World Health Organization
Thailand

Thailand's status against 12 Global Road Safety Performance Targets

Review of Thailand's status against voluntary global targets for road safety risk factors and service delivery mechanism

Review of Thailand's status against voluntary global targets for road safety risk factors and service delivery mechanism

Review of Thailand's status against voluntary global targets for road safety risk factors and service delivery mechanism

ISBN: 978-974-680-451-6

Suggested citation. Review of Thailand's status against voluntary global targets for road safety risk factors and service delivery mechanism. Bangkok: World Health Organization Country Office for Thailand; 2020. Licence: CC BY-NC-SA 3.0 IGO.

Cataloguing-in-Publication (CIP) data. CIP data are available at http://apps.who.int/iris.

Layout by Zerotwostudio
Cover photo: On the roads in Chinatown, Bangkok

Printed in Thailand
Published by World Health Organization Country Office for Thailand
88/20 Permanent Secretary Building 3, 4th Floor, Ministry of Public Health,
Tiwanon Road, Talad Kwan, Mueang, Nonthaburi 11000
Tel: +66 (0) 2547 0100 Fax: +66 (0) 2591 8199 E-mail setharegistry@who.int

Acknowledgements

The Review of Thailand's status against the voluntary global targets for road safety risk factors and service delivery mechanism was commissioned by the World Health Organization Country Office for Thailand. It was primarily funded by the Bloomberg Philanthropies as part of the Bloomberg Initiative for Global Road Safety.

The World Health Organization would like to thank the research team:

Professor Jennie Oxley, David Logan, PhD, Jennifer Rivera-Gonzalez, Dr Carlyn Muir, Professor Judith Charlton of the Monash University Accident Research Centre (MUARC), based in Australia (also the WHO Collaborating Centre for Violence and Injury Prevention), and Sawai Seesai of the Asian Injury Prevention (AIP) Foundation, Thailand.

We would like to extend our thanks to the road safety stakeholders who attended the consultation meeting hosted by the World Health Organization in November 2019 and provided valuable inputs to this report. These included representatives from the following organizations: Ministry of Interior (Department of Disaster Prevention and Mitigation); Ministry of Transport (Department of Land Transport, Office of Transport and Traffic Policy and Planning, Department of Highways, Department of Rural Roads, Office of the Permanent Secretary); the Royal Thai Police (Highway Police Division, Police Education Bureau, Police Strategy Office); Ministry of Public Health (Division of Injury Prevention, Department of Disease Control; Division of Emergency Public Health Emergency, Office of the Permanent Secretary); National Institute for Emergency Medicine; the Standing Committee on Transport of the House of Representatives; Thai Health Promotion Foundation; Thailand Road Safety Fund; Road Safety Policy Foundation, ThaiRoads Foundation; Asian Transportation Research Society; Faculty of Engineering, Chulalongkorn University; Faculty of Engineering, Naresuan University; Thailand Development Research Institute; Thailand Accident Research Center; King Mongkut University of Technology North Bangkok; the Royal Thai Government and WHO Country Cooperation Strategy on the Road Safety Programme.

We would also like to thank Dr Witaya Chadbunchachai, Director, WHO Collaborating Centre for Injury Prevention and Safety Promotion, Khon Kaen Regional Hospital and Dr Anuchar Sethasathien, Advisor, the Thailand Road Safety Fund for their technical advice; thanks also to Professor Roger Ingham for proofreading the English version of this report.

The reviewers and contributors within the World Health Organization are: Rattanaporn Ingham, Dr Liviu Vedrasco, Nhan Tran, PhD and Meleckizedeck Khayesi, PhD.

The design and printing is coordinated by Benja Sae-seai.

Foreword from the World Health Organization Country Office for Thailand

We all use the road – as drivers, passengers or pedestrians. Travel connects human beings with their society; it is an essential part of their daily lives. But each day, for almost 60 people in Thailand, travel from their homes is a journey of no return. Most of these are young people, people of working age – in the prime of their lives. Most use motorcycles, the most common vehicle on Thailand's roads. Most die in crashes with larger vehicles.

Human beings make mistakes. If human fallibility is an unfortunate constant, we must work to make our road and traffic systems as safe as possible – this is the Safe System Approach. Motorcycle riders, cyclists, pedestrians and those who have physical limitations, such as people with disabilities, children and older persons are relatively unprotected and, therefore, more vulnerable to serious injury and death. They need to be protected, and they need the tools to protect themselves.

Currently, there are over 21 million motorcycles on Thailand's roads, and this number is rising. International studies show that motorcycle riders are 20 times more likely to die, for each kilometer they travel, than those who drive cars. Humans will always travel; reducing the risk of injury while travelling is something we can, and must, do. A sustainable solution to safe travel requires consistent collaboration and sharing responsibilities across all sectors, and a focus on making systems safe to reduce the severity of crashes and injuries. Above all, we need political will and commitment to achieve our shared goals.

Thailand has recently demonstrated to the world how a comprehensive approach – like that needed to protect vulnerable road users – has shown success in controlling the COVID-19 epidemic to date. We have also seen that measures to control COVID-19 in April 2020 saved the lives of almost one thousand road users in just one month – a 50% reduction in road traffic deaths compared to the previous five year period. We learned that reducing the volume of vehicles on the road, combined with reduced access to alcohol, can significantly reduce road traffic deaths and injuries. Adoption of other proven measures could reduce road traffic deaths even further.

Thailand has made laudable progress in advancing universal health coverage and primary health care. Thailand has shown global leadership in the area of non-communicable diseases prevention and control. But solving the problem of injury and death on Thailand's roads needs our urgent attention – more so because this tragedy is largely preventable.

That is why the publication of this report is so important and timely. It is a review of Thailand's progress on the 12 Voluntary Global Performance Targets on Road Safety. These targets were developed and agreed upon by UN member states and adopted by the UN General Assembly in 2018. They set out a framework for countries to monitor progress in achieving global goals on road safety. The report will serve as a guide for future action in Thailand – for prioritizing what we need to do to save the lives of those vulnerable individuals who use our roads every day. On behalf of WHO, I would like to thank the research team and all others who contributed to this review. WHO will continue to support Thailand to achieve the target of halving road traffic deaths and injuries in accordance with the Sustainable Development Goals.

Dr Daniel Kertesz

WHO Representative to Thailand

Foreword from the WHO-Royal Thai Government Country Cooperation Strategy on Road Safety

Each year, more than 20,000 Thai people die from road crashes and many others are seriously injured and become permanently disabled. During 2011-2013, the annual average economic loss resulted from the road traffic trauma of the country was 545,435 million Thai baht, representing 6% of the national GDP (TDRI 2017). Without systematic management, this situation will adversely affect the country's economic and social development in the future.

Thailand issued the Cabinet Resolution on 29 June 2010 designating the years from 2011 to 2020 as the Decade of Action for Road Safety. The Strategic Map for the Decade of Action for 2011 to 2020 was subsequently implemented in accordance with the 5 pillars: 1) building road safety management capacity; 2) improving the safety of road infrastructure and broader transport networks for all road users; 3) developing the safety of vehicles; 4) enhancing the behavior of road users; and 5) improving the post-crash response. Later, in 2011, the government issued the Regulations of the Prime Minister Office B.E. 2554 (2011) on preventing and reducing road crashes as being the mechanism for road safety management. Similar to other low-and-middle income countries, Thailand is unlikely to have achieved the target of halving road traffic deaths by 2020.

Recognizing the importance of, and gaps in, the implementation of measures to improve road safety by member states, between 2016 and 2017 at the request of the United Nations, the World Health Organization facilitated a discussion process among member states which led to the development of the 12 Voluntary Global Road Safety Performance Targets to identify key performance targets and actions to be taken. Thailand served as the Chair of the discussion meetings. On 12 April 2018, the UN General Assembly adopted the voluntary global performance targets for road safety and encouraged member states to take on leading roles in implementing activities in support of these targets.

In 2019, at the request of the Programme, the World Health Organization Country Office for Thailand supported funding, experts and coordinated with the Monash University Accident Research Centre to review Thailand's progress in achieving these 12 Global Road Safety Performance Targets. This review was designed to explore the opportunities for improvement and reducing the gaps in the implementation of road safety measures in Thailand.

The WHO-Royal Thai Government Country Cooperation Strategy on Road Safety Programme would like to express sincere appreciation to all the researchers and relevant individuals for their contributions and dedication. We hope that this report will benefit Thailand to achieve their road safety goal of halving road traffic deaths by 2030, as declared in the Stockholm Declaration at the 3rd Global Ministerial Conference on Road Safety, held on February 19-20, 2020 in Stockholm.

Dr Wiwat Seetamanoch

Manager, WHO-Royal Thai Government Country Cooperation Strategy for Road Safety Programme

Foreword from the Monash University Accident Research Centre

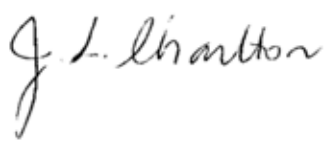
Deaths and serious injuries sustained while using the transport system are arguably one of the highest-ranking public health issues in the world today. Furthermore, the evidence indicates that this global burden is unequal, being heaviest in low- and middle-income countries, and within the most vulnerable populations.

2020 has seen the end of the Decade of Action 2011-2020, and renewed attention to road safety efforts. There are new beginnings for strategic innovation, and ambitious action towards saving lives across the globe beyond 2020 (Stockholm Declaration, 2020). Acknowledgement of road safety as a public health challenge is now clearly embedded within the UN Sustainable Development Goals (SDGs), meaning that the elimination of deaths and serious injuries on our roads is recognised as a key to the global development agenda, is essential to many other sustainability goals, and is a necessity for health, climate, equity and prosperity. It is therefore critical that road safety receives heightened recognition, significant investment, strong commitment at the highest levels and comprehensive integration of government and private sector activities aimed at providing sustainable, safe and liveable environments.

The Royal Thai Government is to be commended on their renewed efforts to address road safety, particularly the adoption of the twelve voluntary performance targets, in collaboration with the UN Regional Commissions and the WHO Country Office for Thailand. It is clear that Thailand is well on its way to implementing a systems-based approach to reducing deaths and serious injuries on the country's roads, through creating strong leadership and management, strategies and programs, and forming essential partnerships throughout government agencies and key supporting stakeholder groups.

It is also encouraging that the critical need for an evidence-based approach is embedded in Thailand's efforts. The far-reaching impacts of setting targets and monitoring and evaluating progress cannot be under-estimated.

In its capacity as a designated World Health Organisation Collaborating Centre for Injury Prevention, the Monash University Accident Research Centre (MUARC) supports, challenges, and engages citizens, governments and industry to eliminate injury from all causes. Our goal is simple but profound: to create safe and resilient solutions to local and global challenges. MUARC is honoured to have partnered with the WHO Country Office for Thailand to undertake this assessment of Thailand's implementation status based on global performance targets. This review was designed to understand both the gaps and opportunities, and to provide recommendations to enhance road safety efforts and capacity in the short and long-term in Thailand. We believe Thailand has the commitment and will to maintain its leadership and foster collaboration to achieve significant reductions in road deaths and serious injuries in the coming years. We hope that the findings of this review will assist in the continued effort to save lives and reduce the long-term individual, community and societal effects of road trauma over the next decade.



Professor Judith Charlton

Director, Monash University Accident Research Centre and WHO Collaborating Centre for Injury Prevention, Melbourne, Australia

Table of Contents

Executive Summary

Introduction

Internationally, road safety has improved continuously in many countries over the last three to four decades, particularly in European nations, North America and Australia. Many of these successes can be attributed to strong political leadership, successful collaborations and partnerships between key stakeholders and government sectors, clear frameworks for Road Safety Management (RSM), visions, targets and strategies, and development and implementation of effective policies and programs that are evidence-based and scientifically sound.

The United Nations (UN) recognises the importance of setting performance targets and monitoring progress towards the achievement of Sustainable Development Goal (SDG) targets, particularly those addressing road safety. A set of twelve voluntary global road safety performance targets have been established, forming a basis for countries to develop and adopt their own voluntary national performance targets and to monitor the extent of progress toward meeting both these global and their own national targets.

The purpose of this study was to review and assess the status of Thailand's implementation against the global road safety performance targets and global and national indicators, taking into account legal and institutional aspects, and prepare recommendations for policy decisions and interventions.

Using the GOSPA framework, the study comprised four phases, including i) a review of relevant published and grey literature, ii) key stakeholder interviews, iii) synthesis of findings, and iv) presentation of findings and seeking feedback from road safety local stakeholders. Bringing together the findings of (i) and (ii), a panel of international road safety experts developed a suite of recommendations for the short, medium and longer terms which were discussed as part of phase iv

An overview of responsibilities, status and issues related to each target is provided below and shows some promising achievements towards meeting the targets. In other aspects, progress towards achieving the targets is relatively poor.

In the table below, a qualitative assessment of status against each Target is provided. Individual assessments were based on a combination of consultation with key stakeholders, review of relevant in-country reports/documents and expert opinion. Ratings range from 'Low' to 'High', based on a consensus estimate of the current level of achievement towards the stated goals of the Target.

Findings

Status	Comments
Target 1: By 2020, all countries establish a comprehensive multi sectoral national road safety action plan with time-bound targets.	
Low-Moderate	The Thailand Road Safety Master Plan 2018-2021 commits to broad Safe System/Towards Zero principles and outlines four key strategies and associated time-bound targets and indicators, as well as providing guidelines for implementation, monitoring and evaluation. It sets an ambitious target to reduce road traffic deaths to 18 per 100,000 population by 2021. The creation of the Master Plan demonstrates that road injury prevention has received consideration at a high level; however, due to the lack of coordination between agencies, clear and integrated action plans and time-bound targets, the potential to achieve this Target by 2020 is low-moderate.
Target 2: By 2030, all countries accede to one or more of the core road safety-related UN legal instruments.	
High	Thailand has either signed or ratified three of the six core road safety-related UN legal instruments. In April 2020, Thailand was in the process of changing the status from signing to ratifying the Convention on Road Traffic, 1968. Meanwhile, several organisations and agencies are working on the adoption of international vehicle safety standards, which are expected to be adopted by 2030.
Target 3: By 2030, all new roads achieve technical standards for all road users that take into account road safety or meet a three-star rating or better.	
Low-Moderate	There is evidence that internationally recognized technical standards, processes and training are being applied on Thailand's roads, including Road Safety Audits (RSA), AASHTO and ASTM. In addition, training guidelines to train for RSA have been developed An indicator quantifying the length or proportion of new roads meeting Target 3 needs to be introduced.
Target 4: By 2030, more than 75% of travel on existing roads is on roads that meet technical standards for all road users that take into account road safety.	
Low-Moderate	The approaches taken for safety on highways and rural roads is promising. Targets have been set to reduce deaths on highways and rural roads, and the Departments of Highways and Rural Roads have developed preventive and corrective strategies to achieve this, including adoption of best-practice principles, RSA, capacity building, road safety assessment (using iRAP techniques), addition of safety equipment, and blackspot treatment programs. However, there seems to be a lack of clear systematic approaches in place, no assessment of effectiveness of programs, there are currently no specific goals for programs, and no clear and measurable implementation/action plans nor any process tracking system. An indicator quantifying the proportion of travel on existing roads meeting Target 4 should be developed and introduced.

Status	Comments
Target 5: By 2030, 100% of new (defined as produced, sold or imported) and used vehicles meet high quality safety standards, such as the recommended priority UN Regulations, Global Technical Regulations, or equivalent recognized national performance requirements.	
Moderate	There is evidence that there is a structured plan towards achieving the certification of vehicles to UN harmonised regulations. However, implementation of motorcycle Antilock Braking System (ABS) is one area that is yet to be given high priority. Certification needs to be underpinned by other actions focusing on improved relationships with vehicle manufacturers and importers coupled with a strong enforcement strategy, a national unified database and a continuous monitoring system.
Target 6: By 2030, halve the proportion of vehicles travelling over the posted speed limit and achieve a reduction in speed-related injuries and fatalities.	
Moderate	The Road Safety Master Plan identifies speeding as one of the main risk factors, but there is no clear action plan to lower speed-related fatalities. Several speed enforcement programs have been implemented to reduce speed limit non-compliance, such as mobile laser, fixed speed cameras and the Police Ticket Management (PTM) and demerit point systems. Some difficulties in achieving this Target include high enforcement tolerance levels, inappropriate speed limits in many urban areas and excessive reliance on public education and campaigns rather than effective enforcement strategies fostering general deterrence.
Target 7: By 2030, increase the proportion of motorcycle riders correctly using standard helmets to close to 100%.	
Moderate	Thailand has helmet wearing laws in place, supported by enforcement and public awareness campaigns; however, the key issues are poor enforcement effectiveness and a lack of public awareness of the importance of helmet wearing, resulting in ongoing low wearing rates, particularly for pillion passengers.
Target 8: By 2030, increase the proportion of motor vehicle occupants using safety belts or standard child restraint systems to close to 100%.	
Seat belt use: Moderate **Child restraint use: Low**	Thailand has laws requiring drivers and all car passengers to wear seat belts; however, reported seat belt wearing rates are low at 54% for drivers and front-seat passengers and potentially much lower in the rear seats. There is no child restraint law and usage rates are likely to be extremely low. There are no clear programs or initiatives focusing on seat belt wearing, nor does it appear to be an enforcement priority, resulting in sustained low wearing rates, particularly for rear seat passengers. Regarding child restraint systems, the above also applies and, in addition, there is even less public awareness of the benefits of child restraints and no applicable restraint or vehicle standards.

Status	Comments
Target 9: By 2030, halve the number of road traffic injuries and fatalities related to drivers using alcohol, and/or achieve a reduction in those related to other psychoactive substances.	
Moderate	Drink-driving is an acknowledged priority for Royal Thai Police and Department of Land Transport. Several initiatives and programs were noted, including the PTM and demerit point systems, new laws specifying maximum BACs for younger drivers/riders and professional public transport drivers, including taxis and motorcycle taxis. While all of these are in place, enforcement is still ineffective due to a lack of and poor maintenance of breath testing equipment, insufficient resources and inadequate training of personnel. As with other driver behaviours, there is poor public perception of the importance of reducing drink driving.
Target 10: By 2030, all countries have national laws to restrict or prohibit the use of mobile phones while driving.	
Moderate-High	Thailand has implemented a law banning hand-held mobile phone use, but not hands-free mobile phone use. Complementing this law, Police programs include the implementation of the PTM and public education programs; however, the Police acknowledged that this is not one of their priority areas.
Target 11: By 2030, all countries to enact regulations for driving time and rest periods for professional drivers, and/or accede to international/regional regulation in this area.	
Moderate	A regulation was enacted in 2013 requiring installation of GPS devices in vehicles carrying hazardous/dangerous goods to monitor driver behaviour (particularly speeding and fatigue), and this has been extended by the Department of Land Transport to include heavy vehicles, buses and leased vans, long-distance (inter-city) passenger vehicles and taxis (since 2017). It was reported that 50% of trucks and 20% of buses had been equipped by March 2019. It is not clear how well this initiative is translating to the specific targets of driving time and rest periods.
Target 12: By 2030, all countries establish and achieve national targets in order to minimize the time interval between road traffic crash and the provision of first professional emergency care.	
Moderate	The Master Plan on Road Safety does not include a specific strategy on post-crash care services. However, there is a relevant target in a national plan of a different government agency, i.e. the National Plan on Emergency Medicine (2019-2024), which has set a target of a maximum 8-minute time interval between notification and provision of first professional emergency care. The trend of critical road traffic injury cases who received emergency medical care on the scene within 8 minutes of notification is on a downward slope, from 54% in 2015 to 51% in 2019. Meanwhile, some evidence suggests that the use of EMS in Thailand is low, and the majority of people injured in a road traffic crash are transported by means other than ambulance. For example, data from the surveillance system in the Ministry of Public Health hospitals during Songkran holidays in the past five years show that less than 50% of serious injury cases from road crashes were transported to hospitals by the emergency medical service; however, the percentage is increasing each year.

Discussion and recommendations

The findings revealed several key factors influencing the road safety situation in Thailand. There were some successes, with most government departments being aware of the targets and understanding those targets for which they had responsibility. In addition, several goals, strategies and programs are currently being implemented by key road safety government departments and NGOs, and many of them have plans for implementation of future laws, regulations and programs. Furthermore, many of these were good practice. However, some significant challenges and gaps in the current system were identified and grouped into six categories:

- Insufficient priority at the highest policy level given to road safety as a significant and urgent issue
- Lack of effective road safety management at the highest level
- Lack of effective partnerships between key road safety stakeholders
- Lack of understanding of the actions necessary to achieve the targets
- Lack of capacity and skills
- Lack of coordinated public awareness and behaviour change programs

Identification of the gaps and challenges in achieving the voluntary national targets and road safety gains, has led to the formulation of several recommendations for the way forward. These include:

- Creation of strong leadership and high-level support for road safety improvements
- Formation of a more effective lead agency for road safety
- A much stronger focus on implementation
- Development of intermediate indicators to help achieve targets
- Establishment of an effective capacity-building framework

For each Target, specific recommendations are made.

Conclusions

It is time for a fundamental change to effectively reduce road-related trauma in Thailand, and this requires strong collaboration between agencies. Without clear leadership, inter-agency coordination and allocation of responsibilities and accountability, better road safety outcomes will continue to remain out of reach.

Additionally, the national plan to achieve the 12 voluntary global performance targets should consider Thailand's unique context, ensuring government agencies are held accountable for implementing road safety improvements, and their progress constantly measured. It is vital to first strengthen the high-level commitment to road safety and initiate a road safety law to facilitate the establishment, and increase the capacity, of a lead agency with clear responsibilities, budget, action plans for the more specific technical activities, and a monitoring system in place; this lead agency should be charged with ensuring multi-sectoral coordination and collaboration.

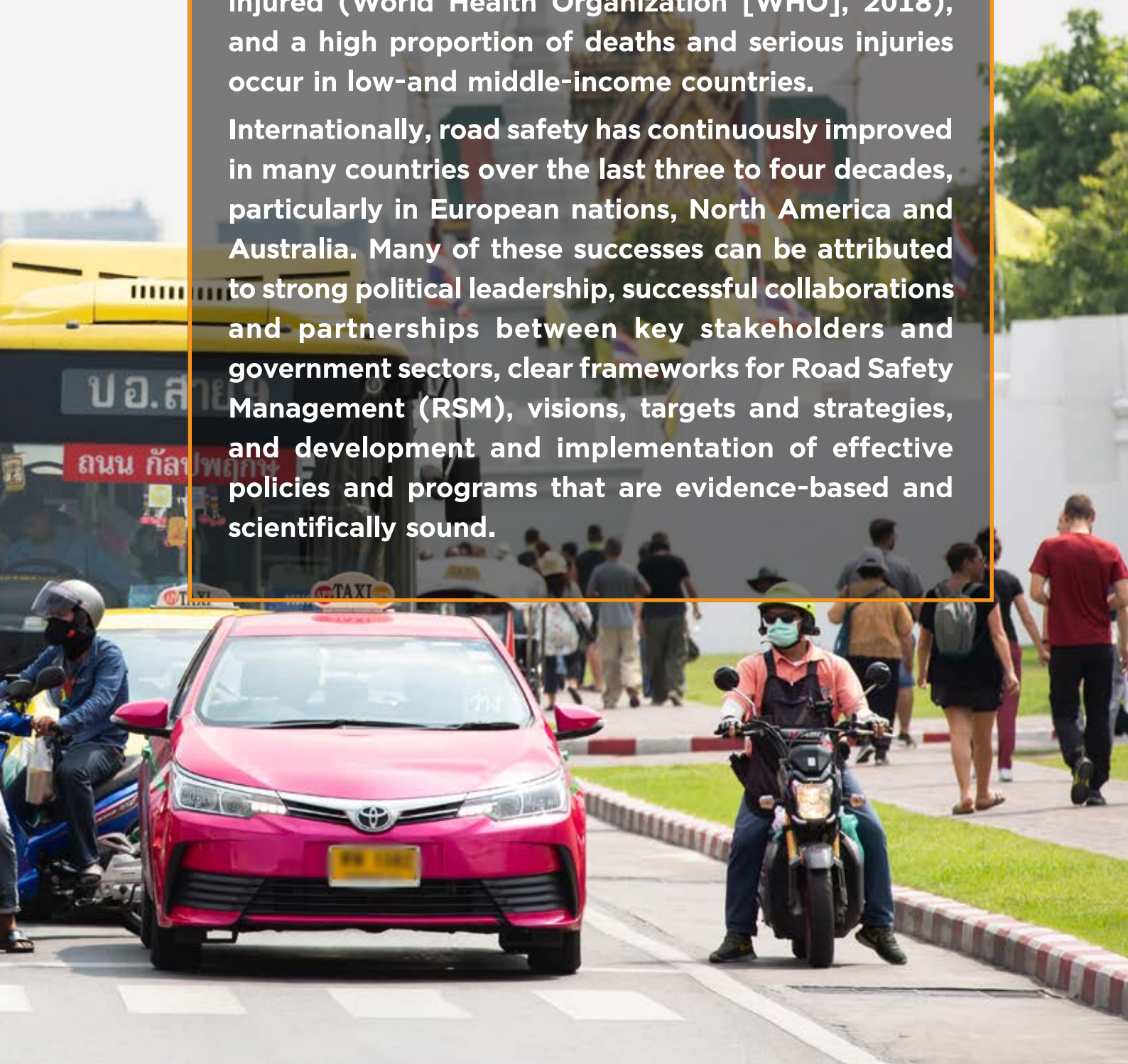

TAXI

Introduction

1

Road trauma is arguably one of the highest-ranking public health issues in the world today. Globally, more than 1.3 million people die as a result of road crashes each year and a further 50 million+ people are seriously injured (World Health Organization [WHO], 2018), and a high proportion of deaths and serious injuries occur in low-and middle-income countries.

Internationally, road safety has continuously improved in many countries over the last three to four decades, particularly in European nations, North America and Australia. Many of these successes can be attributed to strong political leadership, successful collaborations and partnerships between key stakeholders and government sectors, clear frameworks for Road Safety Management (RSM), visions, targets and strategies, and development and implementation of effective policies and programs that are evidence-based and scientifically sound.



Introduction

Road trauma is arguably one of the highest-ranking public health issues in the world today. Globally, more than 1.3 million people die as a result of road crashes each year and a further 50 million+ people are seriously injured (World Health Organization [WHO], 2018), and a high proportion of deaths and serious injuries occur in low-and middle-income countries.

Internationally, road safety has continuously improved in many countries over the last three to four decades, particularly in European nations, North America and Australia. Many of these successes can be attributed to strong political leadership, successful collaborations and partnerships between key stakeholders and government sectors, clear frameworks for Road Safety Management (RSM), visions, targets and strategies, and development and implementation of effective policies and programs that are evidence-based and scientifically sound.

Internationally, road safety has continuously improved in many countries over the last three to four decades, particularly in European nations, North America and Australia. Many of these successes can be attributed to strong political leadership, successful collaborations and partnerships between key stakeholders and government sectors, clear frameworks for Road Safety Management (RSM), visions, targets and strategies, and development and implementation of effective policies and programs that are evidence-based and scientifically sound.

There is good evidence showing that improved road safety is aided by setting targets and reporting on progress towards those targets; these activities can stimulate changes to the focus and scale of national road safety activities in order to ensure that targets are met and that clear and achievable indicators provide a means to monitor the extent of progress.

The United Nations (UN) recognise the importance of setting performance targets and monitoring progress towards the achievement of Sustainable Development Goal (SDG) targets, particularly those addressing road safety. In 2016-2017, an inter-agency collaborative group, including the WHO, other United Nations agencies, the United Nations regional commissions, and the member States, facilitated a transparent, sustainable and participatory process to assist interested countries to develop voluntary global performance targets on road safety risk factors and service delivery mechanisms to reduce road traffic fatalities and injuries. A set of twelve voluntary global targets were developed and agreed upon, and these formed the basis to provide for countries with the means to develop and adopt their own voluntary national targets and to monitor the extent of progress toward meeting both the global and national targets.

This review aims to provide important information on current status, successes and challenges of implementation, and recommendations for the way forward to inform policy decisions and interventions to achieve these goals and therefore further improve road safety efforts.

An outline of the aims and objectives of the project is provided below:

1. Review and assess the status of Thailand's implementation against the global road safety targets and global and national indicators, taking into account legal and institutional aspects, and prepare recommendations for policy decisions and interventions;
2. Present draft results at the 14th Thailand Road Safety Seminar;
3. Develop a report incorporating feedback from WHO and stakeholders; and,
4. Prepare a PowerPoint presentation based on the final report summarising the background, methodology and results;


LG

Methods

2

The project comprised four phases, including i) a review of relevant published and grey literature, ii) key stakeholder interviews, iii) synthesis of findings, and iv) presentation of findings and seeking feedback from road safety local stakeholders. The GOSPA framework was used to structure the study and to review and evaluate Thailand's implementation status. This framework defines a pyramid of increasing detail in framing road safety strategy elements, summarised as follows

- Goals (Level 1): the topmost layer of the pyramid defines the broad goals for which the strategy is aiming;
- Objectives (Level 2): specific measurable targets against which the goals can be assessed;
- Strategies (Level 3): target areas on which the road safety strategy will focus to achieve its goals along with local objectives within each target area jointly contributing to achieving the global objectives;
- Programs (Level 4) and Actions (Level 5): type of activities to be carried out in each target area and the amount of effort applied to each.

2.1 Phase 1: Literature review

This component included a comprehensive review, comparison and synthesis of the published and 'grey' literature (the latter sourced with the assistance of AIP Foundation Thailand, our local project partner) addressing implementation of road safety targets and indicators and key issues nominated by WHO. The primary goal of this component was to develop an understanding of how effective the road safety framework is in targeting the achievement of the road safety performance goals within the Safe System context. Key issues addressed in this phase included the following:

- Identify how road safety targets and indicators have been developed;
- Measure progress toward target implementation and quantification of road safety outcomes. It was beyond the scope of this project to conduct any detailed analysis of crash data, but rather to understand in broad terms how effective the available data are at quantifying outcomes and identify any gaps in the data preventing this goal from being achieved;
- Understand existing road safety partnerships and the relationships between the key road safety stakeholders, both within government sectors as well as NGOs and other key industry/advocacy organisations;
- Quantify current road safety management capacity in Thailand;
- Understand current and planned road safety funding.

With regard to published literature, a structured literature search was conducted comprising a targeted and critical review of published scientific papers. Relevant search engines were accessed and relevant key words and phrases were used to identify journal articles and published reports. The main databases and search engines that were used were: Transport databases - TRID: TRIS and ITRD; ProQuest; Transport; Psychology - PsychInfo; Ovid MEDLINE; Web of Science, and The Cochrane Library.

With regard to 'grey' literature, the team engaged its extensive networks within international groups and national government departments and NGOs to source unpublished documents. The WHO Thailand also provided key documents for review. In addition, Google Scholar was accessed to identify and retrieve relevant unpublished literature on policy, programs and practice. Selected national and international websites were also searched and accessed for relevant information and documents.

2.2 Phase 2: Stakeholder consultation

The second phase of the project comprised an in-depth stakeholder consultation. While the comprehensive desktop review in Phase 1 provided important information on Thailand's road safety situation and implementation of policies, interventions and actions, it was essential to enhance these findings by engaging local stakeholders in the review process. This phase was undertaken to i) gather additional in-depth information to understand the day-to-day issues (challenges and facilitators), and ii) gather information on the specifics and nuances of the complex relationships between stakeholders with regard to implementation and monitoring of road safety policies and interventions.

In consultation with WHO, a list of Thai road safety stakeholders was identified, with further suggestions from the international road safety advisory team at MUARC. The decision was made to conduct individual interviews rather than group sessions to encourage frank and open discussions.

While the overall interview structure was based on the GOSPA framework (Newstead and Diamantopoulou, 2010), interview sessions were designed to allow interviewees to expand freely to provide both specific information and broader thoughts on the overall current and future road safety situation in Thailand. Interviews were conducted in English by the MUARC/AIPF research team, with translation provided for those interviewees who were more comfortable conversing in Thai. Notes were made during the interview, and the majority were audio recorded to allow recollections to be checked later.

Following each interview, the team met to record the discussion outcomes into the interview structure to allow comparisons between interviews and ensure the research followed the overall themes. A third researcher later listened through the interview recordings and added their own observations to ensure nothing of importance was missed.

2.3 Synthesis of findings

Subsequent to completion of the desktop review and stakeholder consultation, this last phase of the project aimed firstly to bring together and summarise/consolidate the findings of the two main data collection phases with regard to current status and progress towards the twelve global road safety performance targets and the national indicators. Secondly, the team formed an expert panel to assess the findings aligned with progress towards each voluntary target and overall 'best-practice' approaches to road safety efforts. During this phase, a suite of recommendations and approaches for the United Nations and Thai government sectors/non-government organisations to consider in the short, medium and longer term were made.

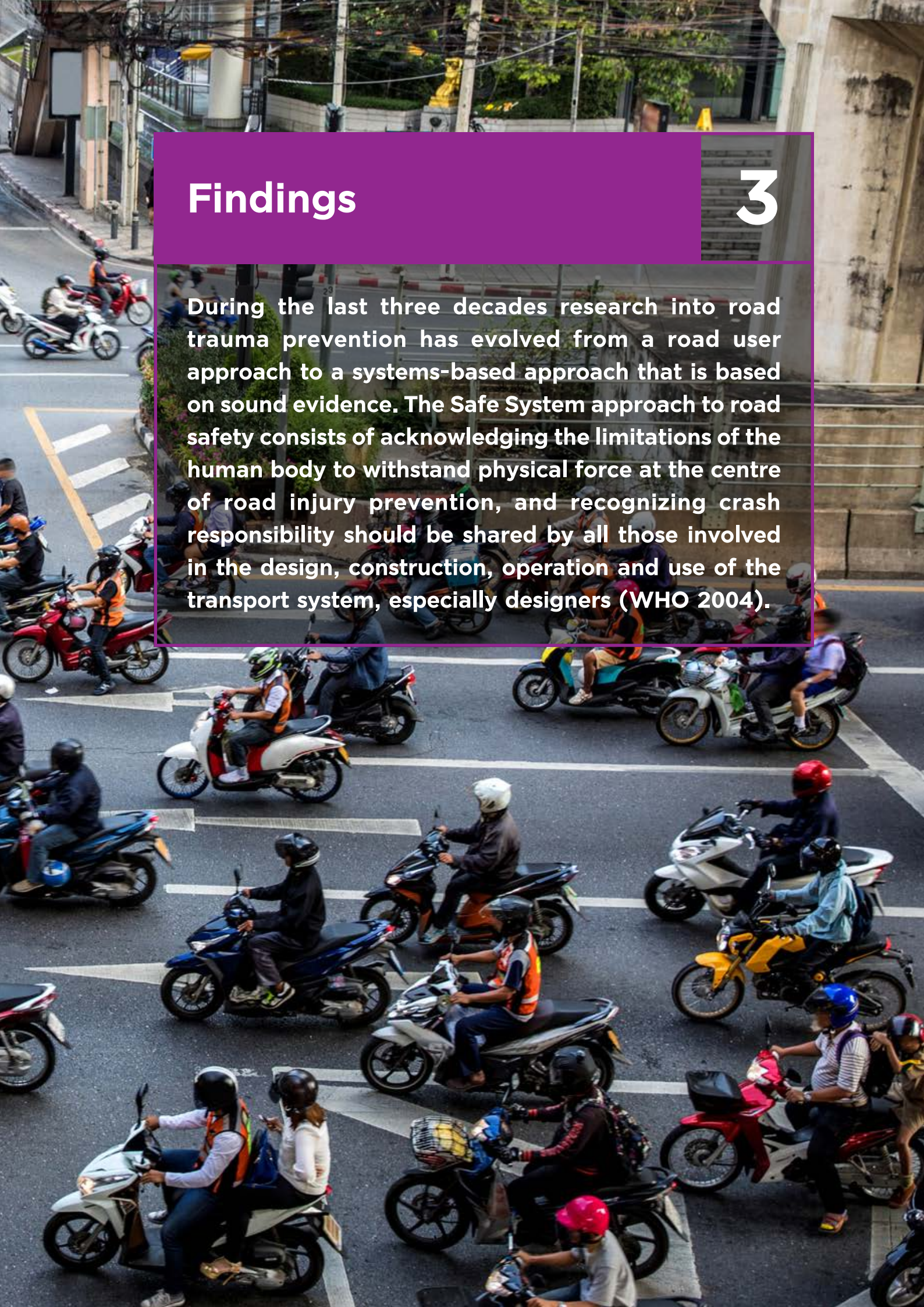
2.4 Presentation of findings and seeking feedback from road safety local stakeholders

To facilitate participation and to seek feedback from agencies with an interest in road safety, WHO Country Office for Thailand organised a consultation meeting in Bangkok on 18 November 2019, at which the research team presented the preliminary findings and received feedback on the report. The meeting was attended by representatives of road safety agencies from various sectors; details are provided in Appendix A. The research team considered feedback and additional information from this meeting and incorporated key points in this report.

2.5 Limitations

It is important to note some potential data collection limitations. These include the following

- There are a limited number of official documents and most are only in the Thai language;
- There may be differences between urban and rural dynamics and agencies;
- Data may not always be reliable.



Findings

3

During the last three decades research into road trauma prevention has evolved from a road user approach to a systems-based approach that is based on sound evidence. The Safe System approach to road safety consists of acknowledging the limitations of the human body to withstand physical force at the centre of road injury prevention, and recognizing crash responsibility should be shared by all those involved in the design, construction, operation and use of the transport system, especially designers (WHO 2004).

3.1 Literature review

3.1.1 Broad understanding

During the last three decades research into road trauma prevention has evolved from a road user approach to a systems-based approach that is based on sound evidence. The Safe System approach to road safety consists of acknowledging the limitations of the human body to withstand physical force at the centre of road injury prevention, and recognizing crash responsibility should be shared by all those involved in the design, construction, operation and use of the transport system, especially designers (WHO 2004).

With the purpose of reducing road traffic fatalities and injuries and to support countries in the development of their national targets, the WHO in collaboration with the United Nations among others facilitated the development of 12 voluntary global performance targets for road safety, and their respective indicators (progress and outcome). These indicators aim at tracking the progress of each country in the improvement of multiple road trauma prevention and response areas, as well as creating a global denominator (WHO 2017).

In order to comprehensively adopt a Safe System approach to road safety and achieve the 12 Global Road Safety Performance Targets in any country, strong leadership and commitment are crucial. After agreeing upon the global targets, and in order to work towards the desired outcomes, national authorities should integrate them into their strategic planning ensuring that the operational implications are considered, and, most importantly, create the conditions to foster understanding and acceptance around road injury prevention (Johnston 2010). The multidisciplinary nature of the processes and stakeholders involved in road safety, require a leading body that can perform inter-sectoral coordination and be held accountable, not only supporting agencies but also being high-level decision makers (Muhlrad 2009).

Sustained commitment from decision makers has been identified as one of the key factors contributing to good road safety management, alongside the need for road safety professionals (Varhelyi 2016). The creation of an independent and dedicated body with the technical knowledge, budget and autonomy to lead road safety programs, has facilitated in the past the adoption of ambitious strategies (Thailand's Road Safety Master Plan 2018-2021).

3.1.2 Current situation in Thailand

As of 2016, Thailand sustained around 22,000 road fatalities annually, corresponding to a rate of 32.7 per 100,000 population, placing the country worst in ASEAN and among the worst globally (WHO, 2018). Road fatalities are dominated by powered two-wheelers, with this transport mode contributing 74% of the annual total. Furthermore, these numbers have remained practically constant over the last ten years and the target of 18 deaths per 100,000 population by 2021, as declared in the Road Safety Master Plan (2018-2021), will be unachievable. Refer to the WHO summary page for Thailand in Appendix B.

In order to develop a robust road safety strategy and coordinate current efforts by national and regional agencies, as well as research and academic institutions and community associations, the

document Thailand's Road Safety Master Plan 2018-2021 (Road Safety Directing Centre, 2019) presented the national target of reducing road fatalities from 30 per 100,000 inhabitants to 18 in 2020. The Master Plan introduces four main strategies to achieve this goal:

1. Road safety management system reform
2. Sustainable road safety culture
3. Safe land transport for Thailand
4. Pracharat [1] approach for road safety

With the purpose of clearly defining actions, each of these strategies is broken down into various targets and their respective indicators. However, most of the set of strategic indicators developed to track progress are broad and non-specific and often fail to link to measurable indicators. Sustainable improvement may be difficult to track due to the lack of clear and measurable targets. The monitoring and evaluation guidelines presented in the Master Plan covers six key steps to indicate how progress towards the established targets will be supervised, namely:

1. Developing a system to collect indicators at different levels
2. Coordinating the monitoring and evaluation and performance audit
3. Supporting the units to monitor and evaluate their plans/ projects and report the progress to their management regularly
4. Developing the body of knowledge and strengthening an understanding on monitoring and evaluation and setting appropriate targets for the agencies
5. Developing the information system to support decision making and implementation according to the strategies
6. Strengthening capacity of auditors of each agency

However, the scope and order in which these steps are presented seem to place critical factors at the end of the process, for example training and capacity building. A Safe System approach to the development of the monitoring and evaluation guidelines would aid in the definition of related and trackable activities that improve road safety condition sustainably.

The Master Plan covers the establishment of a road safety agency as part of the key elements for success that some of the leading countries in the field have had in the past. As part of the success factors of this type of aqency, it is mentioned it should be strong and independent (including from a financial standpoint), with a technical focus and in constant collaboration with national policy units.

For the longer term, the Office of the National Economic and Social Development Council developed a Master Plan for transport infrastructure, logistics system and digital within the broader 20-year National Strategy (2018-2037). It was mentioned in this 20-year Master Plan that priority should be given to the prevention and correction of blackspots to increase safety and to reduce loss from road crashes. This Master Plan includes the target to reduce the rate of road traffic deaths to 5 per 100,000 population in 2037, and provides intermediate milestones for each five years.

[1] The Pracharat policy is a public-private partnership that aims at strengthening the role of community in road safety in the promotion of a safety culture.

However, no information about supporting actions is provided and the targets appear not to be synchronized with those included in the Road Safety Master Plan (2018-2021).

3.1.3 Current legislation and network

According to the Road Safety Institutional and Legal Assessment Thailand published by the WHO (2016), the country requires the strengthening of enforcement of current road safety related laws, as well as the creation of a general road safety management system, in order to improve the current situation. The study recommended increasing effective collaboration between stakeholders, increasing effectiveness of law enforcement, and the adoption of international standards – especially regarding speed limits, child restraint systems and legal blood alcohol concentration level. Since then, some aspects of the proposed legislation have been modified. For example, in 2017 (by an Order of the National Council for Peace and Order), the BAC limit for young and novice drivers was reduced to 0.02%, and half of Thailand's 76 provinces have set urban speed limits of maximum 50 km/h (WHO, 2018).

Nevertheless, the lack of an adequate child restraint law still sets Thailand behind when compared to good practice worldwide (WHO 2018). Additionally, loopholes in existing laws, lack of collaboration between multi-sectoral partners, and poor enforcement have been recorded as weak areas for road safety (WHO 2016). For example, despite the existence of relevant laws, helmet wearing rates remain at around 40% overall and front seat belt wearing rates in motor vehicles also at about 40% (WHO, 2018). Most of the laws currently in force were established as part of the Land Traffic Act – B.E. 2522 (1979), and, although there have been a number of amendments (WHO 2016), some standards still do not meet international best practice. The guiding official documents in relation to road safety (WHO 2016), and their amendments, are:

- Land Traffic Act (1979)
- Motor Vehicle Act (1979)
- Transport Act (1979)
- Highway Act (1992)
- Protection for Motor Vehicle Victims Act (1992)

Several national agencies are involved in road safety with some exercising a guiding function while others oversee implementation. The lead governmental organisations responsible for road injury prevention are (WHO 2016):

- Ministry of Interior:
  - Department of Disaster Prevention and Mitigation
- Royal Thai Police
- Ministry of Transport:
  - Department of Rural Roads
  - Department of Highways
  - Department of Land Transport
  - Office of Transport and Traffic Policy and Planning

- Ministry of Public Health:
  - Department of Disease Control
- National Institute for Emergency Medicine

In addition to these lead agencies, there are various non-government organisations, private companies, foundations and research institutes, some examples include: Road Safety Policy Foundation, ThaiRoads Foundation, ATRANS, Child Safety Promotion Foundation (CSIP), Thailand Development Research Institute, WHO Collaborating Centre for Injury Prevention & Safety Promotion, Road Accident Victims Protection (private company). Coordination between the road safety stakeholders is achieved through the structure proposed by the Prevention and Reduction of Road Accidents order established in 2011 (WHO 2016). According to this order, road safety management is undertaken at three levels and in line with the expected function (Prime Minister's Office 2011):

- Policy: The National Road Accident Prevention and Reduction Policy Board (commonly referred to as 'the Board') develops policies, approves all road safety strategies and plans, and sets final and intermediate targets. The Prime Minister serves as chair, and five Ministers as vice-chairs.
- Management: The Road Safety Directing Centre within the Ministry of Interior ('the Centre') focuses on institutional management, elaborates road safety policies, plans and strategies, as well as manage and evaluating all activities related to road safety, including road crash databases. The Minister of Interior serves as director, with the various government agencies and NGOs as members.
- Operations: The Road Safety Operating Centre takes responsibility in charge of interventions, implementation and enforcement at a district level.

The evidence suggests that there are some significant challenges with this structure. For example, Jantarason (2005, cited in WHO, 2016), noted that the four structural problems with this management system are:

- Lack of continuity in meetings
- Presence of key agencies with roles in all committees
- The Prime Minister serving as the chair of many committees
- Presence of organisations with no real tasks in the committees.

These four structural problems are somewhat interrelated. For example, the designation of high-level politicians (including Ministers and the Prime Minister) hinders the scheduling of regular and timely meetings, with the potential loss of decision-making momentum, lack of perceived importance of road safety and a consequent degraded sense of urgency to address road safety.

Furthermore, there are some mismatches between responsibility and authority. For example, the Department of Disaster Prevention and Mitigation, in its role as Secretariat for the Road Safety Directing Centre, is responsible for inter-agency coordination, but has no authority nor independence for resource allocation.

3.1.4 Conclusions

The literature reviewed clearly indicates that Thailand already has, to a great extent, a set of laws (except for one governing child restraint use) underpinning a comprehensive road safety framework.

However, the existing management structure, poorly defined roles and responsibilities and lack of decision-making authority hinder effective implementation.

3.2 Key stakeholder consultation

Participants were drawn from a range of government departments, NGOs and research institutes and were interviewed during the week beginning 1 July 2019[2].

- Office of Road Safety Audit, Department of Rural Roads, Ministry of Transport
- Bureau of Highway Safety, Department of Highways, Ministry of Transport
- Thailand Development Research Institute (TDRI)
- Don't Drive Drunk Foundation
- Child Safety Promotion and Injury Prevention Research Centre (CSIP)
- The Bureau of Legal Affairs, Department of Land Transport, Ministry of Transport
- Special Branch Division III and Traffic Police Division, Royal Thai Police
- WHO Collaborating Centre for Injury Prevention and Safety Promotion, Khon Kaen Regional Hospital
- Asian Transportation Research Society (ATRANS)
- Division of Public Health Emergency Management, Ministry of Public Health.
- National Institute for Emergency Medicine (NIEM)
- Road Accident Victims Protection Co. Ltd (RVP)

3.3 Stakeholder interviews

Stakeholders were asked both closed and open-ended questions regarding their responsibilities for targets, goals, strategies and programs, and the challenges. In addition, stakeholders were asked to identify plans for the future. The list of questions used to guide each interview is provided in Appendix C.

All interviews were conducted in person with each interviewee and audio-recorded for cross-checking purposes. Responses were collated and thematic analysis was applied to the responses to consolidate interviewee responses to GOSPA categories.

Thematic responses are provided in the following sections.

3.3.1 Targets and goals

First, all interviewees were asked which targets they were responsible for. The majority of government departments were aware of the targets and acknowledged their responsibilities. In contrast, while NGO groups were (for the most part) aware of the targets, they held few responsibilities for achieving them.

[2] The Department of Disaster Prevention and Mitigation was not available for interview

The Ministry of Transport, through the Department of Rural Roads and Department of Highways, is responsible for Targets 3 and 4, and through the Department of Land Transport for Targets 2, 5 to 11. The Bureau of Highway Safety under the Department of Highways has responsibility for provincial highway maintenance (except for the Bangkok metropolitan area). The Department of Highways sets specific targets in its Strategic Planning (2017-2021) to reduce road traffic deaths on highways. However, it was noted that knowledge and understanding of the targets was not consistent throughout the Bureau, with some groups having little understanding or awareness.

The Royal Thai Police is responsible for Targets 6 to 10. In addition to these responsibilities, the Police noted some internal goals, as follows

- 16,000 road traffic fatalities per year from 20,000 in three years.
- Further reduction to 10,000 deaths by 2030.
- Develop measures and a process for execution of traffic offences to bring about efficiency and equity (through the initiation of a traffic court, for which a bill is currently being developed by the Office of the Court of Justice).

3.3.2 Strategies

In response to questions regarding strategies, interviewees described these as follows:

Department of Rural Roads

- Moving from a primarily passive/reactive strategy focusing on corrective action to incorporate preventative measures. There is more emphasis now on identifying risks on the network and addressing them.

Royal Thai Police

- Review of best-practice to inform the Thai regulatory framework and guide the strengthening of their enforcement regulations.
- Reduce number of tickets, reduce fatalities (not to collect fines).
- Introduction of Police Ticket Management (PTM) system.
- Introduction of demerit point system to PTM.
- Improved speed enforcement.
- Addressing drink driving.
- Increase helmet use.
- Educate and inform the general public about the role of enforcement in road safety.

Department of Highways - Bureau of Highway Safety

- Department of Highways uses two-pronged strategies, i.e. preventive and corrective strategy. The preventive strategy includes road safety audit and adding safety equipment on highways. The corrective strategy includes blackspot treatment; data on crash locations are obtained from the Highway Accident Information Management System (HAIMS).

Department of Land Transport

- Their main responsibilities and goals include:
  - Vehicle condition, certification and regulation, design and approval prior to

manufacture and import. Goal is to improve vehicle standards.

- Vehicle registration.
- Mass transportation on roads (including buses and commercial vehicles). Goal is to reduce speeding by commercial truck drivers.
- Licensing system. Goal is to improve licensing and training procedures.
- Promotion of freight transport.
- Develop and promote land transport networks.
- Overall goals are to reduce fatalities and promote road safety.

3.3.3 Successes: Programs and actions

In response to questions regarding current programs and actions, the majority of interviewees described details of these programs.

Department of Rural Roads

- Computerised systems to identify poor-performing roads and effective countermeasures to address them. Key priorities are black spots, designated as 'hot spots 2' and 'hot spots 1'
- Capacity building programs: road safety audit training.

Royal Thai Police

- Greater deployment of laser guns and fixed cameras.
- Setting of speed limits in accordance with best practice worldwide.
- Introduction of 0.02 BAC for commercial drivers and young drivers.
- Introduction of additional laws to support BAC laws, including
  - Passengers not allowed to drink in vehicles
  - Drinking not allowed in stationary vehicles
  - Vendors not allowed to sell alcohol to people under 20 years of age
- Checkpoint program for RBT.
- Collection of blood samples for BAC testing in-hospital.
- Change in helmet enforcement to allow a rider to find a helmet and continue riding rather than issue a ticket. The Royal Thai Police claim this encourages helmet usage more effectively than the issue of fines, although the strategy is not supported by any evidence.
- Introduction of in-school education program by Police in conjunction with the Ministry of Education.

Department of Highways - Bureau of Highway Safety

- Initiation of a school zone warning project.
- Improvement of road medians by changing from flushed to raised medians. Using technology in traffic management.
- Adoption of iRAP for road safety assessment; more than 3,000 roads have been assessed in the first phase.

Department of Land Transport

- Vehicle certification to UN regulations.
- Instrumentation of dangerous goods vehicles, commercial heavy vehicles (GPS trackers) and buses and more recently taxis to regulate speed. Monitoring activities also included (working with companies).
- Currently a basic licensing system is implemented and has not been changed or enhanced recently. The system currently has little training for learner/novice drivers/riders.
- Introduced a process to collect any unpaid fines for infringements through the registration system (at time of annual vehicle registration).

National Institute for Emergency Management (NIEM)

- Four level triage system in emergency departments and ambulance despatch; single emergency number system.

3.3.4 Challenges

Interviewees were asked to provide insights into some of the challenges experienced and facilitators to achieving their goals and strategies and implementing programs. This section summarises the challenges, and plans to address these challenges are provided in Section 3.3.5 and concluding recommendations are provided in Section 4.3. Challenges were grouped thematically. Specific comments within major themes are described below.

Data

- Poor data collection and analysis, therefore poor-quality outcomes.
- Lack of appreciation of importance of data, particularly in provincial areas.
- Poor infringement recording data system.
- Many strategies and programs are not evidence-based – often due to poor appreciation of evidence-based approaches.
- Potential lack of ability/feasibility to measure success against some targets. This is primarily related to the high-level nature of some of the UN voluntary road safety goals, making them difficult to quantify with existing data systems.

Legislation and enforcement

- Lack of relevant legal framework concerning the use of child restraints (Target 8).
- Insufficient attention paid to law enforcement.

Resources

- Lack of support and acceptance from senior management (e.g., issues with new systems, lack of knowledge of Safe System principles).
- Although Department of Highways has regularly implemented projects to reduce road traffic deaths, the interventions are engineering-based. This is only one part of the 3Es and cannot effectively reduce road traffic deaths alone.
- Old systems are archaic (e.g., warrants-based system for road infrastructure improvements) and seem to focus only on road quality and not on overall environment and safety.

- Competition between departments with regard to the allocation of funding to improving the safety of existing roads against funding for new road construction projects.
- Lack of funding: appears to be little strategic allocation of budget.
- Very little monitoring and evaluation of key programs to determine future priorities.

Skills and capacity

- Lack of skilled road safety auditors and auditor quality control.
- Lack of road safety skills and capacity within the Royal Thai Police.
- Little understanding of how blackspots are identified, and countermeasures proposed often don't match the blackspot issue.

Political and government issues

- Insufficient high-level political attention directed towards the improvement of road safety: the change of government and political leaders in Thailand affects the continuity of policy. In addition, there is difficulty in changing government attitudes towards taking potentially unpopular decisions affecting the general public.
- Fragmentation, lack of effective and productive partnerships, communication and coordination between government departments/ministries and NGOs.
- Lack of co-operation between government departments.
- Many issues with the current Road Safety Directing Centre were reported during the interviews, including:
  - Poor governance, structure and functionality
  - The Committee of the Road Safety Directing Centre only meets twice per annum and focuses on the two holiday festivals with no ongoing road safety plan.
  - No consistency of representation (rotating delegate attendance), no clear strategic responsibility, no evidence-base for road safety actions, no implementation framework for road safety programs, and poor allocation of budget resources.
  - No clear allocation of responsibility for road safety pillars. A lack of integration, unity, collaboration and partnerships between them.
  - No clear budgetary allocation process.
- Government departments have the mandate, but efforts are fragmented and therefore have no effect. No one is responsible for implementation or evaluation of campaigns and there are no productive partnerships.

Program implementation

- There are few strategies in place to prioritize implementation of effective measures.
- The general view seems to be that safety is a secondary priority behind traffic flow and mobility.
- Implementation is rarely evidence-based.
- Little forward planning for improvement of program implementation.
- Implementation is often reactive and not proactive.

Public opinion and behaviour

- There is a large number of unlicensed drivers/riders, with no strategies for addressing this issue.
- Driver licences are too easy to obtain with minimal training required for licensure.
- There is a perception by motorcycle riders that helmets only need to be worn to avoid attention by the police rather than for safety reasons.
- There is a perception that the public do not have enough awareness of road safety at both individual and public levels.

Post-crash care

- Lack of advanced care ambulances.
- Bangkok has the lowest number of public hospital beds per population.
- Access to pre-hospital care is still poor in some provinces.
- Only 13.5% of victims are transported to hospital in an ambulance.

3.3.5 Future plans and improvements

This section describes actions and plans for the future to address current challenges. Interviewees provided details on their future plans relative to their Target responsibilities, as follows.

Department of Rural Roads

- Have their own goals (rate-related) for fatality reductions on the rural road network. Collection of pedestrian and cyclist data to inform countermeasures targeted at these groups.
- Assist local governments to improve their road infrastructure.
- Their programs are scalable so could be extended to a greater proportion of the system with the appropriate resources.

Royal Thai Police

- Introduction of graduated demerit point system for higher level offences (e.g. speeding, drink driving).
- Formation of a traffic court for routine traffic offences to lessen the burden on the criminal justice system.
- Continued educational and enforcement efforts to increase helmet wearing rates.

Department of Highways - Bureau of Highway Safety

- Introduction of road safety audit pilot program on four major highways and increase road safety audits.
- Plan to increase the use of tools to analyse road crashes, increase collaboration with other sectors, and improve capacity of road crash database.

Department of Land Transport

- Regarding licenses, training to improve driver instructor sector. Currently, all driving instructors are government employees, but looking to train private sector. Looking to implement some form of GLS for young drivers (assistance from VicRoads).

- Regarding vehicle certification, working towards adopting the UN harmonised regulations.
- Expand GPS program addressing speeding to additional vehicle categories.
- Work with Ministry of Labour to introduce policies to regulate maximum operational hours amongst commercial vehicle drivers.
- Establishment of new units
  - GPS transportation management centre
  - Bangkok Road Public Transport Management Division

National Institute for Emergency Management (NIEM)

- Apply marketing techniques from disease control to road safety (e.g. via social media, etc.).
- Engage with private companies.

Overall suggested improvements

In addition to plans for the future, interviewees were asked to provide suggestions for removing some of the challenges to achieving Targets and areas for improvement. These are grouped thematically below.

Data improvements

- Need to better understand contributing factors to crash and injury risk.
- Link existing datasets collected by the different agencies.
- Need to introduce monitoring and evaluation of key programs to determine future priorities.

Public opinion and road user behaviour improvements

- The public perception of road safety is different to disease: road travel is a normal activity. People won't accept disease, but they do accept road crashes. Needs to be on the national agenda.
- It was suggested that the Royal Thai Police have adopted a strategy of enforcing to 110 km/h levels on highways, despite the 90 km/h general rural speed limit and that this practice needs to be addressed.
- General public needs to have a better knowledge of road safety and the road trauma consequences and, in particular, the role of enforcement.

Government partnerships and focus

- Need a central agency with the power to make plans and act, but this may be difficult to create under the current legal framework. This agency would need a proper legal basis, funding and real authority. It should be under the Office of the Prime Minister and should address all five pillars of the Safe System.
- While there is resistance to setting up a new lead agency, it needs to be promoted at all levels of government, NGOs and research institutions to support its establishment and provide ongoing credibility.
- The lead agency should hold data and ensure that decisions are evidence-based.
- Need better communication with other road safety stakeholders and NGOs, as well as more productive partnerships.

- Better to focus on preventative efforts rather than post-crash.
- Support for institutional change from highest levels filtering down to all government and practitioner levels.

Increased skills and capacity

- Need to upskill and train staff, particularly on road safety audit skills, perhaps combining audits and star rating systems.
- Enhanced road safety management and leadership skills.

Improved post-crash care

- Injury care, while improved in recent years, needs further improvement. For example, the introduction of GPS location of emergency callers.
- ITEMS (Information Technology for Emergency Management Services) is a good system but outdated. These services should be updated.

3.4 Status against indicators

The following section provides an overview of responsibilities, status and issues related to each Target. It demonstrates that there are some promising achievements. For example, there is some progress in technical knowledge and capacity building regarding the rural road network, the enhancement of the Police Ticket Management and demerit point systems, introduction of new laws, improved vehicle safety regulations, and plans for improved licensing systems (for young drivers and professional drivers) and professional driver regulatory systems.

In other aspects, progress towards achieving the targets is somewhat lacking or relatively poor. Some examples include poor acknowledgement and understanding of Safe System principles, lack of evidence-based programs, and few strategy-based approaches.

TARGET 1

By 2020, all countries establish a comprehensive multi sectoral national road safety action plan with time-bound targets

Responsible Government Agencies:

- Ministry of Interior: Department of Disaster Prevention and Mitigation (overall multi-sectoral)
- Each Ministry (related to their specific responsibilities)

Successes and Facilitators

Aligned with this Target is the development of the 4th Master Plan on Road Safety (2018-2021)[3] by the Road Safety Directing Centre, setting an ambitious target to reduce road traffic deaths to 18 per 100,000 by 2021. The Plan outlines key goals, strategies and indicators using sustainable development approaches with participation according to the Pracharat approach.

The creation of this high-level guiding document provides evidence that road injury prevention is considered an important issue by Thailand's national administration. Further, the Master Plan:

- Commits to broad Safe System/Towards Zero principles and outlines four key strategies and associated time-bound targets and indicators;
- Provides a four-phased approach from planning to implementation;

[3] http://www.disaster.go.th/upload/download/file_attach/5d70d17634aa9.pdf

- Provides guidelines for implementation, monitoring and evaluation; and,
- Sets the scene for co-ordination between road safety research organisations and government departments to establish evidence-base.

Challenges and Barriers

Despite the development of the Master Plan, there are some limitations, including:

- While there is a four-phase approach from planning to implementation, there are no clear action plans for program or initiative implementation. Instead, the Plan outlines processes for approvals within high-level government sector.
- While the strategies presented in the document are ambitious, there are no time-bound targets for multi-sectoral national road safety action plans.

Given these shortcomings, the following barriers to success were identified:

- Ministries with specific responsibilities do not have clear and integrated road safety action plans with time-bound targets.
- Government agencies do not have a defined role in the road safety national strategy, resulting in disconnected activities and programs.
- There is no strategy to transform current data collection practices and system.

General Comments

The co-operation between the EU and the Association of Southeast Asian Nations (ASEAN) undertakes numerous reviews, gap analyses and capacity building activities within the ASEAN region to enhance road safety efforts. In 2019, EU-ASEAN Road Safety workshops were held in ASEAN countries, and participants included key government agencies responsible for transport safety and supporting NGOs. The Enhanced Regional EU-ASEAN Dialogue Instrument (E-READI) was used to undertake a gap analysis of all aspects of road safety management, programs implementation and relevant data. The report emanating from these workshops provides detailed information relevant to a number of the Targets.

Relative to Target 1, according to the E-READI report, by February 2019, 25 percent of the Master Plan 2018-2021 has been achieved [4]. More generally, for the ASEAN region, 17 gaps related to policies and institutional management were identified, and the most relevant gaps for Thailand are the need to adopt performance targets and the need for improved decision-making, coordination arrangements and focus.

The Master Plan sets an ambitious target to reduce road traffic deaths to 18 per 100,000 by 2021; however, this is unlikely to be achieved if Thailand continues with business as usual. Additional feedback from the stakeholder consultation confirmed the importance of this target and the critical need to initiate a road safety law to establish a lead agency with clear and transparent roles and responsibilities for structured budget allocation, integrated action plans and monitoring the implementation of relevant agencies.

[4] E-READI participant countries were asked to quantify the proportion of the plan of action that has been implemented. Thailand reported an achievement level of 25% (p. 111).

Despite challenges to achieving this ambitious Target, some advancements in road safety institutional capacity have been reported, including 1) the restructuring and enhancing of the Transport Safety Centre in the Ministry of Transport to be responsible for policy and planning for road safety and monitoring the work of relevant units within the Ministry, and 2) the launching of a residency training programme on traffic medicine in Thailand for the first time. These initiatives need continuous support to be sustainable.

Recommendations and Status:

The creation of high-level guiding documents, in particular the Master Plan, provides evidence that road injury prevention is considered by Thailand's national administration; however, due to the lack of coordination between agencies, clear and integrated action plans and time-bound targets, the potential to achieve this Target by 2020 is considered to be low-moderate.

The current status towards this Target is: LOW-MODERATE

To enhance the status for this Target in the future, it is recommended that:

- A lead agency is established and recognized by a road safety law to unify and have the key authority and accountability for road safety efforts – this is a critical requirement.
- Adequate and central budgetary systems are established to reach targets.
- Regular reviews are undertaken.

TARGET 2

By 2030, all countries accede to one or more of the core road safety-related UN legal instruments.

Responsible Government Agency:

- Ministry of Transport: Office of the Permanent Secretary and relevant technical office(s)

Successes and Facilitators

Aligned with this Target, Thailand has participated in the process of accession of three of the six core road safety-related UN legal instruments, two are classified with the level of signature (The 1968 Convention on Road Traffic and the 1968 Convention on Road Signs and Signals), and one with the level of ratification, accession, definitive signature (The 1958 Agreement concerning the Adoption of Harmonized Technical United Nations Regulations for Wheeled Vehicles, Equipment and Parts Vehicle Regulations [5].

A significant event occurred on 7 April 2020 when the Thai cabinet approved a ratification of the 1968 Convention on Road Traffic, with two reservations, i.e. Thailand does not consider itself bound by Article 52 of this Convention with regard to the power of the International Court of Justice and Thailand treats mopeds as motorcycles for the purpose of the application of the Convention. These reservations are in line with what Thailand declared when signing this convention in 1968. The Ministry of Foreign Affairs was assigned to deposit the instrument of ratification to the Secretary-General of the United Nations in due course.

---

[5] United Nations Road Safety Conventions – Contracting party status. Available online https://www.unece.org/fileadmin/DAM/road_Safety/Documents/UN_RS_Conventions_combined.pdf

In addition, there is evidence that multiple Thai organisations and agencies are working on the adoption of international safety vehicle standards which are expected to be adopted by 2030.

Challenges and Barriers

Despite the development of strategies and plans of action, two of the three instruments still to be signed are related to vehicle standards, regulations and inspections, which poses a challenge for Thailand given the types of current operating vehicles and the rates of non-registered vehicles.

Currently, there is no consideration of the 1998 Agreement concerning the 'Establishing of Global Technical Regulations for Wheeled Vehicles, Equipment and Parts'.

Recommendations and Status

It is encouraging that the responsible agency for this Target has made efforts towards enabling compliance with three of the UN legal instruments. The recent approval of the cabinet for a ratification of the 1968 Convention on Road Traffic suggests that the Ministry of Transport and the Thai government considers road safety as an important national agenda and are committed to contributing to the achievement of the global Targets.

The current status towards this Target is: HIGH

Despite these gains, some challenges were identified, and efforts should be undertaken to overcome these, and may include:

- Implement measures to reduce the rate of non-registered vehicles.
- Enhance the integration of relevant ministries.
- Work with ministries and other stakeholders to ensure adoption of vehicle safety regulation.
- Consider development/adoption of measures to address the 1998 Agreement concerning the 'Establishing of Global Technical Regulations for Wheeled Vehicles, Equipment and Parts'.

TARGET

3

By 2030, all new roads achieve technical standards for all road users that take into account road safety, or meet a three-star rating or better.

Responsible Government Agencies:

- Ministry of Transport: Department of Rural Roads, Department of Highways, Expressway Authority of Thailand
- Ministry of Interior: Department of Local Administration

Successes and Facilitators

The Department of Rural Roads reported that it applies the Road Safety Audit (RSA) process in every operational phase, starting from design, pre-construction, construction, to pre and post-opening. The Department has developed RSA and personnel training guidelines as per international standards (e.g., VicRoads, Australia).

The Department of Highways reported that the department has applied internally recognized standards, such as AASHTO and ASTM.

No information was supplied from the Ministry of Interior.

Challenges and Barriers

A number of challenges were identified regarding the implementation of Target 3, including:

- The Ministry of Transport alongside the Ministry of Interior are responsible for road construction, maintenance and safety. While these agencies construct new roads, they all operate independently. It is also important to note that majority of roads in Thailand are under the jurisdiction of the Local Administrative Organizations under the Ministry of Interior. Independent operation can hinder co-ordinated efforts to achieve the Target.
- Lack of clarity regarding the key indicators for the Target. interviewees expressed some concern regarding the wording of the Target in terms of specific technical standards for road users that take into account road safety, and the availability of such standards.
- While the Target may appear simple, it is difficult to measure. There are no clear or measurable indicators for this Target at a national level and work will need to be undertaken to adapt international indicators for application in Thailand.
- Lack of support and leadership from high level government, and low budgetary allocation.

General Comments

In addition to the above challenges, key stakeholders noted that there are numerous issues in enhancing the safety of roads using the iRAP 3-star rating assessment, and there are particular challenges in implementing the assessment tool to ensure that new roads meet the minimum 3-star rating.

With regard to the challenges associated with developing appropriate measures and indicators to assess status toward this Target, there are few existing data sources to understand and measure the current level of road safety.

Recommendations and Status

There are substantial challenges in achieving this Target, particularly due to lack of appropriate indicators and baseline measures, lack of clarity, and lack of leadership.

The current status towards this Target is: LOW-MODERATE

The following recommendations are made for consideration:

- Enhance leadership and establish development of 3-star new roads as a high-level priority (with associated budgetary allocation).
- Apply similar systems to those used for existing roads to new and planned roads.
- Develop a systems-based strategy for achieving the Target.
- Adopt evidence-based safety measures (within the local context) for design of new roads.
- Coordinate operations of responsible agencies and monitor progress.
- Establish baseline data to enhance measurement of current level of road safety.

TARGET 4

By 2030, more than 75% of travel on existing roads is on roads that meet technical standards for all road users that take into account road safety.

Responsible Government Agencies:

- Ministry of Transport: Department of Rural Roads, Department of Highways, Expressway Authority of Thailand
- Ministry of Interior: Department of Local Administration

Successes and Facilitators

Some successes in achieving iRAP 3-star ratings on existing roads were noted, particularly on rural roads. These include:

- Implementation of excellent systems for identifying high risk roads.
- Implementation of a mixture of preventative and corrective actions, mostly targeted at achieving iRAP 3-star ratings.

The Department of Rural Roads has responsibility for rural roads, comprising 48,000km of roads (7% of all roads in Thailand). The Department set an internal target to reduce road traffic deaths on rural roads from 2.19 per 100,000 population in 2018 to 1.53 in five years and 0.33 per 100,000 population in 2037. The Department has implemented a number of programs to achieve this Target, including:

- Adoption of Safe System principles.
- Implementation of computerised systems to identify poor performing roads and effective countermeasures (e.g., ARMS and transfer to TRAMS, iRAP, Management System, road safety audits, and 5-step preventative action).
- Staff training on computerised system and road safety audits.
- Adoption of a more preventative strategy by following international best practice.

The Department of Highways has developed a strategy for addressing the safety of highways (comprising 52,000km of roads [7.5% of all roads in Thailand]) and adapted the iRAP technique for road safety assessment, with more than 3,000 roads having been assessed in the first phase. The Department set a target to reduce road traffic deaths on highways from 8.58 per 100,000 population in 2017 to 5.63 per 100,000 population in 2021.

The Department of Highways use two pronged strategies, i.e. preventive and corrective strategy. The preventive strategy includes undertaking RSA and adding safety equipment on highways. The corrective strategy includes blackspot treatment where locations to be treated are based on analyses of high-risk crash locations. Data is obtained from the Highway Accident Information Management System (HAIMS). The Department also plans to increase the use of tools to analyse road crashes, increase collaboration with other sectors, and improve capacity of the road crash database.

Challenges and Barriers

A number of challenges were identified regarding the implementation of Target 4, including:

- While the approach taken by the Department of Rural Roads to achieve this Target is promising and includes the implementation of best practice principles and programs; internal goal setting for fatality reductions on rural roads; and, capacity building to increase the number of skilled road safety auditors, there have been some challenges and barriers to progress, i.e., the effectiveness of programs has not been assessed and it is difficult to quantify the effectiveness given the lack of good baseline data. In addition, there are currently no specific goals for a number of corrective and preventative actions.
- The Department of Highways is yet to seriously implement promising programs to achieve this Target on highways under their jurisdiction. While a strategy has been developed to guide implementation of safety measures, there seems to be a lack of clear or effective systematic approach in place, no clear and measurable implementation/action plans, or any process tracking system.
- The lack of clear action plans and tracking systems hinder progress in the adoption and evaluation of good practices.
- In addition to highways and rural roads, a large proportion of Thai roads are local (comprising 598,000km, 85% of the road network). The status of improvements on these roads in achieving an iRAP 3-star rating is currently unknown. Likewise, the status on expressways (225km) is unknown.

General Comments

- There are numerous issues in enhancing the safety of roads using the iRAP 3-star rating assessment, and there are other tools that may be considered.
- There are difficulties in measuring status against this Target, mainly due to a lack of existing data sources to understand and measure the current level of road safety. This also hinders efforts in developing appropriate measures and indicators to assess status toward this Target.
- Lack of leadership, policies and resources to expand road improvements.
- While many traffic engineers in the Department of Rural Roads have received training in road safety auditing, there is a need to continue this, and build additional capacity in other Departments.
- The Department of Rural Roads also noted that any strategy that prioritises resources to improve conditions of the most used roads (mainly arterials), would result in less investment on other rural roads. Given that the majority of fatalities occur on non-arterial rural roads, this prioritisation diverts resources from this critical issue. [6]

Recommendations and Status

Some substantial gains have been made in improving the safety of existing roads that meet iRAP 3-star rating standards. While there are promising efforts on rural roads, these comprise only a small proportion of the Thai road network. Currently little effort is directed at improving other road networks (local roads, highways and expressways).

[6] Interviews by MUARC (Department of Rural Roads). 2019.

The current status towards this Target is: LOW-MODERATE

The following recommendations are made for consideration:

- Enhance leadership and establish development of 3-star existing roads as a high-level priority (with associated budgetary allocation).
- Extend the priority to all Thai road networks including rural roads (arterials), local roads, highways and expressways
- Develop a systems-based plan for achieving the Target. In recognition of the complexity of the transport system, a systems-based approach that supports all components of the system and their interactions is recommended in order to support appropriate safety interventions. For example, a systems-based plan for the appropriate distribution of safety investment among the various road classes on the basis of transport priority, prevalence of serious trauma and desired final road safety state should be considered.
- Establish baseline data to enhance measurement of current level of road safety.
- Expand capacity building for traffic engineers (particularly road safety audit training) and improve understanding of the definition of iRAP 3-star ratings. This will improve knowledge and expertise/experience of technical departments, resulting in a comprehensive and quantifiable road intervention plan.
- Explore the benefits of using road safety assessment tools in addition to iRAP.
- Adopt evidence-based safety measures (within the local context) for selection of road design countermeasures.
- Coordinate operations of responsible agencies and monitor progress. This includes continued development of evidence-based strategies, action plans and monitoring systems.

TARGET

5

By 2030, 100% of new (defined as produced, sold or imported) and used vehicles meet high quality safety standards, such as the recommended priority UN Regulations, Global Technical Regulations, or equivalent recognized national performance requirements.

Responsible Government Agencies:

- Ministry of Transport: Department of Land Transport
- Ministry of Industry: Thai Industrial Standards Institute

Successes and Facilitators

The Department of Land Transport has responsibility for vehicle registration, regulations and standards and, while vehicle regulations and standards are yet to be established in Thailand, the Department is working towards implementing the certification of vehicles to UN harmonised regulations in the near future. Current priorities include pedestrian protection, improved standards for trucks, cars and motorcycle ABS.

Challenges and Barriers

While the actions and plans in progress are designed to align Thailand's vehicle regulations and standards with UN harmonised regulations and high quality safety standards, some gaps were

identified, including a lack of standards for Electronic Stability Control (ESC), Frontal Impact Avoidance, pedestrian protection systems, and motorcycle Antilock Braking Systems (ABS).

Two of Thailand's main challenges in relation to vehicles are manufacturer regulation and registration[7]. Certification programs and more strict regulations will not impact the national fleet unless supported by complementary actions, such as a strong enforcement strategy, a national unified database, and a continuous monitoring system.

General Comments

Motorcycle-related fatalities and serious injuries comprise a high proportion of road trauma in Thailand and there was high consensus amongst key road safety stakeholders that the safety of this road user group should be Thailand's top priority. Regarding the Safe System's pillar of vehicle safety, it is clear that adoption of regulations and safety standards of motorcycles and vehicle technologies that can assist in reducing high and low-level speeding (Intelligent Speed Adaptation [ISA]) and assist with emergency braking (motorcycle ABS) should be given high priority to address the high fatality rate among motorcycle users.

A need to co-ordinate efforts with other government agencies was also identified, in particular the Ministry of Commerce, given their responsibilities for foreign trade and regulations, particularly regarding the sale of non-standardised motorcycle parts and accessories, and the Ministry of Industry, given their responsibility for developing industrial product standards.

Recommendations and Status

The Department of Land Transport, Ministry of Transport, assume responsibility for this Target, however, it is clear that other government agencies and key stakeholder play a role in achieving this Target. While a number of promising initiatives are planned to enhance vehicle standards and regulations, there are some shortcomings in achieving this Target.

The current status towards this Target is: MODERATE

A number of recommendations are made for consideration:

- Development of policies and strategies to mandate the inclusion of ABS technology on all motorcycles.
- A coordinated effort by relevant government agencies and stakeholders, including establishment of clear policies, development of strict regulations and standards, a strong enforcement strategy, a national unified database, and a continuous monitoring system.
- Development of supporting action plans that are evidence-based, such as (but not limited to): ensuring stronger links between the quality of both the road design and vehicle standards/design. For example, there are limitations to the level of protection vehicles can provide (especially motorcycles), even with advanced crash avoidance and crash protection technologies, therefore appropriate road infrastructure design and speed limits become increasingly important. In addition, adoption of a New Car Assessment Programme (NCAP) for the safety rating of passenger vehicles should be considered.

[7] Interviews by MUARC (Department of Land Transport). 2019.

TARGET 6

By 2030, halve the proportion of vehicles travelling over the posted speed limit and achieve a reduction in speed-related injuries and fatalities.

Responsible Government Agencies:

- Royal Thai Police
- Ministry of Transport: Department of Land Transport
- Road authorities: Department of Rural Roads, Department of Highways, Local Administrative Organizations

Successes and Facilitators

According to the WHO, in urban areas there is an increased risk of high speed traffic mixing with pedestrians and cyclists, and for this reason urban speed limits should not exceed 50 km/h. Pedestrians who are hit by vehicles at 65 km/h are nearly 5 times more likely to die than if they are hit by a vehicle travelling at 50 km/h. Local authorities should also be given the legislative ability to bring down speed further using a variety of measures adapted to local conditions, such as reducing limits in residential areas to 30 km/h. [8]

The Global Status Report on Road Safety 2018 recognized Thailand's effort in reducing speed limits in urban areas. According to the Ministry of Interior, as of June 2020, 56 Provinces had already introduced lower speed limits on selected urban roads.

---

[8] The Global Status Report on Road Safety 2018. WHO.

The Thailand Road Safety Master Plan 2018-2021 identifies speeding as one of the main risk factors.

Multiple agencies are responsible for this Target. The statutory speed limits in Thailand are 80 km/h for urban roads and 90 km/h for rural roads. Legally, Provincial Traffic Officers (Provincial Police Commander) have the power to establish speed limits applicable to roads under their jurisdictions. Setting speed limits at local levels is normally introduced through a mechanism known as the 'Provincial Sub-committee on Road Traffic" which involves consultation and agreement between relevant road authorities (such as Department of Highways, Department of Rural Roads, Local Administrative Organizations), local police, local authorities, and other members. Once the speed limit is announced by the Provincial Traffic Officer, the relevant road authority assumes the responsibility to set up speed restriction signs to facilitate compliance.

The Royal Thai Police is responsible for establishing speed limits at a local level and law enforcement. A number of speed enforcement programs have been put in place to reduce travelling over the posted speed limit, including:

- Current suite of 800 laser guns and 1,000 fixed cameras;
- Current phasing in of Police Ticket Management (PTM) and the Demerit Points systems and including excessive speeding;
- Plans to set appropriate speed limits to international good practices;
- Extend enforcement to all classes of road.

The Department of Land Transport also assumes responsibility for this Target. The Department is responsible for regulating speed limits for public transport and heavy trucks and for monitoring excessive speeding through the GSP tracking system in heavy vehicles. In addition, the Department can legally revoke the driving licence of a driver of private and/or public cars and motorcycles, if he or she is penalised for excessive speeding on two or more occasions within a 6-month period. To ensure effective law enforcement, there is a need for the Royal Thai Police to share information regarding convicted drivers with the Department of Land Transport.

the ThaiRoads Foundation has been monitoring the speeding problem situation and trends among different vehicle types. Additionally, the Foundation, in collaboration with partners, developed the Speed Management Blueprint for Road Safety in 2017, to encourage stakeholders to acquire a better understanding of speed management. This Blueprint is intended to be used as a foundation for policy implementation at both national and organizational levels; it also provides a concrete action plan framework for operating agencies.

Challenges and Barriers

The Global Status Report on Road Safety 2018 reports the country's self-assessment of the effectiveness of speed enforcement at 5 out of 10. Some of the difficulties in achieving this Target include:

- Current practice of enforcing speeding fines at speeds higher than the posted speed limit (i.e. high tolerance levels).
- In addition to enforcement programs, the Police engage in public education and campaigns. While these activities can support laws and enforcement activities, they are difficult to quantify and likely to have a minimal effect compared with effective enforcement.

- A major difficulty is lack of general deterrence – there is little perception of being caught and when caught, there are few consequences. (the penalty fine for excessive speeding is only 1,000 Baht)
- The Thailand Road Safety Master Plan 2018-2021 identifies speeding as one of the main risk factors, but no clear action plan to lower related fatalities is presented.
- Lack of co-ordinated efforts – while speed limits are set at a national level, the law also allows local authorities (mainly Police) to modify speed limits in their localities – this has the potential to create inconsistencies whereby motorists travelling from one local authority area to the next may be required to observe different speed limits on roads that are functionally and visually similar. Consequently, speed limit setting loses credibility in the eyes of the road user (who neither knows nor cares which authority posts the speed signs) and lower levels of compliance are likely to result.
- Due to current weaknesses in enforcement and data collection and analysis, the real impact of speeding in Thailand's roads is not fully understood. According to data collected by Department of Highways, 70-80% of road crashes and fatalities in highways are related to speeding [9] and the situation is worsening, while some of Thailand representatives have related speeding to 41% of the fatalities, according to the E-READI study.

In order to halve the proportion of vehicles traveling over the posted speed limit and the impact speeding has on road injuries and fatalities, it is necessary to first know the current state of speeding and the underlying attitudes and perceptions causing it [10]. Although there are many challenges related, Thailand still has a decade to achieve this Target.

General Comments

In addition to the speed enforcement programs implemented by the Royal Thai Police, the Police have also recently announced the introduction of the demerit point system – this initiative is likely to be effective in addressing speeding behaviour. The demerit point system will work in conjunction with standardised fines.

The Police also acknowledge that public education and awareness raising activities will enhance the effectiveness of existing speed enforcement programs.

[9] ThaiRoads Foundation and the Accident Research Centre of Thailand, Asian Institute of Technology. The Road Accident Situation in Thailand 2016-2017.

[10] Kanitpong Kunnawee, et al. Speed Management strategies and drivers attitudes in Thailand. 2013.

Recommendations and Status

The Royal Thai Police and Department of Land Transport, Ministry of Transport, assume responsibility for this Target. The Police have introduced a number of promising initiatives and the ThaiRoads Foundation have collected data to enhance understanding of speeding, there are some shortcomings in achieving this Target.

The current status towards this target is: MODERATE

Despite the current progress in implementing speed management/enforcement programs and schemes, it is clear that a high proportion of drivers/riders are still non-compliant with driving below the posted speed limit. Additional initiatives are recommended:

- Enhanced and ongoing large-scale speed enforcement efforts (including provision of additional radar guns and cameras, ongoing maintenance of equipment, reduced tolerance levels, increased general deterrence). Speed enforcement needs to operate at a sufficient scale that road users have an expectation of encountering measures at any point within every journey they make and not just during holiday festivals.
- Development and implementation of public information campaigns to increase awareness and general deterrence.
- Speed limits are generally high, particularly in urban areas. Speed limit setting programs should be based on international best-practice and set by infrastructure quality and road user mix.
- Enhanced efforts should be directed at regulating speed limits for public transport and heavy trucks.
- Enhanced data collection to better understand the extend of speeding in Thailand.

TARGET 7

By 2030, increase the proportion of motorcycle riders correctly using standard helmets to close to 100%.

Responsible Government Agencies:

- Royal Thai Police
- Ministry of Industry: Thai Industrial Standards Institute

Successes and Facilitators

Wearing correctly a quality-standard motorcycle helmet can reduce the risk of death by over 40% and the risk of severe injury by almost 70% according to the WHO [11]. The Royal Thai Police assume some responsibility for this Target and implement a number of enforcement programs and public awareness campaigns aimed at increasing helmet wearing rates as well as increasing correct use and use of helmets that meet minimum standards.

Enforcement programs to achieve this Target include:

- Introduction of PTM system that includes fines for non-helmet use.
- Inclusion of helmet non-wearing in demerit point system.

[11] The Global Status Report on Road Safety 2018. WHO.

The Police also engage in public awareness campaigns to increase helmet wearing rates amongst various populations, including road safety education in schools.

A recent study demonstrated that community participation through public information, public consultation, public meetings, and participative decision-making, has the potential to not only increase awareness about the importance of helmet wearing, but also increase usage rate by around 10% [12].

The Thai Industrial Standards Institute (TISI) have set standards, guided by UNECE R22, for the manufacture and import of protective helmets (Standard 369-2557, 2014), with minimum standards for full-face, open face and half-head products. All helmets must have basic qualifications for the shell, protective padding, the retention system and visor. The Institute also conducts helmet tests in accordance with international procedures developed by the US Department of Transportation National Highway Traffic Safety Administration and provides stickers on helmets that comply with the standards.

Challenges and Barriers

Helmet wearing rates are relatively low in Thailand.

- Key stakeholders noted that helmet use has remained relatively stable since the 1970's when legislation was first introduced.
- The Global Status Report on Road Safety 2018 reports Thailand's self-assessment of enforcement of helmet wearing at 6 out of 10.
- The ThaiRoads Foundation conducted a yearly survey to determine helmet use, including amongst children around schools. The Foundation report noted that helmet wearing rates have remained relatively stable during the last decade, with wearing rates of 52% for riders and 22% for passengers in 2018. The same report also revealed that wearing rates amongst child passengers are quite stable at about 8% in 2018.
- Data from the Ministry of Public Health's surveillance on road traffic injuries and deaths show that the percentage of helmet use among motorcycle riders (driver and passengers) who were injured or killed during Songkran festival in the past 10 years (2010-2019) is quite stable at approximately 16% [13].

Key stakeholders noted that 100% wearing rates are unlikely to be achieved in the short term and noted the following challenges:

- Difficulty in collecting data, particularly in the provinces.
- While laws and judicial systems show promise in increasing helmet wearing rates, a key issue is public perception. The Police attempt to address this issue, however, have difficulties achieving this alone.
- While wearing rates are measured, there is little effort to translate this information into practice, or to gauge the effectiveness of programs.

[12] Ratanavaraha Vatanavongs, Jomnonkwao Sajjakaj. Community participation and behavioural changes of helmet use in Thailand. 2013.

[13] Surveillance on road traffic injuries and deaths http://ict-pher.moph.go.th/.

- Although enforcement of this behaviour is relatively easy (mainly done by observation and does not require any special equipment), challenges remain due to limitations in Police staff resources and the lack of technology usage to support law enforcement; e.g. installation of cameras to detect motorcycle riders who are not wearing a helmet.
- The effectiveness of education campaigns and free-helmet programs are rarely evaluated.
- Lack of co-ordination – there are many uncoordinated efforts by different agencies and independent organisations.
- Lack of resources and personnel.

General Comments

Key stakeholders noted that the focus is on behavioural programs to address the low rates of helmet wearing, and promoting the use of helmets that comply with minimum standards. However, additional approaches should be considered, including enhanced enforcement efforts, stricter fines/loss of demerit points, technology, improved resources, availability of better products (such as smaller sized helmets for children, full-faced helmets).

While the Police have introduced a program that enables them to allow a rider to find a helmet and continue riding, rather than issuing a ticket, the effectiveness of this approach is not well established.

Recommendations and Status

Given that motorcyclist fatalities and serious injuries comprise a large proportion of all road trauma in Thailand, and the evidence that helmets are effective in reducing severe head injuries, greater attention to this Target should be a priority.

The current relatively low helmet wearing rates is a concern, despite multiple programs addressing the issue.

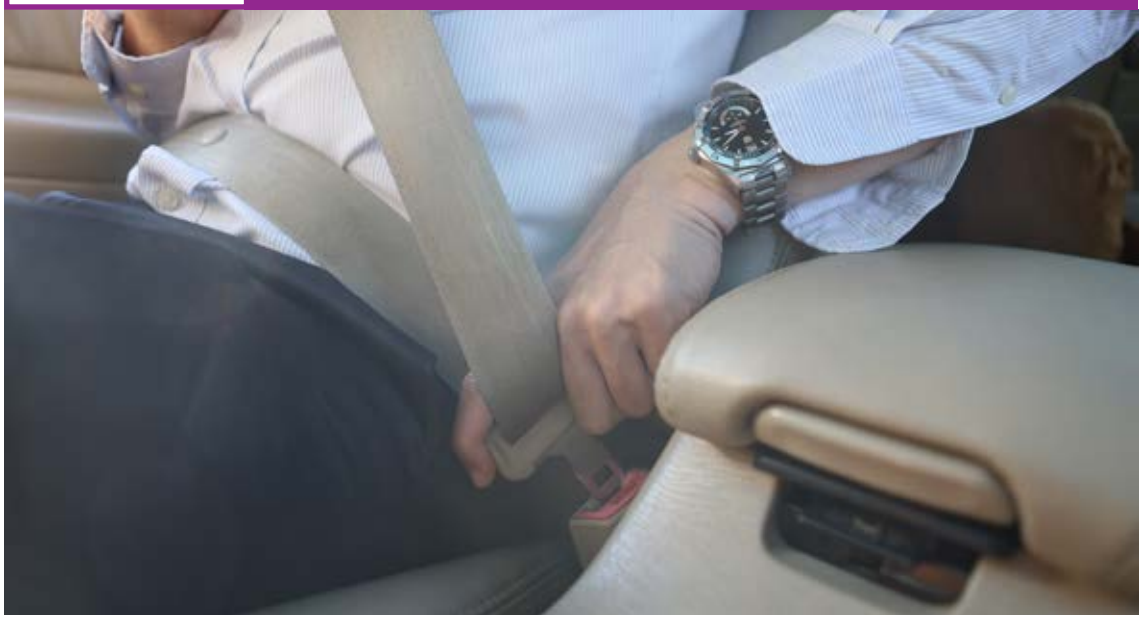
The current status towards this Target is: MODERATE

In order to sustainably improve helmet wearing rates, the following recommendations are made:

- Establish stronger coordination between the agencies that regulate, enforce and promote helmet use.
- Implement enhanced enforcement programs aimed at general deterrence of non-helmet wearing and engaging the community to enhance surveillance.
- Prioritise efforts to increase helmet wearing rates with appropriate levels of resources and personnel.
- Enhance educational campaigns and programs at both central and local levels to reinforce the perception that wearing helmets save lives.
- Continue collection of wearing rates to assess progress and effectiveness of programs/ initiatives.

TARGET 8

By 2030, increase the proportion of motor vehicle occupants using safety belts or standard child restraint systems to close to 100%.



Responsible Government Agencies:

- Royal Thai Police
- Ministry of Transport: Department of Land Transport
- Ministry of Industry: Thai Industrial Standards Institute

Successes and Facilitators

Wearing a seat-belt can reduce fatalities among front-seat occupants by up to 50% and among rear-seat car occupants by up to 25%. Children are safer in the rear of a vehicle rather than in the front and countries should have laws restricting children from sitting in the front seat if they are under a certain age (usually between 10 and 12 years) or under a specific height (usually between 135-150 cm), according to the WHO [14].

The Thai government introduced seat belt wearing legislation in 1995 for drivers and front seat passengers, and more recently this extended to all passengers in 2017. Now, all drivers, front and rear seat passengers is required to wear seat belts. Regarding child restraints, legislation for the installation and use of child restraints are yet to be developed.

---

[14] The Global Status Report on Road Safety 2018. WHO.

The Royal Thai Police assume some responsibility for enforcing this legislation and have implemented programs to enforce and promote seat belt wearing, including:

- Introduction of Police Ticket Management (PTM) system that includes fines for non-seat-belt use.
- Inclusion of seat-belt non-wearing in demerit point system.
- Public awareness and educational programs to raise awareness and encourage belt use.

The Department of Land Transport assumes some responsibility for this Target with a focus on installation standards, as follows:

- Introduced regulations that seat-belts are fitted and comply with standards.
- Introduced a process of checking seat-belts for compliance with the standards.

Challenges and Barriers

Although seat-belt legislation has been enacted, wearing rates remain low for drivers and front seat passengers and much lower for rear-seat passengers. A 2011 survey conducted by the ThaiRoads Foundation and Road Safety Watch Network revealed that only 54% of drivers and passengers in the front seat reported wearing a seat-belt. Another survey in 2017 revealed that only 3% of taxi passengers in the rear seats reported wearing a seat-belt. A survey in 2018 also reported that 20% of respondents were not aware about the law requiring wearing a seat-belt for rear-seat passengers [15].

Based on the Global Status Report on Road Safety 2018, Thailand's self-assessment of enforcement is at 6 out of 10.

While the Royal Thai Police implement enforcement strategies, there are some challenges:

- Passengers' decisions (lack of awareness) and challenges reaching some populations, particularly those that may be at higher risk of low wearing rates
- Lack of fitted seat-belts in the rear compartment in a high proportion of the current vehicle fleet.
- Poor detection of non-compliance.
- Not seen as a priority and therefore no clear programs and initiatives focussed on seat-belt use.
- Lack of resources and personnel.

With regard to the use of child restraints, there are numerous challenges and barriers, as follows:

- There are currently no legal requirements for the fitting of child restraints.
- There are no current restrain or vehicle standards
- The legal requirements requiring a child to wear a safety belt is impractical, unsafe and unenforceable

[15] ThaiRoads Foundation and the Accident Research Centre of Thailand, Asian Institute of Technology. The Accident Situation in Thailand 2016-2017

- There is no national product standard for child car seats.
- There are currently no legal requirements for a child to be restrained with a child car seat. This means the use of a child car seat is a voluntary safety measure which depends on the parents' discretion.
- No clear programs and initiatives focussing on this issue.
- Little public awareness on the benefits of child restraint use.

Recommendations and Status

There is good evidence that seat-belts and child restraint systems are very effective in reducing injury in the event of a crash. However, they are only effective if they are used and used correctly. There has been substantial progress towards increasing seat-belt use, with the introduction of laws and associated enforcement and public awareness campaigns; however, progress towards the use of child restraints is poor.

The current status towards this Target relating to seat belt use is: MODERATE
The current status towards this Target relating to child restraint is: LOW

The recommendations to enhance progress towards this Target related to seat-belt use include:

- Consider raising the priority of seat-belt use and strengthen enforcement programs.
- Consider improved methods of detecting non-compliance.
- Increase public awareness campaigns to enhance the community's awareness of the benefits of seat-belts and promote increased use.

The recommendations to enhance progress towards this Target related to child restraint systems includes:

- Consider legislation to mandate fitting standards to support the use of standard child restraint systems both for Thai-based manufacturers and for importation.
- Consider legislation mandating a compulsory child restraint system which conforms with international best-practice (e.g., UN Regulation 44)
- Consider legislation mandating the requirement to use child restraint systems in a motor vehicle.

TARGET

9

By 2030, halve the number of road traffic injuries and fatalities related to drivers using alcohol, and/or achieve a reduction in those related to other psychoactive substances.

Responsible Government Agencies:

- Royal Thai Police
- Ministry of Transport: Department of Land Transport

Successes and Facilitators

The risk of driving behaviour being impaired by alcohol starts at very low levels of alcohol consumption and begins to rise exponentially as more alcohol is consumed, particularly over a blood alcohol concentration (BAC) level of over 0.05 g/dl. Young and novice drivers are at a much increased risk of having a road traffic crash when under the influence of alcohol compared to older and more experienced drivers [16].

[16] The Global Status Report on Road Safety 2018. WHO.

Data from the Royal Thai Police between 2007 and 2017 show a significant decrease of road traffic prosecutions involving alcohol. In 2017, only about 1% of road traffic prosecution involved alcohol [17]. The Ministry of Public Health's surveillance during the Songkran holidays show a slight decrease in the percentage of road injuries and deaths involving alcohol from 33% in 2010 to 27% in 2019; of these around one-fifth were young people aged under 20 years old [18].

The Royal Thai Police assume primary responsibility for this Target, and reducing drink-driving is a priority. Current initiatives and programs include:

- Implementation of the PTM and inclusion of drink driving offence in the demerit point system;
- Introduction of laws: 0.02% BAC for young novice drivers/riders, and 0.05% BAC for all other drivers/riders.
- More recent laws/initiatives include: passengers not allowed to drink in vehicles, vendors not allowed to sell to anyone under 20 years, drinking not allowed in stationary vehicles parked on streets.
- Police have authority to stop and breathalyse anyone at any time.
- Implementation of 'checkpoints' in provinces and each local station (1,500 nationwide) have 2 allocated breathalysers.
- Approximately 1 million random breath tests are conducted per annum, with 10% positive.
- The initiative on hospital-based alcohol blood test for road injury patients who are unable to undertake a test by blowing a breathalyser. This is a joint initiative between Department of Disease Control, Department of Land Transport and the Royal Thai Police, with an aim to enhance enforcement of drink-driving law. This initiative is promising but is not a routine programme.
- There are some promising approaches, provided there is adequate funding and public support for drink-driving initiatives.

The Department of Land Transport also assumes responsibility for this Target. The Department regulates zero BAC for public transport, taxi, and motorcycle taxi drivers. These drivers are subject to penalty if their BAC is detected. In addition, the Department can legally revoke the driving licence of a driver of private and/or public cars and motorcycles, if he or she is penalised for drink driving on two or more occasions within a 6-month period. To ensure effective law enforcement, there is a need for the Royal Thai Police to share information regarding convicted drivers with the Department of Land Transport.

[17] Cited in ThaiRoads Foundation and the Accident Research Centre of Thailand, Asian Institute of Technology. The Accident Situation in Thailand 2016-2017

[18] Surveillance on road traffic injuries and deaths (http://ict-pher.moph.go.th/)

Challenges and Barriers

The available data regarding extent of drink and drug-driving in Thailand presents some challenges and should be considered with some caution.

Although data from the Royal Thai Police and the Ministry of Public Health's Injury Surveillance during Songkran festival indicate a decreasing trend in crashes, injuries and deaths involving alcohol, interview findings revealed that there are some issues related to current testing regulations, particularly a lack of and poor maintenance of breath testing equipment, resulting in most of the cases remaining unrecorded [19].

Based on the Global Status Report on Road Safety 2018, Thailand's self-assessment of drink driving enforcement is 6 out of 10. While the Police have implemented a number of initiatives to address drink-driving, interview findings revealed that there is poor enforcement in relation to drink driving, not only as part of the general enforcement situation in the country, but also because of the cost of the special equipment required, lack of appropriate funding to support these resources, and lack of personnel. Appropriate enforcement of drink- and drug-driving requires specialised equipment and highly trained personnel, two resources that the Royal Thai Police do not always have available.

Currently, there is no attention to drug-driving. There is a lack of data, therefore the scale of the problem is unknown, and there are no existing programs or initiatives to reduce drug-driving.

General Comments

Key stakeholders noted the contribution of alcohol marketing and exposure and negative health outcomes, including road trauma. Thailand has increasingly strengthened its alcohol regulatory controls and the Alcoholic Beverage Control Act, enacted in 2008, established the Alcohol Beverage Control Committee that was tasked to oversee the monitoring and surveillance of alcohol activities in Thailand. Despite strict alcohol marketing regulations, the portrayals of alcohol in the media remain prevalent, resulting in high exposure to alcohol [20]. Given the synergies with drink-driving enforcement and alcohol marketing regulations, it was suggested that these efforts should be implemented in alignment with drink-driving enforcement.

[19] Interviews by MUARC. 2019.

[20] Kaewpramkusol et al., 2018. A qualitative exploration of the Thai alcohol policy in regulating alcohol industry's marketing strategies and commercial activities.

Recommendations and Status

The achievement of this Target depends mainly on improving enforcement and strengthening penalties.

The current status towards this Target is: MODERATE

The recommendations to enhance efforts to reduce drink- and drug- driving include:

- Enhance the quality of data to enable a better understanding of the extent of the problem (for both drink- and drug-driving).
- Consider implementation of large-scale alcohol and drug enforcement through Random Breath Testing (RBT).
- Encourage the use of probation to prevent convicted drivers from repeat offences.
- Consider tougher penalties and sanctions such as increased fines, loss of licence, introduction of alcohol ignition interlock programs.
- Prioritise enforcement, penalty and information campaigns through increased funding, resources and testing equipment.
- Enhance scale of public information campaigns and educational programs to increase general deterrence.
- Consider aligning enforcement programs with stricter alcohol sales and marketing regulations.

TARGET 10

By 2030, all countries have national laws to restrict or prohibit the use of mobile phones while driving.

Responsible Government Agencies:

- Royal Thai Police
- Ministry of Transport: Department of Land Transport

Using a phone while driving, whether hand-held or hands-free, increases the likelihood of being involved in a crash by 4 times. Texting while driving increases the risk of a crash by around 23 times. At the moment, there is not enough evidence to determine best practice for legislation to restrict or prohibit mobile phone use while driving [21].

Successes and Facilitators

A survey by ThaiRoads Foundation in 2018 reported that several respondents admitted having used a mobile phone while driving/riding during the previous 3 months, with drivers of 4-wheelers reporting highest use at 63%, followed by pick-up truck drivers at 60%, and motorcycle riders at 38%. The purposes given for using the mobile phone while driving were for talking (80-90%), followed by texting and using a mobile application. About 25% of motorcycle riders reported using their mobile phones to listen to music, a higher percentage than other types of road user. [22]

---

[21] The Global Status Report on Road Safety 2018. WHO.

[22] ThaiRoads Foundation and the Accident Research Centre of Thailand, Asian Institute of Technology. The Accident Situation in Thailand 2016-2017.

The Land Traffic Act, modified in 2008, enacts legislation that prohibits all mobile phone use while driving, inclusive of texting, except in cases where some form of supplemental accessory such as Bluetooth headset is used (hands-free use).

The Royal Thai Police assume the primary responsibility for this Target. Several programs and initiatives are current and some are planned:

- Implementation of the PTM and inclusion of this offence in the demerit point system.
- Public education to reduce all risky behaviour including mobile phone use.

The Department of Land Transport also assumes responsibility for this Target. The Ministerial Order on Transport Safety 2015 under the Land Transport Act 1979 prohibits public transport drivers from using mobile phones while driving under any circumstances, except for when a conversation is made through using accessories and the driver does not need to hold the mobile phone. Violation of this requirement is subject to a fine not exceeding 5,000 Thai Baht.

Challenges and Barriers

The survey by ThaiRoads Foundation in 2018 also found that 84% of respondents reported never having seen police officers charging drivers/riders for using a mobile phone while driving during the previous 3 months.

Despite the inclusion of this offence in the PTM demerit point system, it is not currently a priority. Enforcement of this is therefore not a priority, penalties are relatively low, and therefore general deterrence is low, along with public perception. These factors can reduce the effectiveness of the initiatives.

Recommendations and Status

To achieve this Target, the country is required to have a national law restricting the use of mobile phones while driving, which in Thailand's case is already in place.

The current status towards this Target is: MODERATE-HIGH

Nonetheless, it is clear that mobile phone use while driving/riding, particularly for calls, remains high and the effort now needs to be directed to enforcement of the law and changing public perception. The following recommendations are made:

- Enhanced and widespread public education program to raise awareness of the risks of mobile phone use (calls and texting).
- Ongoing and increased enforcement programs to provide more deterrence.
- Introduction of stricter penalties and sanctions.
- Consideration of improved detection methods/technologies.

TARGET

11

By 2030, all countries to enact regulations for driving time and rest periods for professional drivers, and/or accede to international/regional regulation in this area.

Responsible Government Agencies:

- Ministry of Transport: Department of Land Transport
- Ministry of Labour: Department of Labour Protection and Welfare

The Anti-Drowsy Driving Fund noted that, internationally, the loss of life from a fatigue-related crash is at least 20% of the total number of fatal crashes. The Anti-Drowsy Driving Fund also predicted that fatigue-related crashes may reach 30% of the total number of road fatalities. Indeed, a questionnaire implemented by the Anti-Drowsy Driving Fund revealed that up to 28-53% of drivers/riders (private vehicles, public buses, trucks and motorcycles) reported dozing while driving and the major contributing factor was insufficient sleep. [23]

Successes and Facilitators

In 1998, the Ministry of Labour issued a regulation specific to land transport work, requiring employers to set the length of time between start and end of work hours for land transport employees to not exceed 8 hours per day. Any overtime work must not exceed 2 hours and requires

[23] Leechawengwongs, M., undated. Drowsy Driving and Automobile Crashes. http://www.thaiauto.or.th/2012/news/news-detail.asp?news_id=3165

consent from the employee. After employees have driven for 4 hours, they must have at least 1 continuous rest hour. Before starting work on the following day, drivers need to have a resting period of at least 10 hours from the end of work on the previous day. The Department of Labour Protection and Welfare is responsible for monitoring the implementation under this regulation. The research team does not have information about the outcome of the implementation.

The Department of Land Transport recognises the need to address issues of fatigue amongst professional drivers. In 2013, the Department of Land Transport implemented a regulation requiring installation of GPS devices in vehicles carrying hazardous/dangerous goods to monitor driver behaviour (particularly speeding and fatigue), and later this was extended to instrumentation of other types of vehicles, i.e. commercial heavy vehicles, buses and leased vans, long-distance (inter-city) passenger vehicles and taxis.

Based on the interview, the Department set a target of instrumenting roughly 486,000 vehicles by 2019 and it is estimated that approximately 377,000 vehicles were instrumented as of end of 2018.

In addition, it was noted that, by law (under the Land Transport Act), the Department has the authority to enforce these regulations. All data captured from these devices are managed within the Department. When there is a breach of regulations, the vehicle operators are invited to attend a meeting with a monitoring officer in the Department. Despite this progress, there are some challenges in the implementation of this policy.

The Department of Land Transport recognises the importance of working with the Department of Labour Protection and Welfare to protect drivers while engaging in work-related driving, and acknowledge the benefits of incorporating regulations for work-related driving in all sectors of Occupational Health, Safety and Environment standards.

The findings from interviews revealed that the Department of Land Transport is planning to adopt the VicRoads (Transport Agency in Victoria, Australia) graduating system for licensing drivers[24]. The creation of such regulations, and their adoption and enforcement require constant collaboration between agencies, as well as commitment from companies.

The Ministry of Public Health (MoPH) also contributes to the achievement of this Target. In 2019, the MoPH, in partnership with the Preventive Medicine Study Foundation and the Traffic Medicine Group of Thailand, initiated a project on traffic medicine and the assessment of medical fitness to drive which includes fatigue management in order to increase the assessment capacity of health personnel and those involved with traffic medicine.

The Department of Land Transport is also planning to work with the Medical Council of Thailand to enhance the issuing of medical certificates for driving for those who wish to apply for a driving license and to work with the Traffic Medicine Group of Thailand to develop guidelines for assessing medical fitness to drive.

[24] Interviews by MUARC. 2019.

Challenges and Barriers

Data from both the Royal Thai Police and the Department of Highways indicate a continuous and rapid increase in the number of crashes due to drowsiness. Data from the Royal Thai Police show that the number of drowsiness-related road traffic prosecutions increased threefold between 2008 and 2017. Meanwhile, data from the Department of Highways indicate that, although drowsiness-related crashes account for just 4% of the total number of crashes on highways, the number of crashes, as well as the number of associated road injuries and deaths increased continuously between 2008 and 2017. Most of the drowsiness-related crashes on highways involved pick-up truck drivers and the majority occurred during the daytime and on straight roads [25].

While the Department of Land Transport set a target of instrumenting roughly 486,000 vehicles by 2019 and works with companies to monitor the installation, they acknowledged that it is difficult to assess whether all companies comply with the level of instrumentation.

While the Department of Land Transport has the authority to enforce regulations and all data captured from the devices are managed within the Department, there were some acknowledged challenges in the implementation of this policy.

General Comments

There are currently no Fitness to Drive guidelines in Thailand for professional drivers. It would be beneficial to develop guidelines for general practitioners to assess the health of professional drivers and their overall fitness to drive, to conduct effective medical health checks and provide effective and appropriate rehabilitation for professional drivers to resume safe driving.

Recommendations and Status

Fatigue-related driving, particularly amongst professional drivers, is a substantial issue, requiring co-ordination between Ministries and Departments to establish relevant guidelines and monitor the implementation.

The current status towards this Target is: MODERATE

A number of recommendations are suggested for consideration:

- Coordinate efforts between Department of Land Transport and Department of Labour Protection and Welfare to develop best-practice operations, schedules and initiatives.
- Coordinate efforts between Department of Land Transport and Department of Highways to build more rest areas along highways.
- Continue expansion of implementation of technology to instrument vehicles and monitor driver behaviour.

[25] Cited in ThaiRoads Foundation and the Accident Research Centre of Thailand, Asian Institute of Technology. The Accident Situation in Thailand 2016-2017.


64

TARGET

12

By 2030, all countries establish and achieve national targets in order to minimize the time interval between road traffic crash and the provision of first professional emergency care.

Responsible Government Agencies:

- Ministry of Public Health: Division of Public Health Emergency Management
- The National Institute of Emergency Medicine

Successes and Facilitators

The international evidence suggests that reducing the time interval between a crash and provision of first professional emergency care can greatly improve injury outcome following a road traffic collision.

The Division of Public Health Emergency Management, Ministry of Public Health (MoPH) and the National Institute for Emergency Medicine (NIEM), have responsibility for post-crash emergency care and take joint responsibility for this Target.

Based on the review, the Master Plan on Road Safety (2018-2021) does not include a specific strategy on post-crash care. However, the National Plan on Emergency Medicine (2019-2024), developed by the National Institute of Emergency Medicine (NIEM), includes an indicator of the 'percentage of emergency patients who receive provision of first professional emergency care within 8 minutes after notification'.

NIEM was established by law in 2008 to be responsible for developing a master plan, standards and criteria with regard to emergency medical services and the monitoring and evaluation of its implementation in Thailand. It was reported that NIEM has helped in making some gains in expanding coverage of pre-hospital care along with shortening response times. This agency implemented systems to alert pre-hospital care responses via Provincial Dispatch Centers which are located in the provincial hospital, provincial public health office, or provincial administrative organization. A national emergency number with a linked triage process was also implemented. This has contributed to the increased number of overall EMS dispatches. According to NIEM data warehouse, more than 1.7 million dispatches of EMS were reported in 2019.

In an effort to prevent road traffic injuries and control the quality of the EMS system during long holidays, the Division of Public Health Emergency Management, MoPH adopted a surveillance system to collect road traffic injury and death data from MoPH hospitals for seven days during the long holidays (also called 'the 7 dangerous days') as per the announcements by the Road Safety Directing Centre. For example, for 2013 data were collected from December 27 to January 2 for the New Year's holiday and from April 11 – 17 for the Songkran holiday.

No other information is available about the specific work of the Division of Public Health Emergency Management, MoPH.

Challenges and Barriers

A number of challenges and barrier to progress were identified, as follows:

The Master Plan on Road Safety (2018-2021) does not include a specific strategy on post-crash care. A relevant indicator, i.e. 'percentage of emergency patients who receive provision of first professional emergency care within 8 minutes after notification' was included in the National Plan on Emergency Medicine (2019-2024) under NIEM.

According to NIEM's Information Technology for Emergency Medical System (ITEMS), the trend of critical road traffic injury cases who received emergency medical care on the scene within 8 minutes of notification is on a downward slope, from 54% in 2015 to 51% in 2019. The Ministry of Public Health, through the Health Data Center, has compiled and analysed data of road traffic injury and death cases reported from MoPH's hospitals; however, data are not quite complete and the coverage is not good enough to carry out detailed analysis e.g. survival rates, types of injury, length of stay in hospital. Efforts should be made to promote a more robust reporting in order to maximize the use and analysis of data from this existing system.

There is also some evidence to suggest that use of EMS is low in Thailand, and the majority of people injured in a road traffic crash are transport by means other than ambulance.

For example, data from the surveillance during Songkran holidays between 2010 and 2019 [26] show that fewer than 50% of road traffic injury cases and deaths were transported to hospitals by the emergency medical service; however, the percentage is increasing each year. Data from Khon Kaen Regional Hospital shows that only 14% of Emergency Department presentations are transported by ambulance, and that 75% of patients are responded to within 10 minutes, and 62% within 8 minutes [27].

[26] Surveillance on road traffic injuries and deaths (http://ict-pher.moph.go.th/)

[27] WHO Collaborating Centre for Injury Prevention and Safety Promotion, Khon Kaen Regional Hospital, 2018

Another study found that only approximately 40% of road traffic injured patients in Thailand are transported to hospitals by ambulance, which reveals a critical challenge in coverage. One of the main reasons for the low use rate of ambulances identified by this study, was difficulty in remembering the emergency phone number [28]. It is noted that this study only focussed on Songkran festivals.

Interview findings showed that the need for technological improvements for the development of a live crash data report and ambulance dispatch system is clear in order to eliminate current gap in the system – fragmentation mainly caused by current data collection and analysis practices. At the more specific level, another challenge is the fact that health practitioners are migrating to the private system which, combined with the lack of specialized hospitals, and their availability often being unknown by the response team, are resulting in treatment disparity [29].

Despite receiving basic emergency medical training, life support and medical transfer and being equipped with emergency first aid kits, traffic police play only a supporting role in treatment of crash victims, with their predominant role in providing help to remove the injured from their vehicles and controlling traffic. This training potentially enables traffic police to play a larger role in quick and effective emergency care management. Therefore, a multi-disciplinary approach with involvement of traffic police in pre-hospital care, might bring improved injury outcomes.

Recommendations and Status

Reduced emergency service times are effective in increasing survival rates and injury outcomes.

The current status towards this Target is: MODERATE

While there have been efforts to address this Target, some enhancements to strategies, policies, initiatives and programs may be considered, as follows:

- Consider including post-crash care as one of the strategies in the Road Safety Master Plan and developing clear action plans in support of the direction of the Master Plan.
- Continuation and enhancement of the surveillance system for road traffic injury and deaths during 7 dangerous days and further analyse this data and other existing data from NIEM's data platform to develop effective campaigns and initiatives.
- Invest in dispatching ambulances equipped with advanced emergency medicine equipment and staffed by highly trained paramedics to emergency situations where patients require a higher level of care than a regular ambulance can provide
- Enhancements to the existing alarm system that could further reduce the time from crash or injury to ambulance dispatch and result in a 1-minute decrease in response time.
- Coordinate inter-agency EMS responsibilities. The emergency services agencies and Police are the first responders following a crash and due to their significant role in pre-hospital care, first responders are often considered as important members of the responding team at the crash site. These groups could receive training to increasing general awareness of first responders with first aid training and practical demonstrations to improve the quality of their responses when called upon.

---

[28] Riyapan Sattha, et al. Outcomes of emergency medical service usage in severe road traffic injury during Thai holidays. 2018.

[29] Interviews by MUARC. 2019.

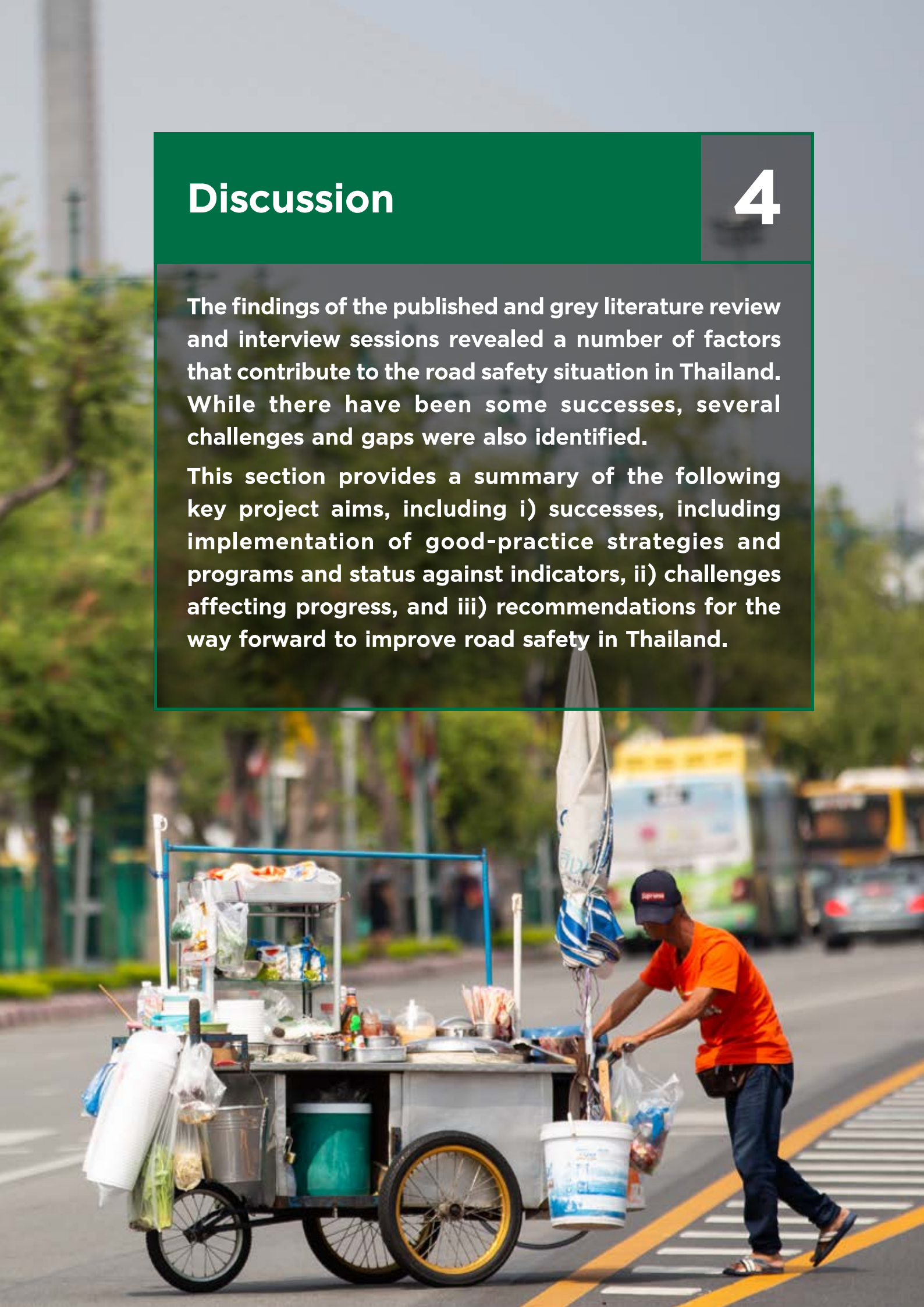

EMERGENCY AMBULANCE

Discussion

4

The findings of the published and grey literature review and interview sessions revealed a number of factors that contribute to the road safety situation in Thailand. While there have been some successes, several challenges and gaps were also identified.

This section provides a summary of the following key project aims, including i) successes, including implementation of good-practice strategies and programs and status against indicators, ii) challenges affecting progress, and iii) recommendations for the way forward to improve road safety in Thailand.



4.1 Successes

It was encouraging to find that the majority of government departments were aware of the targets and understood which targets they had responsibility for. In addition, the findings demonstrated that several goals, strategies and programs are currently being implemented by key road safety government departments and NGOs, and many of them have plans for implementation of future laws, regulations and programs.

Examples of good-practice goals, strategies, programs and actions include:

- Establishment of a lead agency for road safety and clarification of roles and responsibilities of a lead agency for road safety (however, as noted in Section 4.2, there are some persistent organisational and operational challenges with the nominated lead agency).
- Development of Thailand Road Safety Master Plan 2018-2021 that identified priority issues and outlines key goals, strategies and indicators using sustainable development approaches with participation according to the Pracharat approach
- Evidence of target and goal setting within many government departments
- Adoption of laws and regulations that facilitate road safety (e.g. mobile phone use, speeding, helmet wearing, drink driving, operation hours of commercial drivers)
- Adoption of enhanced enforcement strategies (e.g., new demerit point and ticketing system, addressing speeding, helmet wearing, drink driving)
- Adoption of Safe System principles (at least by Department of Rural Roads)
- Signature or ratification of three of the core road safety-related UN legal instruments
- Implementation of computerised systems to identify poor performing roads and effective countermeasures
- Improved data collection and management systems and integration/linkage of key road traffic death databases
- Capacity building (e.g. Road Safety Audit training)
- Co-ordination between road safety research organisations and government departments to establish evidence-base
- Plans to implement programs (e.g., certification of vehicles to UN harmonised regulations, enhanced licensing procedures, improved emergency management response times).

These successes are reflected in moderate to high ratings of status towards targets, as follows:

- Targets 2 and 10: high ratings
- Targets 5, 6, 7, 8 (seat belts only), 9, 11 and 12: moderate ratings

4.2 Challenges

The thematic analyses revealed some significant challenges and gaps in the current system, and this was reflected in low-moderate ratings for Targets 1, 3 and 4 and Target 8 (low ratings, particularly relating to child restraint use). These have been thematically divided into six categories and each are discussed separately below.

4.2.1 Insufficient political focus

In order for road safety efforts to be successful, it is critical that strong leadership and political attention underpins these efforts. Currently, it appears that road safety is a low priority at the highest levels of government and, as a result, there is no sense of urgency to address road trauma, a lack of support and therefore a sense of frustration within government departments and NGOs, and there appears to be insufficient accountability and a weak structure to support effective road safety efforts.

4.2.2 Lack of effective road safety management at the highest level

While it is encouraging that the Board and Sub-Committees exist and it is given importance by its membership, the current National Road Accident Prevention and Reduction Policy Board and the Road Safety Directing Center suffer many shortcomings. Some of the major challenges identified through consultation interviews with key agencies and stakeholder include:

- Irregular and infrequent meetings
- Lack of ongoing strategic plan for road safety
- Lack of defined tasks and accountability for achieving those tasks
- Inconsistency of representation at meetings
- No evidence-base for road safety goals and actions taken
- Inappropriate or non evidence-based allocation of budgetary resources

The Thailand Road Safety Master Plan 2018-2021 also reflects this lack of effective road safety management. The strategies mentioned in the Master Plan act as guiding principles; however, there are no supporting action plans nor are there any time-bound targets. In this sense, these strategies are mainly presented as a will to improve a determined aspect of road safety, but without the supporting instruments to enable effective actions.

One of the main difficulties Thailand currently faces is road safety management; in the light of the multiplicity of agencies involved there is still no accountability making it difficult to track progress and achieve positive results. This has resulted in agencies working in silos, and not making their roles and expertise visible and available at the national level. For example, data collection and communication has been identified as an activity with high potential for improvement (WHO 2016).

4.2.3 Lack of effective partnerships between key road safety stakeholders

Evidence suggests that establishment of partnerships between key stakeholders benefits road safety and, conversely, fragmentation results in disbenefit (Johnston 2010). There is a clear sense that there is significant fragmentation of government departments with responsibility for road safety efforts. This results in poor communication, collaboration, co-ordination, and a poor understanding of the potential benefits of pooling resources within a Safe System approach.

4.2.4 Lack of understanding of the targets

The targets are generally high-level and there is a sense that some are difficult to achieve. Some of the gaps include:

- Despite guidance provided by WHO, there is a sense among some government departments that clear direction to achieve targets is lacking
- Similarly, some government departments suggest that there is a lack of intermediate indicators suitable for local contexts
- Some targets are difficult or impractical to measure, resulting in a restricted ability to measure progress towards achieving the targets
- Lack of guidance in best-practice collection of appropriate data
- Lack of monitoring and evaluation activities to demonstrate effectiveness of programs

4.2.5 Lack of capacity and skills

Evidence suggests that road safety benefits from strong leaders, managers, and skilled personnel who can motivate those around them to make a difference and precipitate changes in the status quo (Varhelyi 2016). Currently, gaps exist with the capacity and skills of road safety professionals at all levels in government departments. While it was out of scope to assess the contribution to achieving the Targets, it will also be important to review the capacity and skills within the various NGOs and research institutes as part of their role in supporting government road safety efforts.

The findings suggest that few government organisations have a team of professionals that clearly understand the 12 global performance targets, national road safety challenges, and the specific role they play in reducing road injury. In some cases, high-level decision-makers do not perceive road safety as a priority, resulting in a lack of adopting best-practice and training opportunities for technical staff.

4.2.6 Lack of coordinated public awareness and behaviour change programs

While there was evidence of a variety of efforts within various government departments and NGOs to address behavioural issues such as drink driving, helmet wearing, speeding, etc., the overall perception was that the general public is largely unaware of the importance of road safety and therefore also unaware of the need to adopt safety behaviours and are unconcerned about law enforcement. In addition to this lack of awareness, there was a sense that, while some small-scale programs may have been implemented, there was a lack of a co-ordinated large-scale approach.

4.3 Recommendations

Identification of the gaps and challenges in achieving the voluntary national targets and road safety gains, has led to the formulation of several recommendations for the way forward. These are described in the following sub-sections.

4.3.1 Create strong leadership and sharpen political focus

International organizations (e.g., collaborations between WHO and others) have the ability to work with high level government to emphasise the urgency to set road trauma as a national priority. Specific guidelines and frameworks should be developed to achieve this change. Examples of previous successful cases should be considered, and are provided in a separate document.

4.3.2 Formation of a lead agency for road safety by law

Despite the existence of the National Road Accident Prevention and Reduction Policy Board and the Road Safety Directing Center, some significant shortcomings relating to the membership, roles and responsibilities of these bodies were identified. Given these issues, either the formation of a new agency or a significant restructuring of the current one with new terms of reference is recommended.

The roles of this new or refreshed lead agency should include (but not be limited to):

- Adoption of and overall responsibility for road safety targets (including the UN global road safety performance targets);
- Coordination of key stakeholders, including partnership setting where appropriate;
- Setting and responsibility for the creation and implementation of an actionable road safety strategy;
- Accountability for implementation of road safety actions;
- Transparency of budget allocations;
- Establishment of rules for agency membership, meeting frequency, etc.;
- Custodianship of all key road safety-related data and facilitation of its use;
- Responsibility for coordination of capacity building and skills development;
- Responsibility for public awareness strategies and campaigns;
- Leading on evidence-based road safety efforts including the commissioning of research, monitoring and evaluation programs.

A lead agency that properly and effectively executes these actions is likely to contribute to significant gains towards achieving Target 1, and would enhance the achievement of the other 11 targets.

The lead agency should be established by legislation and supported and monitored by an independent advisory group comprising experts drawn from a range of relevant backgrounds, including advocacy groups.

4.3.3 A focus on implementation

There have been a number of reviews (e.g. E-READI, 2019; Taekratok et al, 2016) by multiple international organisations of Thailand's road safety efforts and many recommendations (some very similar to those recommended by this study) have been made. Most focus on the establishment of strategies and goals within a Safe System framework (knowledge of 'what to do'). What appears to be missing is a focus on translating these reviews into a sustained implementation program (action of 'how to do it').

This requires the development of clear, feasible and sustainable implementation and action plans associated with each target and addressing priority road safety areas and local nuances. It also requires development of strategies and implementation of programs to increase awareness of Safe System approaches and effective road safety programs to national and provincial departments.

4.3.4 Development of intermediate indicators to help assess progress towards achieving targets

While setting of high-level targets is beneficial, they can be perceived as unachievable. The nature of the UN road safety goals is that some of them are difficult to quantify, which can detract from efforts to improve performance. It is recommended that intermediate indicators be developed and embedded within the targets. These intermediate indicators should be causally linked to the achievement of the UN road safety goals, and set within a MARS [30] framework.

Attaining the 12 Global Road Safety Performance Targets will be highly dependent on the development of these intermediate and contextualized indicators. It is recommended that the lead agency, with the support and guidance of WHO, could establish a mechanism to support mobilization of the goals to make them more acceptable, more meaningful and more usable.

4.3.5 Establish an effective capacity-building framework

Capacity building and upskilling of road safety professionals to be the next generation of road safety leaders is key to the sustainable implementation of effective road safety efforts. A professional development approach is required to deliver high level road safety management and leadership training, along with appointing a figure who can act as a high-level road safety advisor.

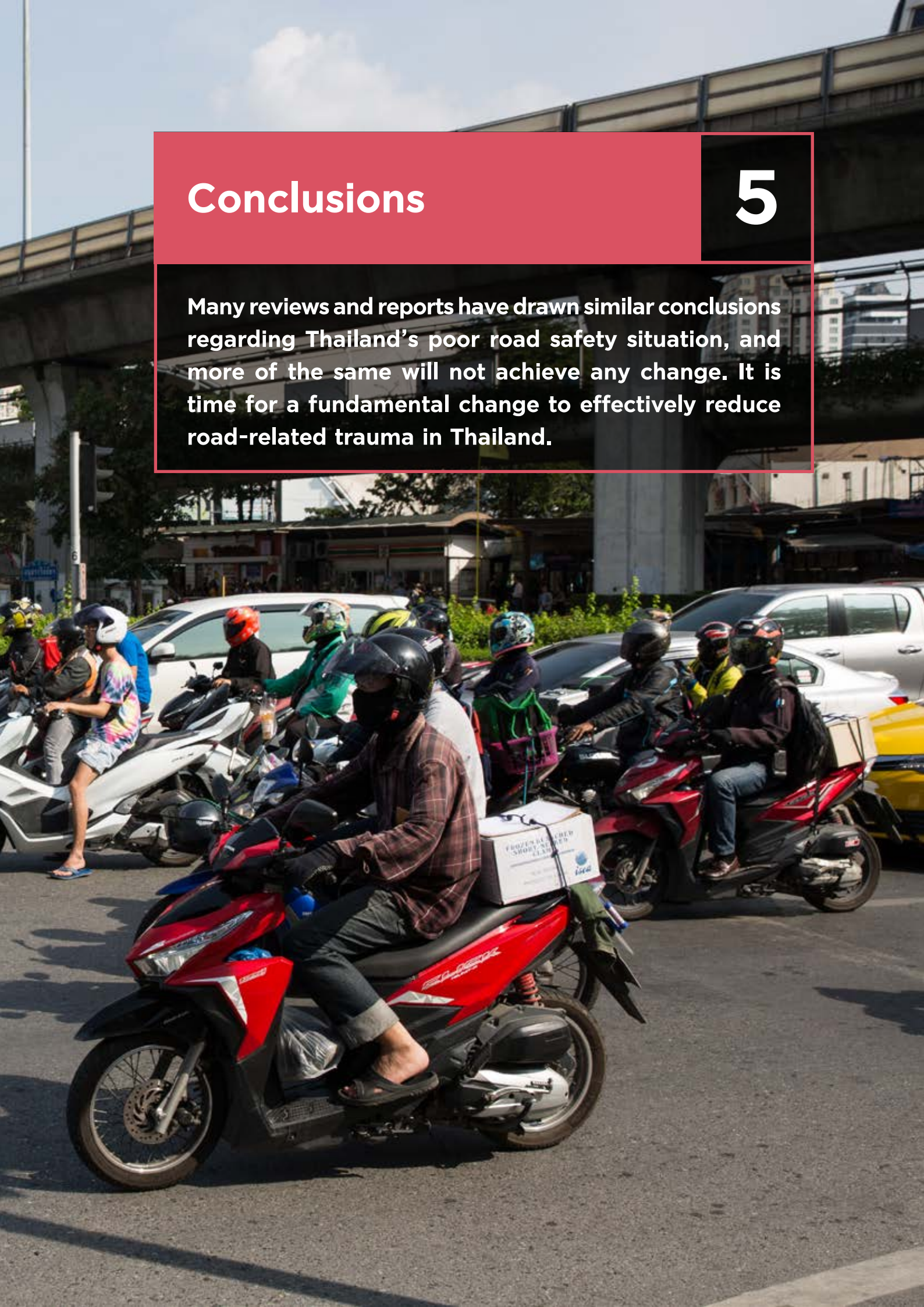
This would be greatly facilitated by the establishment of an independent international group comprising a multi-disciplinary group of road safety experts willing to provide advice across all aspects of the Safe System approach. This group should also work closely with the lead agency to provide ongoing and sustained mentoring, coaching training, and twinning for all levels of government, NGOs and research institutes. This group should work closely with government departments until there is a clear demonstrated commitment to road safety in Thailand and that effective and sustainable changes are being made. In addition, the impact of training should be constantly tracked and evaluated, not only by the number and skill level of participants, but also in the number and quality of road safety-oriented programs and projects instigated.

[30] MARS = Measurable, Achievable, Relevant and Sustainable.

Conclusions

5

Many reviews and reports have drawn similar conclusions regarding Thailand's poor road safety situation, and more of the same will not achieve any change. It is time for a fundamental change to effectively reduce road-related trauma in Thailand.



5. Conclusions

Many reviews and reports have drawn similar conclusions regarding Thailand's poor road safety situation, and more of the same will not achieve any change. It is time for a fundamental change to effectively reduce road-related trauma in Thailand.

It is enforcement and the collaboration practices between agencies that need an urgent change if the country is to be successful in significantly and sustainably reducing the number of road fatalities and injuries. Without a clear leadership agent, inter-agency coordination and allocation of responsibilities and accountability, the adoption of better (and ultimately best) practices and therefore better road safety outcomes will continue to be hampered.

Additionally, the national plan to achieve the 12 Voluntary Global Performance Targets on Road Safety should consider Thailand's unique context, ensuring government agencies are held accountable for implementing road safety improvements, and their progress constantly measured. It is vital to first strengthen the high-level commitment to road safety (conceptually and financially) in which Thailand currently has gaps to facilitate operationalisation of the more specific technical activities.

This is the time to create a system of action to make significant progress to reducing death and serious injury on Thai roads. This requires mechanisms to be put into place for the government to co-create a set of actions, commit resources that deliver effective results, foster inter-agency partnerships and increase road safety leadership and technical capacity.

References 6

Accident Research Centre of Thailand, ThaiRoads Foundation and Thailand Accident Research Centre, Asian Institute of Technology. The Road Accident Situation in Thailand 2016-2017. Available here http://resource.thaihealth.or.th/library/hot/17714 In Thai.

Kaewpramkusol, R., Senior, K., Chenhall, R., Nanthamongkolchai, S., 2019. Young Thai People's Exposure to Alcohol Portrayals in Society and the Media: A Qualitative Study for Policy Implications. International Journal of Behavioural Medicine 26, pp. 266-277.

Newstead, S.V., and Diamantopoulou, K., 2010. A proposed framework for evaluation of road safety strategy outcomes. Proceedings of the Australasian Road Safety Research, Policing and Education Conference. 31 August to 3 September, Canberra. Available here: https://acrs.org.au/article/a-proposed-framework-for-evaluation-of-road-safety-strategy-outcomes/

Enhanced Regional European Union – Association of South East Asian Nations Dialogue Instrument E READI), 2019. Road Transport Dialogue: Gap Analysis Study. In press.

Johnston I., 2010. Beyond "best practice" Road Safety Thinking and Systems Management - A case for culture change research. Safety Science. Volume 48. Pages 1175-1181. Available here: https://www.sciencedirect.com/science/article/pii/S0925753509002148

Jantarason, V., 2005. The Expansion of Government Agencies in Thai Government Management System. In Thai.

Kaewpramkusol, Ratchakorn et al. 2018. A qualitative exploration of the Thai alcohol policy in regulating alcohol industry's marketing strategies and commercial activities. https://doi.org/10.1111/dar.12885

Kanitpong Kunnawee, et al. Speed Management strategies and drivers attitudes in Thailand. International Association of Traffic and Safety Sciences. Volume 37, issue 1, pages 39-48. 2013. Available here: https://www.sciencedirect.com/science/article/pii/S0386111213000022

Leechawengwongs, M., undated. Drowsy Driving and Automobile Crashes. Available here: http://www.thaiauto.or.th/2012/news/news-detail.asp?news_id=3165

Muhlrad, N., 2009. Road Safety Management Systems: A comprehensive diagnosis method adaptable to Low and Middle Income Countries. Available here: https://www.ifsttar.fr/fileadmin/user_upload/editions/inrets/Syntheses/Syntheses_INRETS_S59.pdf

Order of the National council for Peace and Order No. 14/2560, 2017. Available here: http://origin.searo.who.int/thailand/order-of-ncpo-14_2560.pdf

Prime Minister's Office, 2011. Order for the Prevention and Reduction of Road Accidents.

Ratanavaraha Vatanavongs, Jomnonkwao Sajjakaj. Community participation and behavioural changes of helmet use in Thailand. Transport Policy. Volume 25. Pages 111 – 118. 2013. Available here: https://www.sciencedirect.com/science/article/abs/pii/S0967070X12001667

Riyapan Sattha, et al. Outcomes of emergency medical service usage in severe road traffic injury during Thai holidays. US National Library of Medicine National Institutes of Health. 2018. Available here: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5851498/

Road Safety Directing Center. 2019. Thailand Road Safety Master Plan, 2018-2021. Available here: http://www.disaster.go.th/upload/download/file_attach/5d70d17634aa9.pdf. In Thai.

Siviroj Penprapa, et al. Helmet use and associated factors among Thai motorcyclists during Songkran Festival. US National Library of Medicine National Institutes of Health. 2012. Available here: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3499868/

Taekratok, T., Vedrasco, L., Arayawongchai, K., 2016. Strengthening Legislation for Improved Road Safety in Thailand. BMJ Injury Prevention 22, A154-A155. Available here: https://injuryprevention.bmj.com/content/22/Suppl_2/A154.3.abstract

Varhelyi, A., 2016. Road Safety Management - The Need for a Systematic Approach. The Open Transportation Journal 10, pp. 137-155. World Health Organization (WHO). 2004. World Report on Traffic Injury Prevention. Available here: https://www.qscience.com/content/journals/10.5339/jlghs.2015.itma.112

World Health Organization (WHO), 2016. Road Safety Institutional and Legal Assessment Thailand. Available here: http://origin.searo.who.int/thailand/areas/road-safety/en/

World Health Organization (WHO). 2017. Discussion Paper: Developing indicators for voluntary global performance targets for road safety risk factors and service delivery mechanisms. Available here: https://www.who.int/violence_injury_prevention/road_traffic/Discussion-Paper-on-Proposed-Indicators.pdf?ua=1

World Health Organization (WHO). 2018. Global Status Report on Road Safety. Available here: https://www.who.int/violence_injury_prevention/road_safety_status/2018/en/

Appendix

Appendix A: List of participants at the Consultation Meeting (18 November 2019)

The consultation meeting for the draft report

"Review of Thailand's status against voluntary global targets for road safety risk factors and service delivery mechanism"

supported by the World Health Organization Country Office for Thailand

in partnership with the Royal Thai Government-WHO Country Cooperation Strategy on Road Safety

18 November 2019, Sukosol Hotel, Bangkok

Ministry of Interior

Mr Nipon Bunyamanee	Deputy Minister of Interior

The Office of Permanent Secretary, Ministry of Interior

Ms Ornuma Worasan	Director, Foreign Affairs Division

Department of Disaster Prevention and Mitigation, Ministry of Interior

Ms Kavita Vajakij	Plan and Policy Analyst, Senior Professional Level
Mr Kasirin Trintrakul	Human Resource Officer, Professional Level
Mr Natchanont Sonprasert	Inspector

The Office of the Permanent Secretary, Ministry of Transport

Mr Adisorn Kasempannarai	Computer Technical officer, Senior Professional Level, Transport and Traffic Information technology Center

The Office of Transport and Traffic Policy and Planning, Ministry of Transport

Mr Athibhu Chitranukroh	Director, Bureau of Safety Planning
Ms Usanisa Jikyong	Plan and Policy Analyst, Professional Level, Bureau of Safety Planning

Department of Land Transport, Ministry of Transport

Mrs Watinee Suwampong	Land Transport Welfare Bureau Transport Technical Officer, Special Expert Level
Ms Nisakorn Chartsiri	Land Transport Welfare Bureau Transport Technical Officer, Senior Professional Level

Ms Sineewan Wicha	Land Transport Welfare Bureau Transport Technical Officer, Practitioner Level
Ms Pannapraporn Pileuk	Land Transport Welfare Bureau Transport Technical Officer, Practitioner Level
ML Kiratisit Chayangkoon	Automotive Engineering Bureau Transport Technical Officer, Professional Level
Mrs Tippawan Pisarnpiti	Automotive Engineering Bureau Mechanical Engineer, Operational Level
Mrs Supa Chotngam	Director, Legal Affairs Bureau
Mr Teetach Chuchartchaikulkarn	Legal Officer, Legal Affairs Bureau

Department of Highways, Ministry of Transport

Dr Suebpong Paisalwattana	Director, Bureau of Highway Safety
Mr Songrit Chayanan	Deputy Director, Bureau of Highway Safety
Mr Bhanitiz Aursudkig, PhD	Civil Engineer, Senior Professional Level, Bureau of Highway Safety
Mr Premwut Jantathanawong	Civil Engineer, Expert Level, Bureau of Highway Safety

Department of Rural Roads, Ministry of Transport

Mr Chakree Bamrungwong, PhD	Director, Office of Road Safety Audit
Mr Kaiwan Wattana, PhD	Civil Engineer, Senior Professional Level, Office of Road Safety Audit
Mr Santipap Siriyong	Civil Engineer, Professional Level, Bureau of Traffic Safety
Mr Khajonsak Jermprapai	Civil Engineer, Professional Level, Bureau of Traffic Safety

The Royal Thai Police

Pol Maj Gen Eakkarak Limsunggas	Deputy Commissioner of Police Education Bureau
Pol Col Ekkarach Limsungkas	Deputy Commander of Highway Police Division
Pol Col Suriyan Winijmontri	Superintendent, Traffic Group, Royal Thai Police Strategy
Pol Col Surasak Laohapiboonkun	Police Education Bureau
Pol Lt Col Napaphan Lertlak	Deputy Superintendent, Traffic Group

Department of Disease Control, Ministry of Public Health

Dr Pansak Asavawongkasem	Medical Physician, Expert Level, Division of Injury Prevention
Mr Rangsun Limkijprasert	Public Health Technical Officer, Practitioner Level, Division of Injury Prevention

The Office of Permanent Secretary, Ministry of Public Health

Dr Alisa Yanasarn	Deputy Director, Public Health Emergency Response Division
Ms Nittaya Kanitsarn	Public Health Technical Officer, Public Health Emergency Response Division
Ms Pornsuda Kamlueang	Public Health Technical Officer, Public Health Emergency Response Division

National Institute for Emergency Public Health Emergency (NIEM)

Dr Sanchai Chasombat	Deputy Secretary General
Ms Uraporn Siriwachayaporn	

Thai Industrial Standards Institute, Ministry of Industry

Mr Waranont Maneerat	Standards Officer, Expert Level
Mr Ratchata Amornpattanawat	Standards Officer, Practitioner Level

The Standing Committee on Transport of the House of Representatives

Mr Nikorn Chamnong	Chair of the Standing Sub-Committee on Road Safety

Thai Health Promotion Foundation

Dr Weraphan Suphanchaimat	Second Vice Chairman, Thai Health Promotion Foundation Board

Thailand Road Safety Fund, Department of Land Transport

Dr Anuchar Sethasathien	Advisor

Road Safety Policy Foundation

Dr Thanapong Jinvong	Secretary General
Ms Jintana Manorotkul	Assistant to Secretary General

ThaiRoads Foundation

Prof Dr Paiboon Suriyawongpaisal	President

Asian Transportation Research Society (ATRANS)

Dr Tuenjai Fukuda	Secretary General

Chulalongkorn University

Assoc Prof Kasem Choocharukul, PhD	Manager, iRAP Center of Excellence
Mr Krirkrit Srirungwikrai	Researcher

Naresuan University

Asst Prof Thaweesak Taekeatok, PhD	Faculty of Engineering, Civil Engineering

Thailand Development Research Institute (TDRI)

Mr Sumet Ongkittikul, PhD	Director, Transport and Logistics Policy
Ms Nichamon Thongphat	Researcher, Transport and Logistics Policy

Thailand Accident Research Center (TARC)

Assoc Prof Kunnawee Kanitpong, PhD	Director

King Mongkut's University of Technology North Bangkok

Assoc Prof Saiprasit Koetniyom, PhD	Lecturer and Researcher of Automotive Safety and Assessment Engineering

Don't Drink Drunk Foundation

Dr Tairjing Siriphanich	Secretary General

WHO-Royal Thai Government Country Cooperation Strategy on Road Safety

Dr Wiwat Seetamanotch	Program Manager
Dr Vorasith Sornsrivichai	Team member
Ms Pennapha Pornsupikul	Team member
Ms Surangsri Seetamanotch	Team member

WHO Collaborating Centre for Injury Prevention and Safety Promotion, Khon Kaen Regional Hospital

Dr Witaya Chadbunchachai	Director

Monash University Accident Research Centre (MUARC)

Assoc Prof Jennie Oxley, PhD	Associate Director, Graduate Research
Mr David Logan, PhD	Senior Research Fellow

World Health Organization Country Office for Thailand

Dr Daniel Kertesz	WHO Representative to Thailand
Dr Liviu Vedrasco	Programme Officer
Ms Rattanaporn Tangthanaseth	National Professional Officer (Public Health)
Ms Benja Sae-Seai	Executive Assistant (Programme)

Appendix B: WHO Global Road Safety Status Report – Thailand

Thailand

Population: 68 863 512 | Income group: Middle | Gross national income per capita: US$ 5 640

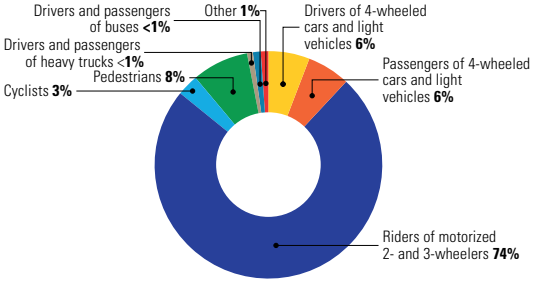
INSTITUTIONAL FRAMEWORK	
Lead agency	Department of Disaster Prevention and Mitigation, Ministry of Interior
Funded in national budget	Yes
National road safety strategy	Yes
Funding to implement strategy	Partially funded
Fatality reduction target	≤ 10 deaths per 100 000 population (2010-2020)
SAFER ROADS AND MOBILITY	
Audits or star rating required for new road infrastructure	Partial
Design standards for the safety of pedestrians / cyclists	Partial
Inspections / star rating of existing roads	Yes
Investments to upgrade high risk locations	Yes
Policies & investment in urban public transport	Yes
SAFER VEHICLES	
Total registered vehicles for 31 Dec 2016	37 338 139
Cars and 4-wheeled light vehicles	15 003 774
Motorized 2- and 3-wheelers	20 497 296
Heavy trucks	1 055 717
Buses	157 799
Other	623 553
Vehicle standards applied (UNECE WP.29)	
Frontal impact standard	No
Electronic stability control	No [a]
Pedestrian protection	Yes
Motorcycle anti-lock braking system	No
POST-CRASH CARE	
National emergency care access number	National, single number
Trauma registry	Some facilities
Formal certification for prehospital providers	Yes
National assessment of emergency care systems	Yes
DATA	
Reported road traffic fatalities (2016)	21 745 [b] (79% M, 21% F)
WHO estimated road traffic fatalities (2016)	22 491 (95% CI 20 265 - 24 717)
WHO estimated rate per 100 000 population (2016)	32.7

[a] Thailand launched an ECO-CAR program with tax incentives to cars with ESC but is not mandatory for all cars
[b] Data Integration: (1) Death registration validated with Medical Certification of Cause of Death from hospitals; (2) Royal Thai Police; (3) Road Accident Victims Protection Company Limited. Unlimited time period following crash

SAFER ROAD USERS	
National speed limit law	Yes
Max urban speed limit	80 km/h
Max rural speed limit	90 km/h
Max motorway speed limit	120 km/h
Local authorities can modify limits	No
Enforcement	0 1 2 3 4 (5) 6 7 8 9 10
Predominant type of enforcement	Manual
National drink-driving law	Yes
BAC limit – general population	≤ 0.05 g/dl
BAC limit – young or novice drivers	≤ 0.02 g/dl
Random breath testing carried out	Yes [c]
Testing carried out in case of fatal crash	Some drivers tested
Enforcement	0 1 2 3 4 5 (6) 7 8 9 10
% road traffic deaths involving alcohol	14% [d]
National motorcycle helmet law	Yes
Applies to drivers and passengers	Yes
Helmet fastening required	Yes
Helmet standard referred to and/or specified	Yes
Children passengers on motorcycles	Not restricted
Enforcement	0 1 2 3 4 5 (6) 7 8 9 10
Helmet wearing rate	51% Drivers [e], 20% Passengers [e]
National seat-belt law	Yes
Applies to front and rear seat occupants	Yes
Enforcement	0 1 2 3 4 5 (6) 7 8 9 10
Seat-belt wearing rate	58% Drivers [f], 40% Front seats [f]
National child restraint law	No
Children seated in front seat	Not restricted
Child restraint required	–
Child restraint standard referred to and/or specified	–
Enforcement	–
% children using child restraints	–
National law on mobile phone use while driving	Yes
Ban on hand-held mobile phone use	Yes
Ban on hands-free mobile phone use	No
National drug-driving law	Yes

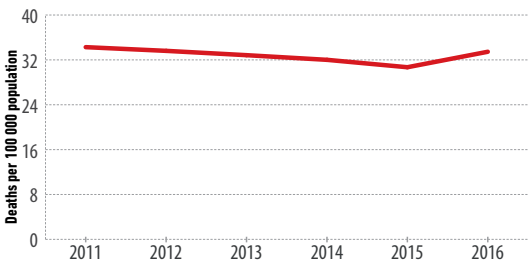
[c] Legislation requires probable cause to test drivers
[d] 2016, Injury Surveillance System across 33 hospital sentinel sites
[e] 2015, Survey of ThaiRoads Foundation
[f] 2011, Survey of ThaiRoads Foundation

Deaths by road user category



Source: 2016, Injury surveillance system, Bureau of Epidemiology, Department of Disease Control, Ministry of Public Health

Trends in reported road traffic deaths



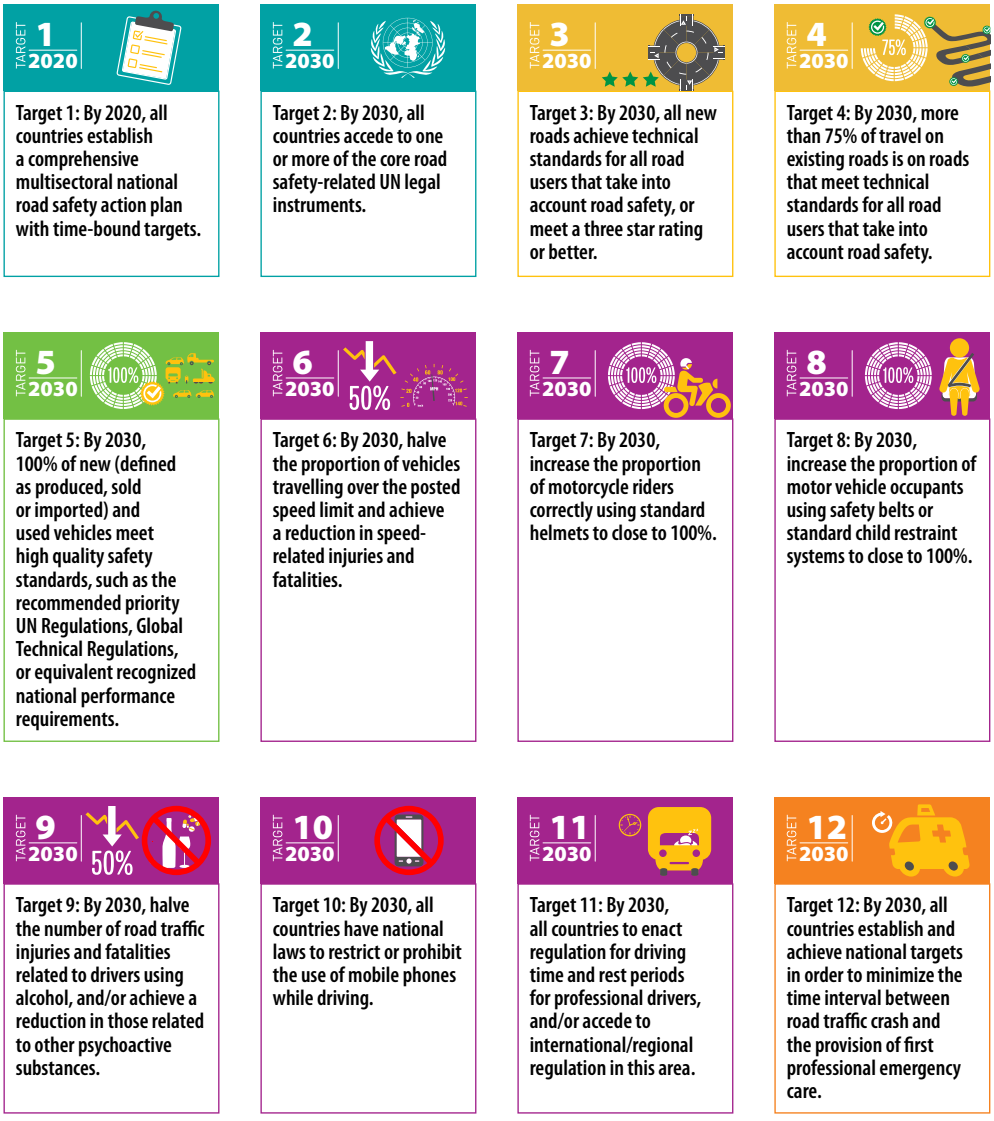
Source: Data Integration: (1) Death registration validated with Medical Certification of Cause of Death from hospitals; (2) Royal Thai Police; (3) Road Accident Victims Protection Company Limited

Legislative review conducted by WHO. Vehicle safety data from UNECE WP29. Other data collected by questionnaire and cleared by Ministry of Public Health.

Appendix C: Interview guiding questions

- High level goals and strategies
  - What are your roles and responsibilities in road safety?
  - With regard to the national voluntary goals, which targets do you have responsibility for?
  - What are your goals/strategies for addressing the safety of [your area]?
  - Have your strategies been effective in achieving your goals?
  - Have you made any changes to any of these strategies along the way?
- Program implementation
  - What key programs do you have?
  - Have they been implemented as intended?
  - To what extent have programs addressed your goals and operated effectively?
  - What factors (good and bad) have affected implementation?
  - Have you monitored and evaluated the programs? What data do you collect or need?
- Future activities
  - What are your plans for the future?
  - Which programs should continue?
  - Which of these might scale up?
  - What resources are required to continue or improve your programs?
- Overall
  - What have been the key successes in the decade of action so far?
  - What has held back progress in the decade?

Appendix D: Global Road Safety Performance Targets



Following the request of the United Nations General Assembly, on November 22, 2017 Member States reached consensus on 12 global road safety performance targets. For more information: http://www.who.int/violence_injury_prevention/road_traffic/road-safety-targets/en/

World Health Organization
Country Office for Thailand

88/20 Permanent Secretary Building 3, 4th Floor,
Ministry of Public Health
Tiwanon Road, Talad Kwan, Mueang, Nonthaburi 11000
Tel: +66 (0) 2547 0100, Fax: +66 (0) 2591 8199
E-mail: setharegistry@who.int
Website: https://www.who.int/thailand
Facebook: WHOThailand
Twitter: WHOThailand

World Health Organization
Thailand

World Health Organization Country Office for Thailand
88/20 Permanent Secretary Building 3, 4th Floor, Ministry of Public Health,
Tiwanon Road, Talad Kwan, Mueang, Nonthaburi 11000
Tel: +66 (0) 2547 0100, Fax: +66 (0) 2591 8199
E-mail: setharegistry@who.int | Website: https://www.who.int/thailand
Facebook: WHOThailand | Twitter: WHOThailand