



Technical Assistance Report

Project Number: 55034-001
Knowledge and Support Technical Assistance (KSTA)
October 2021

People's Republic of China: Research on Implementing the Safe System Approach to Road Safety

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Asian Development Bank

CURRENCY EQUIVALENTS

(as of 5 October 2021)

Currency unit	–	yuan (CNY)
CNY1.00	=	\$0.1552
\$1.00	=	CNY6.4448

ABBREVIATIONS

ADB	–	Asian Development Bank
MOT	–	Ministry of Transport
PRC	–	People's Republic of China
TA	–	technical assistance

NOTE

In this report, "\$" refers to United States dollars.

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KNOWLEDGE AND SUPPORT TECHNICAL ASSISTANCE AT A GLANCE

1. Basic Data		Project Number: 55034-001
Project Name	Research on Implementing the Safe System Approach to Road Safety	Department/Division EARD/EASI
Nature of Activity	Policy Advice	Executing Agency Ministry of Transportation
Modality	Regular	
Country	China, People's Republic of	
2. Sector	Subsector(s)	ADB Financing (\$ million)
✓ Transport	Transport policies and institutional development	0.30
	Total	0.30
3. Operational Priorities		Climate Change Information
✓ Accelerating progress in gender equality		GHG Reductions (tons per annum) 0.000
✓ Strengthening governance and institutional capacity		Climate Change impact on the Project Low
		ADB Financing
		Adaptation (\$ million) 0.00
		Mitigation (\$ million) 0.00
		Cofinancing
		Adaptation (\$ million) 0.00
		Mitigation (\$ million) 0.00
Sustainable Development Goals		Gender Equity and Mainstreaming
SDG 3.6		Some gender elements (SGE) ✓
SDG 11.2		
		Poverty Targeting
		General Intervention on Poverty ✓
4. Risk Categorization Low		
5. Safeguard Categorization Safeguard Policy Statement does not apply		
6. Financing		
Modality and Sources		Amount (\$ million)
ADB		0.30
Knowledge and Support technical assistance: Technical Assistance Special Fund		0.30
Cofinancing		0.00
None		0.00
Counterpart		0.00
None		0.00
Total		0.30
Currency of ADB Financing: US Dollar		

I. INTRODUCTION

1. The knowledge and support technical assistance (TA) will help the People's Republic of China (PRC) to strengthen its capacity for the so-called Safe System approach to road safety (para. 5) and develop a plan to implement it.¹ One area of particular concern for the PRC is the safety of commercial vehicles. When commercial vehicles such as tour buses, trucks, and carriers of hazardous goods are involved in crashes, the casualty rates and severity tend to be high. In 2019, 27.4% of fatalities and 13.5% of serious injuries from road crashes involved commercial vehicles.²

II. ISSUES

2. In 2018, the PRC registered 63,194 deaths related to road traffic.³ The 2018 World Health Organization's Global Status Report on Road Safety estimated traffic deaths in the PRC at 256,180 in 2016,⁴ for a traffic death rate of 18.2 per 100,000 people, compared to 58,022 country reported road traffic fatalities.⁵ It also reported that the average traffic fatality rate per 100,000 people was 27.5 in low-income countries, 19.2 in middle-income countries, and 8.3 in high-income countries. The PRC strives to achieve a fatality rate comparable to that of high-income countries. Many factors contribute to the high traffic fatality rate in the PRC, including rapid urbanization and motorization; unforgiving⁶ and car-centric road infrastructure; inadequate standards and enforcement; and unsafe user behavior such as distracted driving, speeding, and failure to use seatbelts, helmets, or child-restraints.

3. Road safety in the PRC is governed by multiple regulatory agencies. Road policies for commercial vehicles are set and enforced by the Ministry of Transport (MOT), vehicle standards are the responsibility of the Ministry of Industry and Information Technology, and the enforcement of law against behaviors such as speeding is under the jurisdiction of the Traffic Administration Bureau of the Ministry of Public Security. Driver well-being and qualification checks are the responsibility of operating companies. Poor collaboration between these different stakeholders and the lack of unified road safety targets limit the effectiveness of measures to improve road safety. MOT is seeking ways to improve the road safety management of commercial vehicles by applying Safe System practices.⁷

4. MOT estimates that 85%–90% of serious traffic crashes involving commercial vehicles are caused by driver behavior—e.g., fatigue, distracted driving, speeding, overloading, using rural roads not designed for commercial traffic, and driving despite poor mental health and well-being. However, many factors contribute to fatal crashes and serious injuries, and MOT is aware that

¹ The TA first appeared in the business opportunities section of the Asian Development Bank (ADB) website on 21 September 2021.

² Information provided by MOT during the ADB reconnaissance mission. 2021. Beijing.

³ National Bureau of Statistics of China. 2018. *China Statistical Yearbook*. Beijing.

⁴ World Health Organization. 2018. *Global Status Report on Road Safety*. Geneva.

⁵ The World Health Organization estimates are based on the number of reported deaths, with adjustments made to account for differences in definitions of road traffic deaths across multiple countries. The Global Status Report on Road Safety is published every 5 years. The 2018 report published data from 2016.

⁶ Unforgiving infrastructure plays a major role in the frequency and severity of run-off-road crashes. According to [Monash University](#), this is often due to the position and rigid nature of roadside hazards (fixed objects such as trees, signs, light polls) and shoulders which are unsealed, uneven or too steep. These conditions increase the risk of serious injury or death.

⁷ The Safe System approach accepts that human beings make mistakes that lead to road crashes but also stipulates the (i) shared responsibility of those who design, build, manage, and use roads and vehicles; (ii) shared duty of providing post-crash care to prevent crashes resulting in serious injury or death; and (iii) need to strengthen all parts of the system simultaneously to multiply their effects, so that if one part fails, road users are still protected.

merely blaming driver behavior means overlooking the importance of adequate road infrastructure and the setting and enforcement of speed limits and vehicle safety standards. It accepts the challenge of moving beyond traditional thinking to a comprehensive approach.

5. The countries that were most successful in reducing road fatalities, such as Sweden, the United Kingdom and the Netherlands, have recognized that humans will always make mistakes and that there are physical limits to the forces the human body can withstand before sustaining serious injury or death. These countries focused their efforts on implementing a road transport system that accommodates and minimizes the impact of road user mistakes.⁸ Road safety management requires shared responsibility, especially among road system designers and operators; recognition of human fallibility and frailty; and holistic thinking on how to improve the safety of all parts of the system—vehicles, roads, and users—to reduce the likelihood of death and serious injury. This approach, known as Safe System, is considered best practice.

6. The PRC took steps in this direction by adopting the ISO39001:2012 standard—Road Traffic Safety Management Systems: Requirements with Guidance for Use—in 2019, which calls for risk-based thinking and the achievement of road safety results through the Safe System.⁹ However, the country needs an institutional framework, action plan, and capacity strengthening to shift the notion of road safety management away from a mere focus on user behavior. MOT requested assistance from the Asian Development Bank (ADB) on how to implement the Safe System in the PRC and use it to improve the safety of commercial vehicles.

7. The TA will include practical guidance on the implementation of Safe System practices and will equip the PRC with the necessary skills to respond to road safety challenges and fulfill its commitments to the Sustainable Development Goals.¹⁰ The TA activities are aligned with ADB's Strategy 2030¹¹ and its country partnership strategy, 2021–2025 for the PRC, which stress the importance of reducing carbon emissions from transport and improving infrastructure for vulnerable groups.¹² Road safety improvements are crucial to encouraging active mobility and augmenting safety of vulnerable road users, particularly children and the elderly.¹³

III. THE TECHNICAL ASSISTANCE

A. Impact and Outcome

8. The TA is aligned with the following impact: significant improvement in smart, intelligent, safe, green, and shared transportation development achieved.¹⁴ The TA will have the following outcome: Safe System-based road safety management improved in the PRC, which will be evidenced by the adoption of a practical recommendation to improve road safety management

⁸ World Health Organization. 2017. *Road Safety: Basic Facts*. Geneva. https://www.who.int/violence_injury_prevention/publications/road_traffic/Media_brief_all_factsheets_web_rev_nov_2017.pdf (accessed 10 March 2021).

⁹ The PRC adopted ISO39001-2012 as National Standard GB/T39001-2019 in 2019.

¹⁰ Sustainable Development Goals 3.6 and 11.2, as per United Nations. *Sustainable Development Goals: 17 Goals to Transform Our World*.

¹¹ ADB. 2018. *Strategy 2030: Achieving a Prosperous, Inclusive, Resilient, and Sustainable Asia and the Pacific*. Manila.

¹² ADB. 2021. *Country Partnership Strategy: People's Republic of China, 2021–2025—Toward High-Quality, Green Development*. Manila.

¹³ *Institute for Transportation and Development Policy* found that the traditional road system prioritized private cars at the expense of safe sidewalks and bike facilities. Increasing the use of bicycles and ease of walking is one of the most affordable and practical ways to reduce carbon dioxide emissions and boost access to economic opportunity for the poor.

¹⁴ MOT. 2019. *Outline for Building China into a Country with Strong Transportation Network*. Beijing.

and by increased informal interactions and collaboration between departments working on road safety. The design and monitoring framework is in Appendix 1.

B. Outputs, Methods, and Activities

9. Output 1: Plan to implement the Safe System approach to road safety in the PRC developed. An implementation plan will be developed based on the fundamental principles of the Safe System. First, the plan will detail the steps required to shift the road safety approach in the PRC to the Safe System. This includes specific direction on how to address the seven institutional management functions for road safety.¹⁵ Second, the plan will provide guidance on how to develop policies and action plans so that Safe System principles such as forgiving road infrastructure,¹⁶ safer vehicles, and effective enforcement are put into practice for the benefit of all road user groups. Specific attention will be given to the safety requirements of vulnerable road users such as pedestrians, cyclists, and other human-powered transport means. Finally, the plan will (i) recommend mechanisms for cross-department and cross-jurisdiction collaboration; (ii) present case studies that illustrate international best practice in applying the Safe System approach; and (iii) include a multisector action plan, agreed with key stakeholders, with sequenced activities to develop, implement, and monitor an effective national road safety strategy. The recommendations and action plan, prepared in the form of a handbook, will help achieve the outcome of strong, Safe System-based road safety management. Innovative technologies and techniques for safety management, crash analysis, and other road traffic control measures will be explored.

10. Output 2: Capacity for the road safety management of commercial vehicles enhanced. This will involve the development of a framework to improve the road safety of specific classes of commercial motor vehicles in the PRC based on the Safe System approach, and an accompanying capacity strengthening program. The framework will include (i) the benchmarking of current commercial vehicle management practices against international best practice, (ii) recommended actions for MOT to improve the control of commercial vehicles from a proactive safety management angle, and (iii) case studies and examples of international best practice that underpin better commercial vehicle safety. This will be complemented by a training program to improve road safety management capacity, covering topics such as (i) Safe System thinking with a focus on shared responsibility, the failing human being, the system perspective, and effective communication and collaboration; (ii) fatigue management on the part of commercial vehicle drivers; (iii) action against high-risk behavior and enforcement of traffic rules; (iv) commercial vehicle standards and effective vehicle inspection; and (v) effective training, licensing, and management of commercial vehicle drivers. This output will require consultations with multiple stakeholders, including the private sector. Their experiences and the output's findings and recommendations will assist MOT in achieving better road safety in the PRC.

11. Output 3: Regional knowledge of the Safe System approach to commercial vehicle safety enhanced. The research carried out under outputs 1 and 2, as well as the insights gained from implementing the Safe System in the PRC and improving the road safety of commercial vehicles will be shared through the Regional Knowledge Sharing Initiative, launched by ADB and the government,¹⁷ and international forums such as the Asia Pacific Road Safety Observatory.

¹⁵ The seven [World Bank institution management functions](#) are: (i) results focus; (ii) coordination; (iii) legislation; (iv) funding and resource allocation; (v) promotion; (vi) monitoring and evaluation; and (vii) research and development, and knowledge transfer.

¹⁶ Forgiving road infrastructure aims to protect vehicle occupants from serious injury in the event they leave the road/carriageway.

¹⁷ ADB-PRC Regional Knowledge Sharing Initiative. <https://rkisi.adb.org/>.

12. The TA will support several focus areas and operational priorities of Strategy 2030.¹⁸ It will factor in lessons from previous ADB assistance and projects,¹⁹ such as (i) ensuring collaboration with and involvement of multiple stakeholders across departments and sectors throughout the TA, (ii) building capacity for Safe System thinking, (iii) providing professional translations of reports as well as technical experts who speak both English and Chinese, and (iv) preparing a plan to share the outputs of the TA with countries in the region.

C. Cost and Financing

13. The TA is estimated to cost \$330,000, of which \$300,000 will be financed on a grant basis by ADB's Technical Assistance Special Fund-other sources. The key expenditure items are listed in Appendix 2. The government will provide support in the form of counterpart professional and support staff; an appropriately furnished office with utilities and telecommunication access; hosting of multi-stakeholder workshops, including providing the venue; and access to materials, maps, available data, and documents determined to be necessary for implementing the TA, and in accordance with the laws and regulations of the PRC.

D. Implementation Arrangements

14. ADB will administer the TA. A dedicated team from the East Asia Sustainable Infrastructure Division of the East Asia Department, with support from the Transport Sector Group of the Sustainable Development and Climate Change Department, will select, supervise, and evaluate consultants, and monitor the TA's progress. The team will administer the TA in close coordination with the executing and implementing agencies, as summarized in the table.

Implementation Arrangements

Aspects	Arrangements		
Indicative implementation period	October 2021–October 2023		
Executing agency	Safety and Quality Supervision and Management Division, Ministry of Transport		
Implementing agency	Road Safety Research Center of the Research Institute of Highways, Ministry of Transport		
Consultants	Package title	Selection method	Engaged by
	Applying the Safe System in the People's Republic of China (international firm)	Quality- and cost-based selection (90:10)	Asian Development Bank
Disbursement	Technical assistance resources will be disbursed following ADB's <i>Technical Assistance Disbursement Handbook</i> (2020, as amended from time to time).		

Source: Asian Development Bank.

15. **Consulting services.** ADB will engage the consultants using output-based, lump-sum procurement following the ADB Procurement Policy (2017, as amended from time to time) and its associated project administration instructions and/or staff instructions.²⁰

¹⁸ Operational priorities 2.3.1 and 6.1.1. Details are included in Contribution to Strategy 2030 Operational Priorities (accessible from the list of linked documents in Appendix 3).

¹⁹ ADB. 2018. [Technical Assistance to Mongolia for Institutional Strengthening for Road Safety](#). Manila; ADB. 2018. [Technical Assistance to the People's Republic of China for Hubei Xiangyang Integrated Sustainable Transportation and Logistics Planning and Strategic Study](#). Manila; and ADB. 2020. [Technical Assistance for Enhancing Road Safety for Central Asia Regional Economic Cooperation Member Countries \(Phase 2\)](#). Manila.

²⁰ Terms of Reference for Consultants (accessible from the list of linked documents in Appendix 3).

IV. THE PRESIDENT'S DECISION

16. The President, acting under the authority delegated by the Board, has approved the provision of technical assistance not exceeding the equivalent of \$300,000 on a grant basis to the Government of the People's Republic of China for Research on Implementing the Safe System Approach to Road Safety, and hereby reports this action to the Board.

DESIGN AND MONITORING FRAMEWORK

Impact the TA is Aligned with Significant improvement in smart, intelligent, safe, green, and shared transportation development achieved (Outline for Building China into a Country with Strong Transportation Network) ^a			
Results Chain	Performance Indicators	Data Sources and Reporting Mechanisms	Risks and Critical Assumptions
<p>Outcome Safe System-based road safety management improved</p>	<p>By Q1 2024:</p> <p>a. At least one recommendation on safe system-based road safety accepted by the Ministry of Transport (2021 baseline: not applicable)</p> <p>b. 75% of staff surveyed report increased levels of interaction on road safety between agencies with road safety responsibilities (2021 baseline: not applicable) (OP6.1.1)</p>	<p>a. Letter confirming acceptance and plan to incorporate the recommendation from Director of Safety and Quality Supervision and Management Division, Ministry of Transport</p> <p>b. Online survey of Ministry of Transport staff and staff in collaborating agencies</p>	<p>R: Changes in government management may result in shifting priorities, and measures to support closer collaboration may not be adopted by government agencies.</p> <p>R: Low levels of experience in cooperative action by agencies will lead to a lack of confidence and procrastination.</p> <p>R: Competitive or disengaged behavior between key decision makers in different agencies</p>
<p>Outputs 1. Plan to implement the Safe System approach to road safety in the PRC developed</p>	<p>By Q3 2023:</p> <p>1a. A multisector action plan, agreed with key stakeholders in the PRC, prepared (2021 baseline: not prepared)</p> <p>1b. A handbook based on international best practice and the adoption of the Safe System approach in the PRC published (2021 baseline: not applicable) (OP 6.1.1)</p>	<p>1a and 1b: Consultants' final report</p>	<p>R: Some stakeholders may not fully implement cross-departmental measures because of changing priorities or preference for past practice.</p> <p>A: Other key stakeholders, including private sector and Ministry of Public Security, are willing to cooperate with the consultants and the executing and implementing</p>

Results Chain	Performance Indicators	Data Sources and Reporting Mechanisms	Risks and Critical Assumptions
<p>2. Capacity for the road safety management of commercial vehicles enhanced</p> <p>3. Regional knowledge of the Safe System approach to commercial vehicle safety enhanced</p>	<p>2a. Road safety management action plan to improve commercial vehicle management based on Safe System principles produced (2021 baseline: not prepared)</p> <p>2b. 75% of Ministry of Transport staff who received training (at least 10 of them women) report an increased understanding of Safe System principles and how to apply them to commercial vehicle safety (2021 baseline: not applicable) (OP 2.3.1; OP 6.1.1)</p> <p>3a. TA findings and recommendations are presented to at least one regional road safety forum such as the APRSO (2021 baseline: not applicable)</p> <p>3b. At least 50 participants in one regional safety forum such as the APRSO have improved understanding of TA findings (2021 baseline: not applicable)</p>	<p>2a. Consultants' final report</p> <p>2b. Post-training surveys from consultants</p> <p>3a. Records from the regional road safety forum event</p> <p>3b. Post-presentation survey</p>	<p>agencies to achieve the TA objectives, and to listen to and adopt the recommendations of the TA.</p> <p>A: Senior leaders in agencies show visible support for collaborative engagement.</p>
Key Activities with Milestones			
<p>1. Plan to implement the Safe System approach to road safety in the PRC developed</p> <p>1.1 Conduct gap analysis on PRC's current approach versus Safe System approach to road safety (Q1 2022)</p> <p>1.2 Develop case studies that demonstrate best international practice in implementing the Safe System (Q1 2022)</p> <p>1.3 Draft a report that recommends mechanisms for cross-department and cross-jurisdiction collaboration (Q2 2022)</p> <p>1.4 Gather stakeholder feedback (Q2 2022)</p> <p>1.5 Conduct a stakeholder workshop to get feedback on the case studies, the proposed collaboration mechanisms, and the multisector action plan (Q3 2022)</p> <p>1.6 Finalize the implementation plan in the form of a handbook that includes a knowledge product about the Safe System, recommendations for collaboration across departments and jurisdictions, a</p>			

multisector action plan that incorporates stakeholder feedback, and guidelines on implementing the Safe System in the PRC (Q3 2023)

2. Capacity for the road safety management of commercial vehicles enhanced

- 2.1 Review existing practices in commercial vehicle management and identify the key opportunities for a shift to Safe System-based practices that will improve the safety outcomes (Q1 2022)
- 2.2 Develop a training plan and provide training on best practices in road safety management and on Safe System principles with regard to commercial vehicles (Q1–Q3 2022)
- 2.3 Conduct a baseline assessment of the road safety management system for commercial vehicles in the PRC and identify key needs and opportunities for improvement (Q1–Q2 2022)
- 2.4 Identify case studies that illustrate improved road safety outcomes for commercial vehicles, which would resonate with the PRC, and demonstrate the principles of the Safe System approach (Q2 2022)
- 2.5 Draft a report containing the case studies, as well as recommendations on policies and corresponding management systems to manage and improve the safety of commercial vehicles (Q3 2022–Q1 2023)
- 2.6 Conduct a multisector stakeholder workshop to get feedback on the draft report and its recommendations (Q1 2023)
- 2.7 Develop a final report that incorporates stakeholder feedback on the case studies and recommendations of the draft report, and which includes an action plan for improving the road safety of commercial vehicles (Q3 2023)

3. Regional knowledge of the Safe System approach to commercial vehicle safety enhanced

- 3.1 Prepare a presentation for the executing agency to showcase the key findings of the TA to at least one regional road safety forum, such as a major APRSO event or an ADB-facilitated regional webinar (Q3 2023)
- 3.2 The executing agency and TA consultants present the TA findings at the regional event (Q4 2023)
- 3.3 Upload the TA reports and presentation to the Regional Knowledge Sharing Initiative and a regional road safety forum (Q2 2024)

TA Management Activities

Includes procuring goods, hiring consultants, reporting, monitoring, and evaluating (including primary data collection activities), accounting, and auditing.

Inputs

ADB: \$300,000 (Technical Assistance Special Fund-other sources)

Note: The government will provide counterpart support in the form of counterpart staff; suitably furnished office space with utilities and telecommunication access; training venue; information materials, data, maps, and other documents as needed; and other in-kind contributions.

A = assumption, ADB = Asian Development Bank, APRSO = Asia Pacific Road Safety Observatory, OP = operational priority, PRC = People's Republic of China, Q = quarter, R = risk, TA = technical assistance.

^a Ministry of Transport. 2019. *Outline for Building China into a Country with Strong Transportation Network*. Beijing.

Contribution to Strategy 2030 Operational Priorities:

The expected values and methodological details for all OP indicators to which this TA will contribute results are detailed in Contribution to Strategy 2030 Operational Priorities (accessible from the list of linked documents in Appendix 3).

Source: Asian Development Bank.

COST ESTIMATES AND FINANCING PLAN
(\$'000)

Item	Amount
A. Asian Development Bank^a	
1. Consultants ^b	290.0
2. Training, seminars, workshops, forum, and conferences ^c	5.0
3. Contingencies	5.0
Total	300.0

Note: The technical assistance (TA) is estimated to cost \$330,000, of which contributions from the Asian Development Bank are presented in the table. The government will provide counterpart support in the form of counterpart professional and support staff; an appropriately furnished office with utilities and telecommunication access; hosting of multi-stakeholder workshops, including providing the venue; access to materials, maps, available data, and documents determined to be necessary for implementing the TA, and in accordance with the laws and regulations of the People's Republic of China. The value of the government contribution is estimated to account for 10% of the total TA cost.

^a Financed by the Asian Development Bank's Technical Assistance Special Fund-other sources.

^b Consultants will be recruited using output-based, lump-sum procurement.

^c Includes interpretation, translation, and external resource person costs.

Source: Asian Development Bank estimates.

LIST OF LINKED DOCUMENTS

<http://www.adb.org/Documents/LinkedDocs/?id=55034-001-TARreport>

1. Terms of Reference for Consultants
2. Contribution to Strategy 2030 Operational Priorities