents: Contemporary Scenario and	Naila Sharmeen.	11
	Policy Issues in Bangladesh	Md. Rabiul Islam	
12.	Country Paper on Road Safety	KhandakerFatema Begum	17
	Bangladesh	C C	
13.	Traffic Safety in Dhaka City: Key Issues and	Hasib Mohammed Ahsan and Mohammed Mazharul	13
	Countermeasures	Hoque	
14.	Road Safety Education of Children	Asian Development Bank	10
15.	Comparative Accident Study on Some Selected	1. Md. Mizanur Rahman, 2. Md. Shafikul Ahsan &	8
	National Highways of Bangladesh	3. Md. Hadiuzzaman	
16.	Let the Roads be of Peace	We Demand Safe Road	2
17.	Road Traffic Injuries in Bangladesh: a	AKM Fazlur Rahman PhD	34
	neglected epidemic		-
18.	Roads in Bangladesh	Government of the People's Republic of Bangladesh	24
	The Next Millennium	Ministry of Communications	
		Roads and Railways Division	
19.	Report on Road Accident of Bangladesh	http://www.assignmentpoint.com/science/medical/	15
		report-on-road-accident-of-bangladeshpart-2.html	10
20.	Improving Highway Safety In Bangladesh:	Prof. Dr. Md. MazharulHoque, Greg Smith, Dewan	34
_0.	Road Improvement And the potential	Zavid Hossain, S.M. Sohel Mohmud	01
	Application of iRAP		
21	Road Traffic Accident: A Leading Cause of The	Tahera Aniuman, Shahnewaz Hasanat-E-Rabbi	6
<u> </u>	Global Burden of Public Health Injuries And	Chowdhury Kawsar Arefin Siddiqui and	5
	Fatalities	Md Mazharul Hoque	
22	Promoting vulnerable road users safety	M Hoque and S M Sohel Mahmud	2
<i>LL</i> .	towards safe and equitable communities in	ri noque ana 5 m soner manniau	4
	Bangladesh		
	Sunghueon		

23.	Community participation in traffic law enforcement	Global Road safety Partnership	6
24.	Make Road Safe	Commission for Clobal Road Safety	70
25.	The Accident Research Institute (ARI)	The basic information abstracted for MAAP database for a period of 1998-2011 tabulated in the following 42 tables.	38
26.	National Road Safety Strategic Action Plan 2011–2013	Government of The People's Republic of Bangladesh Ministry of Communications Bangladesh Road Transport Authority National Road Safety Strategic Action Plan, 2011– 2013 National Road Safety Council	27
27.	The Road to Road Safety: Issues and Initiatives in Bangladesh	Md. MazharulHoque	13
28.	Road Safety In Bangladesh: Key Issues And Countermeasures	Dr. Hasib Mohammed Ahsan	5
29.	Centre for The Rehabilitation of The Paralysed (CRP) Advocacy and Networking Department Report on the CRP-Road Safety Week, 2012 (16th -22nd October-2012)	Md. Mizanur Rahman Kiron Advocacy & Networking Officer	5
30.	Road Accidents in Bangladesh	K. M. Maniruzzaman and RaktimMitra	3
31.	Road Safety in Bangladesh and some Recent Advances	Professor Dr. Md. MazharulHoque	70
32.	Road Safety Engineering Challenges in Bangladesh	Dr. Md. MazharulHoque S. M. Sohel Mahmud	10
33.	Who is to blame for road accidents?	Md Abdul Alim	3
34.	Road User Cost Study For LGED Roads	Local Government Engineering Department (LGED)	63
35.	A Simple Framework for Prioritizing Road Safety Fund for Different Geographical Regions in Bangladesh	Sudipta Sarkar Richard Tay	15
36.	Status of Road Safety in Asia Regional Expert Group Meeting on Implementation of Decade of Action for Road Safety, 2011-2020	Economic and Social Commission for Asia and The Pacific	11
37.	The Status Paper on Road Safety Problems in Bangladesh	The Bangladesh Country Paper	8
38.	Road Accident and Safety Study in Sylhet Region of Bangladesh	B. K. Banik, M. A. I. Chowdhury*, E. Hossain, B. Mojumdar	13
39.	Children's TraffieEdueation in Bangladesh, Final Report	Institutional Development Component	70
40.	National Road Traffic Accident Report 2007	Bangladesh Road Transport Authority	61
41.	Perceptions of Bus-drivers about Road Traffic Accidents and Their Driving Practices in Dhaka City, Bangladesh	Ahmadul Hasan Khan	1
42.	PPRC Meterial Head		1
43.	Global status report on road safety 2013	World Health organization	318
4.4	Supporting a decade of action Welcome to The Presentation on Road Safety	KhandakerFatema Begum	24
TT.	wereonic to the resentation on Maa Salety	i Manuakeri atema Degum	27

45.	Rhd Road User Cost	Government of the People's Republic of Bangladesh	44
	Annual Report	Ministry of Communications	
	For 1999-2000	Roads and Highways Department	
46.	RTA Annual Report	Md. EhsanulHoque, Chairman, BRTA.	57
		Mr. Tapan Kumar Sarker, Director (Enforcement),	
		BRTA.	
		Md. Syed Muhammad MujibulHoque, Deputy Director	
		(Enforcement), BRTA.	
		A.B.M. Abubaker Siddique, Accident Data Analyst,	
		BRTA.	
47.	Road Safety	BRAC	3
48.	Global Status Report on Road Safety, 2013	WHO	318
	Supporting a decade of action		