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Delivering Road Safety in Bangladesh

Leadership Priorities and Initiatives to 2030

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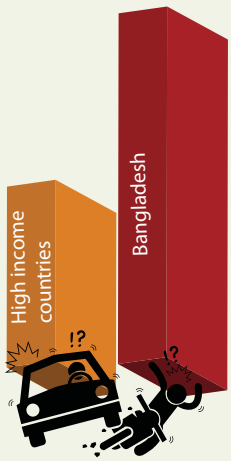
Acronyms

AIIB	Asian Infrastructure Investment Bank
ARI	Accident Research Institute
BRTA	Bangladesh Road Transport Authority
BUET	Bangladesh University of Engineering and Technology
DGHS	Directorate General of Health Services
DRIVER	Data for Road Incident Visualization, Evaluation and Reporting
GoB	Government of Bangladesh
GRSF	Global Road Safety Facility
iRAP	International Road Assessment Programme
MAAP5	Microcomputer Accident Analysis Package
NRSC	National Road Safety Council
NRSSAP	National Road Safety Strategic Action Plan
RHD	Roads and Highways Department
RSC	Road Safety Cell
SDG	Sustainable Development Goal
UN	United Nations
UNECE	United Nations Economic Commission for Europe
WBG	World Bank Group
WeCARE	Western Economic Corridor and Regional Enhancement Program
WHO	World Health Organization

Executive Summary

High fatality and injury rates on Bangladesh's roads are undermining the remarkable progress that this South Asian nation has made on boosting economic growth and reducing poverty.

Estimates of annual deaths in road accidents range from 2,538 to nearly 10 times that—between 20,736 and 21,316, according to the World Health Organization (WHO). WHO data also reveal annual road crash deaths per capita in Bangladesh are twice the average rate for high-income countries and five times that of the best performing countries in the world. Between 1990 and 2017, the increase in the road crash fatality rate per capita was three times higher in Bangladesh than that across the South Asia region. For the highest-risk group—males between the ages of 15 and 49—the rate of increase in Bangladesh was 15 times higher than that across the South Asia region. Given the rapid growth in vehicle ownership, this trend can be expected to continue unless scaled-up and well-targeted actions are taken.



Annual road crash deaths per capita in Bangladesh are **twice** the average rate for high- income countries

Improving road safety in Bangladesh is vital to national health, well-being, and economic growth. As evidenced in analytical work undertaken by the World Bank Group (WBG) with funding from Bloomberg Philanthropies, sharply reducing the number of crash fatalities and injuries over time would enable countries like Bangladesh to achieve substantial increases in economic growth and national income, while simultaneously achieving large population welfare gains. This underscores the economic losses associated with inaction.

Investment in effective road crash fatality and injury prevention programs will contribute to the accumulation of human capital in Bangladesh, which in turn will contribute to sustainable and inclusive economic growth and increased country wealth. Scaled-up road safety investment will also contribute to the achievement of other sustainable mobility goals concerning improved transport productivity, universal accessibility, climate change mitigation and adaptation, and reduced local air and noise pollution.

Road crash fatalities and injuries predominantly affect young people in Bangladesh and the working-age population more broadly. Injuries resulting from road crashes are the second leading cause of permanent disability in the country. Children, too, face risks. In 2017, road crashes were the fourth leading cause of death among children. This undermines Bangladesh's efforts to improve health and education outcomes for children, which are important determinants of human capital development.

Poor road safety performance in Bangladesh is a symptom of underinvestment in targeted initiatives. Bangladesh will require an estimated additional investment of US$7.8 billion over the coming decade to achieve the Sustainable Development Goal 3.6 target of a 50 percent reduction in national road crash fatalities. Success will also depend upon a long-term commitment and sustained vision from the GoB.

Program initiatives will need to be properly sequenced as institutional capacity must first be strengthened to ensure agencies can effectively deliver safety services. Robust vehicle and driver licensing systems will need to be well established and accessible by law enforcement agencies and regulatory authorities before the full power of road user safety compliance regimes can be exercised. Similarly, infrastructure safety design skills and tools will require strengthening. Initiatives taken must be systematic and at scale. They must also be inclusive of all road users and roadside communities, especially those that are most vulnerable and least protected in their road environments. Speed management is a vital road safety priority in Bangladesh that permeates all planning and policy considerations addressing infrastructure, vehicle, and road user safety issues.

Bangladesh will need an investment of **USD 7.8 billion** over next decade for 50% reduction in road crash fatalities

Bangladesh has considerable potential to improve its road safety performance over the coming decade and signs of progress are emerging. A new Road Transport Act 2018, which was approved in October 2018, replaces the Motor Vehicle Ordinance of 1983. Bangladesh also has a National Road Safety Strategic Action Plan that has recently been updated to 2020. This plan has a vision of achieving a 50 percent reduction in road crash fatalities. However, there are still significant gaps in the country's strategic response concerning vehicle safety, road user safety regulations, and post-crash response services.

The GoB is also considering institutional reforms to address road safety management priorities. The National Road Safety Council (NRSC) has proposed the establishment of a Road Safety Authority to lead the road safety effort and called for improved safety data collection. The NRSC has also proposed the establishment of a Road Safety Fund to ensure adequate resourcing of proposed actions and their monitoring and evaluation. If delivered with urgency and strong government leadership, these promising initiatives will pave the way for sustained road safety success in Bangladesh.

The 3rd Global Ministerial Conference on Road Safety, "Achieving Global Goals," will be held in Stockholm, Sweden, on February 19–20, 2020. The conference will set out an overarching platform and agenda for country and regional engagement with global partners over the next decade, including the multilateral development banks, United Nations' agencies, the donor community and the private sector. While the WBG's road safety engagement in Bangladesh has been modest so far, emerging and important institutional reforms in Bangladesh will provide opportunities for productive future partnerships.

1. Road Safety Challenges in Bangladesh

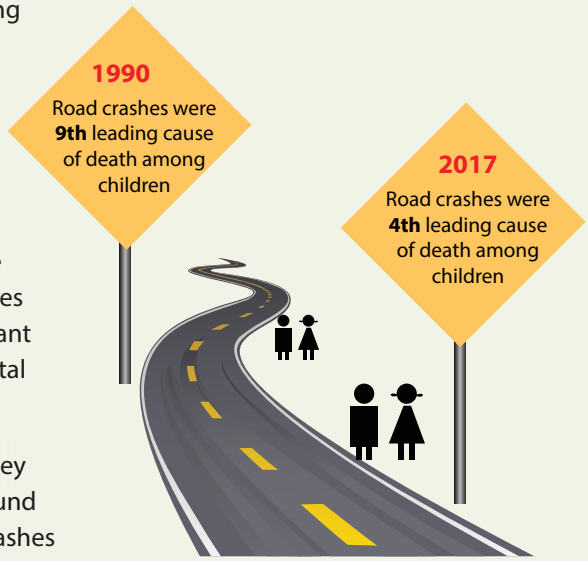
1.1 The Magnitude of the Challenge

Bangladesh has experienced sustained economic growth and made progress on reducing poverty and boosting prosperity. However, these positive trends are being undermined by high fatality and injury rates on the roads of this populous South Asian nation. The detrimental development impacts of poor road safety performance must be addressed. Road safety performance in Bangladesh is not just poor, it is deteriorating. Estimates of annual deaths in road accidents range from 2,538 to nearly 10 times that—between 20,736 and 21,316 (WHO 2015).[1,2] According to World Health Organization (WHO) data, annual road crash deaths per capita in Bangladesh are twice the average rate for high-income countries and five times that of the best performing countries in the world.[3] In South Asia, the per capita fatality rate in Bangladesh has increased more rapidly over the past three decades than the regional average. Given the rapid growth in vehicle ownership, this trend can be expected to inexorably continue unless scaled-up and well-targeted actions are taken. Crash fatality risk rankings highlight the hazards faced by pedestrians and car and four-wheeled light vehicle passengers (see Appendix A, Table A.2). While road crash data are limited in Bangladesh, further insights into road safety risks can be derived from a variety of sources. These insights include:

- Between 1990 and 2017, the increase in the road crash fatality rate per capita was three times higher in Bangladesh than that across the South Asia region. For the highest-risk group—males between the ages of 15 and 49 years—the rate of increase in Bangladesh was 15 times higher than that across the South Asia region.[4]

- Traffic and speed surveys in a sample of national highways in Bangladesh have highlighted alarming road safety risks given the large speed differentials between vehicle types and the disparities between vehicle masses and pedestrians. Risks are elevated by narrow road cross sections and recurrent roadside hazards, with dangerous concentrations of crash deaths being evident, far in excess of good practice country performance outcomes (WBG 2019a).

- Children in Bangladesh face growing road safety risks. In 1990, road crashes were the ninth leading cause of death among children aged 5 to 14. By 2017, they had become the fourth leading cause of death.[5] This undermines Bangladesh's efforts to improve health and education outcomes for children, which are important determinants of human capital development.



- A nationwide cross-sectional survey of households in Bangladesh found that injuries resulting from road crashes are the second leading cause of permanent

Approximately **220 people** are permanently disabled by road crashes every day

disability in the country. Every day an estimated 220 people are permanently disabled and severely burdened by road crashes (Centre for Injury Prevention and Research Bangladesh 2016).

- Over the past decade, urban crash fatalities have increased in Bangladesh and comprise nearly 40 percent of total fatalities. Almost half of urban crash fatalities occurred in the Dhaka metropolitan area, with other metropolitan cities accounting for another 30 percent (Rahman 2018). Newspaper report data compiled from 2016–18 for the Dhaka metropolitan area indicate that buses were involved in around 50 percent of the crashes that resulted in fatalities.[6]

1.2 Addressing Road Safety Challenges in Bangladesh

Bangladesh has a National Road Safety Strategic Action Plan (NRSSAP), now in its eighth edition, with a vision of achieving a 50 percent reduction in road crash fatalities by 2020 (GoB 2016). The NRSSAP is organized in accordance with nine key safety themes:

The plan sets out actions under each of these themes and identifies agencies responsible for their delivery. However, there are still significant gaps in the country's strategic response concerning vehicle safety, road user safety regulations, and post-crash response services (see Appendix A, Table A.3).

The GoB is now considering significant reforms to strengthen road safety management priorities. The National Road Safety Council (NRSC) has proposed the establishment of a Road Safety Authority and improved safety data collection, and the establishment of a Road Safety Fund to ensure adequate resourcing of proposed actions and their monitoring and evaluation (see Section 4.1).

The new Road Transport Act 2018, which was approved in October 2018, replaces the Motor Vehicle Ordinance of 1983. Based on 111 recommendations developed by a gazetted road safety task force, formed under the aegis of the NRSC, the new act introduced stricter punishment for traffic offences, including for driving without a license, owning unregistered vehicles, driving unfit vehicles, overloading, and parking violations. It also places an emphasis on greater operator and designer accountability for safety performance, and stronger enforcement of unsafe user behavior through the deployment of mobile courts.

The new act came into effect on November 1, 2019. However, in response to objections from vehicle owners and transport workers, some sections of the act have been deferred to allow the government to develop rules that will guide its implementation.

2. The Global Agenda

2.1 Achieving the Sustainable Development Goals

The 3rd Global Ministerial Conference on Road Safety, "Achieving Global Goals," will be held in Stockholm, Sweden, on February 19–20, 2020. Participants will assess progress over the UN Decade of Action for Road Safety (2011–2020) and the global, regional, and country implications for greater road safety gains over the coming decade. A key focus of the conference will be on the integration of road safety with the Sustainable Development Goals (SDGs) to 2030 and the related agenda for action.

SDG Targets 3.6 and 11.2 call for a halving of global road deaths and universal access to safe transport in cities and settlements, respectively (United Nations 2015). It is already clear that the SDG Target 3.6 date for halving global road deaths by 2020 will not be met as insufficient resources and actions have been mobilized to achieve this goal. In Stockholm, conference participants will consider extending the target date to 2030 as well as proposed regional fatality and serious injury targets. Recommended priorities for improved road safety over the coming decade will include:

- promoting shifts to more sustainable and safer transport modes;
- improved reporting on sustainability outcomes by businesses and enterprises of all sizes;
- enhanced vehicle safety;
- safer transport for children;
- more stringent safety requirements for vehicles and transport services procurement;
- safe speed management in cities;
- infrastructure safety; and
- potential safety gains from new technologies (Government Offices of Sweden, WHO 2019).

2.2 Partnering with the Government of Bangladesh

Decisions taken at and direction provided by the 3rd Global Ministerial Conference on Road Safety will be of vital importance to countries in South Asia, including Bangladesh. These decisions and directions will set out an overarching platform and agenda for country and regional engagement with global partners over the next decade, including the multilateral development banks, United Nations' (UN) agencies, the donor community and the private sector.

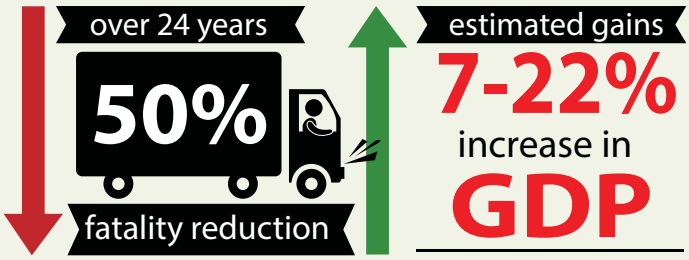
World Bank Group (WBG) road safety engagement in Bangladesh has been modest (see Appendix B), but with emerging institutional reforms and investment in Bangladesh there will be new partnership opportunities with the GoB moving forward (see Section 5).

3. The Economic Cost of Inaction

3.1 The Economic Burden of Road Safety Losses

Improving road safety in Bangladesh is vital to national health, well-being, and economic growth. As evidenced in analytical work undertaken by the WBG with funding from Bloomberg Philanthropies, sharply reducing the number of crash fatalities and injuries over time would enable countries like Bangladesh to achieve increases in economic growth and national income, while simultaneously achieving population welfare gains.

The finding that crash fatalities and injuries have macroeconomic ripple effects gains plausibility from the fact that they predominantly affect young people, with this negative impact also being considerable across the working-age population more broadly. The disproportionate impact of road crash mortality and morbidity on the economically productive segment of the population is likely to depress GDP growth rates. For example, the estimated gains from achieving a 50 percent fatality reduction target in the countries assessed ranged between a 7 percent to 22 percent increase in GDP over the analysis time frame of 24 years.



The effect on national income is just one part of the story. The estimated population welfare gains from achieving a 50 percent fatality reduction in the countries assessed over this period were equivalent to 6 percent to 32 percent of GDP . This underscores the economic losses associated with inaction for countries that fail to move beyond the status quo (World Bank 2017). WBG research indicates that human capital accounts for around two-thirds of a country's total wealth, far more than natural capital and produced capital (World Bank 2017). Investment in effective road crash fatality and injury prevention will contribute to the accumulation of human capital in Bangladesh, which in turn will contribute to sustainable and inclusive economic growth and overall country wealth.

3.2 Linkages with Other Sustainable Mobility Goals

The economic losses associated with inaction are amplified by the co-benefits lost if safety investment is curtailed. Scaled-up road safety investment in Bangladesh will also contribute to the achievement of other sustainable mobility goals concerning:

- improved transport productivity;
- universal accessibility;
- climate change mitigation and adaptation; and
- reduced local air and noise pollution (Sustainable Mobility for All 2017).

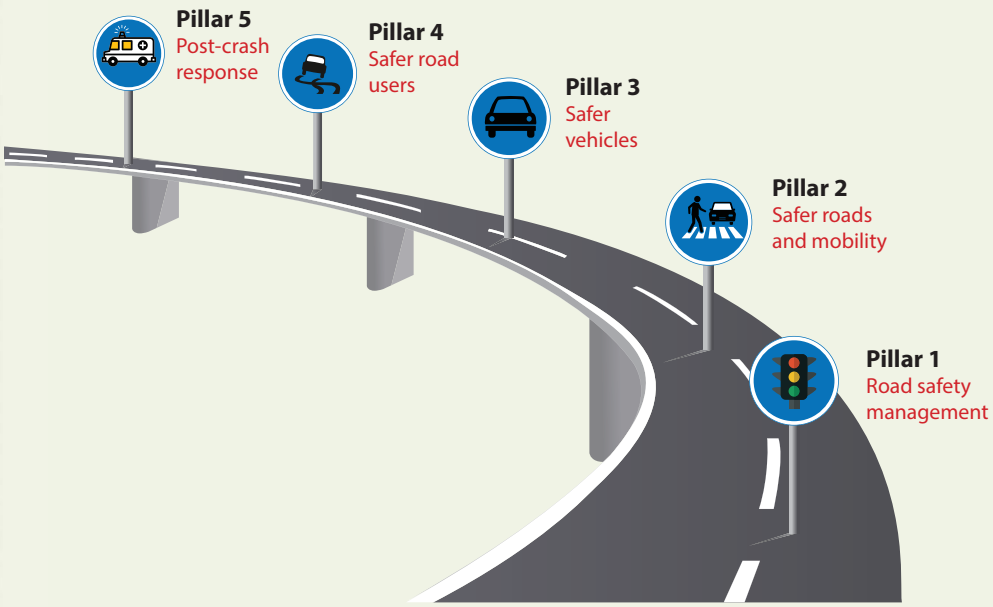
Securing these network productivity, accessibility, decarbonization, and public health co-benefits of road safety investment is high on the agenda for cities and national transport corridors, and for the achievement of regional and global trade facilitation and connectivity objectives. These sustainable mobility goals are inextricably linked with each other. Well-targeted safety investment must negotiate a complex strategic space that delivers on all of the goals within an integrated policy framework (WBG 2019a).

4. Country Progress across UN Global Plan Pillars

Good practice road safety programs in high-income countries over the past five decades have convincingly demonstrated that road crash fatalities and injuries can be prevented and their devastating burden substantially avoided. These are compelling reasons to act on this urgent and achievable sustainable development priority.

There is considerable potential for Bangladesh to improve its road safety performance over the coming decade. Road safety performance in Bangladesh can be reviewed in terms of progress being made across the five pillars for action specified in the current UN Global Plan for the Decade of Action for Road Safety 2011–2020 (see Appendix A, Table A.3):

- **Pillar 1:** Road safety management
- **Pillar 2:** Safer roads and mobility
- **Pillar 3:** Safer vehicles
- **Pillar 4:** Safer road users
- **Pillar 5:** Post-crash response



The Global Plan's guiding principles embrace the safe system approach, which aims to eliminate crash fatalities and serious injuries with an integrated response across these five safety pillars (WHO 2011). Speed management underpins pillars 2, 3, and 4. In recognition of this, Australasian safe system frameworks included a separate Safer Speeds pillar to prioritize speed limits and address related issues more holistically.[1] It is now well recognized as good practice that key solutions for managing speed are:

- building or modifying roads which calm traffic;
- requiring car makers to install new technologies to help drivers and vehicles keep to speed limits; and

- establishing and enforcing speed limit laws (WHO 2017).

Speed management is a fundamental component of a successful road safety strategy because speed is a crucial contributor to all road deaths and injuries. Speed contributes to the level of body damaging kinetic energy exchanged in a crash, and also contributes to the likelihood of a crash occurring in the first place, either in terms of not being able to stop quickly enough when a dangerous situation arises, or by losing vehicle control. Speed limits, if complied with by road users, can significantly reduce crash fatality and injury losses. A safe speed limit will effectively be determined by:

- the protective qualities of the road network's link and place functions;
- the protective qualities of the vehicles using the road environment; and
- the protective qualities of the safety clothing and helmets used by motorcyclists and cyclists (WBG 2019b).

Scientific evidence on the relationship between vehicle speeds and crash risks is robust. This link was confirmed by a recent review of speed limit changes and the wide-scale deployment of automated speed enforcement in 10 case study countries. In the countries studied, increases in mean speeds resulted in a higher number of crashes and fatalities and injuries (International Transport Forum 2018). This evidence applies equally well to roads throughout Bangladesh, but it is not necessarily the case that increased speeds will always result in safety losses. On the contrary, adherence to safe road network design principles in Bangladesh can both improve safety outcomes and contribute to the achievement of other important sustainable mobility goals related to vehicle productivity and environmental performance. Good practice speed management is central to delivering effectively and efficiently on this wider ambition.

These speed management considerations will be addressed in the following assessment of country progress across the respective Global Plan pillars for action. Speed management is a vital road safety priority in Bangladesh that permeates all policy considerations addressing infrastructure, vehicle, and road user safety issues. Besides seeking to minimize the number of road crashes, crashes must be anticipated, planned for, and accommodated to ensure that their level of violence does not threaten life or long-term health.

4.1 Road Safety Management

Pillar 1 encourages the creation of multisectoral partnerships and the designation of a lead agency with the capacity to develop and direct the delivery of national road safety strategies, plans, and targets. It places an emphasis on ensuring that there is sufficient funding for sustainable implementation and the development of crash data and performance measurement systems to guide the national effort. It also calls for the adherence to UN legal instruments and encourages their development at a regional level.

Leadership arrangements

An NRSC was established in 1995, under a WBG project with the Roads and Highways Department (RHD), to take responsibility for the planning, management, and coordination of road safety in Bangladesh. The NRSC is now hosted by the Bangladesh Road Transport Authority (BRTA) and comprises representatives from all key agencies and stakeholders, including BRTA, police, road authorities, transport owners, workers' associations, and

professionals in the field. It is responsible for holding periodic meetings to guide policy decisions and provide related directives to all its members. A Road Safety Cell (RSC) at the BRTA acts as the NRSC secretariat and carries out the preparation of plans and the coordination and monitoring and evaluation of activities assigned to different agencies. It also disseminates information on road safety and crashes to all relevant organizations and the general public. Since 1997, the RSC has been preparing two-year NRSSAPs (GoB 2016). The eighth, three-year plan for 2017–20 seeks ongoing reductions in fatalities to contribute to its vision of achieving a 50 percent reduction in road crash fatalities. However, the plan has certain drawbacks. Its targets are not scientifically set and funding for its proposed activities is lacking. Furthermore, the proposed activities are not well aligned to priority needs in terms of maximizing road safety gains, and in some cases the timelines set for their achievement are unrealistic.

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District Road Safety Committees have been established at the district and metropolitan levels in Bangladesh with the engagement of district collectors, superintendents of police, the BRTA, road authorities, and other relevant transport and road user agencies. Initially, these worked well, but over time their functioning has been affected by poor internal communications, a lack of coordination and integration between local and central committees, and the general paucity of resources to support their positive engagement. The NRSC undertook initiatives in the past to revive these committees, but it is unclear how effective they have been (Mahmud et al. 2013).

In 2005, the Highway Police was established in Bangladesh to patrol highways, enforce traffic rules and regulations, manage traffic, prevent highway crime, and investigate crashes. To achieve these goals, the Highway Police work under two units—the Traffic Unit and the Investigation Unit. Their function and scope of engagement are limited as the government has yet to ratify the Highway Police Act. As such, the Highway Police

has no executive power to prosecute violators. Most of its staff is on deputation from the Bangladesh Police, whose help it has to seek to render its duties. The Highway Police is also short of qualified and capable manpower; logistics and equipment, including unavailability of vehicles; and other transport facilities, which affects its mobility (Mahmud et al. 2009). As such, it has been primarily engaged in awareness programs for school children, driver training programs, and the coordination of meetings with public transporters and other stakeholders (Ahmed 2016).

Nongovernmental voluntary and advisory groups in Bangladesh, including BRAC (Building Resources Across Communities), Centre for Rehabilitation of the Paralysed, Nirapad Sarak Chai, Work for Better Bangladesh, Safe Community Foundation, Poribesh Bachao Andolon, and the Safe Road Movement, are very active in road safety at the national level. These groups primarily undertake community road safety programs and training; road safety research, publicity, and awareness campaigns; driver training; and treatment and rehabilitation of paralyzed road crash victims. A Safe Roads and Transportation Alliance has also been formed to advocate for road safety issues.

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Following massive student demonstrations demanding stronger road safety measures, the GoB, through the NRSC, has recently called for significant reforms to address these concerns. Proposed actions include:

- road user safety awareness and education programs using a variety of media;
- public transport user and driver safety;
- safer public transport route franchising and driver employment conditions;
- promotion of safety helmet use by motorcycle/moped riders and passengers and cyclists;

- safer pedestrian infrastructure, including safety railings, rumble strips, and raised pedestrian platforms at busy intersections;
- removal of roadside market encroachments to improve pedestrian access and safety;
- safer road signs, markings, and lighting;
- improved driver licensing procedures;
- the establishment of a Road Safety Authority and improved safety data collection; and
- the establishment of a Road Safety Fund to ensure adequate resourcing of proposed actions and their monitoring and evaluation.

Institutional priorities and implementation challenges have been recognized and agency responsibilities and delivery timelines for proposed actions have been set to 2024. The proposed initiatives' contribution to the achievement of the SDGs is also acknowledged (GoB 2019).

Funding

General tax revenues provide the only source of sustainable funding for road safety in Bangladesh, allocated to the road safety units at RHD, BRTA, and the police through their respective ministries. However, this funding is insufficient. There are no specific taxes or levies on road users in support of road safety. Insurance companies do not contribute significantly to road safety. Several private organizations and NGOs support road safety activities through donor and multilateral development bank assistance, but in an uncoordinated manner. Funding sources for successive NRSSAPs have never been institutionalized and consequently partner agencies cite paucity of funding for their failure to fulfil actions under these plans (ADB 2015).

Crash data recording and management

The crash data and analysis system in Bangladesh requires the processing of Accident Report Forms by MAAP5 (Microcomputer Accident Analysis Package) software, with the system having many shortcomings (Ahsan et al. 2011). A more comprehensive and flexible system, DRIVER (Data for Road Incident Visualization, Evaluation and Reporting), is being piloted in Dhaka and will provide insights into the best way forward (GRSF 2018).

Currently, the Bangladesh Police database is the only source of crash fatality data. Police data show irregular and unreliable year-on-year changes, indicating incompleteness and a lack of consistent procedures. Crash data are recorded by local police and sent to BRTA via police headquarters for recording into the MAPP5 database. Poor coordination between the ministries and weak internal organizational capacity result in crashes not being recorded and consequent underreporting of fatalities and injuries. The current system of recording, analyzing, and reporting crashes is cumbersome, error-prone, time-consuming, and unfit for analysis and benchmarking.

A proposed Asia-Pacific Road Safety Observatory will provide expert assistance to countries in Asia and the Pacific by facilitating shared crash data collection and analysis practices and promoting the design of effective fatality and injury reduction measures. The WHO, the Global Road Safety Facility, the FIA Foundation, and the Government of Japan are providing financial support for this initiative. A high-level regional workshop was held in Singapore in March 2019 to launch this initiative. The World Bank Group, the Federation Internationale de l'Automobile, the Asian Development Bank, the International Transport Forum, and government officials from 15 countries in the region, including Bangladesh, participated

in this workshop (WBG et al. 2019a). A second workshop was held in Bangkok in December 2019 to seek continued country support and endorsements for the proposal (WBG et al. 2019b). This initiative has the potential to assist the development of crash data recording and management systems in Bangladesh through regional and global knowledge sharing and transfer of good practice procedures and technologies.

Research

The Accident Research Institute (ARI) at Bangladesh University of Engineering and Technology (BUET) was established in 2002 to carry out scientific safety research and ascertain underlying causal factors for roads, railways, and waterway system failures. The ARI is tasked with:

- developing road crash database and management systems;
- crash research and investigations, and dissemination of findings;
- safety training for professional and institutional capacity building;
- development of countermeasures and interventions;
- organizing safety conferences, seminars, and workshops;
- establishing collaborative linkages and library resources for research;
- providing a full-fledged research laboratory and crash investigation facilities; and
- the formulation of road safety guides and manuals.

International relationships

There are also road safety management priorities for Bangladesh in the international context relating to UN road safety conventions in the area of inland transport, which are administered by the United Nations Economic Commission for Europe (UNECE). Bangladesh is currently only a contracting party to one of 59 UN transport-related legal instruments, seven of which are specified for the underpinning of a harmonized and effective road safety regulatory framework (see Box 1) (UNECE n.d.).

BOX 1: RECOMMENDED UN CONVENTIONS

- 1968 Vienna Convention on Road Traffic
- 1968 Convention on Road Signs and Signals
- 1958 Agreement concerning the Adoption of Harmonized Technical United Nations Regulations for Wheeled Vehicles, Equipment and Parts which can be Fitted and/or be Used on Wheeled Vehicles and the Conditions for Reciprocal Recognition of Approvals Granted on the Basis of these United Nations Regulations
- 1997 Agreement concerning the Adoption of Uniform Conditions for Periodical Technical Inspections of Wheeled Vehicles
- 1998 Agreement concerning the Establishing of Global Technical Regulations for Wheeled Vehicles, Equipment and Parts
- 1957 Agreement concerning the International Carriage of Dangerous Goods by Road (ADR)
- 1970 European Agreement concerning the Work of Crews of Vehicles Engaging in International Road Transport (AETR).

4.2 Safer Roads and Mobility

Pillar 2 promotes raising the inherent safety and protective quality of road networks for the benefit of all users, especially the most vulnerable: pedestrians, cyclists, and motorcyclists. It places an emphasis on greater operator and designer accountability for safety performance, enhanced land use/transport system integration, improved infrastructure safety rating and assessment tools, and related capacity building and knowledge transfer.

Safety design issues

The RHD is the premier highway authority in Bangladesh. It is responsible for the design, construction, and maintenance of the country's major road and bridge network. RHD's stated goal is to provide all road users with a safe, cost-effective, and well-maintained road network. However, there are no policies in Bangladesh aimed at promoting walking and cycling and separating and protecting vulnerable road users.

Current infrastructure designs in Bangladesh are functionally unsafe given the complex mix of differing vehicle masses and speeds, preponderance of vulnerable road users, and chronic levels of underinvestment in infrastructure in the face of sustained traffic growth. A new design focus is required that more specifically addresses the link and place functions of roads to accommodate not just the demands of their through-traffic priorities, but also those of the places being served by roads. Prevalent community activities in the road environment, as well as traffic flows, must be accounted for with a safe system approach. A human-centered, rather than purely a vehicle-centered focus is required, with a rebalancing of "right-of-place" and "right-of-way" concerns (WBG 2019b). Animal safety issues must also be addressed. Measures are needed to ensure that animals cannot stray onto highways where traffic speeds are high and safe crossings and underpasses are provided for animals where appropriate.

In 1999, the RHD established a Road Safety Division under its Technical Services Wing to deal with infrastructure safety aspects of national, regional, and feeder roads. A similar unit has been established in the Local Government Engineering Department. However, these units have weak mandates for road safety action and no dedicated budgets. Safe design capacity is weak and urgently requires strengthening.

Safety assessment tools

The RHD has prepared road safety guidelines and manuals for use in Bangladesh under various road development projects. These include: *Guidelines for Road Safety Audit*, *Road Safety Improvement Works Manual*, *Road Safety Users Guide*, *Road Geometric Design Manual*, *Road Safety Engineering Toolkit*, *Pavement Design Guide*, *Guidelines for Identification of Sites for Road Safety Improvement Works*; and *A Guide to Safer Road Design*. However, most of these guidelines are not applied in practice and RHD engineers may not be fully familiar with them.

Road safety audit procedures are neither well-known nor recognized in Bangladesh. Consequently, the capacity to conduct effective road safety audits is limited. Nevertheless, the RHD has introduced formal road safety audits and inspections at some hazardous locations of national highways and recommended geometric improvements. However, no monitoring and evaluation studies have been conducted to evaluate the effectiveness of these measures.

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International Road Assessment Programme (iRAP) assessments were piloted in 2010 on the N2 and N3 highways, and on the Dhaka-Aricha road (a section of N5). These assessments revealed that most sections were rated at only one or two stars for pedestrians, bicyclists, and motorcyclists, which indicated that they were highly unsafe for vulnerable users. In 2013, the iRAP assessments were extended to a further 1,370 kilometers of roads under an ADB project, which highlighted that more three quarters of the assessed roads were rated one or two stars for all road users. Related countermeasures were recommended. The RHD used these findings to design safety improvements for about 300 kilometers of the riskiest sections (iRAP 2013). The RHD also identified 144 hazardous locations on national highways and specified safety treatments addressing junction improvements, curve redesign, and channelization to reduce road safety risks. Additional iRAP assessments were conducted 2019 for 260 kilometers of roads to be upgraded under the proposed Western Economic Corridor and Regional Enhancement Program (WeCARE), which is under consideration for financing by the World Bank and the Asian Infrastructure Investment Bank (AIIB). The iRAP findings will also be used to develop safe system designs on a selected Road Safety Demonstration Corridor, complemented with multi-sector interventions to achieve targeted reduction in road fatalities.

4.3 Safer Vehicles

Pillar 3 encourages the universal deployment of improved passive and active vehicle safety technologies. It places an emphasis on the adoption of harmonized UN global standards, implementation of consumer-focused new car assessment programs in all regions of the world, and the use of fiscal and other incentives to accelerate consumer and major public and private fleet operator uptake of motor vehicles that offer high levels of road user protection.

Vehicle certification

Most new vehicles in Bangladesh are imported from China, India, and South Korea; most used vehicles are imported from Japan (GoB 2012). Regulations require that imported used cars must be less than four years old and must adhere to emission standards. Chapter V of the Motor Vehicles Rules of 1940 sets vehicle construction and use requirements. An additional set of rules was added in 1959 relating to the construction of autorickshaws. Bangladesh has not set any standards for seat belts, child restraints, frontal impacts, side impacts, electronic stability control, pedestrian protection, and motorcycle anti-lock braking systems (see Appendix A, Table A.3).

Although subsequently revised by the Motor Vehicles Rules of 1984, requirements relating to construction and use have not changed significantly except for the metrification of measurements. There is no designated entity for vehicle certification in Bangladesh, but one was proposed in the draft Road Traffic Act (GoB 2011).

There are, consequently, considerable safety concerns with uncertified vehicle construction activities in Bangladesh. Truck cabs are frequently modified or fitted with locally produced doors and surrounds. Also, the truck body is significantly modified to increase load carrying capacity. Little attention is paid to the requirements of the driver whose zone of vision is often limited to a narrow arc on either side of the straight-ahead view. Trucks' rear lights are often fitted well under the body, away from potential damage, which limits their visibility. Bus bodies do not appear to be designed with any appreciable rollover protection for occupants. Most buses have no nearside mirror, which limits driver vision. Drivers' seats are mostly non-adjustable either for reach or height and passenger seat design is poor and spacing inadequate. Passengers are permitted to sit very close to the front window and to encroach on the driver's space (GoB 1998). In many instances, trucks are seen carrying passenger on highways.

There are also a number of improvised vehicles—Nosimon, Karimon, and Votvoti. These vehicles are locally made with no knowledge of vehicle technology or safety requirements and standards. These vehicles are illegal, but still ply on the road. They carry passengers and are frequently involved in fatal crashes on highways.

Vehicle fitness

The BRTA is responsible for the inspection and fitness certification of vehicles in Bangladesh. All motorized vehicles are liable to annual inspection and road tax with the exception of two-wheel motor cycles and private cars under five years old. Inspections are mainly conducted visually with no automated aids. In 1999, under an ADB project, five semi-automatic vehicle inspection centers were established—two in Dhaka and one each in Chittagong, Khulna, and Rajshahi (ADB 2007). However, technical issues hindered their

effective operation. The GoB plans to establish 21 new automated centers for testing both vehicle fitness and emissions within the next five years. The plan includes the rehabilitation of four of the five original semi-automatic centers (Ahmed 2016). These centers are sorely needed as about 3,000 new vehicles are registered every day in Dhaka alone.

The BRTA currently has only 41 inspectors who face the enormous task of examining the fitness of more than two million vehicles in the country. Staff shortages, skill deficiencies, and long lines for service have resulted in vehicle inspections being cursory at best. Many vehicle owners are reluctant to bring their vehicles in for fitness tests because of the long lines. According to the BRTA, in 2018, more than 55,000 vehicles had not had their vehicle fitness certificate renewed for more than 10 years.

In order to streamline the renewal of fitness certificates, the BRTA has decided to permit designated motor workshops to issue vehicle fitness certificates. The BRTA plans to register and license motor workshops in accordance with their capacity assessed in terms of adequacy of testing equipment and availability of space to conduct vehicle test runs. A-grade workshops will have the capacity to check the fitness of heavy vehicles such as buses, trucks, and minibuses. B-grade workshops will have the capacity to check SUVs and sedans. C-grade workshops will have the capacity to handle motorcycles and autorickshaws (Mahmud 2018).

4.4 Safer Users

Pillar 4 calls for the development of comprehensive enforcement programs combined with social marketing campaigns to improve road user behavior. It places an emphasis on setting and seeking compliance with evidence-based standards and rules aimed at reducing speeding and drink-driving and increased use of seat belts and helmets. It also promotes enhanced occupational health and safety laws for the safe operation of commercial freight and passenger services and the establishment of graduated driver licensing systems for novice drivers.

Driver behavior and compliance with safety regulations

Unsafe driver behaviors are endemic in Bangladesh and are reflected in high crash fatality and injury rates. While speed limits are in place for urban and rural roads and motorways, speeding is a problem, especially on national highways (GoB 2005). Maximum speed limits on rural roads are extremely high, set at 110 km/hr. There is no national seat belt law. Non-wearing of seatbelts is problematic and reflected in the high risks faced by car and light-vehicle passengers. Drink-driving is of concern, but there are no legal blood alcohol concentration limits for the general driving population, young or novice drivers, and professional and commercial drivers (see Appendix A, Tables A.2 and A.3). Unsafe heavy vehicle overloading is commonplace (Uddin and Hoque 2003). Driver fatigue is prevalent resulting from excess driver hours which, like vehicle overloading, are largely not enforced (Talukder et al. 2013).

Unsafe behaviors are conspicuous in the regional trade corridors of Bangladesh. Alarming annual death rates per kilometer of highway are evident, with truck and bus contributions to fatal and injury causing crashes being disproportionately high. Enforcement of unsafe behaviors is visually absent. Road policing is focused on clearing up crashes, prosecuting related traffic violations, and producing crash reports. Dangerous near-misses between

trucks, buses, cars, and other vulnerable road users are the norm. Excessive driving hours are freely acknowledged by truck drivers and regulatory compliance regimes are said to be undermined by powerful competing stakeholder and commercial interests. Trucks and other vehicles park haphazardly on roadsides, often without suitable parking lights. There is little or no street lighting even in towns. Vehicle and pedestrian conspicuity issues are of concern. Many vehicles do not have, or do not use, lights at night, making it hard to see other road users and be seen by them (WBG 2019a).

Driver licensing and training

There are two types of driver's licenses in Bangladesh—an ordinary license required by drivers of all light motor vehicles, and a professional license for drivers of medium-sized and larger goods vehicles. Vehicles less than three tons in weight are considered light vehicles, up to seven tons as medium vehicles, and more than seven tons as heavy vehicles. A driver initially applies for a license to drive light vehicles, and then can apply for one to drive medium vehicles after three years, and to drive heavy vehicles after another three years. The minimum driving ages are 18 for non-professional and 20 for most types of professional driving licenses. Non-professional licenses are normally valid for 12 months, which can be extended to three years on payment of an extra fee. Professional license holders are supposed to take a retest every three years in addition to renewing their license. Since 2011, the BRTA has issued licenses with biometric information, which have records of a driver's photograph, fingerprints, signature, among other details. The data remains stored in a secure and rugged smart card with information both printed on the card and stored inside an encrypted chip that can be verified and updated by BRTA officials (Azad 2011). Provision has been made for a penalty system to record the driver's traffic violations, but this has not yet been introduced.

There is no formal training or testing mechanism for drivers in Bangladesh. Most heavy vehicle drivers are privately taught by an experienced driver while working as an assistant. Trucking companies employ drivers on spot contracts with payments made on a per trip basis. This reduces the fixed cost component of paying drivers' wages and hence there is no incentive to train these drivers. Data compiled by the BRTA on 17 years of road crashes shows that about 47 percent of these crashes involve heavy vehicles.

A majority of the drivers of heavy vehicles do not have a license to drive such vehicles—instead, they drive using licenses for light or medium vehicles. As many as 70 percent of the licenses for heavy vehicles could be fake (PwC 2018). Even a majority of drivers with valid licenses could have obtained them through brokers without having to appear for a driving test (BRAC 2007). As such, most drivers do not have any understanding of traffic signs and markings (Uddin and Hoque 2003). Part of the problem could be the lack of BRTA's capacity to issue licenses. Although 2.5 million licenses for heavy vehicles are necessary, the government has issued only 1 to 1.2 million so far (Farhin 2017). Another part of the problem could be the written test, which excludes most potential drivers, who are illiterate, from the testing process.

The BRTA has approved 98 private motor driving schools in Bangladesh, 55 of which are in Dhaka. Since most of these schools only provide training to drive light vehicles, it has been argued that training cannot be made mandatory to receive a heavy vehicle driving license. Most trainees are interested in driving smaller vehicles, while very few drivers of

heavy or long-haul vehicles opt for training (Masum 2018). There are plans to train more than 130,000 drivers to drive both heavy and light vehicles by 2023. This effort will be jointly undertaken by the Bureau of Manpower, Employment and Training (BMET) and the Bangladesh Road Transport Corporation (BRTC) (Mamun 2018).

The BRTC now offers two to eight-week driving courses for motorcycles, light vehicles, medium vehicles, and heavy vehicles at 19 training centers. The BRTA has made a two-day refreshment course mandatory for drivers applying to renew their driver's license. Besides receiving basic training on road safety and traffic rules, drivers are encouraged to obtain and carry a valid driver's license while driving and to refrain from speeding.[2]

4.5 Post-Crash Care

Pillar 5 calls for an increased responsiveness to post-crash emergencies and improved delivery of emergency treatment and rehabilitation services for crash victims. It places an emphasis on enhanced hospital trauma care and timely rehabilitation, improved road user insurance schemes to finance rehabilitation services thorough crash investigation and victim compensation processes, and encouragement and incentives for the employment of disabled crash victims.

Emergency services

There are no processes or guidelines in Bangladesh to ensure the provision of emergency medical services to road crash victims at the crash site and for the protection of "Good Samaritans" who provide roadside care to victims. There are several numbers to access emergency care. The national emergency number is 999 and the health center number of the Directorate General of Health Services (DGHS) is 16263. The effectiveness of these numbers is not known (Hasan et al. 2017).

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According to the Bangladesh Health and Injury Survey 2016, two-thirds of the number of road traffic fatalities die on the way to hospital and three-fourths do not receive any form of pre-hospital care. Currently, less than 10 percent of all seriously injured crash victims in Bangladesh are transported by ambulance to their first point of emergency care. Ambulances are operating in a disjointed and scattered way. There is no clear policy on deploying ambulances. Private ambulances are available, but at prices that many cannot afford (Mehta 2015). Most hospitals also refuse to admit crash victims for treatment (*Daily Star* 2018).

Trauma care

Pre-hospital and hospital-based trauma care services are not well developed in Bangladesh. However, the experience of TraumaLink in providing on-the-spot first aid to crash victims in the past five years is encouraging. TraumaLink is operational over 135 kilometers in different stretches of three major highways across the country, drawing on a network of volunteers trained in basic trauma first aid. As discussed above, available ambulance services at best provide limited coverage and do not function effectively.

Essential trauma care is provided in large tertiary care hospitals and medical colleges. Primary and secondary care facilities do not have adequately trained human resources or equipment and supplies for essential trauma care. There is no emergency room-based injury surveillance system, and no system of trauma registries to monitor quality of trauma care. The GoB, in collaboration with the World Bank, is conducting an assessment of pre-hospital and hospital-based trauma care with the ultimate aim of improving the post-crash care system in the country.

Road user insurance

Third-party insurance is mandatory for all vehicles. This is usually complied with as the premiums are quite low.

BOX 2: ESTIMATION OF BANGLADESH'S ROAD SAFETY INVESTMENT NEEDS

The scale of the additional safety investment required to achieve a 50 percent reduction in crash fatalities in Bangladesh over the coming decade was estimated using analyses undertaken for the UN Road Safety Trust Fund (Bliss 2016; UNECE 2018). These analyses derived from findings of a previous study conducted by the GRSF (Guria 2008; Guria 2009). The GRSF study assessed the additional investment required to meet the Decade of Action for Road Safety 2011–2020 goal of stabilizing and reducing road crash fatalities by 2020. To prepare business-as-usual projections of country fatalities over a 10-year time frame, the GRSF study used previous World Bank study findings, that estimated the relationship between traffic fatalities and economic growth over the latter half of the twentieth century for 156 countries across WBG regions and high-income OECD countries (Kopits and Cropper 2003). Projected traffic fatalities and injuries for each country were then expressed in terms of social costs using estimated values of statistical life and serious injuries (Dahdah and McMahon 2008). Dividing these social costs by good practice benefit-cost ratios for safety engineering and enforcement programs provided estimates of the level of additional investment required to achieve a 50 percent fatality reduction. This was expressed as a percentage of country GDP and provided the foundation for the updated estimate of Bangladesh's additional road safety investment needs presented in this report (WBG 2019a).

5. The Way Forward in Bangladesh

5.1 Challenges Being Faced and Government Action

Road safety performance in Bangladesh is of concern when assessed in terms of the progress being made in addressing the five pillars that underpin the UN Global Plan (see Sections 4.1–4.5). Many deficiencies must be urgently addressed. Governance challenges impede the mobilization of a systemic, targeted, and sustained road safety program. Agencies responsible for road safety in Bangladesh are inadequately empowered and resourced to deal with escalating danger on their roads. Crash data and network safety performance data weaknesses undermine the capacity to develop a results-focused strategy and ensure its adequate coordination, legislative support, funding and resource allocation, promotion, monitoring and evaluation, and related research and development and knowledge transfer. More effective, efficient, and scaled-up initiatives are required to emulate the performance trajectories of high-income countries that define good road safety practice and provide a blueprint for action.

However, positive signs are emerging with the NRSC calling for the establishment of a national Road Safety Authority and a related Road Safety Fund to ensure adequate resourcing of proposed actions and their monitoring and evaluation. If delivered with urgency and strong government leadership, these proposed reforms will pave the way for sustained road safety success in Bangladesh.

5.2 Indicative Estimate of Investment Requirements

Poor road safety performance in Bangladesh signals a prevailing level of underinvestment in targeted initiatives, with only partial investment in the country's road safety strategy being reported (see Appendix A, Table A.3). Investment needs are substantial. Bangladesh will require an estimated additional investment of US$7.8 billion over the coming decade to achieve the SDG target of a 50 percent reduction in national road crash fatalities (see Box 2).

This estimate is indicative only and assumes that baseline road safety funding in Bangladesh follows a comparable investment path to that historically taken by high-income countries, with similar benefits being accrued. It also assumes that the additional investment made to improve infrastructure safety and road user safety behaviors will perform as well as the high-income country investments on which they are modelled.

5.3 Sequencing of Initiatives and Ensuring Inclusion

Considerable investment will be required to bring road safety performance in Bangladesh under control on a sustainable basis. This will require a long-term commitment and sustained vision from the GoB. Program initiatives will require proper sequencing as institutional capacity must first be strengthened to ensure agencies can effectively deliver safety services. For example, effective general deterrence-based road policing services in Bangladesh will require strong leadership and accountability from the police high command and operational staff. Robust vehicle and driver licensing systems will need to be well established and accessible by law enforcement agencies and regulatory authorities before the full power of road user safety compliance regimes can be exercised. Similarly, infrastructure safety design skills and tools will require strengthening. Initiatives taken

must be systematic and at scale. Capacity for this must be progressively built. Fragmented and partial responses over past decades have not reduced road crash casualties. As with other transport modes such as aviation, strategic commitment and action are needed to ensure that a systematic approach is in place to manage road safety (UNRSTF 2018).

Road safety initiatives must be inclusive of all road users and roadside communities, especially for those users that are most vulnerable and least protected in their road environments. Many road deaths and injuries in Bangladesh have a severe impact on the poor, including pedestrians, cyclists, and motorcyclists. Children are particularly at risk. Inclusive road user policies and integrated land use/transport planning and place-making are necessary to ensure urban and rural roads are safe and accessible for everyone.

5.4 Integrated Sustainable Mobility Priorities

Road safety initiatives in Bangladesh must be integrated with other sustainable mobility priorities, as will be highlighted at the 3rd Global Ministerial Conference on Road Safety. Securing network productivity, accessibility, decarbonization, and public health co-benefits of road safety investment is vital. Road safety cannot be addressed in isolation from these other desired outcomes without potentially being displaced by them.

5.5 Addressing Interurban and Urban Dimensions

In addressing the recommended road safety priorities for Bangladesh, consideration must be given to the interurban and urban dimensions of road safety delivery in the country. A significant proportion of national road crash deaths and injuries is incurred on higher-speed interurban roads, but cities and towns also take a heavy toll. SDG Target 11.2 puts the focus on universal access to safe transport in cities. Ensuring the provision of safe facilities for pedestrians, cyclists, and other nonmotorized modes in cities will enable significant growth in active transport modes and the achievement of related environmental and public health goals.

5.6 Investment Time Frames

When addressing the identified priorities for Bangladesh, it is important to recognize the time frames required to achieve the anticipated benefits of different initiatives. Road safety investments mature over the short to long term. Post-crash emergency and trauma services can bring benefits in the short term by enhancing survivability, and in the medium to long term with effective rehabilitation measures. Crash data and analysis systems can be established in the short to medium term and provide an essential key to the targeting, monitoring, and evaluation of safety programs to maximize their effectiveness and efficiency gains. Safety enforcement programs produce immediate and significant benefits in the short term and require ongoing investment to be sustained. Infrastructure safety programs take several years to plan and deliver, but then sustain medium to long term benefits; the benefits of improved vehicle safety standards are realized in the longer term on a sustainable basis, once they are prevalent in the national vehicle fleet.

5.7 Potential for Shared Regional Initiatives

While the focus of road safety initiatives is at the country level, the importance of regional contexts and country relationships within regions is generally well acknowledged. This is most apparent in transport infrastructure investment programs and regulatory considerations arising within integrated regional trade blocs and related regional and global logistics chains.

There is also an increasing recognition that policy initiatives at the regional level, in vehicle and infrastructure safety for instance, can complement and strengthen country road safety strategies and programs. Eight potential shared regional initiatives aligned with the five pillars of the UN Global Plan have been proposed for the South Asia region (WBG 2019b). For example, the proposed regional road safety observatory could assist the development of a crash data recording and management system in Bangladesh through regional and global knowledge sharing and transfer of good practice procedures and technologies.

5.8 Partnership Opportunities

The WBG and its UN partners remain engaged in productive dialogue with the GoB and its agencies to explore opportunities for future initiatives that can enhance road safety performance throughout Bangladesh. Decisions taken and directions provided by the 3rd Global Ministerial Conference on Road Safety will further guide this dialogue and support the mobilization of resources required to achieve sustainable success. In particular, there will be important opportunities for the multilateral development banks and the global and regional donor community to contribute to the financing and specialist support required for initiatives that address the five pillars of the UN Global Plan. Bangladesh faces formidable road safety challenges, but the benefits of overcoming them are rewarding and far outweigh the costs of the efforts needed. Future success will in part be determined by the vitality of the national, regional, and global partnerships that can be created to meet these challenges.

5.9 Recommended Actions

While poor quality crash fatality and injury data make it difficult to distinguish between road safety risks in Bangladesh, effective and efficient road safety solutions can be guided by global good practice. Proposed institutional reforms and scaled-up road safety programs will provide a solid foundation for improved performance over the next decade. Recommended actions for Bangladesh in the immediate/short, medium, and long terms are presented in Table 1.

Table 1: Recommended Actions

Actions

Global Plan Pillars	Immediate to Short Term (2020–22)	Medium Term (2023–26)	Long Term (2027–30)
Road Safety Management	• Develop rules that will allow for the effective implementation of the Road Transport Act 2018. • Establish Road Safety Authority and a Road Safety Fund, as recommended by National Road Safety Council (NRSC). • Prepare a detailed implementation plan for the NRSC road safety action recommendations and specify agency responsibilities, delivery timelines, performance measures, funding and coordination arrangements. • Commence development of a new national road safety strategy to 2030 with ambitious goals and targeted outcomes. • Prepare specification for national crash database management and analysis system that provides access for all agency partners and stakeholders.	• Operationalize and strengthen lead agency role of Road Safety Authority. • Operationalize and strengthen resource allocation role of Road Safety Fund. • Launch national road strategy to 2030 with agency performance targets and performance measures. • Commence development and rollout of national crash database management and analysis system. • Strengthen research and knowledge transfer role of Accident Research Unit in delivery of national road safety strategy to 2030	• Review and reform where required Road Safety Authority lead agency functions to ensure effective and efficient delivery of road safety strategy to 2030. • Review role of Road Safety Fund and funding sources and requirements to ensure achievement of road safety strategy to 2030 performance targets. • Undertake ongoing development and upgrading of national crash database management and analysis system.
Safer Roads and Mobility	• Undertake risk assessment of the national highways network and identify targeted interventions to improve the safety of high-risk sections. • Review and update existing road safety standards, designs and manuals to better incorporate safety into road planning and design processes. • Develop road safety design, audit and inspection skills through comprehensive professional training programs.	• Increase allocation of maintenance budget to support infrastructure safety requirements. • Retrofit safety barriers and traffic-calming measures for the benefit of all road users along national and other major highways • Launch road junctions safety improvement program. • Establish weighbridges on all national highways to control overloading of trucks. • Establish accreditation and national registry of road safety auditors. • Implement pilot projects to demonstrate and evaluate innovative infrastructure safety standards and designs.	• Reclassify network road types in terms of link and place functions and set safe speed limits • Review and update infrastructure safety standards, designs and manuals to address new network road type classifications and speed limits. • Upgrade road safety design, audit and inspection skills through comprehensive professional training programs.
Safer Vehicles	• Undertake review of vehicle import regulations and related safety standards for seat belts, child restraints frontal and side impacts, electronic stability control, pedestrian protection and motorcycle anti-lock braking systems. • Undertake review of vehicle safety certification and inspection regimes, and related business models. • Review opportunities for regional harmonization of heavy vehicle size and weight regulations.	• Improve and regulate vehicle safety standards. • Strengthen vehicle certification and periodic inspections services. • Establish safety accreditation mechanisms for members of the commercial vehicle body building industry.	• Launch fleet modernization program for commercial vehicles. • Review opportunities for improved light and heavy vehicle safety standards. • Implement harmonized regional heavy vehicle size and weight regulations.

Global Plan Pillars	Immediate to Short Term (2020–22)	Medium Term (2023–26)	Long Term (2027–30)
Safer Road Users	• Enact the Highway Police Act with executive powers to prosecute violators. • Introduce good practice Blood Alcohol Concentration limits for drivers, seat belt and child restraint laws and laws restricting mobile phone use while driving. • Modernize the Highway Police with equipment, vehicles, systems, and professional training. • Undertake review of driver licensing and insurance systems.	• Implement proactive road policing programs targeting speeding, drink-driving and comprehensive use of seat belts and helmets, supported by intensive marketing and media campaigns and community partnerships to control unsafe road user behaviors that result in high crash fatality and injury rates. • Launch targeted safety programs for vulnerable road users. • Launch comprehensive training programs for commercial drivers. • Implement improvements to driver licensing and insurance systems.	• Review effectiveness and efficiency of road policing programs and opportunities to further reduce unsafe behaviors.
Post-Crash Care	Review effectiveness and efficiency of emergency medical and rehabilitation services and prepare operational guidelines to address crash scene, pre-hospital, hospital and longer-term rehabilitation procedures. • Assess the effectiveness of the universal phone number (999) to call for first responder emergency services and implement necessary improvements. • Review road user insurance schemes and evaluate options for improvement.	• Ensure provision of post-crash services along major highways to improve emergency notification, speed of response of medical personnel, correct diagnosis at the crash scene, stabilization of patients, prompt transport to point of treatment and extensive rehabilitation support. • Implement improved road user insurance schemes. • Ensure legal protection of "Good Samaritans" who provide roadside care to crash victims. • Establish emergency room-based injury surveillance systems.	• Support development of integrated linkage of police, hospital and insurance crash fatality and injury data. • Review and evaluate improvements to post-crash services and identify priorities for future development.

Appendix A: Regional Road Safety Benchmarks

Table A.1. Regional Vehicle Fleet Composition

Vehicles	Country				
	Bangladesh	Bhutan	India	Nepal	Sri Lanka
Vehicles (per 1,000 people)	18	109	159	81	327
Motorized 2 and 3-wheelers (per 1,000 people)	12	12	117	53	232
Percentage of vehicle fleet	69%	11%	73%	66%	71%
Cars and 4-wheeled light vehicles (per 1,000 people)	3.8	70	29	6.5	35
Percentage of vehicle fleet	21%	65%	18.3%	8%	10.7%
Trucks (per 1,000 people)	1	16	3.4	1.9	37
Percentage of vehicle fleet	6%	15%	2.1%	2.4%	11.2%
Buses (per 1,000 people)	0.4	0.9	1.5	1.8	2.5
Percentage of vehicle fleet	2.2%	0.8	0.9%	2.2%	0.8%

Source: *WBG 2019a*

Note: The data presented are from WHO 2018.

Table A.2. Regional Road User Fatality Risks

Fatality risks	Country				
	Bangladesh	Bhutan	India	Nepal	Sri Lanka
Fatalities per 100,000 people	13.6	15.1	16.6	17.0	17.4
Fatalities per 10,000 vehicles	102.1	16.7	13.0	40.0	7.1
Pedestrian fatalities per 100,000 people	4.4	0.5	1.5	-	5.0
Pedestrian fatalities per 10,000 vehicles	32.7	0.5	1.2	-	2.1
Cyclist fatalities per 100,000 people	0.3	0	0.7	-	1.9
Cyclist fatalities per 10,000 vehicles	2.0	0	0.5	-	0.8
Motorized 2 and 3-wheeler fatalities per 100,000 people	1.5	0.3	5.6	-	7.1
Motorized 2 and 3-wheeler fatalities per 10,000 vehicles	11.2	0.3	4.4	-	2.9
Motorized 2 and 3-wheeler fatalities per 10,000 2/3 wheelers	17.5	2.3	6.1	-	4.2
Car & light vehicle driver fatalities per 100,000 people	1.8	7.0	1.2	-	0.4
Car & light vehicle driver fatalities per 10,000 vehicles	13.3	7.7	0.9	-	0.1

Fatality risks	Country				
	Bangladesh	Bhutan	India	Nepal	Sri Lanka
Car & light vehicle driver fatalities per 10,000 cars & light vehicles	50.6	11.3	3.8	-	0.9
Car & light vehicle passenger fatalities per 100,000 people	3.8	7.4	1.7	-	0.7
Car & light vehicle passenger fatalities per 10,000 vehicles	28.6	8.2	1.3	-	0.3
Car & light vehicle passenger fatalities per 10,000 cars & light vehicles	109.0	12.0	5.4	-	1.8
Truck driver & passenger fatalities per 100,000 people	0.8	-	2.2	-	0.4
Truck driver & passenger fatalities per 10,000 vehicles	6.1	-	1.7	-	0.1
Truck driver & passenger fatalities per 10,000 trucks	90.2	-	66.5	-	2.2
Bus driver & passenger fatalities per 100,000 people	1.1	-	1.2	-	0.4
Bus driver & passenger fatalities per 10,000 vehicles	8.2	-	0.9	-	0.1
Bus driver & passenger fatalities per 10,000 buses	286.6	-	86.7	-	7.9

Source: *WBG 2019a*

Note: The data presented are derived from the WHO 2015 as these provide the most comprehensive picture of country road user risks for global and regional comparative purposes that is currently available. However, related data for Nepal was unavailable for these purposes, as was data for truck and bus driver and passenger risks in Bhutan. *Fatalities per 100,000 people* measure personal, or population, safety and for this reason are the favored indicator for country public health assessments. High rates indicate low levels of personal safety. *Fatalities per 10,000 vehicles* measure traffic safety and provide a rough surrogate measure for fatalities per volume of vehicle travel, given the general unavailability of reliable traffic data. High rates also indicate low levels of traffic safety. *Fatalities per 10,000 vehicles by type* provide a useful measure of traffic safety in terms of the population of vehicles of that type, rather than in terms of the total vehicle fleet.

Table A.3. Country Road Safety Measures

UN Global Plan Pillars	Bangladesh	Bhutan	India	Nepal	Sri Lanka
Pillar 1: Road Safety Management					
Designated lead agency	**Yes**	Yes	Yes	Yes	Yes
Funded in national budget	**No**	Yes	Yes	Yes	No
National road safety strategy	**Yes**	Yes	Yes	Yes	Yes
Funding to implement strategy	**Partial**	Partial	Partial	Partial	Partial
Fatality reduction target	**Yes**	Yes	Yes	Yes	Yes
Pillar 2: Safer Roads and Mobility					
Audits/star rating required for new road infrastructure	**Partial**	Yes	Partial	Partial	Partial
Design standards for the safety of pedestrians/cyclists	**Yes**	Yes	Yes	Partial	Partial
Inspections/star ratings of existing roads	**Yes**	Yes	Yes	Yes	No
Investments to upgrade high-risk locations	**Yes**	Yes	Yes	No	Yes
Policies promoting walking and cycling	**No**	Yes	No	No	Subnational
Policies and investment in urban public transport	**Yes**	Yes	Yes	Yes	No
Pillar 3: Safer Vehicles					
Seat belt standards	**No**	No	Yes	No	No
Seat belt anchorage standards	**No**	No	Yes	No	No
Child restraint standards	**No**	No	No	No	No
Frontal impact standards	**No**	No	Yes	No	No
Side impact standards	**No**	No	Yes	No	No
Electronic stability control standards	**No**	No	No	No	No
Pedestrian protection standards	**No**	No	Yes	No	No
Motorcycle anti-lock braking system standards	**No**	No	Yes	No	No
Pillar 4: Safer Road Users					
National speed limit law	**Yes**	Yes	Yes	Yes	Yes
Maximum urban speed limit	**Yes**	Yes	Yes	Yes	Yes
Maximum rural speed limit	**Yes**	Yes	Yes	Yes	Yes
Maximum motorway speed limit	**Yes**	Yes	Yes	Yes	Yes
National drink-driving law	**Yes**	Yes	Yes	Yes	Yes
BAC limit—general population	**No**	Yes	Yes	No	Yes
BAC limit—young or novice drivers	**No**	Yes	Yes	No	Yes
BAC limit—professional/commercial drivers	**No**	Yes	Yes	No	Yes

UN Global Plan Pillars	Bangladesh	Bhutan	India	Nepal	Sri Lanka
Random breath testing carried out	**Yes**	Yes	Yes	Yes	No
National drug driving law	**Yes**	Yes	Yes	No	Yes
National motorcycle helmet law	**Yes**	Yes	Yes	Yes	Yes
Helmet law applies to drivers and passengers	**Yes**	Yes	Yes	Yes	Yes
Law requires helmet to be fastened	**No**	Yes	Yes	No	No
Law refers to helmet standard	**Yes**	Yes	Yes	No	Yes
Child passengers on motorcycles	**Not restricted**	Not restricted	Not restricted	Not restricted	Not restricted
National seat belt law	**No**	Yes	Yes	Yes	Yes
Law applies to front and rear seat occupants	**No**	Yes	Yes	No	No
National child restraint law	**No**	No	No	No	No
Restrictions on children sitting in front seat	**No**	No	No	No	Not restricted
National law on mobile phone use while driving	**No**	Yes	Yes	Yes	Yes
Law prohibits hand-held mobile phone use	**No**	Yes	Yes	No	Yes
Law also applies to hands-free mobile phones	**No**	No	Yes	No	No
Pillar 5: Post-Crash Response					
National emergency care access number	**Partial**	Yes	Partial	Partial	Partial
Trauma registry	**No**	No	Partial	Partial	Partial
Formal certification for prehospital providers	**No**	Yes	Yes	No	No
National assessment of emergency care systems	**No**	No	No	No	No

Source: WBG 2019a

Note: The data presented are from WHO 2018.

Appendix B: WBG Road Safety Engagement in Bangladesh

WBG road safety engagement in Bangladesh has been slowly growing over the past decade and has included the following initiatives:

- Road Safety Management Capacity Review (2007): This recommended strengthening of institutional management functions across government on an urgent and sustainable basis. The review cited the lack of effective ownership of multisectoral challenges, clearly mandated road safety goals, delivery partnerships, sustainable and transparent funding, and performance monitoring as key weaknesses. Most of its recommendations are yet to be implemented.

- Bangladesh Second Rural Transport Improvement Project (2012): This produced a Safety Manual for Rural Roads, Road Safety Audit Guidelines and Training, and a Community Road Safety Program.

- Clear Air & Sustainable Environment Project (2009–18): This implemented road safety improvements in the city of Dhaka, including 70 kilometers of sidewalks, 23 pedestrian bridges, 39 high-risk intersection improvements, and 86 traffic signals.

- Ongoing technical assistance program (current): This program is piloting an online crash data collection platform DRIVER (Data for Road Incident Visualization, Evaluation and Reporting) with Dhaka Metropolitan Police and supporting sidewalk design enhancement initiatives with Dhaka South City Corporation. Recommendations for reforming road safety management are also being developed.

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Endnotes

1 Police First Information Report (FIR). Defined as died at scene of crash.

2 Data are derived from Global Burden of Disease (database), Institute for Health Metrics and Evaluation, University of Washington, Seattle, (accessed August 1, 2019), https://vizhub.healthdata.org/gbd-compare/. GBD relies on data from vital registration, verbal autopsy, mortality surveillance, censuses, surveys, hospitals, police records, and mortuaries, and applies the International Classification of Diseases (ICD), adjusting for ill-defined causes of death. The ICD does not use a time limit after the road crash to attribute it as a cause of death.

3 The significant variation in statistics of road safety fatalities between official national estimates and those of international studies is noteworthy. In this report use is made of WHO data where relevant as they provide a reasonably consistent coverage of vehicle fleets, road user fatality risks, management arrangements and legislation. Note that the WHO fatality data are adjusted to account for estimated levels of country underreporting. Care is taken to use this data to get a sense of relative performance rankings, rather than focusing on absolute performance measures.

4 Data are derived from Global Burden of Disease (database), Institute for Health Metrics and Evaluation, University of Washington, Seattle, (accessed August 1, 2019), https://vizhub.healthdata.org/gbd-compare/.

5 Data are derived from Global Burden of Disease (database), Institute for Health Metrics and Evaluation, University of Washington, Seattle, (accessed August 1, 2019), https://vizhub.healthdata.org/gbd-compare/.

6 2019. Data provided by the Accident Research Institute, Bangladesh University of Engineering & Technology, Dhaka.

7 For example, see South Australia's Road Safety Strategy to 2020, *Towards Zero Together*, and New Zealand's Road Safety Strategy 2010–2020, *Safer Journeys*.

8 According to the Motor Vehicle Act, the maximum speed limit on highways is 80 kilometers per hour, while it is 40 kilometers per hour in the cities.

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