ASSESSING THE MATURITY OF NATIONAL ROAD SAFETY MANAGEMENT SYSTEMS

Martin Small, Phillip Jordan, Michael Anyala, David Shelton, and Rebecca Stapleton

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FOREWORD

Over 90% of estimated global road traffic deaths occur in low- and middle-income countries, with over 65% of the total in Asia and the Pacific. Many factors contribute to the high casualty figures, including a persistent lack of effective management and a poor focus on results at a country level.

The Asian Development Bank (ADB) is committed to helping its developing member countries as they address the social and economic burdens of road trauma, including the expansion of their institutional capacity for implementing evidence-based interventions.

Key ADB actions in road safety include sustained investment in road construction and upgrading, training and awareness raising for the public and private sectors, and co-founding the Asia-Pacific Road Safety Observatory. These initiatives illustrate ADB's strategic Safe System approach to road safety and its efforts to lift performance across the multiple sectors which can influence road safety.

Baselining and monitoring country road safety capacity development helps ADB and its member countries target actions and take the most beneficial next steps in strengthening country road safety capacity. This assessment framework provides a guiding methodology for planning future country assistance.

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I. INTRODUCTION

The Asian Development Bank (ADB) commissioned a study, as part of its work with member countries in South Asia, to develop and test a way of assessing the maturity of national road safety management systems.

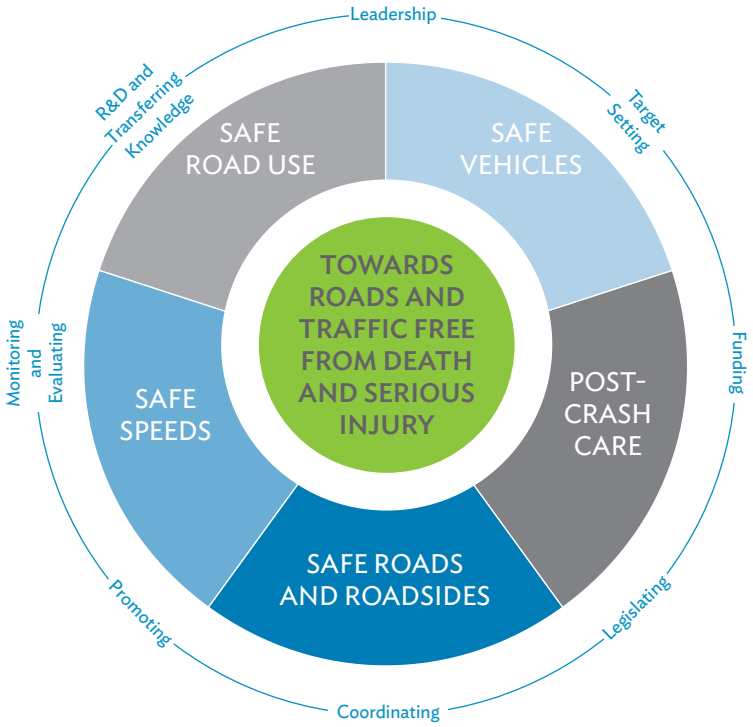
This paper describes the theoretical and analytical foundations of the resulting maturity assessment framework, how the framework was developed and applied, and how it can be used to support ADB operations and road safety improvement in developing member countries.

II. SAFE SYSTEM APPROACH

This study used the Safe System Approach as a theoretical foundation, which looks beyond individual road behavior and addresses the underlying environment affecting road user safety. With the elimination of serious road trauma as its ultimate goal, this approach (Figure 1) seeks to address every element of the road traffic system (management, roads, vehicles, user, speed, and medical care) to eliminate death and injury—even though crashes may still occur—by controlling the energy of impact on the human body in the event of a crash.[1]

[1] See International Transport Forum. 2016. *Zero Road Deaths and Serious Injuries: Leading a Paradigm Shift to a Safe System*. Paris, OECD Publishing.

Figure 1: A Safe System



R&D = research and development.

Source: Loughborough University Design School Safe System Course. 2017.

Some underpinning Safe System principles to guide public policy decision-making in road safety are:

(i) People make mistakes that can lead to road crashes.
(ii) The human body has a limited physical ability to tolerate crash forces before harm occurs.
(iii) There is a shared responsibility among those who design, build, manage, and use roads and vehicles and provide post-crash care to prevent crashes resulting in serious injury or death. However, those who design, build, and manage roads carry the ultimate responsibility for safety.
(iv) All parts of the system must be strengthened to multiply their effects. If one part fails, road users are still protected.

This approach to road safety is based on a practical and ethical response to the essential question asked when road trauma occurs—how can we stop this from happening again? The value of the Safe System approach is being demonstrated in well-performing, high-income countries and, increasingly, in low- and middle-income countries where the safety challenges appear more intractable.

Safe infrastructure design and management, survivable traffic speeds, well-regulated vehicle and driver controls, and effective post-crash responses promulgated through maturing national road safety management systems will help reduce road trauma. The Safe System approach is a cornerstone of ADB's agenda on sustainable transport for all.

A. Multilateral Consensus

The Safe System approach has been adopted globally by multilateral institutions and regional forums. It underpins the most recent United Nations General Assembly resolution declaring the Second Decade of Action on Road Safety 2021–2030.[2]

The first Decade of Action aimed to "stabilize and then reduce" road traffic deaths, thereby achieving the first objective, but the actual number of deaths estimated by the World Health Organization (WHO) has edged up to 1.35 million each year.

Significantly, during the first Decade of Action, road traffic injury was recognized for the first time as a major development issue within the UN Sustainable Development Goals (SDG).[3] Across low- and middle-income countries, road traffic injury is a gateway to poverty, with multiple social and economic impacts on families and communities.

SDG 3, Good Health and Wellbeing, includes a 2020 road safety target, and the United Nations General Assembly resolution extended this to a target of halving road traffic deaths and injuries by 2030. SDG 11, Sustainable Cities and Communities, includes a target of making cities and human settlements inclusive, safe, resilient, and sustainable by 2030.

A global plan of action has been prepared for the Second Decade of Action which will influence national and regional road safety projects and wider ADB road safety initiatives, such as the Asia-Pacific Road Safety Observatory.[4]

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2 *Global Plan for the Decade of Action for Road Safety 2021–2030.*
Items highlighted included: political commitment, performance targets, national road safety management systems, multisectoral and multistakeholder collaboration, scaled up funding, dedicated budgets, institutional capacity building, road safety knowledge, awareness and publicity, legislation and enforcement on restraints, helmets, alcohol, speeding and distraction, safer road infrastructure, UN vehicle safety regulations, periodic assessment of vehicles, consumer information on vehicle safety, environmentally sound, safe and affordable transport, pedestrian safety and cycling mobility, protection of children, youth, older persons and persons with disabilities, comprehensive legislation and policies on motorcycles, a fully integrated gender perspective, strengthened pre-hospital care, early rehabilitation and social reintegration for injured persons, industry contributions to road safety goals through procurement, and safer practices.

3 See United Nations *Make the SDGs a Reality*.

4 World Health Organization. 2021. *Global Plan for the Decade of Action for Road Safety 2021–2030.*

III. ASSESSMENT FRAMEWORK

Several frameworks were considered when preparing this road safety maturity assessment framework, including the United Nations Road Safety Trust Fund and the Global Road Safety Facility of the World Bank.[5]

The Global Road Safety Facility framework was particularly influential because of its emphasis on institutional foundations, which were considered relevant across Asia. The assessment framework was developed from the notion that effective national road safety management systems tend to have three linked elements: (i) well-organized institutional management functions, which; (ii) produce high-quality interventions, which; (iii) in turn, produce the results sought.

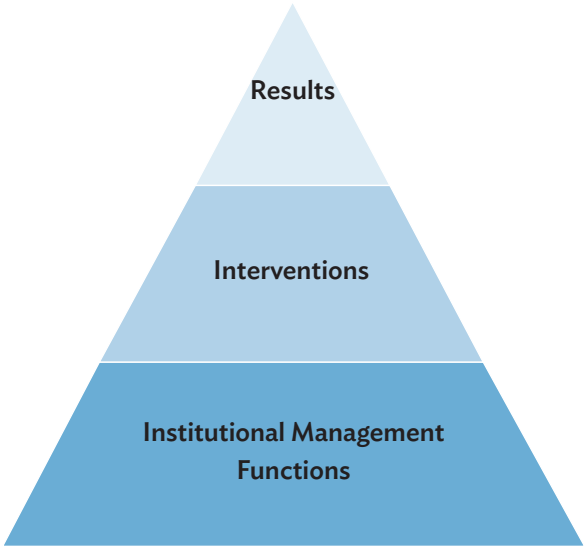
Fifteen dimensions across these three elements were identified as part of the ADB framework (Figure 2).

Figure 2: ADB Road Safety Framework Elements and Dimensions

Results
1. System level results

Interventions
2. Speeds
3. Roads and roadsides
4. Vehicles
5. Road users
6. Post-crash care
7. Minimizing road use

Institutional Management Functions
8. Coordination
9. Leadership and target setting
10. Legislation
11. Funding allocation
12. Promotion and advocacy
13. Monitoring and evaluation
14. Research and development and knowledge transfer
15. Lead agency role



Source: Asian Development Bank.

[5] United Nations Road Safety Trust. 2018. *Global Framework Plan of Action for Road Safety*. Geneva; and A. Bliss and J. Breen. 2013. *Road Safety Management Capacity Reviews and Safe System Projects Guidelines (Updated Edition)*: Washington, DC, Global Road Safety Facility.

The United Nations Road Safety Trust Fund framework provided valuable additional concrete expression of actions and options available to demonstrate different levels of maturity, which were explored further in a questionnaire. This allowed greater investigation of different levels of maturity within national road safety management systems.

A. National Road Safety Maturity

National road safety management systems do not mature in a linear fashion. Several ADB developing member countries report that while the preparation of legislation is well organized (and could be improved), implementation of that legislation often lags well behind. Progress can be assessed over time and across each of the three elements and fifteen dimensions. Five levels of road safety maturity were identified and applied across each dimension.

At an aggregate country level, the maturity of the national road safety management system can be considered in terms of the:

(i) overall climate of concern for road safety,
(ii) focus of the safety-related activity, and
(iii) government preparedness to invest in road safety.

Table 1 presents five levels of maturity.

Table 1: ADB Road Safety Framework Maturity Levels

Maturity Level	Climate of Concern	Focus of Activity	Preparedness to Invest
Vulnerable	No concern climate	Accept that road trauma happens	Little or no government investment
Emerging	Blame climate	Prevent road trauma	Minor government investment but some appetite
Developing	Compliance climate	Develop road trauma prevention systems	Moderate government investment
Maturing	Systems climate	Improve trauma prevention systems	High government investment in multiyear programs
Advanced	Ownership climate	Integrate prevention systems into business	Investment levels directly linked to outcome targets

Source: Asian Development Bank.

These five levels of maturity were described across each of the 15 dimensions. The advanced level served as the base (i.e., the level of maturity to be aspired to) as can be discerned clearly from the Global Road Safety Facility framework. This advanced level of maturity is demanding and many high-income countries do not meet all the criteria.

Annex 1 describes the assessment framework maturity levels. This description allowed for a more detailed investigation of a country's road safety maturity (Table 2).

Table 2: ADB Road Safety Maturity Framework Summary

ELEMENT	DIMENSION	MATURITY				
		Vulnerable	Emerging	Developing	Maturing	Advanced
Results	System level results					
Interventions	Speeds					
	Roads and roadsides					
	Vehicles					
	Road users					
	Post-crash care					
	Safe mobility					
Institutional management functions	Coordination					
	Leadership					
	Legislation					
	Funding and allocation					
	Promotion and advocacy					
	Monitoring and evaluation					
	Research and knowledge					
	Lead agency role					

Source: Asian Development Bank.

A draft maturity assessment framework was presented for discussion at a workshop of South Asian member countries in November 2020.

IV. QUESTIONNAIRE

To test the applicability and relevance of maturities within a country, an assessment team (Chapter 5) prepared and circulated a questionnaire to country representatives in December 2020 (Annex 2).

The questionnaire comprised 65 questions across the 15 dimensions, with some additional high-level guidance and resources provided for reference. At the beginning of each section, the dimension was defined and a rationale was provided.

As much as possible, the questions were designed with reference to specific actions, milestones, programs, and policies relevant to that dimension. A rating guide (Table 3) was prepared and each question was assigned to cover three broad areas:

(i) ***Standards*** refer to any primary, secondary, and tertiary law or administrative practice or process documented by a competent statutory authority.
(ii) ***Compliance*** refers to adherence to the above standards by any responsible person, including those persons responsible for achieving compliance.
(iii) ***Resources*** refer to the human (professional and technically knowledgeable staff), financial (capital and operating budgets), and systems resources applied.

The rating for each question was thus aligned to the levels of maturity, although it allowed for 10 rating points.

Table 3: Questionnaire Rating Guide

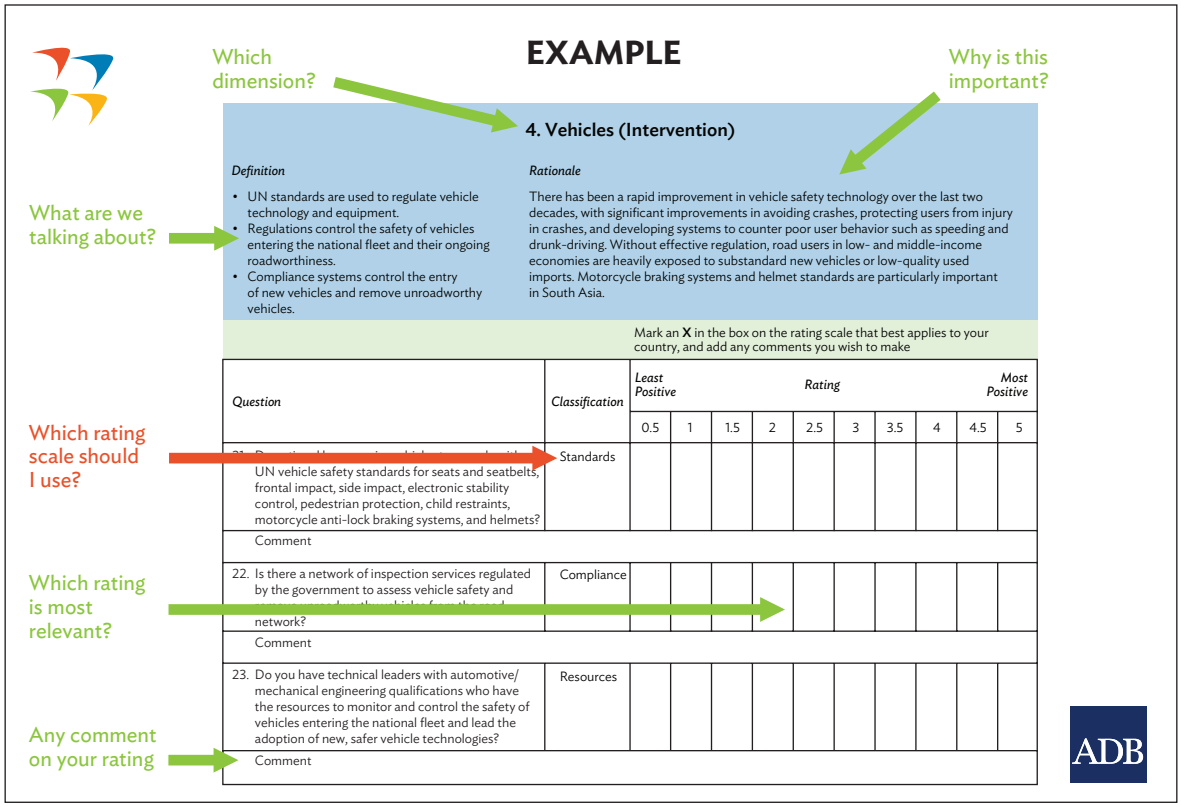
Rating	Standards	Compliance	Resources
1	**Not in place—**This dimension has either not been recognized or no meaningful action has been taken to develop standards or guidance.	**Poor—**There is little if any knowledge of or compliance with the required user or professional standards.	**Unsatisfactory—**Human, financial, and system resources are heavily constrained and completely inadequate to tackle the problem.
2	**Underway—**This dimension is recognized and a standards development plan is being prepared or implemented.	**Basic—**There is some knowledge and some compliance but overall safety performance remains poor.	**Needs Investment—**There are competent staff and organizational systems to deliver safety improvements, if properly resourced.
3	**Recently developed—**Standards have been recently approved and are being promulgated with appropriate training.	**Satisfactory—**User and professional knowledge is widespread and there is reasonable compliance with the standards.	**Reasonable—**Skills, finances, and systems are in place to achieve sustained reductions in road trauma.
4	**Established—**Standards have been in place for several years and are supported by more detailed requirements and training programs.	**Good—**There is a widespread understanding of critical standards and generally widespread compliance.	**Sufficient—**Human, financial, and systems resources allow governments to set operational and performance targets and achieve results.
5	**Fully embedded—**A full suite of standards, guidelines and training materials are documented and embedded in professional practice.	**Exceptional—**Users and professionals have internalized the standards and there are few instances of noncompliance.	**Outstanding—**The investment needs, allocation systems, and funding streams to achieve far-reaching safety goals are in place.

Source: Asian Development Bank.

A briefing was provided to the country delegations in January 2021 after the questionnaire was circulated. This briefing included a background analysis of the rationale for the dimensions and focused on explaining the process of completing the questionnaire. Figure 3 explains the questionnaire design.

Delegation leaders were encouraged to be somewhat flexible when circulating the questionnaires to key stakeholders. It was intended that the questionnaire be completed by any key stakeholder, taking into account the different levels of professional understanding and institutional responsibility.

Figure 3: Explanation of the Questionnaire



Source: Asian Development Bank.

Respondents completed the questionnaires and returned them for review and discussion. Where multiple forms were returned from one country, the scores were averaged and then aggregated into one score for each of the 15 dimensions. Drawing on experience, research, and country responses, the assessment team recorded a score for each of the 15 dimensions, adding comments on the most important aspects of each dimension.

The maturity ratings for each dimension were used to identify national priorities along with a consideration of those issues likely to generate the greatest road safety traction in the country based on the assessment team's observations, research, and the country responses. For example, research and development activity consistently rated low, but better collection and analysis of crash data is likely to be of greater immediate benefit. Hence, one country's overall national priorities can be identified as:

(i) road safety data,
(ii) speed management,
(iii) safer roads,
(iv) commercial transport safety, and
(v) vulnerable users.

The strategic need within these priorities can then be specified and incorporated into project pipelines.

V. USING THE FRAMEWORK

The framework allows authorities to comprehensively analyze and develop national road safety efforts without undue focus on a particular aspect. By looking at institutional management functions, it allows for consideration of underlying capability needs, for example:

(i) Does the road safety lead agency need strengthening?
(ii) Are sufficient resources being invested in road safety?
(iii) Is there a credible crash data management system?

The context for road safety is different in each country. The framework allows the country context to be revealed and considered alongside other countries undertaking maturity assessments. Annex 3 summarizes an example of using the framework.

Maturity assessment supports the preparation of a suite of high-quality, strategically oriented road safety project options that can be incorporated into transport projects or national action plans within each country. Possible examples include:

(i) crash data system upgrades,
(ii) legislative policy reviews of driver or vehicle regulation,
(iii) road traffic enforcement training and equipment,
(iv) national road assessment projects,
(v) road safety investment plans, and
(vi) road safety capacity-building programs.

The framework provides an analytical foundation for finding the best path forward. It allows for an initial assessment of a country's road safety maturity, which requires further consideration. Greater familiarity with the concepts and processes on which the framework is based will deepen the understanding of a country's maturity. This could lead to a documented maturity rating declining as an understanding of the current maturity level becomes more realistic and comprehensive and actual requirements are demonstrated.

Using this framework should, therefore, be considered part of a wider learning process. The ratings are intended to be indicative, not conclusive, and to reveal particular areas of weakness that could be improved and areas of strength that could be further developed. They may reflect current fatalities and serious injuries but are not otherwise intended to report on performance.

The framework's value lies in its analytical support for developing national and, potentially, regional priorities as a recognized framework for road safety analysis within ADB. It is also a way of standardizing the diagnosis of road safety nationally and regionally within Asia and the Pacific. ADB South Asia member countries have broadly accepted the first use of the framework. It can be further tested and refined as it is used for road safety analysis more widely within ADB operations and is likely to become more valuable over time as road safety progresses in countries around the region.

The framework's analytical foundation for road safety is considered relevant in low- and middle-income countries across Asia and elsewhere. By describing the levels of maturity with reference to specific actions, milestones, programs, and policies, the framework is relatively accessible to technical and executive leadership. However, it is a technical reference for country road safety management systems and should be used by professionals technically proficient in road safety management. A team of at least two such professionals is recommended for conducting an assessment. ADB and the Asia-Pacific Road Safety Observatory are available to support member countries undertaking assessments.

ANNEX 1: ROAD SAFETY MATURITY ASSESSMENT FRAMEWORK

VULNERABLE	EMERGING	DEVELOPING	MATURING	ADVANCED
SYSTEM LEVEL RESULTS				
• Road trauma is not identified as a national problem. • There is no current national road safety strategy or action plan. • Crash and injury data is collected using a paper-based system, but not systematically. • A lead agency may be nominated but is not operational. • Government agencies react to road crashes.	• Road trauma is identified as a national problem but there is no certainty about the best steps to be taken. • A national road safety strategy or action plan has been prepared. • The lack of crash and injury data is identified as a problem. • A lead agency is operational but its role is not defined. • Government agency responses focus on user behavior.	• A national strategy with vision and targets has been set. • An action plan has been agreed on and implementation is beginning. • Data is collected more systematically and a crash database has been established. • The role of the nominated lead agency is recognized by stakeholders and may be incorporated into legislation. • Government agencies have a unit with responsibility for road safety. • The potential workplace role of businesses in improving safety is recognized.	• A national strategy has been set with ambitious targets and a vision of elimination. • Successive multi-year action plans are developed and implemented. • A mature road crash data system is in place between transport and police agencies and injury data from the health sector is regularly collected and analyzed. • The lead agency role is defined and differentiated from the road safety roles of other national government agencies. • All government agencies are reporting regularly on road safety. • Road safety responsibilities in the workplace are recognized and acted on by a growing number of businesses.	• Design standards and guidelines are published and applied to engineering treatments to manage speeds within safe impact thresholds for road types and area-use types. • Legal speed limits are aligned with the safe impact thresholds accepted within a Safe System approach for road types (e.g., national, regional, city) and for area-use types (e.g., the proximity of schools, shops, and houses). • A full range of general deterrent speed enforcement policies and practices are in place, such as on-road police enforcement and automated fixed, mobile, and average speed cameras. • Speed enforcement is supported by high-profile campaigns to maximize the perceived risk of detection. • Speeding fines and license sanctions are aligned with penalties from similar risk alcohol offenses and severe enough to support general deterrence. • Police crash reporting protocols include a clear definition of the speed-related crash to enhance the correct recording of key factors and discontinue the use of imprecise factors such as “reckless driving.” • Vehicle interventions are in place and enforced to control speeds such as speed-limiting trucks and buses, intelligent speed assist, and continuous speed monitoring on commercial vehicles.

Continued on next page

Annex 1: continued

VULNERABLE	EMERGING	DEVELOPING	MATURING	ADVANCED
INTERVENTIONS: SPEEDS				
• There are no rules or guidelines for using engineering treatments to control speeds. • There is uncertainty about the speed limits on each road and little, if any, enforcement of those limits. • There are no public campaigns and fines for offending drivers are very low.	• There are no rules or guidelines for using engineering treatments to control speeds. • Default speed limits are in place for urban and rural roads. • Enforcement of speed limits are sporadic. • Speeding is recognized as a critical crash/injury issue. • Public campaigns exhort drivers to slow down, and there is recognition that the fines for offending drivers are very low.	• Some standardized engineering practices are in place to slow vehicles in high pedestrian areas, such as speed bumps. • Speed limits are revised downward from the default limit on an ad hoc basis for specific roads and areas. • Handheld radar enforcement of speed limits are undertaken along with training. • Speeding is widely understood as a major issue, reinforced in public campaigns, and fines may be increased. • Lower speed limits may be applied to particular vehicles such as powered two-wheelers, trucks, and buses.	• Design standards are published and applied for engineering treatments to manage speeds. • Speed limits are systematically reviewed downward from the default limit, focusing on road types and area treatments. • Automated speed enforcement systems are deployed and linked with driver and vehicle databases to ensure compliance. • Speed management is recognized as a critical road safety issue and reporting protocols are introduced to better reflect this. • Public campaigns reinforce the perceived risk of detection and driver sanctions are significantly increased. • Commercial transport operators are required to control speed through limiting devices.	Design standards and guidelines are published and applied for engineering treatments to manage speeds within safe impact thresholds for road types and area-use types. Legal speed limits are aligned with the safe impact thresholds accepted within a Safe System approach for road types (e.g., national, regional, city), and for area-use types (e.g., proximity of schools, shops, houses). A full range of general deterrent speed enforcement policies and practices are in place, such as on-road police enforcement and automated fixed, mobile, and average speed cameras. Speed enforcement is supported by high-profile campaigns to maximize the perceived risk of detection. Speeding fines and license sanctions are aligned with penalties for similar risk alcohol offenses and severe enough to support general deterrence. Police crash reporting protocols include a clear definition of a speed-related crash to enhance the correct recording of key factors and discontinue the use of imprecise factors such as “reckless driving.” Vehicle interventions are in place and enforced to control speeds, such as speed-limiting trucks and buses, intelligent speed assist, and continuous speed monitoring on commercial vehicles.

Continued on next page

Annex 1: continued

VULNERABLE	EMERGING	DEVELOPING	MATURING	ADVANCED
INTERVENTIONS: ROADS AND ROADSIDES				
• The primary task of the national road authority is to assist national development via a sustainable road network. • There is no awareness that road condition may be contributing to crashes. • There are standards for design (mainly to minimize costs), but they are rarely updated and there are no standards for road safety features. • There is no recognition of the need for road safety engineers. • Capacity expansion dictates most road project decisions.	• The primary task of the national road authority is to plan, construct, and manage a sustainable road network. • There is a growing awareness that road condition may be a contributing factor in road trauma. • Standards are borrowed from neighboring countries and used to fill gaps in local standards. • Traffic engineers are employed to help designers with the supply of adequate traffic capacity. • The road authority has access to a national crash data base but is not using it constructively. • Designs follow nationally accepted standards, but there is no agreed need for anyone to check safety details in the designs.	• The primary task of the national road authority includes safety. • There is an awareness that the existing road network may be creating safety issues and a widespread program of safety inspections is being attempted. • There is a wider range of national and borrowed standards and guides and there are fledgling moves to update these. • There is a Road Safety Engineering Section within the national road authority with responsibilities for advising on road safety engineering matters. • The road authority uses crash data to improve known hazardous locations but has not developed an ongoing funded blackspot program. • The road safety audit process is becoming known and audits of a few large projects are undertaken but with little positive safety impact. • The national road authority recognizes the need for a safety management system.	• Planning, design, and operation of the national road network focus on road trauma reduction in support of the national road safety strategy. • The national road authority adopts safety rating surveys such as the International Road Assessment Program (iRAP) to complete inspections in a short time and give a defined output. • A national committee oversees an organized system for updating standards and manuals that govern the planning, design, operation, and use of the network by all road user groups. • The Safe System concept is understood and the Road Safety Engineering Section implements projects that meet Safe System principles. • The road authority uses crash data to guide its project development. • A road safety audit is institutionalized and audits are common on large road projects. • The national road authority develops a safety management system.	The planning, design, and operation of the road network focuses on the protection of human life and health in support of the national road safety vision. Safety rating surveys (iRAP or other rating surveys) are conducted to assess the safety quality of the road network for all road users, to develop cost-beneficial strategies and business cases and to lead infrastructure investment decisions. Comprehensive safety standards and rules have been set to govern the planning, design, operation, and use of the network by all road users, including non-motorized vehicles and pedestrians, for road types and area-use types. Safety standards and rules reflect Safe System principles (and so enable innovation), and clearly address the safety priorities of high-risk road user groups such that human life and health are protected. Compliance regimes are in place to ensure adherence to the following specified safety standards and rules: • road safety audit, • high-risk site and corridor management, and • road safety inspection. All public road authorities operate within a safety management system to eliminate fatal and serious injuries on their road network.

Continued on next page

Annex 1: continued

VULNERABLE	EMERGING	DEVELOPING	MATURING	ADVANCED
INTERVENTIONS: VEHICLES				
• There is no recognition that vehicle safety is a significant road safety issue. • No national regulations are in place to govern the safety of vehicles entering the country and in-fleet regulation is limited to generic statements regarding vehicle fitness. • Vehicle safety compliance is limited to occasional roadside enforcement operations. • Vehicles are bought and sold without consideration for safety.	• It is recognized that vehicle safety is a significant road safety issue and that international agreements can be applied. • Age-based limits are placed on vehicle imports as a safety proxy and some regulations are in place regarding vehicle fitness standards. • Roadside enforcement operations are supported by a process requiring unfit vehicles to be fixed. • Safety is recognized as a feature in the purchase of a vehicle.	• Steps are being taken to sign international agreements. • National regulations are in place regarding safety requirements at vehicle registration and while the vehicle is in service. • A government-regulated network of vehicle inspection services is in place and operating. • Consumer groups promote purchasing decisions based on the safety and protection of the family.	• The country is a signatory to the priority United Nations vehicle safety and equipment regulations recommended by the World Health Organization. • Safety standards and rules are in place regarding the safety of vehicles and equipment entering the country or built in the country and over the life of the vehicle. • Compliance systems are established that track a vehicle on entry to the country until the vehicle is removed from service. • The government recognizes the importance of reliable consumer information and supports setting up a New Car Assessment Program.	Compliance systems to control priority vehicle safety and equipment regulations are operating effectively, and steps are being made to sign relevant international agreements. Comprehensive safety standards and rules have been set to govern the entry, licensing, and registration of vehicles and related safety equipment, including all motorized vehicles and all critical equipment (helmets, seatbelts, and child restraints), whether they are imported, new, used or manufactured nationally. Comprehensive compliance regimes (audit, inspection, certification) are in place to ensure adherence to the safety standards and rules for all motorized vehicles and all critical safety equipment, whether they are imported, new, used, or manufactured nationally. A New Car Assessment Program is providing information for consumers on the safety star ratings of vehicles being sold in the national market and constantly increasing safety expectations at different star levels.

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Annex 1: continued

VULNERABLE	EMERGING	DEVELOPING	MATURING	ADVANCED
INTERVENTIONS: ROAD USERS				
• A Road Traffic Act has been in place for some decades and addresses some key safety behaviors. • Motor vehicle drivers must have a license but there are few identity or testing controls and they are not consistently applied. • Some roadside traffic enforcement is undertaken by police.	• It is recognized that the Road Traffic Act needs to be updated to ensure an effective set of user safety standards and compliance. • Motor vehicle drivers are consistently tested ahead of licensing. • Paper-based licenses are being discontinued in favor of a controlled card. • Motor vehicle drivers expect they may be stopped for traffic offenses, particularly commercial drivers.	• The Road Traffic Act is reviewed in light of good practice user safety standards and specific changes identified to update the act. • A clear set of requirements is in place and being administered to test novice driver knowledge of road rules and driver competency. • Production of the driver license card is effectively controlled and identity proofing systems are being introduced. • Police have their own traffic enforcement wing, which is developing standards of practice and applying the law consistently. • Commercial transport operators face additional compliance requirements for safe driver, vehicle, and road use rules.	• A modern Road Traffic Act is in place and is being administered and a program of work is underway to update regulations. • The driver licensing system ensures that the only people holding a license are those whose identity have been verified and whose knowledge and driving have been assessed as meeting all requirements. • Road traffic enforcement operations are delivered on a systematic basis with well-trained officers routinely using technology to help target key safety behaviors. • Commercial transport operators are licensed to deliver freight and passenger services and must meet additional safety standards beyond simple compliance with driver, vehicle, and road use rules.	Comprehensive safety standards and rules are in place to govern the safe use of the road network by children and adults. Driver licensing standards and rules take into account the high risk of being involved in a serious or fatal crash for children, novice drivers, and riders by targeting these road users with specific requirements. Driver licensing compliance regimes are in place to ensure adherence to the following standards and rules: • identity proofing during application and renewal, • driver testing and assessment, and • license checks and sanctions. Technology, roadside, and automated compliance regimes are in place for all key safety behaviors: • seatbelts and child restraints, • fatigue and distraction, • motorcycle helmets, • alcohol and drugs, and • speeding. Commercial transport operators' use of the road network is effectively regulated by safety management systems controlling key safety factors (e.g., leadership and management, journey management, speed control, vehicle technology, behavior, and incident management). Comprehensive strategies and plans are in place to address the safety of pedestrians, cyclists, and motorcyclists, including separated paths, safe speeds, and safe behaviors.

Continued on next page

Annex 1: continued

VULNERABLE	EMERGING	DEVELOPING	MATURING	ADVANCED
INTERVENTIONS: POST-CRASH CARE				
• There is no emergency number to call on behalf of a road traffic crash victim. • The national health sector is vulnerable, and there is little attention to emergency medical service requirements. • Data from individual hospitals and clinics may include road traffic injuries. • There is no regulated motor vehicle insurance scheme in place.	• The government recognizes the need for a single emergency number to call on behalf of a road traffic crash victim. • The need for emergency medical services requirements is recognized and traffic crash victims are identified as key beneficiaries. • Data from individual hospitals and clinics include information on the cause of injury. • There is a regulated motor vehicle insurance scheme in place, but it does not provide injury insurance for road traffic crash victims.	• A national emergency number is in place to alert emergency medical services of a road traffic crash. • Emergency medical services are established within the health system and a national trauma center is established. • Health sector data is standardized and requirements include information on the cause of injury. • There is a regulated injury insurance scheme for road traffic crash victims.	• A single, national (or subnational) universal emergency number is fully operational. • There is a network of primary and secondary trauma centers and practices. • Health sector policies, standards, and rules are in place for emergency medical services. • Health sector data is standardized and requirements include information on the cause of injury. • There is a universal injury insurance scheme for road traffic crash victims.	There is a single, national (or subnational) universal emergency number fully and effectively operational, well known, and well used. Emergency medical services policies, standards, and rules to govern the recovery and rehabilitation of those injured in road crashes are in place and operational. Compliance regimes are in place to ensure adherence to the specified standards and rules for each category of post-crash service (pre-hospital, hospital, and long-term care). A uniform protocol is in place across the health sector (primary, secondary, tertiary) for recording road traffic injuries and fatalities to ensure key information is consistently and uniformly recorded. There is a universal third-party motor vehicle injury insurance scheme in place that is incentivized to invest in injury prevention.
INTERVENTIONS: SAFE MOBILITY				
• The transport system is poorly organized and managed and arrangements for the commercial movement of freight and passengers are not meaningfully regulated. • Land-use planning and design are poorly organized and completely disconnected from transport needs.	• Commercial passenger transport services are under some form of qualitative or quantitative regulation or are being provided by the government. • The significance of land-use planning and design to transport systems and safety is recognized.	• The safety of commercial and government passenger transport services is regulated. • Commercial encroachment onto the roadway is identified as a major safety issue, and land-use planning is recognized as an important intervention option.	• A safe public transport system is seen as a critical policy objective. • Land-use planning and design rules shape safe mobility for all users, particularly protection for pedestrians, cyclists, and public transport users. • Wide-ranging policy objectives are being developed to minimize road use.	Transport planning policies and practices are in place to reduce exposure by managing travel demand and encouraging the use of public road transport. Land-use planning policies and practices promote safe walking and cycling and encourage the use of public transport. Innovative infrastructure interventions, such as the provision of high-speed internet and mobile telecoms are considered to reduce the need for travel.

Continued on next page

Annex 1: continued

VULNERABLE	EMERGING	DEVELOPING	MATURING	ADVANCED
INSTITUTIONAL MANAGEMENT FUNCTIONS: COORDINATION				
• Road safety is not a significant item on the agenda of any elected representative. • There are ad hoc meetings about the issue between government agencies and ministers. • There is no engagement with stakeholders outside of government.	• At least one minister and one senior public servant recognize road safety as a pressing development issue. • There is a formal inter-agency governing body but attempts to coordinate a road safety agenda across government are failing. • Stakeholders outside the government are demanding a more effective response to the road safety problem.	• New ministers and departmental heads know they have road safety responsibilities when they take the role. • The inter-agency governing body is supported by the lead agency and delegates tasks to a supporting management structure. • Stakeholders outside the government are proposing actions and seeking to work with the lead agency and line departments.	• Ministers and departmental heads speak easily and openly about road safety, recognize major issues, and commit to evidence-based safety policy and investment. • The inter-agency governing mechanism is meeting regularly with advice being provided and decisions being implemented. • Stakeholders outside the government engage regularly on national issues and use this to shape their own safety decisions.	Publicly-stated political support for road safety is matched by safety-focused policy and investment decisions.
				Parliamentary committees and procedures have been established to support road safety.
				There is a national inter-agency governance mechanism for road safety providing a single point of advice for a responsible minister or ministers and incorporating these groups: • Governance (board level). • Management (senior executive level). • Stakeholders (including business, community, professional, and academic interests).
				The secretariat and advisory roles for the inter-agency governance mechanism are performed by the lead agency.
				The national inter-agency governance mechanism is connected vertically with similar subnational and local mechanisms.
				Delivery partnerships between agencies, communities, and the business sector have been established as required to support the delivery of safe speeds, infrastructure, vehicle, and user interventions.

Continued on next page

Annex 1: continued

VULNERABLE	EMERGING	DEVELOPING	MATURING	ADVANCED
INSTITUTIONAL MANAGEMENT FUNCTIONS: LEADERSHIP AND TARGET SETTING				
• There is no awareness of a systems approach to road safety. • There is little or no information or analysis of potential safety improvements. • There is no national strategy or plan in place to address road safety.	• There is some awareness of the need to adopt a systems rather than an individual approach to road safety. • There is little information and data quality is poor, but what is available is used to promote improved road safety results. • An action plan has been prepared but is not being implemented. • Government agencies and major organizations are aware of road safety responsibilities.	• The essential aspects of the Safe System approach are understood by road safety leaders within government. • Aspirational targets are developed, but information on how to achieve these is lacking. • A national strategy and action plan identifies the key intervention areas. • Government agencies and major organizations take leadership responsibility for improving results.	• The Safe System approach is advocated both inside and outside government and public documents promote a shared vision. • Information and data are available to support the analysis of infrastructure and regulatory programs. • A national strategy sets clear directions in key areas and makes explicit the links between vision, targets, and actions. • Large organizations inside and outside government lead by example in their own safety practices.	There is ongoing activity to foster the ultimate Safe System vision and direction, including a shared belief in the vision and inspiration for others to deliver the shared vision. Information and data is used to identify and quantify potential results over time. Strategy, planning, and implementation processes strategically link actual and potential interventions with results. National government agencies and major business and community interests demonstrate leadership through internal road safety policies and practices. Public procurement policies support the national vision, targets, and strategies (e.g., through the specification of required safety management systems and vehicle safety technology).
INSTITUTIONAL MANAGEMENT FUNCTIONS: LEGISLATION				
• The only reference to road safety is an outdated road traffic act with some amendments and associated regulations.	• A national road traffic act incorporates key motor vehicle and driver regulations, safety requirements, and offenses and penalties.	• A modern road traffic act addresses all aspects of motor vehicle and driver regulation and establishes safety as the primary institutional responsibility of the regulator. • All new road transport legislation incorporates safety requirements.	• A modern road traffic act regulates motor vehicles, drivers, and speeds and specifies road safety governance and lead agency responsibilities. • A fully developed schedule of secondary and tertiary legislation sets safety requirements across the transport sector.	There is a road safety act incorporating key institutional and intervention mandates and all provisions are being fully and consistently implemented. Legislative instruments and procedures support institutional management functions and effective interventions which are sufficient to achieve safety outcomes and safety performance targets and are regularly maintained, reviewed, and improved.

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Annex 1: continued

<table>
<tr><th>VULNERABLE</th><th>EMERGING</th><th>DEVELOPING</th><th>MATURING</th><th>ADVANCED</th></tr>
<tr><td colspan="5">INSTITUTIONAL MANAGEMENT FUNCTIONS: FUNDING AND RESOURCE ALLOCATION</td></tr>
<tr><td rowspan="4">• There are no separate budget lines for road safety programs in government agencies.</td><td rowspan="4">• There is a budget line within the transport or highways agency for small-scale safety projects.
• Agencies seek funding for a minor works-oriented safety program through the annual budget process.</td><td rowspan="4">• A regular safety program allocation is made through a road fund.
• All major government agencies have a safety component in their budgets whether for capital or operating expenditures.
• Revenue from some fees and charges are nominally allocated to safety programs.</td><td rowspan="4">• Government agencies regularly bid for safety investment programs with evidence-backed business cases.
• A significant baseline allocation for agencies is calibrated against sustainable funding sources allocated, at least in part, to safety programs.
• A national road safety funding and investment model can be described and documented.
• Funding is allocated against agreed performance requirements.</td><td>Sustainable safety funding mechanisms (e.g., a road fund or road safety fund) and resource allocation procedures are in place to support institutional management functions and interventions.</td></tr>
<tr><td>Sustainable revenue sources are in place to support safety funding mechanisms (e.g., government budget allocations, regulatory fees and charges, and a portion of ongoing fuel levies or injury insurance levies).</td></tr>
<tr><td>Resource allocation procedures are in place to support institutional management functions and effective interventions by assessing risk reduction effectiveness and cost benefit, including the use of an official value of statistical life and related values for injuries.</td></tr>
<tr><td>Current and projected government budgets are sufficient to achieve safety targets.</td></tr>
<tr><td colspan="5">INSTITUTIONAL MANAGEMENT FUNCTIONS: PROMOTION AND ADVOCACY</td></tr>
<tr><td rowspan="2">• There is no Safe System vision or strategy in place.</td><td rowspan="2">• A Safe System vision, strategy and targets are in place and have been communicated to stakeholders.</td><td rowspan="2">• A Safe System vision, strategy, and targets were developed by agencies and stakeholders and are being communicated throughout the country.</td><td rowspan="2">• A Safe System approach is well understood and is being separately promoted by all stakeholders.</td><td>Safe System vision, strategies, and targets are regularly promoted within and across government.</td></tr>
<tr><td>Road safety is promoted and advocated at provincial, state, and city levels as a key concern of government, the business sector, and civil society.</td></tr>
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Annex 1: continued

VULNERABLE	EMERGING	DEVELOPING	MATURING	ADVANCED
INSTITUTIONAL MANAGEMENT FUNCTIONS: MONITORING AND EVALUATION				
• Crash and injury data is collected in a paper-based system but not systematically.	• Crash and injury data collection and reporting is improving and is identified as a major area of concern. • Occasional surveys are undertaken as part of larger projects within the transport or health sectors.	• Data is collected more systematically; there is a standard report form and a crash database. • The need for more comprehensive data, including exposure data and performance, is widely recognized. • Observational surveys are periodically undertaken on behavioral issues such as motorcycle helmet or seatbelt use.	• A mature road crash data system is in place between transport and police agencies. • Injury data from the health sector is regularly collated and provided to the transport sector for analysis. • Exposure data and performance data are being collected more systematically. • A program of observational surveys is in place for major behavioral issues.	Sustainable systems are in place to collect and manage data on road crashes, fatalities, and injury outcomes. Road safety data systems cover exposure, crash, injury, and performance data and integrate key data sets from police, transport, and health sectors. All key government agencies and external partners have open access to all data collected. Systematic and regular surveys collect, analyze, and report on exposure, delivery, and performance data on: • each road category, • vehicle and equipment safety standards, • vehicle inspection, • enforcement operations, • driver testing and licensing, • emergency medical services, and • compliance with key safety behaviors.
INSTITUTIONAL MANAGEMENT FUNCTIONS: RESEARCH AND DEVELOPMENT AND KNOWLEDGE TRANSFER				
• There is no road safety research being funded by government. • Knowledge transfer and capacity-building mechanisms are limited to small numbers of officials within multilateral training programs.	• Some research is being undertaken within universities and, to a limited extent, as part of externally supported development projects. • Some knowledge transfer and capacity building focused on police and engineers is being undertaken.	• There is an ongoing road safety research stream within universities. • The government commissions small-scale applied research tasks. • Knowledge transfer and capacity building for police and engineers is routinely undertaken, and some awareness of wider safety	• There are regular exchanges on road safety capability and needs between government, universities, and other providers. • There is ongoing independent evaluation of key road safety policies, projects, and programs. • System-wide knowledge transfer and capacity	There is a national road safety research strategy and an annual research program. There is independent road safety research capacity or a national road safety research organization. Safe System demonstration and evidenced-based pilot programs have been developed, implemented, and independently evaluated. Knowledge transfer mechanisms and media are in place to disseminate the findings of national road safety research and development and good practice.

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Annex 1: continued

VULNERABLE	EMERGING	DEVELOPING	MATURING	ADVANCED
INSTITUTIONAL MANAGEMENT FUNCTIONS: RESEARCH AND DEVELOPMENT AND KNOWLEDGE TRANSFER				
		management needs are identified.	building is available for professionals with road safety responsibilities working in government agencies and key stakeholder groups. Road safety leadership and management is given a high priority.	Capacity-building mechanisms are in place to develop safety expertise and commitment by professionals working in government agencies and key stakeholder groups.
				Capacity-building mechanisms are in place to develop road safety leadership and management understanding and commitment by senior executives and elected representatives within society.
INSTITUTIONAL MANAGEMENT FUNCTIONS: LEAD AGENCY ROLE				
• There is no lead agency or a lead agency has been nominated but is not yet operational.	• A lead agency is in place but is poorly resourced and not clearly mandated. • There is disagreement about its role or about how it should perform that role.	• The lead agency is recognized as the dedicated work group which needs to draw all national stakeholders together. • Its role has been distinguished from other government agencies. • It is providing secretariat support to an inter-agency governance mechanism and is delivering some small-scale projects, typically promoting activities in the community.	• The lead agency is the most influential voice in road safety nationally, and engages widely across government and society. • It takes a leading role within government and adopts leadership positions in some areas, such as enforcement or safety engineering. • It assumes greater functional responsibility, such as developing strategies and action plans, promoting safety across government and society, and recognizes the need to significantly increase policy and investment decisions in favor of road safety.	The lead agency is recognized as having the formal responsibility, political mandate, and sufficient resources to lead national road safety efforts and coordinate and monitor the activities of other stakeholders.
				The lead agency is directly involved in conceptualizing, delivering, and evaluating major improvement projects to strengthen management systems relating to coordination, leadership and target setting, legislation, funding and resource allocation, promotion and advocacy, monitoring and evaluation, research and development, and knowledge transfer.
				The lead agency assumes leadership roles through conducting systemic no-blame analyses, developing strategically focused demonstration projects, leading by example in its own operations, and ensuring capacity-building programs are sustained and improved.

Source: Asian Development Bank.

ANNEX 2: ASSESSMENT QUESTIONNAIRE

1. System Level Results

Definition

- Vision for eliminating fatal and serious road traffic injuries.
- Interim fatality and serious injury targets which are periodically reviewed.
- Safety performance targets, which provide a focus for delivery.
- Delivery of projects and programs to achieve targets.

Rationale

The best-performing countries have a focus on fatality and serious injuries and ultimately the elimination of the problem. They set targets and report progress against those targets. There are strategies and plans and a government agency has been nominated to lead this national multisectoral work.

Mark an **X** in the box on the rating scale that best applies to your country. Add any comments you wish to make.

Question	*Classification*	*Least Positive* — *Rating* — *Most Positive*									
		0.5	1	1.5	2	2.5	3	3.5	4	4.5	5
1. Is there a public document that commits to achieving road safety targets SDG 3.6 or SDG 11.2 set under the UN Sustainable Development Goals?[a]	Standards										
Comment											
2. Is there a comprehensive multisectoral national road safety strategy or action plan through to 2030, with a long-term vision to eliminate road fatalities and serious injuries?	Standards										
Comment											
3. Does the strategy or action plan include targets for final safety outcomes (e.g., fatalities and serious injuries) and safety performance factors (e.g., speeding, drunk-driving, helmet wearing)?	Standards										
Comment											
4. To what extent has additional investment been provided by the government to deliver the strategy or action plan?	Resources										
Comment											
5. How do you rate the level of effort from relevant government agencies to deliver the strategy or action plan?	Compliance										
Comment											

[a] United Nations Statistics Department. 2020. E-Handbook on Sustainable Development Goals Indicators. https://unstats.un.org/wiki/display/SDGeHandbook/Home.

Source: Asian Development Bank.

2. Speeds (Intervention)

Definition

- Road safety engineering guidelines promote safe speeds.
- Speed limits are set to promote survivability in a crash.
- Speed limits are rigorously enforced.
- Vehicle technology, such as speed limiters, is widely deployed.

Rationale

The extent to which the speed of motor vehicles is safely managed regulates the level of serious road trauma in a country. This is because, despite the cause of the crash, the impact speed and the energy absorbed by the human body are directly linked to the survivability of a crash. Safe speeds can be achieved through road design, vehicle technology, physical roadway treatments, and regulation.

Mark an **X** in the box on the rating scale that best applies to your country. Add any comments you wish to make.

Question	*Classification*	*Least Positive* Rating *Most Positive*									
		0.5	1	1.5	2	2.5	3	3.5	4	4.5	5
6. Is there a national guide for safely managing speeds on different parts of the network using a range of interventions (e.g., engineering, regulation, enforcement)?	Standards										
Comment											
7. Are legal speed limits being reduced to survivable levels (e.g., 30 km/h in high pedestrian residential, market, or school areas, and 70 km/h on rural undivided roads)?	Compliance										
Comment											
8. Are police trained and deployed to rigorously enforce speed limits and equipped with handheld radar or other speed enforcement technology?	Compliance										
Comment											
9. Are traffic calming devices commonly used to slow traffic in areas with vulnerable users such as road humps and raised crossings?	Compliance										
Comment											
10. How do you rate the level of effort on installing traffic calming devices in urban areas?											
Comment											
11. How do you rate the level of effort on reducing speed limits and increasing speed limit enforcement?	Resources										
Comment											

Source: Asian Development Bank.

3. Roads and Roadsides (Intervention)

Definition

- Planning, design, and operation of the road network are focused on safety and are supported by land-use planning.
- The Safe System approach is embraced in all aspects of road design and management.
- Pro-active measures, such as International Road Assessment Program (iRAP) surveys, are taken to identify and treat safety issues.
- Roads and roadsides provide protection from harm for all road users.

Rationale

The best-performing countries have roads and roadsides easily and clearly understood by users and forgive mistakes. Their roads meet Safe System principles, with speed limits matching the design and operation of the road and the roadside. Extensive use is made of treatments such as safety barriers, controlled roadside access and development on major roads, and speed management in populated areas via treatments such as road humps and raised crossings.

Mark an **X** in the box on the rating scale that best applies to your country. Add any comments you wish to make.

Question	*Classification*	*Least Positive* — *Rating* — *Most Positive*									
		0.5	1	1.5	2	2.5	3	3.5	4	4.5	5
12. Does your national road agency have up-to-date road safety standards and guidelines in place, including for walking, cycling, and motorcycling?	Standards										
Comment											
13. Are the standards complied with by professionals in the responsible agencies and applied consistently across the national road and highway network?	Compliance										
Comment											
14. Is there a hazardous location treatment program in place and is the program adequately funded and implemented?	Compliance										
Comment											
15. Are road safety audits routinely undertaken and acted upon?	Compliance										
Comment											
16. To what extent is road safety considered when selecting or prioritizing road maintenance works?	Resources										
Comment											
17. Are you aware of the International Road Assessment Program (iRAP) safety star-rating methodology[a] or similar road safety assessment approaches to assist in identifying and prioritizing road infrastructure safety improvements?	Standards										
Comment											

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continued

Question	*Classification*	*Least Positive*				*Rating*					*Most Positive*
		0.5	1	1.5	2	2.5	3	3.5	4	4.5	5
18. Is there a road safety engineering section within the national highway agency?	Resources										
Comment											
19. Do road agencies have the necessary professional staff to fulfill their safe roads and roadsides mandate (technical: road safety expertise, financial: ability to initiate strategic projects)?	Resources										
Comment											
20. How do you rate the level of effort on road safety engineering?	Resources										
Comment											

[a] See the World Health Organization resource or the International Road Assessment Program (iRAP). 2014. iRAP Methodology Fact Sheets. https://www.irap.org/methodology/.

Source: Asian Development Bank.

4. Vehicles (Intervention)

Definition

- UN standards are used to regulate vehicle technology and equipment.
- Regulations control the safety of vehicles entering the national fleet and ongoing roadworthiness.
- Compliance systems control the entry of vehicles and remove unroadworthy vehicles.

Rationale

There has been a rapid improvement in vehicle safety technology over the last two decades, with significant improvements in avoiding crashes, protecting users from injury in crashes, and developing systems to counter poor user behavior such as speeding or drunk-driving. Without effective regulation, road users in low- and middle-income economies are heavily exposed to substandard new vehicles or low-quality used imports. Motorcycle braking systems and helmet standards are particularly important in South Asia.

Mark an **X** in the box on the rating scale that best applies to your country. Add any comments you wish to make.

Question	***Classification***	***Least Positive***				***Rating***					***Most Positive***
		0.5	1	1.5	2	2.5	3	3.5	4	4.5	5
21. Do national laws require vehicles to comply with UN vehicle safety standards for seats and seatbelts, frontal impact, side impact, electronic stability control, pedestrian protection, child restraints, motorcycle anti-lock braking systems, and helmets?	Standards										
Comment											
22. Is there a network of inspection services regulated by the government to assess vehicle safety and remove unroadworthy vehicles from the road network?	Compliance										
Comment											
23. Do you have technical leaders with automotive and mechanical engineering qualifications who have the resources to monitor and control the safety of vehicles entering the national fleet and lead the adoption of new, safer vehicle technologies?	Resources										
Comment											

Source: Asian Development Bank.

5. Road Users (Intervention)

Definition

- Driver licensing standards and systems control the safety of drivers and riders.
- Comprehensive traffic laws are in place and address all key safety behaviors.
- There is rigorous enforcement of key safety behaviors, supported by education.
- There is a strong focus on safe commercial transport operations and on protecting vulnerable users.

Rationale

The Safe System approach seeks to protect rather than perfect people's use of the road, but controlling safe use of the road will always be essential. Legislation for driver licensing, commercial transport operators, and key safety behaviors is critical. Speeding and the use of alcohol are typically high contributors to crashes and can be easily enforced along with helmet and seatbelt use. Strong legislation and enforcement by traffic regulators and licensing authorities can significantly improve results.

Mark an **X** in the box on the rating scale that best applies to your country. Add any comments you wish to make.

Question	***Classification***	***Least Positive*** / ***Rating*** / ***Most Positive***									
		0.5	1	1.5	2	2.5	3	3.5	4	4.5	5
24. Do national laws meet WHO recommendations for: • speeding, • drunk-driving, • helmet wearing, • seatbelts, and • mobile phone usage.	Standards										
Comment											
25. How do you rate enforcement of laws regarding: • speeding, • drunk-driving, • helmet wearing, • seatbelts, and • mobile phone usage.	Compliance										
Comment											
26. Is there a traffic enforcement unit within the police department that rigorously enforces laws recommended by WHO?	Resources										
Comment											
27. Is there a regulation on driving time and rest periods for professional drivers and is it enforced?	Standards										
Comment											
28. Do all drivers have a valid driver's license?	Compliance										
Comment											
29. Is there a graduated licensing system with significant additional controls at the early stages of licensing for all drivers (motorcycle, car, bus, truck)?	Standards										
Comment											

Source: Asian Development Bank.

6. Post-Crash Care (Intervention)

Definition

- There is a universal emergency number.
- There are systems for transporting and treating road traffic victims.
- Health sector data supports road traffic safety analysis.
- There is a universal injury insurance scheme that invests in road safety.

Rationale

Significant reductions in deaths and serious injuries are possible through good quality emergency medical services focusing on quick alert, prompt transport, and a network of primary, secondary, and tertiary treatment centers.

Mark an **X** in the box on the rating scale that best applies to your country. Add any comments you wish to make.

Question	*Classification*	*Least Positive*				*Rating*					*Most Positive*
		0.5	1	1.5	2	2.5	3	3.5	4	4.5	5
30. Is there a free national or regional emergency phone number?	Standards										
Comment											
31. Are emergency medical systems and treatment available for road crash victims?	Standards										
Comment											
32. Is health sector data collected on the cause of injury?	Compliance										
Comment											
33. Is there a regulated injury insurance scheme for road traffic victims?	Resources										
Comment											

Source: Asian Development Bank.

7. Safe Mobility (Intervention)

Definition

- Transport and land-use planning are undertaken within a safe mobility framework.
- Passenger transport is well regulated, well patronized, and safe.
- Public policy supports reductions in motorized road traffic and increases in other safer transport modes.

Rationale

Minimizing motor vehicle kilometers through innovative public policy has the potential to significantly reduce exposure to road traffic injury. By reducing the amount of road use, exposure and crashes are reduced. This requires a multisectoral approach that generates safety-focused partnerships between government agencies and major business and community stakeholders. It is focused on achieving sustainable reductions in serious road trauma.

Mark an **X** in the box on the rating scale that best applies to your country. Add any comments you wish to make.

Question	*Classification*	*Least Positive* — *Rating* — *Most Positive*									
		0.5	1	1.5	2	2.5	3	3.5	4	4.5	5
34. Are commercial transport operators separately licensed and required to have safety management systems in place (covering at least vehicle selection, inspection, maintenance, journey and timetable management, and driver checks and controls)?	Standards										
Comment											
35. Do you have policies and programs designed to increase safe public transport use?	Standards										
Comment											
36. Do you have policies that promote safe walking and cycling?	Standards										
Comment											
37. How do you rate the safety of pedestrians?	Compliance										
Comment											
38. How do you rate the safety of motorcyclists?	Compliance										
Comment											

Source: Asian Development Bank.

8. Coordination (Institutional Management Function)

Definition

- Parliamentary and governmental systems are in place to address safety issues.
- A national multisectoral governance system is in place and supported by a lead agency.
- Business and community interests, and subnational governments deliver on the national strategy.

Rationale

Coordination is essential to generating a common understanding of effective road safety strategies, building a wider safety partnership within the community, and encouraging more and better safety programs. Agencies need to work at a multisectoral level to align road safety interventions and achieve results.

Mark an **X** in the box on the rating scale that best applies to your country. Add any comments you wish to make.

Question	*Classification*	*Least Positive* — *Rating* — *Most Positive*									
		0.5	1	1.5	2	2.5	3	3.5	4	4.5	5
39. Is there an inter-agency road safety governing body and does it have an inter-agency management committee supported by a road safety lead agency?	Compliance										
Comment											
40. Are senior leaders in transport, highway, police, and health agencies directly engaged in road safety coordination?	Compliance										
Comment											
41. Are nongovernment stakeholders regularly engaged in critical safety issues?	Compliance										
Comment											

Source. Authors.

9. Leadership and Target Setting (Institutional Management Function)

Definition

- The Safe System approach is understood and promoted within professions and agencies.
- Strategy and planning processes define and evaluate progress on achieving performance targets.
- Public agencies and private businesses use safety criteria in procurement decisions.

Rationale

There is a wide range of highly effective road safety treatments available, but leadership is required to select and deliver the best mix for the national context. Whatever the strategy, major stakeholders need to take responsibility for road safety and set performance targets that will make the best use of available resources.

Mark an **X** in the box on the rating scale that best applies to your country. Add any comments you wish to make.

Question	*Classification*	*Least Positive* Rating									*Most Positive*
		0.5	1	1.5	2	2.5	3	3.5	4	4.5	5
42. Are the national road safety vision, strategy, and targets being promoted through national and subnational governments and the community?	Compliance										
Comment											
43. Do safety performance targets address these targets, and is government program delivery focused on achieving them: • International Road Assessment Program (iRAP) safety star ratings for road infrastructure, • applying UN vehicle safety standards, • proportion of vehicles traveling over the speed limit, • involvement of alcohol in crashes, • proportion of motorcycle helmets and seatbelts worn, and • time between a crash and professional emergency care.	Compliance										
Comment											

Source: Asian Development Bank.

10. Legislation (Institutional Management Function)

Definition

- Legislation defines the road safety roles and responsibilities of the lead agency and other key agencies (e.g., highways, police, transport regulators).
- Legislation sets comprehensive safety standards and requirements for safe roads, vehicles, speeds, and users and these are enforced.

Rationale

Setting and enforcing legislation is critical to determining the safety expectations and results associated with drivers, riders, vehicles, and commercial operators. Legislation is also critical to defining institutional roles and responsibilities and regulating the management systems within which they operate.

Mark an **X** in the box on the rating scale that best applies to your country. Add any comments you wish to make.

Question	*Classification*	*Least Positive* — *Rating* — *Most Positive*									
		0.5	1	1.5	2	2.5	3	3.5	4	4.5	5
44. Is there a Road Safety Act in place which addresses all aspects of motor vehicle and driver regulation and institutional responsibilities for road safety?	Standards										
Comment											
45. Has relevant legislation been thoroughly reviewed against good road safety practices, such as World Health Organization recommendations on driver behavior and vehicle safety?	Compliance										
Comment											

Source: Asian Development Bank.

11. Funding and Allocation (Institutional Management Function)

Definition

- Sustainable revenue sources are in place to fund institutional safety functions and interventions.
- Resource allocation systems are in place to ensure only high-quality safety interventions are funded.
- Funding needed to achieve government road safety goals has been identified.

Rationale

Effective road safety programs can generate high socioeconomic returns. Economic and investment analyses are required to ensure that public resources match the scale of road traffic safety needs and the ability to deliver results. Sustainable funding is also essential to build and maintain safety management capacity.

Mark an **X** in the box on the rating scale that best applies to your country. Add any comments you wish to make.

Question	*Classification*	*Least Positive* — *Rating* — *Most Positive*									
		0.5	1	1.5	2	2.5	3	3.5	4	4.5	5
46. Do all government transport, highway, and police agencies have a safety-specific component in their capital and operating budgets?	Compliance										
Comment											
47. How do you rate the current level of funding for road safety in your country?	Compliance										
Comment											
48. Would your country be open to discussing standalone road safety program loans with the Asian Development Bank to address all road safety pillars based on a safe systems approach?	Resources										
Comment											

Source: Asian Development Bank.

12. Promotion and Advocacy (Institutional Management Function)

Definition

- Safe System vision, strategies and targets are regularly promoted within professions and agencies.
- Road safety is promoted and advocated with business and community interests and subnational governments.

Rationale

Road safety has changed significantly from perfecting human behavior toward protecting human life and health. Promotion and advocacy are critical to effect this change. Sustained effort is required to reshape road safety communications and support more systemic responses to the public health crisis.

Mark an **X** in the box on the rating scale that best applies to your country. Add any comments you wish to make.

Question	***Classification***	***Least Positive***				***Rating***					***Most Positive***
		0.5	1	1.5	2	2.5	3	3.5	4	4.5	5
49. How well is the Safe System approach understood in your agency?	Compliance										
Comment											
50. To what extent do political and technical leaders within government agree with the following Safe System principles? • People make mistakes that can lead to road crashes. • The human body has a limited physical ability to tolerate crash forces before harm occurs. • There is a shared responsibility among those who design, build, manage, and use roads and vehicles and provide post-crash care to prevent crashes causing serious injury or death. • All parts of the system must be strengthened to multiply their effects. If one part fails, road users are still protected.											
Comment											
51. How do you rate the level of community concern for road safety?	Compliance										
Comment											
52. How do you rate the level of political commitment to road safety in your country?	Compliance										
Comment											

Source: Authors.

13. Monitoring and Evaluation (Institutional Management Function)

Definition

- Surveys are regularly conducted to track progress against safety performance targets.
- Road crash data and health sector injury data are integrated, easily accessible, and used to design and evaluate safety programs.

Rationale

Knowing the general trends within the road safety sphere is an important ingredient to help government agencies plan ahead and initiate meaningful campaigns. Ongoing programs are desirable to regularly prepare reports on road safety data and evaluate road safety programs through observational studies (e.g., helmet wearing) or programs (e.g., International Road Assessment Program surveys). These activities are essential to ensure lessons are learned and programs continually improved.

Mark an **X** in the box on the rating scale that best applies to your country. Add any comments you wish to make.

Question	*Classification*	*Least Positive* — *Rating* — *Most Positive*									
		0.5	1	1.5	2	2.5	3	3.5	4	4.5	5
53. Is there is a standard crash report form used by police?	Standards										
Comment											
54. Is there a searchable, electronic, national crash database?	Standards										
Comment											
55. Is the crash data in your country adequate in quantity and quality to allow road safety initiatives and crash and injury trends to be monitored and evaluated?	Resources										
Comment											
56. Do you use your country's vital registration system to check road fatality statistics?	Compliance										
Comment											
57. Are observational studies of key safety behaviors periodically conducted?	Resources										
Comment											
58. Does your country have a record of publishing performance information on crash and injury trends and safety programs on a regular basis?	Compliance										
Comment											
59. Does national law allow for easy exchange of crash data between agencies?	Compliance										
Comment											

Source: Asian Development Bank.

14. Research and Knowledge (Institutional Management Function)

Definition

- There is a national road safety research strategy and at least one independent road safety research organization.
- Safe System demonstration projects are undertaken and evaluated to stimulate improved safety programs.
- There are systems in place to disseminate road safety research and to build the technical road safety capacity of professionals with road safety responsibilities.

Rationale

Each country needs to regularly develop new programs coming onstream or being scaled up. This requires ongoing investment in research and development. Associated with this is ongoing knowledge transfer and capacity building within professions and organizations with road safety responsibilities.

Mark an **X** in the box on the rating scale that best applies to your country. Add any comments you wish to make.

Question	***Classification***	***Least Positive*** / ***Rating*** / ***Most Positive***									
		0.5	1	1.5	2	2.5	3	3.5	4	4.5	5
60. Is there ongoing road safety research activity within universities or other institutions?	Compliance										
Comment											
61. Does the government regularly commission external road safety research projects?	Compliance										
Comment											
62. Is there an ongoing capacity-building program for road safety leaders within government and the community or for safety professionals such as traffic police or road safety engineers?	Resources										
Comment											

Source: Asian Development Bank.

15. Lead Agency Role (Institutional Management Function)

Definition

- The nominated government agency has a formal mandate and resources to lead national road safety efforts.
- The lead agency is directly involved in developing and overseeing major improvement projects.
- The lead agency demonstrates no-blame leadership across all sectors, and has a strong focus on professional capacity building.

Rationale

The best-performing countries have nominated an agency and provided it with the legal mandate and financial resourcing needed to lead the national road safety effort. This agency provides strategic support to a multisectoral approach and generates strong safety-focused partnerships with agencies inside government and major business and community stakeholders. It is solely focused on achieving sustainable reductions in serious road trauma.

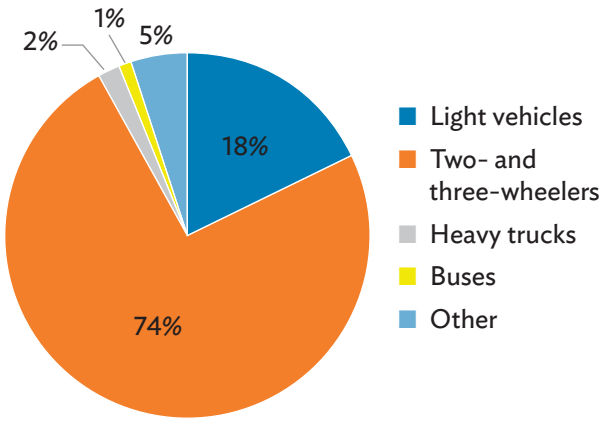
Mark an **X** in the box on the rating scale that best applies to your country. Add any comments you wish to make.

Question	*Classification*	*Least Positive* — *Rating* — *Most Positive*									
		0.5	1	1.5	2	2.5	3	3.5	4	4.5	5
63. Is there a lead agency for road safety within government reporting to a senior intersectoral governance body, with a clearly prescribed function and mandate to lead the national road safety effort?	Compliance										
Comment											
64. Is the lead agency recognized politically and technically as the leader in road safety?	Compliance										
Comment											
65. Does the lead agency have the necessary professional staff, technical road safety expertise, financial ability to initiate strategic projects, and resources to fulfill its mandate (e.g., crash database)?	Resources										
Comment											

Source: Asian Development Bank.

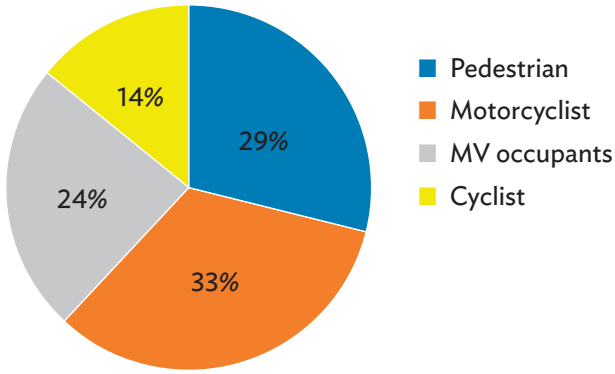
ANNEX 3: WORKED EXAMPLE

Network length 98,093 km	**Motor vehicles** 6,256,459	**Population** 18,805,492
Reported fatalities 2,003	**Estimated fatalities** 2,756	**Estimated fatalities per 100,000 population** 14.9
Estimated annual cost of road crashes $2.6 billion	**Ranking as cause of death** All Ages: 11th Ages 15–49: 3rd	**Ranking as cause of disability** All Ages: 9th Ages 15–49: 3rd
Lead agency Ministry of Transport		**Inter-agency governing body** National Road Safety Council



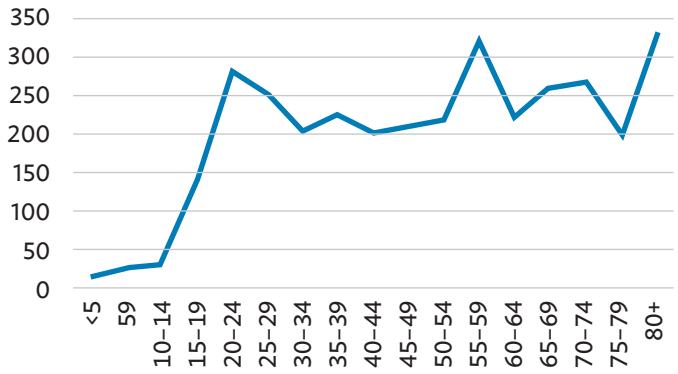
Vehicle mix

Two- and three-wheelers dominate the total motor vehicle population, but the proportion of light vehicles is increasing significantly in this rapidly motorizing country.



Disability by user group

A high proportion of disabilities is borne by motorcyclists and pedestrians.



Deaths by age group

All adult age groups are at significant risk.

A. Status of World Health Organization Norms

National speed limit law	Yes	Child passengers on motorcycles	Not restricted
Maximum urban speed limit	50 km/h	National seat belt law	Yes
Maximum rural speed limit	70 km/h	Law applies to front and rear seat occupants	No
National drunk-driving law	Yes	National child restraint law	No
National blood alcohol concentration (BAC) limit law general	Yes	Restrictions on children sitting in front seat	No
National BAC limit law—young or novice	No	National law on mobile phone use while driving	Yes
National BAC limit law—professional, commercial	No	Law prohibits handheld mobile phone use	Yes
National drug driving law	Yes	Law also applies to hands-free mobile phones	No
National motorcycle helmet law	Yes	National emergency care access number	Partial
Helmet law applies to drivers and passengers	Yes	Trauma registry	Partial
Law requires helmet to be fastened	No	Formal certification for prehospital providers	No
Law refers to helmet standard	Yes	National assessment of emergency care systems	No

B. Road Safety System

Based on the assessment framework, the maturity of the national road safety system is rated as Emerging, a phase characterized as follows.

Emerging

Climate of Concern	Focus of Activity	Preparedness to Invest
Blame climate	Prevent road trauma	Minor government investment but some appetite

Attention should be focused on the improvement of regulatory standards and compliance, developing and improving trauma prevention systems, and significantly increasing government investment and priority.

A National Road Safety Council is in place, but it has a weak mandate, few resources, and there is no national road safety strategy or plan. There is a road safety fund (funded by an insurance levy), but the focus is on compensation, not injury prevention.

Key issues:

(i) Existing road safety rules and regulations need to be assessed and actions taken to identify specific requirements agreed to by all relevant agencies.
(ii) Institutional capacity in road safety needs to be strengthened with additional staffing and training and effective coordination between agencies.

(iii) Professional training and development consistent with Safe System principles is required across all dimensions, with specific reference to:
  - road safety management capacity,
  - road safety research and development capacity,
  - road safety engineering capacity, and
  - guidance for the fledgling road safety engineering section at the national road authority.

(iv) There is no national crash data system.
(v) Some traffic calming is installed, but better speed enforcement is required.
(vi) There are significant legislative gaps in driver behavior (e.g., drunk-driving, helmets, seatbelts) and while there is a traffic enforcement unit, compliance is poor (there were about 700 alcohol related road fatalities in 2016).
(vii) There is some technical proficiency in automotive engineering, but no national safety standards in place to regulate imports or ongoing roadworthiness.
(viii) 55% of the road traffic injury burden is borne by pedestrians and motorcyclists.

C. Priorities

Capacity building

(i) Pass draft legislation to establish and then operationalize a National Road Safety Authority and a National Road Safety Fund.
(ii) Finalize and publish the 2030 Road Safety Action Plan.
(iii) Invest in a crash data management system (collection, collation, analysis).
(iv) Develop a speed management guide (speed limits, traffic calming, enforcement, data).

Infrastructure safety

(i) Commission an International Road Assessment Program (iRAP) study along the four national highways and prepare an investment program to bring these highways up to a three-star safety rating.
(ii) Establish road safety audit processes within the road authority and implement an annual program to treat high crash frequency locations (blackspots).
(iii) Improve safety barrier installation standards to prevent spearing and improve the use of barriers at bridges, starting with bridges on highways.
(iv) Provide consistent delineation along highways in rural areas and emphasize tactile edge lines in all rural areas.

User safety

(i) Strengthen drunk-driving, motorcycle helmet, and seatbelt laws.
(ii) Modernize traffic enforcement systems, staffing, training, and equipment.
(iii) Develop a national program to support pedestrian and motorcyclist safety.

Vehicle safety

(i) Review vehicle import and inspection safety standards and strengthen roadworthiness controls on existing fleets.

Post-crash response

(i) Review options to strengthen post-crash systems within the health sector.
(ii) Reform the compensation scheme into a universal injury insurance scheme.

D. Road Safety Maturity Assessment

Dimension	Rating	Current Status	Future Options
Results	2	Work is underway through the National Road Safety Council to prepare a medium-term road safety action plan to 2030.	Finalize and publish the 2030 plan, and focus on short-term implementation steps for key projects.
Speeds	1.5	There is some installation of traffic calming and regulations in place (particularly speed humps), but improvement is needed in police enforcement.	Develop a national speed management policy consistent with UN guidelines and a program of work to begin implementation, focusing on speed limits, traffic calming, and enforcement.
Roads	2	There are trained road safety engineers in the national highways agency, but greater capacity is required, especially in road safety auditing. UK and Australian standards are used. There is an International Road Assessment Program (iRAP) project being commissioned, but so far no road assessments have been made.	Strengthen the road safety engineering unit within the national road authority and develop a road safety audit manual and policy. Use iRAP processes to help develop a road safety engineering capacity-building program which focuses on learning through implementation of infrastructure safety improvements.
Vehicles	2	There is some technical proficiency in automotive engineering and some regulatory systems in place for environmental standards but not safety standards.	Undertake a safety-focused review of vehicle importation and inspection standards, and develop proposals to begin alignment with UN regulatory norms for import. Strengthen roadworthiness controls on the existing fleet.
Road users	1.5	There is a traffic enforcement unit and some essential regulations are in place. Overall compliance is poor but there are significant improvement opportunities. Better equipment is needed.	Strengthen traffic police capability through investment in training, equipment, and general deterrence operations. Support better driver behavior through stronger driver licensing systems and media campaigns that support traffic police.
Post-crash	2	There is some emergency call coverage and some trauma facilities but little connection between transport and health sectors.	Review options to strengthen post-crash systems within the health sector and reform the victim compensation scheme as a universal injury insurance scheme.
Safe mobility	1	There is little enforcement of safety standards within the public transport sector and vulnerable-user safety is low.	Support improved public transport services and incentivize safe operations. Develop a national policy and program to support pedestrian and motorcyclist safety.
Coordination	1	The National Road Safety Council has an insufficient mandate or resources to effectively coordinate all arms of government.	Pass a National Road Safety Act to establish an empowered National Road Safety Authority and National Road Safety Fund.
Leadership	1	There is no national strategy or plan, and there are weak institutional leadership arrangements for road safety.	Fully operationalize a National Road Safety Authority to strengthen institutional leadership of road safety.
Legislation	1.5	Drunk-driving limits are high and helmet and seatbelt laws have significant gaps.	Strengthen drunk-driving, motorcycle helmet, and seatbelt laws, and prepare a roadmap for a safety overhaul of motor vehicle and driver regulations.

Continued on next page

continued

Dimension	Rating	Current Status	Future Options
Funding	2	A road safety fund is in place, supported by a third party insurance levy, but the focus is on compensating victims rather than preventing road trauma.	Operationalize the National Road Safety Fund envisaged in the National Road Safety Act, ensuring sustainable financial resources are sufficient to allocate resources to high priority safety activities by government agencies, including operations of the new authority.
Promotion	1	There is little promotion beyond exhortation of safe behavior by users.	Prepare a plan to promote Safe System responses to road safety issues in the country.
Monitoring and evaluation	1	There is no easily accessible national crash data system that would allow for trend monitoring.	Establish a national crash data system available for use by all stakeholders and a results framework to monitor progress against road safety performance indicators.
Research and knowledge	1	Crash data is not easily accessible for trend monitoring but research and development is recognized as necessary.	Build the capacity of the National Road Safety Council and stakeholder officials at all levels in road safety management.
Lead agency	1	The National Road Safety Council has an insufficient mandate or resources to effectively coordinate all arms of government.	Fully operationalize a National Road Safety Authority to strengthen institutional leadership of road safety.

Assessing the Maturity of National Road Safety Management Systems

Using theoretical and analytical foundations, this working paper shows the development and use of a maturity assessment framework to support ADB operations and road safety improvement in developing member countries. In studying several member countries, the authors found that attention should be given to improving regulatory standards and compliance, developing and improving trauma prevention systems, and significantly increasing government investment and priority. The framework allows authorities to analyze and comprehensively develop national road safety efforts without undue focus on one particular aspect, and with the maturity assessment supporting the preparation of a suite of high-quality, strategically oriented road safety project options.

About the Asian Development Bank

ADB is committed to achieving a prosperous, inclusive, resilient, and sustainable Asia and the Pacific, while sustaining its efforts to eradicate extreme poverty. Established in 1966, it is owned by 68 members —49 from the region. Its main instruments for helping its developing member countries are policy dialogue, loans, equity investments, guarantees, grants, and technical assistance.

ADB

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