Strategies to Tackle the Issue of Seat Belt and Child Restraint Use for Road Safety in the Asia-Pacific Region: Implementation Framework

UNITED NATIONS
ESCAP
Economic and Social Commission for Asia and the Pacific

The Economic and Social Commission for Asia and the Pacific (ESCAP) is the most inclusive intergovernmental platform in the Asia-Pacific region. The Commission promotes cooperation among its 53 member States and 9 associate members in pursuit of solutions to sustainable development challenges. ESCAP is one of the five regional commissions of the United Nations. The ESCAP secretariat supports inclusive, resilient and sustainable development in the region by generating action-oriented knowledge, and by providing technical assistance and capacity-building services in support of national development objectives, regional agreements and the implementation of the 2030 Agenda for Sustainable Development.

Strategies to Tackle the Issue of Seat Belt and Child Restraint Use for Road Safety in the Asia-Pacific Region: Implementation Framework

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The Strategies to Tackle the Issue of Seat Belt and Child Restraint Use for Road Safety in the Asia-Pacific Region: Implementation Framework report was prepared by Maria Segui-Gomez, PhD, international consultant and Haocheng Hong, Yuxuan Duan, Savannah Liss,Keyan Bai, Kamol Debnath Dip, interns in the Transport Division of ESCAP.

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Abbreviations

ACA — Australian Consumers' Association

APRSO -Asian Pacific Road Safety Observatory

ASEAN — Association of Southeast Asian Nations

CREP — Child Restraint Evaluation Program

ESCAP — Economic and Social Commission for Asia and the Pacific

ESRA —E-Survey on Road Users Attitudes

GDP — Gross Domestic Product

GNP — Gross National Product

GRSP — Global Road Safety Partnership

IRTAD – International Road Traffic Accident Data (within OECDE´s ITF)

MIROS — Malaysian Institute of Road Safety Research

NCAP — New Car Assessment Programme

NGO — Non-Governmental Organizations

NRMA— National Roads and Motorists Association

RTA— Roads and Traffic Authority

RTC— Road traffic collision

RTDI — road traffic death and injury

SBR — Seat Belt Reminder

SDG — Sustainable Development Goal

UK —United Kingdom of Britain and Northern Ireland

UNECE — United Nations Economic Commission for Europe

UNICEF — United Nations Children's Fund

USA –United States of America

WHO — World Health Organization

WHO GRS -World Health Organization Global Status Report

Executive Summary

Creating safe and inclusive road transport has become a matter of global concern, as the human and economic burden that road crashes produce severely temper sustainable development. For members of the Economic and Social Commission for Asia and the Pacific (ESCAP), road safety has become a major challenge. The UN GA declaration of the Decade of Action (2011-2020) led to some progress regarding better legislation and regulation, and more health care access for road victims. However, these improvements have not occurred at a fast enough rate and crashes persist as a major public health and economic problem. In 2016, road crashes in ESCAP member countries were 4% larger than in 2010. In fact, road deaths increased in all low-income ESCAP member countries and in most of the middle-income ones. Overall, ESCAP road deaths in 2016 amounted to 62% of all global road deaths. If present trends of population growth persist and the motorization of transportation fleet maintains its trends too, road crashes will continue to rise dramatically over the next decade, with the greatest impact falling on the most vulnerable, including children. The recently declared second Decade of Action (2021-2030) may end without having reached the 50% reduction target of fatal and non-fatal victims.

Approximately 40% of fatal road victims in ESCAP are occupants of 4-wheeled vehicles. Even though seat belt usage data in lower-income ESCAP countries are scarce, reported rates rarely exceed 60% for drivers or 30% for rear-seat occupants, whilst the data on child restraint use are even harder to identify. Thus, restraint usage rates are far from the UN Performance Target (No. 8) of 100%. In this report, the focus is set on improving seat belt and child restraint use, particularly among low- and middle-income ESCAP member countries. Given the number of 4-wheeled vehicle occupants who die in crashes, the modest use of seat belts, and the high effectiveness of seat belts, a conservative estimate points to between 100,000 and 200,000 lives saved, that is a 25% fatality reduction overall if restraint use were to reach 100%.

The above-mentioned restraint use rates are related to the fact that 41 of ESCAP member countries do not have legislation on seat belt performance standards and 46 do not have child restraint standards. Nine countries still lack legislation mandating safety belt use and eleven of the countries who have such legislation do not mandate it in the rear seats of the vehicle. Twenty-four countries do not have mandatory child restraint laws. When laws exist, the scant data points to very limited enforcement. Whether and how to best enact, amend, and enforce these laws and regulations is the challenge.

Several major challenges were identified regarding seat belt and child restraint use for motor vehicle passengers. These challenges included: limitations on the existing vehicle fleet and the availability of seat belts in 4-wheeled vehicles; limitations on the safety performance requirements of seat belts in vehicles entering the fleet and child restraints sold in the region; limitations and improper seat belt and child restraint usage; challenges and barriers with regard to the access to child restraints; inexistent or insufficient legislation to mandate use of seat belts and child restraints; and inefficient tracking and detection system and lack of proper enforcement, including inoperative vehicle- and driver-registration registries to reduce the need of manual enforcement. None of these challenges is unsurmountable as there is ample

experience in addressing them from other countries. Only relatively minor adjustments may be needed to otherwise standard good practices. The most relevant challenges, though, relate to generate social demand and political attention to this issue so that all technical steps can be appropriately addressed. The new Global Plan (2021-2030) calls for road safety culture to be brought to the centre of the mobility system and this should help reducing their burden.

This report also identified opportunities that can help address seat belt and child restraint use in the Asia-Pacific region: (1) legislation and enforcement; (2) vehicle and product renewal incentives; (3) education and awareness campaigns; (4) data collection; and (5) social demand for safety and political appetite to address it. An implementation framework is also provided to help guide the execution of these recommendations.

1. Introduction

1.1 Background

Road traffic crashes kill approximately 1.35 million people all over the world each year, which amounts to around 3,700 deaths a day, while causing millions of non-fatal injuries every year. They are the eighth leading cause of death for people of all ages and the leading cause of death for children and young adults aged 5–29 years, as shown in Table 1. According to the WHO, they are predicted to become the fifth leading cause of death by 2030. In addition to human suffering, they result in substantial economic losses and place a significant burden on the victims, their families, and communities. Road traffic crashes are a major public health concern and a development threat.

Table 1. Leading causes of death worldwide, all ages, 2016

Rank	Cause	% of total deaths
	All Causes	
1	Ischemic heart disease	16.6
2	Stroke	10.2
3	Chronic obstructive pulmonary disease	5.4
4	Lower respiratory infections	5.2
5	Alzheimer's disease and other dementias	3.5
6	Trachea, bronchus, lung cancers	3.0
7	Diabetes mellitus	2.8
8	Road traffic injuries	2.5
9	Diarrheal diseases	2.4
10	Tuberculosis	0.2

Source: Global Status Report on Road Safety 2018 by the World Health Organization.

The impact of road traffic crashes is higher among vulnerable road users and those living in low- and middle-income countries, where the number of deaths continue to rise due to the increase in motorized transportation. In 2016, although low- and middle-income countries only account for 60% of the world's registered motor vehicles and 85% of the world's population, they registered 93% of road traffic deaths. The road traffic death rate in 2016 was 8.3 per 100,000 in high-income countries, and more than 3 times higher in low-income countries (Global Status Report of Road Safety 2018 by the World Health Organization).

While road safety has received a great deal of attention over the past decade, there are no reported or observed reductions in road traffic crashes in lower-income countries. In fact, between 2000 and 2016, road traffic deaths increased by 17%. Between 2013 and 2016, no low-income country reported reductions in the number of road traffic deaths, while 27 reported

increases in deaths. Among middle-income countries, 23 reported decreases, whereas 60 reported increases.

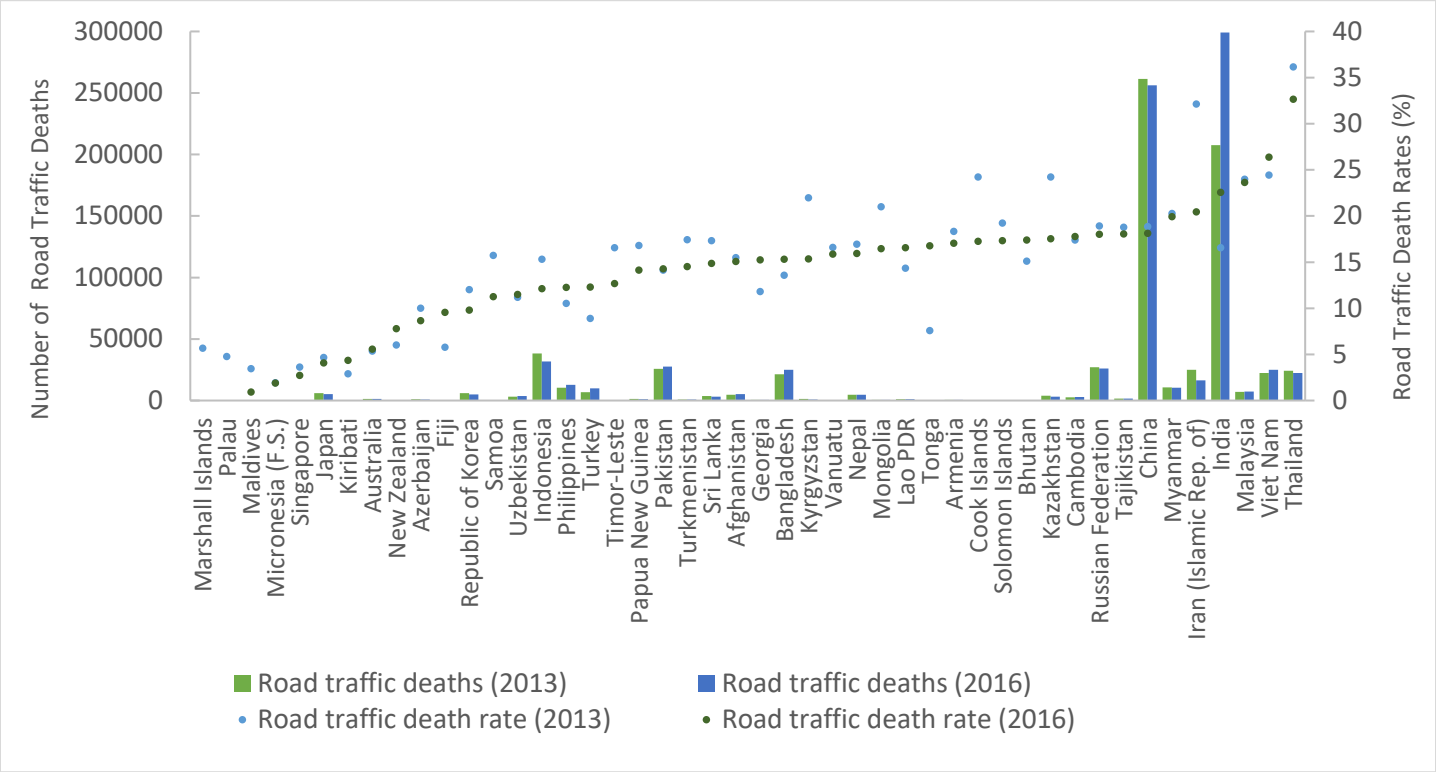
The economic cost of road traffic crashes is high. Road traffic injuries can cost 1% of the gross national product (GNP) in low-income countries and 1.5% in middle-income countries, which is more than the total development aid received by these countries. The direct economic costs of global road traffic crashes have been estimated at approximately US$ 518 billion, with estimated costs of road traffic crashes in low-income countries amounting to US$ 65 billion. It is possible that the estimated cost for low- and middle-income countries is significantly underestimated. Data from four ESCAP member countries (China, India, Philippines, and Thailand) concluded that over a period of 24 years, welfare gains equivalent to 6% to 32% of the national GDP can be secured from reducing 50% road deaths and injuries (World Bank (2017)).

More attention has been paid to road safety over the last ten years and governments are increasingly being urged to implement proper interventions. In 2010, the United Nations General Assembly proclaimed the Decade of Action for Road Safety 2011-2020 with the goal of stabilizing and then reducing the forecasted level of road traffic fatalities around the world. This goal was further strengthened through a series of sustainable development goals (SDGs) with specific targets related to road safety. This meant incorporating in the 2030 Development Agenda a plan to cut in half the number of global deaths and injuries from road traffic crashes by 2030 (SDG 3.6) while providing access to safe, affordable, accessible, and sustainable transport systems for all (SDG 11.2) (Appendix B). In 2017, UN member states, with the support of the World Health Organization (WHO), the United Nations Economic Commission for Europe (UNECE), and UNICEF adopted 12 Voluntary Global Performance Targets for Road Safety Risk Factors and Service Delivery Mechanisms. These targets and mechanisms will help guide action and ensure measurement of road safety progress at the national and global levels. A complete list of these 12 targets can be found in Appendix C.

1.2 Road traffic deaths trends in ESCAP member countries

Road safety in the ESCAP region has become a serious and urgent matter due to the size of the population and the increasing number of motor vehicles. Out of the 60 ESCAP member or associate member countries, 44 reported to WHO for the 2018 global status report and accounted for approximately 62% of the global road traffic deaths in 2016, with the South and South-West Asia sub-region, including mostly low- and middle-income countries, being the most burdened by these deaths (FIA HLP (2019)). More specifically, upper-middle- and lower-income ESCAP countries account for 93% of the region's population and suffer more than 97% of road traffic deaths. This clearly sets a focus on these countries for intervention (UNESCAP (2019)).

Figure 1. Selected ESCAP road traffic deaths and death rates, 2013-2016



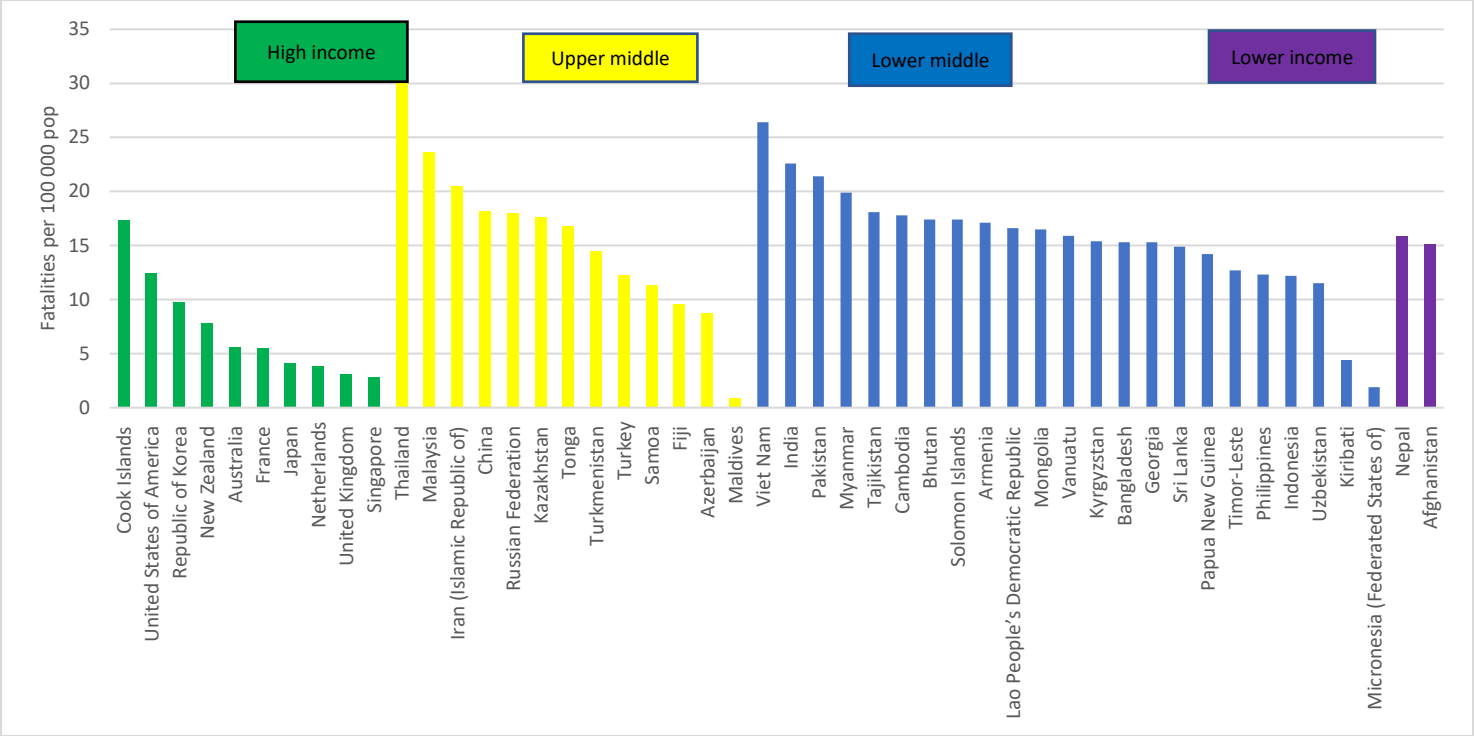
Source: Adapted from the Global Status Report on Road Safety 2018 by the World Health Organization.

The total number of road traffic deaths estimated in ESCAP member countries increased from 733,541 to 812,995 between 2013 and 2016, with road traffic deaths continuing an upward trend. This is a 9.7% increase in road traffic deaths in only 3 years. If the numbers continue to move in this direction, the estimated number of road traffic deaths in ESCAP member countries will continue to rise.

The figure below portrays the range of death rates by income level. There is a stark contrast between high-income and all-other incomes, with average fatality rates per 100,000 population in high-, upper-middle, lower-middle, and low-income levels of 7.2, 15.7, 15.5 and 15.5, respectively. Even death rate ranges are remarkably different, particularly if outliers such as high income Cook Islands (17.3), or lower-income Maldives (0.9), Micronesia (1.9), or Kiribati (4.4) are not considered in the calculations. Death rates in high-income countries range from 2.8 (Singapore) to 12.4 (USA), whereas in upper-middle income countries they range from 8.7 (Azerbaijan) to a high 32.7 (Thailand).

Progress in reducing road traffic deaths has not been consistent across all regions and income levels in the Asia-Pacific region. Rapid increases in motorization, specifically two-wheeled motorization, without sufficient improvement in road safety legislation and enforcement, have led to increases in road traffic deaths and injuries.

Figure 2. Road fatality rates, selected ESCAP member countries, by income level, 2016.



Source: Global Status Report on Road Safety 2018 by the World Health Organization.

In fact, 2010 projections for 2020 forecasted an increase by 83% in low- and middle-income countries, where road traffic crashes are higher. The next Global Status Report is scheduled to be published in 2023, although 2020 data are unlikely to be reported, considering the unanticipated COVID-19 pandemic and its impact on mobility worldwide.

The ESCAP region has created recommendations to help improve road safety in Asia and the Pacific for Sustainable Transport Systems. These called upon member states and the secretariat to further strengthen international cooperation and knowledge-sharing on road safety at all levels (UNESCAP, (2020)). Active participation of members to strengthen efforts and collaboration in efforts to meet the road safety targets of the 2030 Agenda for Sustainable Development to improve road safety, is highly encouraged. All of this, however, relies on having enough accurate data to properly measure and monitor anything related to road safety (i.e., traffic deaths, injuries, crashes, etc.) and the interpretation of the data is a pre-requisite for accurate diagnoses of road safety issues. The support of ESCAP to the development of the Asia Pacific Road Safety Observatory (APRSO) (www.aprso.org) is testimony to this commitment.

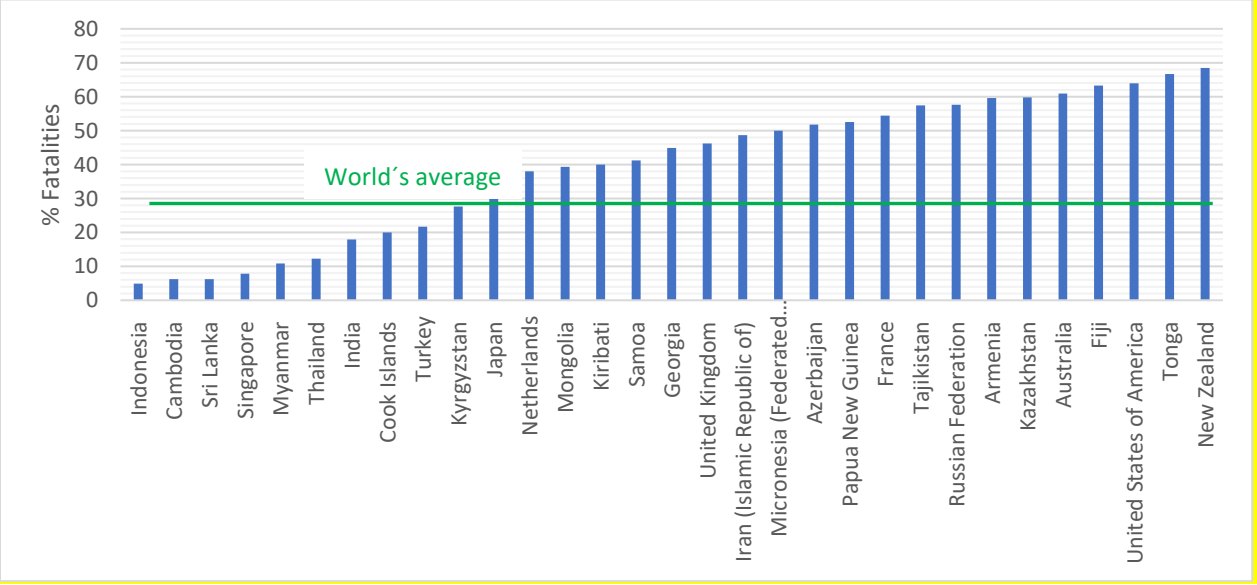
The following three sections aim to explain why seat belt and child restraint use should be a priority among ESCAP member countries. These sections include a description of the magnitude of the burden related to 4-wheeled fatal occupants and the extraordinary effectiveness of these safety devices. A direct consequence of these two powerful arguments is the recognition of seat belt and child restraint as one of the 12 UN Voluntary Performance Targets on its own, specifically, Target 8, that calls for increases in the proportion of motor vehicle occupants using

seat belts or standard child restraint systems to close to 100% by 2030. (For a full listing of the Targets, please see Appendix C.)

1.3 Why are seat belts and child restraints important?

Seat belts and child restraints are one of the most efficient road safety devices available, as the following sections will prove. However, they only work for occupants inside vehicles such as passenger cars, minivans, trucks, buses, and the like, as it is obvious. Thus, estimations of the overall impact of these safety devices on any given population will be determined by the population at risk. Unfortunately, how many of the road traffic victims worldwide are car occupants is a somewhat imprecise figure. Overall estimates published in the Global Status Report on Road Safety 2018 published by the World Health Organization state that 29% of fatal victims worldwide died as drivers or passengers of 4-wheeled vehicles, that is, some 390,000 deaths out of the estimated 1.35 million fatal cases. A careful review of these figures for ESCAP member countries reveals some interesting facts. For example, 17 countries, most of them middle-income countries did not facilitate the distribution of their fatalities per user type (Afghanistan, Bangladesh, Bhutan, China, Lao People's Democratic Republic, Malaysia, Maldives, Nepal, Pakistan, Philippines, Republic of Korea, Solomon Islands, Timor-Leste, Turkmenistan, Uzbekistan, Vanuatu, and Viet Nam). Among members reporting on fatal victim user type, values ranged from as low as 4.9% victims being occupants of 4-wheeled vehicles (Indonesia) to a high 68.5% (New Zealand). The average across countries was 39%, a percentage higher than the world´s average. Moreover, the percent of occupant victims was higher in high- and upper-middle income countries (44%) than in lower-middle countries (30%). The figure below illustrates the reported distributions as compared to the world´s average.

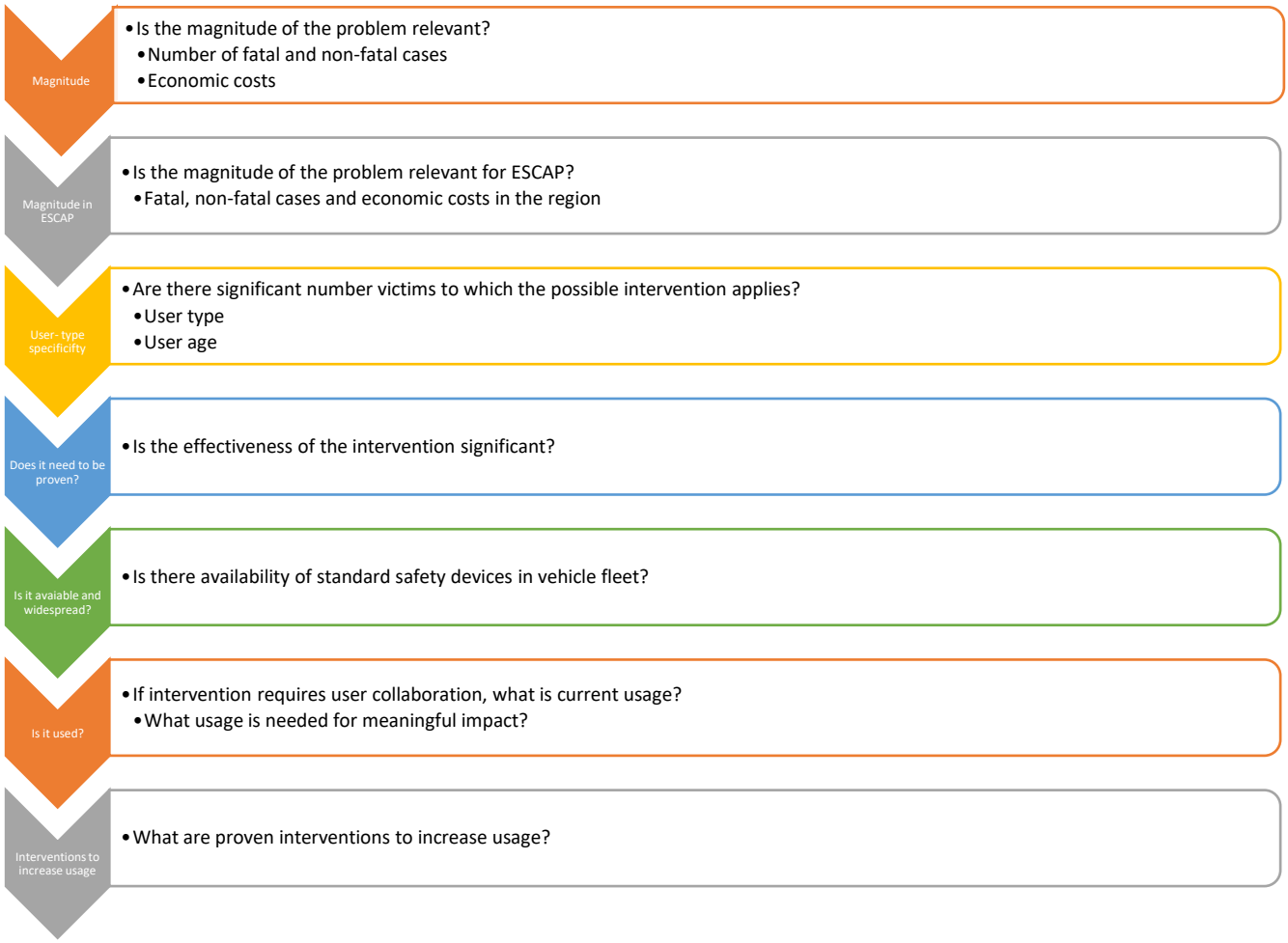
Figure 3. Percentage of fatal victims as occupants of 4-wheeled vehicles. Selected ESCAP member countries, 2016.



Source: Adapted from the Global Status Report on Road Safety 2018 by the World Health Organization.

A conservative calculation using these figures leads to a lower bound estimate of 326,420[1] fatal cases which could have benefitted from restraint systems in ESCAP member countries. Unfortunately, the data collected do not allow for age breakdowns to further distinguish the age of the victims, so that no further breakdown for seat belt- versus child restraint-eligible occupants can be done.

Figure 4. Decision-making sequence to determine worth of objective and strategies to follow.



Source: This study

1.4 Effectiveness of seat belts

Seat belts and child restraints are widely recognized vehicle safety devices. They are important measures to protect vehicle occupants from injury or even death during a crash. While vehicle crashes can never be totally prevented, the use of protective measures such as seat belts will help reduce the number of deaths and injuries during crashes. When a crash occurs, a car

[1] Estimated target population = 1.35 M deaths worldwide x 62% in ESCAP x 39% in 4-wheeled vehicles.

occupant without a seat belt will continue to move at the same speed at which the car was travelling before the collision. The occupant will be catapulted forward into the structure of the car, most likely into the steering wheel if they are driving or the dashboard if they are co-pilots, or into the back of the front seats if they are rear passengers. The risk of a front-seat occupant being killed in a frontal impact has been estimated to increase by about 75% if there is an unbelted passenger in the seat behind them. Even worse, unrestraint occupants can be ejected from the vehicle entirely, which increases the probability of sustaining serious injuries or dying. Wearing a seat belt, more specifically a three-point seat belt comprising a lap and a diagonal belt, helps keep the occupant fastened in place and moving at the same speed as the vehicle. In addition, seat belts help distribute the forces of a crash over the strongest parts of the human body (i.e., chest, hips, shoulders) (IRSA, (2016)).

The effectiveness of seat belts in reducing deaths and injuries in road traffic crashes has been substantially documented since 1960. Seat belts can save lives if worn and fitted correctly[2]. As it is shown in Table 2 using seat belts can reduce the probability of being killed by 40-50% for drivers and front-seat occupants and by about 25% for occupants in rear seats. The impact on serious injuries is almost similar, while the influence on less severe injuries is reduced by 20-30%. More detailed analyses indicate that seat belts are most effective in frontal impacts and in run-off-the-road crashes. Seat belts are an effective safety device to lower the risk and even prevent ejection during a crash. Thus, the use of seat belts by rear-seat passengers could not only reduce the likelihood and severity of injuries to themselves, but also to drivers and front-seat passengers.

Table 2. Effect of seat belt on the probability of personal injuries in all types of collisions.

Injury severity	**Percentage change in number of injuries**	
	Best estimate %	**95% confidence interval**
Drivers of light vehicles (private cars and vans)		
Killed	-50	(-55;-45)
Serious injuries	-45	(-50;-40)
Minor injuries	-25	(-30;-20)
All personal injuries	-28	(-33;-23)
Front-seat passengers in light vehicles (private cars and vans)		
Killed	-45	(-55;-25)
Serious injuries	-45	(-60;-30)
Minor injuries	-20	(-25;-15)
All personal injuries	-23	(-29;-17)

[2] For example, tucking the shoulder belt under the arm will lower the effectiveness of the system during a crash, as the upper body will bend forward at the lap causing the head to hit the inside of the vehicle (Transport Canada (2007)). Since the force of the crash is mostly isolated to the lap, the belt will press into the abdomen causing potentially fatal internal injuries.

Back-seat passengers in light vehicles (private cars)		
Killed	-25	(-35;-15)
Serious injuries	-25	(-40;-10)
Minor injuries	-20	(-35;-5)
All personal injuries	-21	(-35;-6)
Source: WHO (2009)		

Source: WHO (2009)

It is worth mentioning here that most published effectiveness studies are based on systems operating under UN vehicle safety standard regulations 14 and 16 or the USA Federal Motor Vehicle Safety Standards (FMVSS) 209.

1.5 Effectiveness of child restraints

While the three-point seat belt is one of the most effective measures to protect occupants from injury in the event of a crash, it is not designed for the geometry of smaller occupants. Like adult seat belts, child restraints are intended to protect a child during a road traffic crash by keeping them thoroughly secured to their seat. As with seat belts, the aim of child restraints in vehicles is to keep children firmly secured in their seat from being thrown against the interior or ejected from the vehicle because of a sudden collision or braking. The restraint must absorb the kinetic energy without injuring the child and must be easy to operate.

The effectiveness of child restraints in reducing injury and fatality rates in road crashes depends upon the type of seating position of the child. These devices must also be fitted and worn correctly. Child restraints are also effective in reducing injuries that can occur during non-crash events, such as a sudden stop, a swerving evasive manoeuvre or a door opening during vehicle movement.

There are several guidelines on the appropriate use of safety restraints. The effect of child restraints varies and highly depends on the type of restraint used. Children should be strapped in appropriate restraints according to their age, weight, or height. As a rule, child safety seat advocates recommend infant and convertible safety seats for children under the age of 4 and booster seats for children aged 4 until they fit in a seat belt, which is usually at the age of 8 or 9 (IRSA (2016)).

A review of the effectiveness of child restraints, shown in Table 4, compared the risk of injury to children in different seating positions in cars. It can be found that without child restraints, children who sit in the rear position have around 25% lower risk of being injured than children who sit in the front position. For children using restraints in both seating positions the risk in the rear is 15% lower than in the front. A child up to 4 years of age has a 50% lower risk of injury in a forward-facing child restraint and an 80% lower risk of injury in a rear-facing seat. This compares with an injury reduction of only 32% when an adult seat belt is worn. For children aged 5–9 years, child restraints reduce the risk of injury by 52%, whereas for seat belts alone the reduction is only 19%. For older children aged 10–14 years seat belts reduce injury by 46%.

As a summary, proper car seat use reduces the risk of death among infants (aged <1 year) by 71% and among toddlers (aged 1–4 years) by 54%. Booster seats also reduce the risk of serious injuries by 45% among children aged 4–8 years when compared with seat belt use only. An older child who occupies a booster seat will be 77% less likely to be injured in a road crash compared to an older child who does not utilize any safety device.

Like in the case of seat belts, it must be noted that these effectiveness estimates are derived from studies where the restraint systems conform to some international standards, most commonly UN regulation 44 or 129 and the USA FMVSS 213.

Table 3. Effects of child restraint on risk of injury in crashed passenger cars.

	Percentage change in risk of injury	
Type of restraint used	**Best estimate %**	**95% confidence interval %**
Restraining children aged 0-4 years in a forward-facing child restraint	-50	(-70; -30)
Restraining children aged 0-4 years in a rear-facing child restraint	-80	(-90; -70)
Restraining children aged 0-4 years in a seat belt only	-32	(-35; -29)
Restraining children aged 5-9 years in appropriate child restraint with seat belt	-52	(-69; -27)
Restraining children aged 5-9 years using seat belt only	-19	(-29; -7)
Source: WHO (2009)		

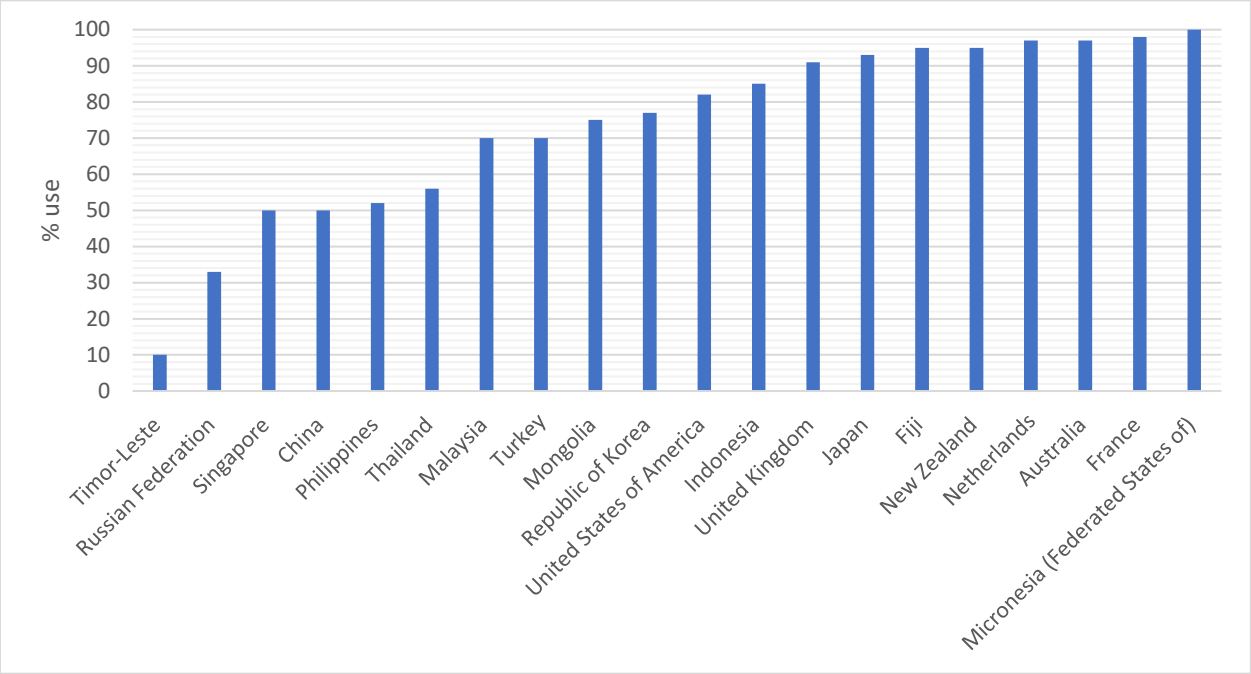
2. Seat Belt Use in ESCAP Member Countries

2.1 Seat belt usage

The technical effectiveness of seat belts is well researched and established. When worn and fitted correctly, seat belts save lives. Once seat belts have been installed in a vehicle, the next objective is to ensure that the vehicle occupants use them.

Yet, knowing seat belt use in ESCAP member countries is somewhat of a challenge. Only 20 member countries reported such information to WHO for their 2018 Global Status Report (see Table D.1 in Appendix). Among those who did it, rear-seat belt use was always lower than for front-seat or driver-usage. Only eight countries reported driver (or front seat) rates higher than 90% --eight of them being high income countries. Figure 5 illustrates the range of government-reported use for drivers only.

Figure 5. Seat belt use for drivers as reported by governments. Selected ESCAP member countries, 2016.



Source: Adapted from the Global Status Report on Road Safety 2018 by the World Health Organization.

These usage rates can be compared with those reported in previous WHO Global Status Reports (2015 and 2013) only for 13 of the 20 countries, since the other seven did not report such information in previous years. Only three governments reported higher seat belt use in their countries in 2018 than in previous reports (China, Mongolia, and Turkey) whereas seven others reported lower rates than before (Japan, Malaysia, Philippines, Republic of Korea, Russian Federation, Thailand, and the United States of America).

There are other sources of data on seat belt use, for example, some observational studies compiled under IRTAD for selected ESCAP countries (Australia, France, Japan, Republic of Korea, United Kingdom, and the United States of America). These observational studies were undertaken between 2014 and 2017. In these studies, percent usages were 90% and higher among drivers in several countries but as low as 36% in rear-seat occupants in Japan or 73% for the rear-seat occupants in the USA (Nakamura et al (2020)).

Table 4. Seat belt use, by reporting sources in the selected ESCAP member countries

	Australia	France	India	Japan	Malaysia	Netherlands	Republic of Korea	Thailand	UK	USA	Viet Nam
Global Status Report on Road Safety 2018 by the World Health Organization.	97% front seats, 92% rear seats	98% front seats, 83% rear seats	N/A	91%–96% front seats, 9%–14% rear seats	70%	97% divers, 96% passengers	77% front seats	56% front seats, 3% rear seats	91% front seats, 84-90% rear seats	82% front seats, 76% rear seats	N/A
ESRA	94% drivers 90% rear seats	88% drivers 77% rear seat	60% drivers 30% rear seats	91% driver 36% rear seats	52% drivers 28% rear seats	88% drivers 73% rear seat	81% drivers 34% rear seats	58% drivers 29% rear seat	89% drivers 79% rear seat	82% drivers 68% rear seat	59% driver 26% rear seat
Sources: Global Status Report on Road Safety 2018 by the World Health Organization and ESRA multiple country fact sheets (2020 & 2021)											

Another source of seat belt use data is the E-Survey on Road Safety Attitudes (ESRA) that gathers information on self-reported behaviours of population-representative samples of the several middle- and high-income ESCAP countries (France, Netherlands, India, USA, Thailand Viet Nam, Australia, Japan, Malaysia, and Republic of Korea) (several ERSA reports (2020 and 2021)). The table below highlights the values produced for driver or front-seat occupants and rear occupants by source. Notably, self-reported behaviour coincides with government-reported figures in three countries and, contrary to common preconceptions, citizens in all other countries reported lower percentages than their corresponding governments. That is, people are reporting worse behaviours than their governments.

In summary, seat belt usage rates are far from the UN Performance Target 8 of 100% use, even though they are consistently higher for front-seat occupants than for rear occupants. High-income countries in ESCAP have higher rates, although there seems to be a negative trend in recent years with some countries reporting lesser use. For the few middle-income ESCAP member countries where information is available, seat belt rate among drivers seems to be at around 50-60%, whereas rates for rear-seat occupants are as low as 25-30%. Hence, given the number of 4-wheeled vehicle occupants who die in crashes, the modest use of seat belts, and the high effectiveness of seat belts, a conservative estimate of the benefit of reaching Target 8 points to between 100,000 and 200,000 lives saved.

Over the past decades, several methods have been deployed to improve seat belt wearing rates among occupants. Some are technological in nature, for example, seat belt reminders (SBRs), but the most common strategy to date has been legislation and enforcement.

2.2 Laws, enforcement, and implementation situation

Seat belt use rates vary greatly between countries, in part because of the different laws governing whether seat belts are fitted in vehicles, which type of belts are available in vehicles, and the laws requiring the belts to be worn. Rates also depend on the degree to which these laws are enforced. The next paragraphs describe the multifaceted legal framework that applies to this restraint device.

2.2.A Laws requiring seat belt installation

The Global Status Report on Road Safety 2018 by the World Health Organization recommended the implementation of a "minimum" set of vehicle safety standards: frontal- and side-impact protection, electronic stability control, pedestrian front-crash protection, motorcycle anti-lock braking systems, and three others which apply to occupant restraint systems. Two of these are regulations on seat belts and the third one is on child restraints. These three regulations are anchored in the 1958 UN "Agreement concerning the adoption of harmonized technical United Nations regulations for wheeled vehicles, equipment and parts which can be fitted and/or be used on wheeled vehicles and the conditions for reciprocal recognition of approvals granted on the bases of these United Nations Regulations" (UNECE (1958)) an agreement that is constantly under revision for continuous improvement as technologies advance.

UN Regulations 14 (seat belt) and 16 (seat belt anchorages) ensure that seat belts are fitted when vehicles are manufactured and assembled, and that installed anchor points can hold the forces released during a crash, minimizing seat belt slippage, and easing passenger evacuation after a crash. However, these regulations do not dictate how many of the seats within a vehicle are to be equipped with belts.

In addition to these two regulations, it must be noted that two ESCAP member countries report their own seat belt legal requirements. In the USA the regulation follows FMVSS 209, while in India it follows AIS-015. Even then, more than half of ESCAP member countries do not adhere to any standard on this matter. This is particularly noticeable in the lower-income countries, where this proportion reaches 75%.

Among ESCAP member countries adhering to seat-belt regulation, which ever one, additional questions arise regarding the percentage of the vehicle fleet appropriately fitted with these seat belts. A careful analysis of the time in which these regulations were first enacted and when they first came into application could help estimate what percent of the existing vehicle fleet in the country benefits from this equipment. However, this is further complicated by the fact that none of the regulations mandate seat belts and anchors in all seating positions. Therefore, it is reasonable to assume a very large number of vehicles, particularly in low- and middle-income countries, may not have seat belts available in all seating positions and those existing belts may not comply with any of the recognized standards. This is unlikely to change unless vehicle fleet renewal policies are implemented.

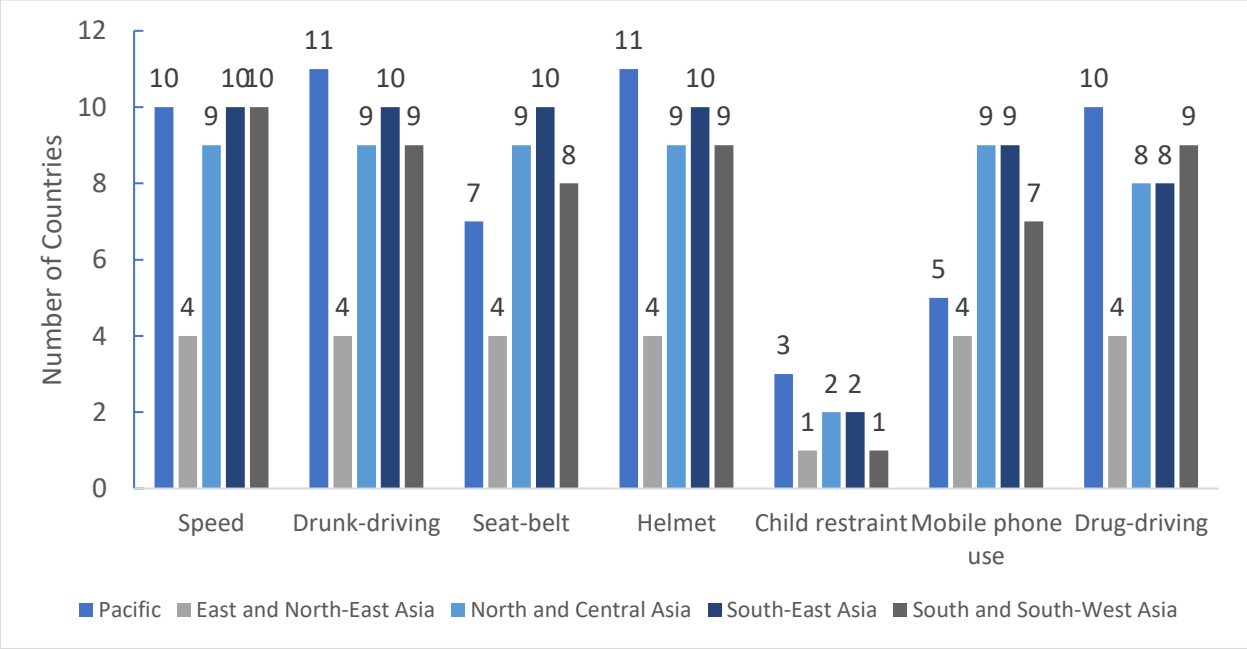
Once seat belts have been installed in a vehicle, the next objective is to ensure that the vehicle occupants use them and use them correctly.

2.2.B Laws requiring seat belt use

Seat belt legislation is considered one of the seven key road safety legislation interventions (Global Status Report on Road Safety 2018 by the World Health Organization). Figure 7 illustrates the number of countries conforming to each of these seven key interventions, by region. Worldwide, only 50% of countries have safe belts mandatory in rear seats (Figure 8). This percentage drops to 38% in low-income countries. Among high-income countries, 76% of them require all occupants to wear seat belts, whereas this percentage drops to 54% in middle-income and 38% in low-income countries. Twelve percent of the countries in the world have no seat belt laws at all.

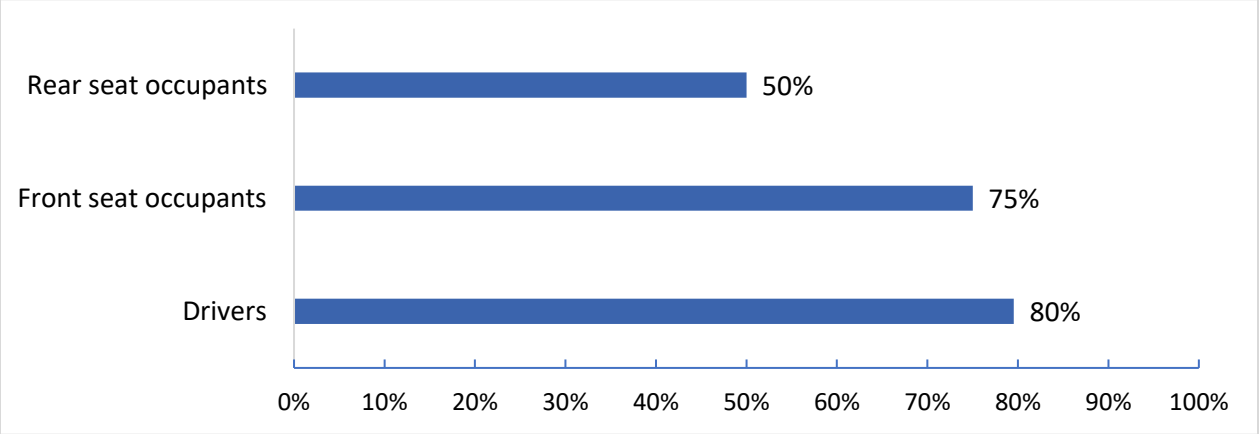
Notably, most of ESCAP countries have seat belt laws since 2013, except for nine of them: Afghanistan, Micronesia, Bangladesh, Cook Islands, Maldives, Myanmar, Solomon Islands, Sri Lanka, and Tonga (See Table D.1 in appendix for detail). Vanuatu may be the only country that has enacted such law during the first Decade of Action for Road Safety (2010-2020). Interestingly, Maldives reported to have a seat belt law in 2015, but they seem to no longer have it. Australia and the USA answered affirmatively to the existence of seat belt legislation, although this varies by state –and several USA states do not have primary (or even) secondary laws regarding seat belt use.

Figure 6. Number of countries with legislation on the seven key road risk factors, by ESCAP sub-region, 2016.



Source: Derived from the Global Status Report on Road Safety 2018 by the World Health Organization.

Figure 7. Proportion of countries that apply seat belt laws by seating position and role, globally, 2016



Source: Derived from the Global Status Report on Road Safety 2018 by the World Health Organization.

Whether their seat belt legislation applies to all seating positions was answered affirmatively by most of the ESCAP member countries with seat belt laws in place. Only 11 countries declared to the contrary: Cambodia, Indonesia, Kyrgyzstan, Malaysia, Nepal, Pakistan, Samoa, Thailand, Turkmenistan, Vanuatu, and Viet Nam. Between 2013 and 2016, only two ESCAP countries expanded their legislation to cover rear seats (Georgia and Lao PDR). Regrettably, five ESCAP countries indicated they reverted their legislation to not include rear seats now (Kyrgyzstan, Malaysia, Nepal, Turkmenistan, and Vanuatu). Renewed efforts must be placed to ensure proper legislation is passed at a faster rate than in previous years.

The impact of mandatory seat belt use laws has been evaluated and it averages 20%, that is, after the law is implemented, seat belt use increases by 20% on average. However, seat belt use laws seem to have a larger effect when baseline wearing rates are between 30 to 60% (Elvik (2004)). Thus, it seems very likely that the introduction of seat belt wearing legislation in low-income or middle-income ESCAP countries could have a positive impact on seat belt usage.

The net effect of mandatory seat belt legislation on fatalities has also been studied (Elvik, (2004)). Legislation that succeeds in increasing safety belt use by less than 25% when compared to previous use, brings a fatality reduction of 7%. Legislation increasing use between 25% and 49% reduces deaths by 8%. When legislation succeeds in increasing usage more than 50%, the fatalities are reduced by 21%.

As in other sections in this report, it is important to note that most studies that examine the impact of seat belt laws have been conducted in high-income countries, where legislation when introduced is heavily enforced, and is usually preceded by extensive publicity campaigns. In general, enforcement and publicity are the strongest predictors on the long-term impact of these laws increasing safety belt use.

2.2.C. Law enforcement

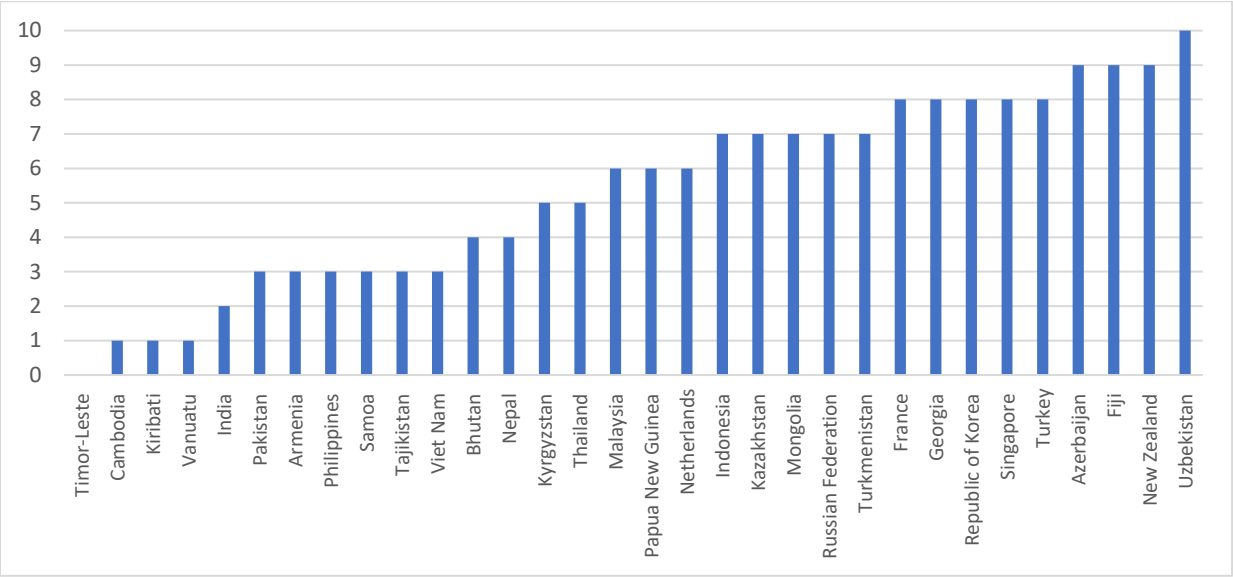
There are several ways in which usage rates can be improved. Laws making seat belt use compulsory are essential in increasing the wearing rates of seat belts in all countries. To ensure that a much higher level of seat belt wearing is achieved, a comprehensive program is required. This should include public information campaigns to raise awareness of the importance of wearing seat belts and their benefits, as well as to provide information on the requirements of the law. Strong enforcement, especially in the period immediately after the law is implemented, is another key element. Continued publicity and enforcement campaigns are also required, both before enactment and during the initial enforcement period. Although legislation is essential, it will not achieve high wearing rates unless it is part of a comprehensive program of legislation, enforcement, publicity, incentives, and encouragement.

It is difficult to verify the effectiveness of these laws if relevant data are not available. The enforcement of seat belt laws is weak in many countries. When asked to rate their level of enforcement on a scale of 0 (none) to 10 (absolute), only 19% of countries rated seat belt laws enforcement above 7. Even more interestingly, over 47% of countries reported having no data on this issue.

When focusing on ESCAP member countries, the findings on enforcement are rather poor. Sixteen ESCAP countries did not answer on the enforcement level in their country or reported not to have reached consensus on this issue when completing the Global Status Report on Road Safety 2018 by the World Health Organization questionnaire. Among those responding, the trend since 2013 was towards lower enforcement effectiveness in 14 countries, more effectiveness in only six countries and about the same in the rest (see Table D2 in Appendix for details).

As for enforcement effectiveness in 2016, enforcement valuations ranged from 0 (Timor-Leste) to 10 (Uzbekistan), with 9 countries reporting an effectiveness of 8 or higher: Azerbaijan, Fiji, France, Georgia, New Zealand, Republic of Korea, Singapore, Turkey, and Uzbekistan. Figure 9 shows the distribution of enforcement valuation, which averages 6 in the 0 (none) to 10 (perfect) enforcement scale.

Figure 8. Enforcement of seat belt legislation on a 0 (none) to 10 (best) scale. Selected ESCAP member countries, 2016.



Source: Adapted from the Global Status Report on Road Safety 2018 by the World Health Organization.

The enforcement question is also addressed in the ESRA survey, albeit with a slightly different formulation. Population-representative samples in each country were asked how likely they were to be checked on a regular trip by the police as car drivers for wearing their seat belt. Their answers confirm that risk perception is low, as low as 14% (Republic of Korea) and as high as 37% (India). The table below compares the government answers to the Global Status Report on Road Safety 2018 by the World Health Organization questionnaire with people´s answers in the ESRA survey. The perception of being checked on seat belt use was significantly lower in two of the countries where data on both questionnaires were available (France and Republic of Korea).

Table 5. Enforcement of seat belt use legislation, by reporting source. Selected ESRA members, 2016 & 2018.

	Australia	France	India	Japan	Malaysia	Nether lands	Republic of Korea	Thailand	UK	USA	Viet Nam
Global Status Report on Road Safety 2018 by the World Health Organization.	--	8	2	No con-sensus	6	--	8	5	No con-sensus	--	3
ESRA 2018	24%	17%	37%	28%		22%	14%		14%	24%	
Source: Global Status Report on Road Safety 2018 by the World Health Organization and Nakamura et al (2020)											

2.3. Other means to increase usage rates

Technology initiatives related to seat belt use have been introduced to increase seat belt wearing rates. Previous studies have found that the most common reasons drivers indicate as to why they do not use seat belts include short trips, carelessness, and forgetfulness. Seat belt reminders were developed to address forgetfulness. Since their introduction in the fleets in the early 1970s, compliance rates of seat belt use have been found to be significantly higher.

Interestingly, between 70% (Japan) and 87% (India) of subjects in the Asian-Pacific region would support the legal obligation to have a seat belt reminder system for the front and back seats in new cars, as indicated in surveys (Nakamura et al (2020)).

3. Child Restraint Use in ESCAP Member Countries

Child restraints were classified according to the weight of the child until recently. These weight-based classifications, often called “groups” by manufacturers and retailers, corresponded broadly to different age groups (IRSA (2016)). Under this criterion, there are four main child restraint groups, groups 0, 1, 2 and 3, shown in Figure 10. However, some child restraint systems are adjustable and can be adapted as the child grows.

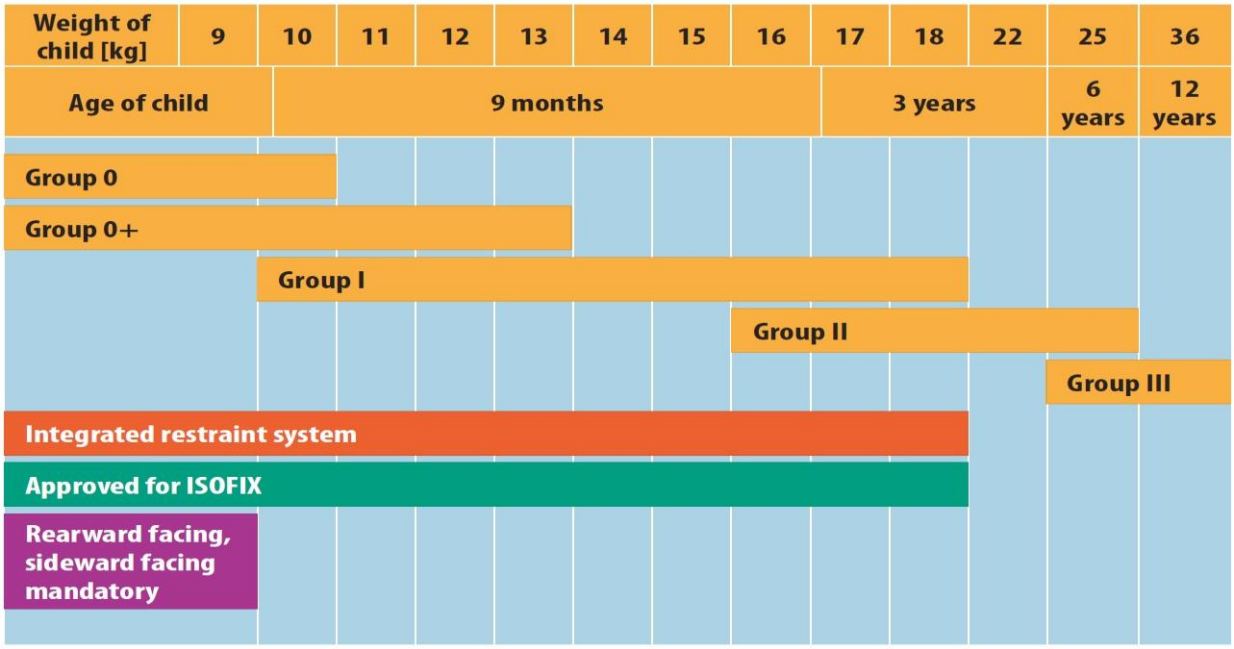
More recently, the child´s height has replaced weight as the primary classification criterion. The figure below summarizes current recommendations, although there is a phase-out approach to the weight criterion. Both criteria will co-exist until 2023.

The new recommendations emphasize the importance of rear-facing child restraint use for as long as possible, but mandatorily until the child is at least 90 centimetres tall.

3.1 Usage of child restraints

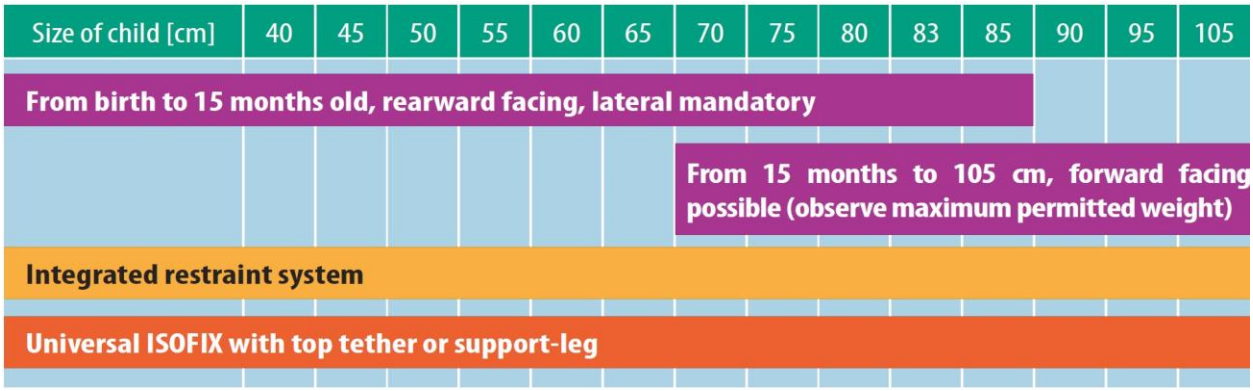
Reports on child restraint use in the region are scant, in part due to the difficulties in assessing whether the child restraint used is the appropriate one for the child´s personal characteristics. For example, none of the Global Status Reports on Road Safety by the World Health Organization have included declarations of percent use until now. Observational studies compiled during 2017 by IRTAD for selected ESCAP countries contain information on child restraint use for France, Republic of Korea, and the UK. Values range from 60% in motorways and 49% in urban areas in Republic of Korea to 88% in urban areas and 93% in rural roads in France (Nakamura et al (2020)). Remarkably, these percentages do not differ much from the values obtained for these three countries when they were included, together with another eight ESCAP member countries, in the latest ESRA survey. Usage of child restraints ranged from a low 51% (Republic of Korea) to a high 92% (Australia). The figure below illustrates the breadth of reported values.

Figure 9. Child restraint types, using child weight as primary criterion.



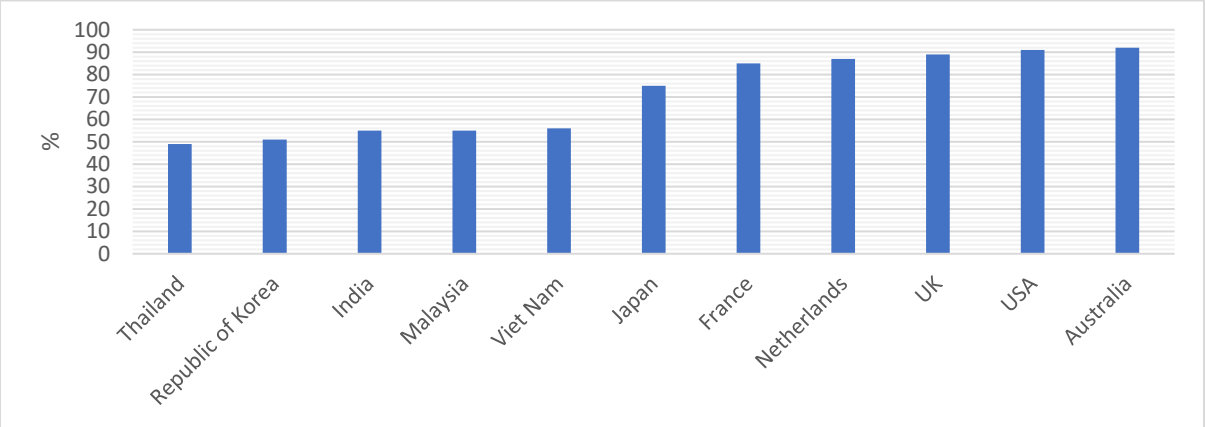
Source: UNECE (2016)

Figure 10. Child restraint types, using child height as primary criterion.



Source: UNECE (2016)

Figure 11. Self-reported child restraint use. Selected ESCAP member countries, 2020.



Source: ESRA (several reports 2020 and 2021)

Strong attention should be placed on the operation manual or instruction materials to properly install a child car seat with an adult seat belt in motor vehicles. Proper installation usually requires a fair amount of time to achieve the adequate fit.

Difficulties to access to appropriate child restraints or to afford them may limit their use. Also, they could be simply seen as impractical in case of large families.

3.2 Laws, standards, enforcement, and implementation situation

3.2.A Laws on child restraint specifications

Regulation 129 is specifically recommended as one of the eight "priority" UN Vehicle Safety Standards mentioned earlier (Global Status Report on Road Safety 2018 by the World Health Organization). Regulation 129 is progressively replacing regulation 44 across all child restraint categories. The co-existence period of both regulations ends in 2023. Regulation 129 aims to keep the child safe in frontal and lateral impacts and anchorage points meeting ISOFIX standard are fitted in the vehicle to ease and secure the restraint anchoring into the vehicle´s seats. However, there are other regulations covering child restraints besides regulation 129. Both regulation 44 and 129 belong under the 1959 UN Agreement on vehicle standards presented in the previous section. However, there are other child restraint regulations that are applied in selected countries. The table below summarizes the ESCAP countries covered under specific regulations.

Table 6. Child restraint regulations in ESCAP member countries, 2021.

ESCAP member countries	Child restraints
EU (France, Netherlands) UK Russian Federation Turkey Japan Malaysia New Zealand	R129
Japan	Reg 129 and JIS D 040122000
USA	FMVSS 213
India	AIS-072
China	GB 14166-2013
Republic of Korea	KMVSS 103-2
Australia	AS/NZS 1754:2013; AS/NZS 3629:2013
Source: Wikipedia https://en.wikipedia.org/wiki/Seat_belt#International_regulations	

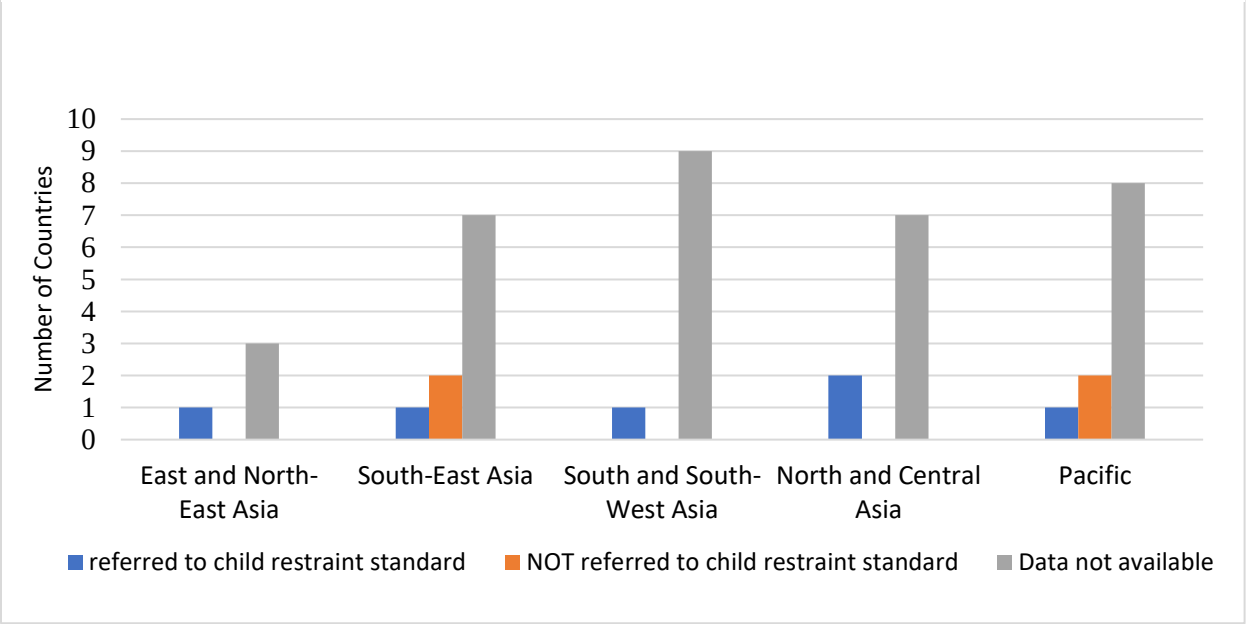
Determining how many child seats exist under circulation in ESCAP member countries and to what regulation do they specifically conform, is currently impossible to know. Independently of regulatory adhesion, child restraints have a relatively short life-span and proper replacement needs to be incorporated when addressing communication campaigns on their use.

3.2.B Laws on child restraint use

The 2018 WHO global survey found that just under half of participating countries reported having any legislation at all on the use of child restraints. This figure, however, hides considerable variation by region and income status. More than 90% of high-income countries have national legislation on child restraints, while the proportion in low-income countries is only 20%.

The situation among ESCAP member countries is even worse. Many countries, 24, continue without laws on child restraint use: Afghanistan, Bangladesh, China, Cook Islands, India, Indonesia, Iran, Malaysia, Maldives, Micronesia, Nepal, Pakistan, Papua New Guinea, Philippines, Solomon Islands, Sri Lanka, Thailand, Tonga, Vanuatu, Viet Nam and, possibly, Myanmar, Turkmenistan, and Uzbekistan. Two countries (Lao PDR and Turkmenistan) reported to have them in a previous report but seem to have removed them by 2016. In contrast, seven countries approved such laws before 2016: Armenia, Fiji, Georgia, Mongolia, Republic of Korea, Samoa, and Tajikistan. Among the countries reporting having such laws, two recognize their subnational specifications (Australia and USA).

Figure 122. Number of ESCAP member countries with child restraint laws based on child restraint standards, 2016.



Source: Derived from the Global Status Report on Road Safety 2018 by the World Health Organization.

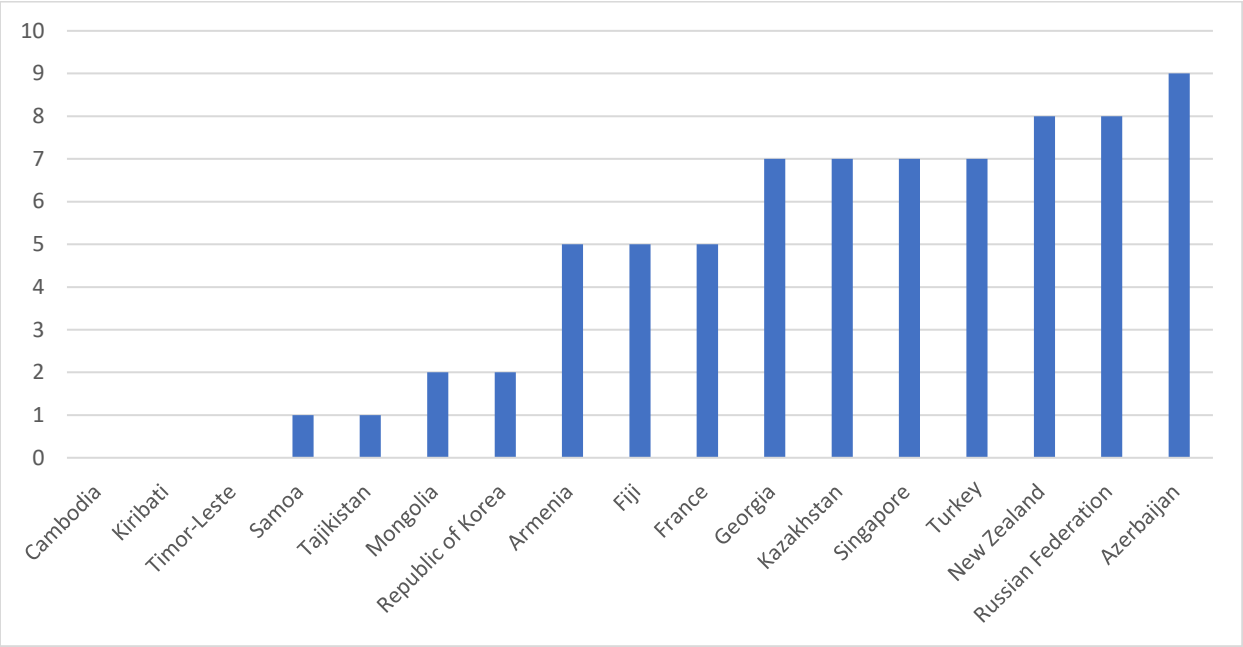
Whether the law specifies child restraint standards --that is whether the law includes a reference to a particular child restraint standard, is a relevant consideration. Differences in legislation by ESCAP subregions are shown in the figure below. Data on this aspect are not available for most countries in the region.

3.2.C Law enforcement

In high-income countries, where laws on the compulsory use of child car seats are enforced, improper installation or misuse of a child car seat is the primary cause of reduced effectiveness of protection.

Even for the subset of ESCAP member countries where legislation is in place, the results of the WHO survey suggest that enforcement of child restraint laws is very low in most countries. Two countries alleged no consensus among panellist answering the questionnaire (Japan and UK), whereas for the 18 members reporting some enforcement, it averaged a level of 4 with on a scale of 0 to 10. The figure below illustrates the breadth of answers. Only three countries reported enforcement of 8 or higher (Azerbaijan, New Zealand, and Russian Federation).

Figure 133. Enforcement of child restraint laws from 0 (none) to 10 (best). Selected ESCAP member countries, 2016.



Source: Derived from the Global Status Report on Road Safety 2018 by the World Health Organization.

5. Case Studies

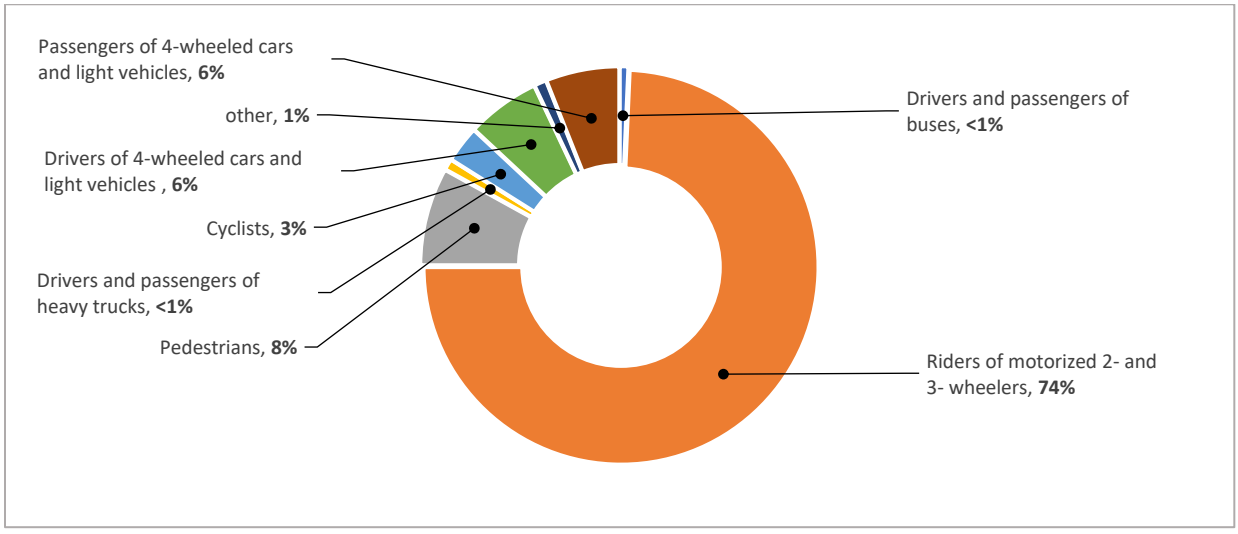
Thailand

While road safety has improved in many high-income countries around the world, low- and middle-income countries have not shared in the same successes, Thailand being one such country. As of 2016, over 22,000 individuals died from road traffic crashes in Thailand, corresponding to a rate of 32.7 per 100,000 people, while many others were left seriously injured (WHO (2020)). Thailand has approximately twice the road fatality rate than the world´s average. It is estimated that 6 per cent of the national GDP is lost due to road crashes in the country. This is partly due to the increase in motorized two-wheelers, which is a predominant transport mode in Thailand, as illustrated in Figure 4. Nevertheless, 12% of fatal victims are either drivers or passengers of 4-wheeled vehicles.

Thailand already has, to an extent, a set of laws supporting an extensive road safety framework. The Government of Thailand introduced seat belt wearing legislation for drivers and front-seat passengers in 1995, and in 2017 this extended to all passengers regardless of their seating position. However, the country does not have a child restraint mandatory law. Neither is it a signatory of the 1958 Vehicle Agreement and there is no evidence that these safety belts in vehicles comply with either regulation 14 or 16. This sets Thailand behind when compared to good practice worldwide.

Photo: Use of child restraint is a challenge in Thailand. Source: Ishtiaque Ahmed, PhD

Figure 14. Road deaths by road user type in Thailand



Source: Adapted from the Global Status Report on Road Safety 2018 by the World Health Organization.

Although seat belt legislation is enacted, wearing rates remain low, approximately 50% for drivers and front-seat passengers, and much lower for rear-seat passengers. The enforcement level is rated as 5 in a 0 (none) to 10 (most) scale by the government of Thailand. Notably, despite not having child restraint mandatory use laws, usage is reported to be just below 50% when citizens are asked about it.

Without systematic management, the situation will adversely affect the country's economic and social development. Thailand issued the Cabinet Resolution on 29 June 2010 designating the years from 2011 to 2020 as the Decade of Action for Road Safety and established a target of 18 road fatalities per 100,000 by 2020 (Thailand (2019)). Like many low- and middle-income countries, Thailand has not achieved this target.

The adhesion of Thailand to any of the international regulations governing seat belts and child restraints would significantly improve the situation, as Thailand lacks national standards controlling product safety, quality, and efficiency. This explains why, for example, there are child car seats in Thai markets that are not qualified as safe, and they may not properly protect children from injury and death when in crashes.

Although the current legislation for seat belt use in Thailand is adequate, enforcement should be strengthened. This may imply manual or automatic detection systems to identify the lack of seat belt use. However, this requires electronic and reliable vehicle and driver databases that can sustain proper handling of traffic offenses for the whole of the country.

Malaysia

Malaysia has implemented some initiatives to improve road safety. The following are some of the good examples of the type of interventions that should be put in place in all countries in the ESCAP region.

The Child Restraints Save Lives Project

In 2016, the road traffic fatality rate in Malaysia was 23.6 per 100,000 (WHO (2018)). This is the second highest rate of road mortality in the WHO Western Pacific region. In 2011, the Malaysian Institute of Road Safety Research (MIROS) pointed out that road traffic injuries in children aged 0-19 accounted for approximately 35% of the total admissions to Ministry of Health´s hospitals from 2003 to 2005. The study also reported that private vehicle transportation was the major circumstance in which children under 10 years of age died in traffic crashes. To improve the situation, in 2020 the Malaysian Government introduced the Motor Vehicles (Wearing of Seat Belts) (Amendment) Regulations 2019 (i.e., Regulation 129) to implement mandatory use of child restraints for children under 135 cm.

The proposed intervention, the Child Restraints Save lives project, fits into the broader SDG 3.6 goal, and targets one of the 12 UN Voluntary Performance Targets, specifically, target 8: that of

increasing the proportion of motor vehicle occupants using seat belts or child restraint systems to close to 100% by 2030.

The Child Restraints Save Lives project is based on the Global Road Safety Partnerships' (GRSP) experience supporting the implementation of road safety laws in the Philippines --where they helped implement a new child safety law. In Malaysia, the project primarily focuses on building capacity within the key Malaysian agencies to support not only child restraint law improvements, but also the subsequent implementation and enforcement of the law. The project should facilitate implementation of other road safety legal improvements in the future. There is an urgent need to support key government agencies to ensure effective implementation and to provide technical guidance based on international best practices. The project is supported by technical experts at the United Nations ESCAP.

Seat Belt Reminder (SBR) System

Since the introduction of audio-visual reminders for seat belt use in the early 1970s, multiple studies have shown that occupants are more likely to wear their belts when their vehicles have a SBR system.

The Malaysian Institute of Road Safety Research (MIROS) has initiated a study to investigate the impact of SBRs in the country. This study benefits of the establishment of the ASEAN New Car Assessment Program and the Southeast Asian Consumer Crash Test Program. It is an observational study pursuing several objectives: (a) to evaluate if the presence of SBR technology increases the occupant's seat belt wearing rate as compared to occupants in vehicles without this technology; and (b) to compare the relative performance of two alternative SBR systems: one only with visual signals, and another one with both visual and audible signals. Should the study confirm the effectiveness of this technology, it is expected that car manufacturers selling vehicles in the country would be more inclined to equip their cars with the SBR system. At present time, only a convenience sample of cars have been retrofitted with this system for the study.

Australia

Road traffic crashes are the primary cause of death for children and one of the top three causes of serious injuries to Australian children aged 1-14 years old. For this reason, considerable attention has been focused on research to understand the contributing factors and the most effective ways of improving children's safety as car passengers. Australia has been particularly active in this area. Well-regarded work has been conducted on child restraint use, restraint crash performance in laboratory conditions, examination of real-world restraint crash performance (case review), and studies of psychosocial factors influencing perceptions about restraints and their use.

Since 1992, Australia operates a consumer-based Child Restraint Evaluation Program (CREP). The Roads and Traffic Authority of New South Wales (RTA), the National Roads and Motorists

Association (NRMA) and the Australian Consumers' Association (ACA) combined their resources to design and implement the initial child restraint evaluation program. This was the first time a consumer-based strategy had ever been applied to child restraints. CREP aims to provide consumers with information to help choose safe child car seats and use them correctly. CREP´s findings generate a public consumer pressure on car seat manufacturers to market seats that perform even better than the Australian Standard require. Even the government, who sets the standards, benefits from the program as it learns of improvements in the devices that may be considered when updating the standard itself. The program provides an incentive for improvement, even for the government, by informing on ways to improve the standard as products improve in their performance over time.

6. Additional challenges

The percentage of occupant restraint in 4-wheeled vehicle occupants in low- and middle-income ESCAP countries is of concern. Previous sections have addressed challenges that difficult reaching 100% seat belt and child restraint use. These challenges include:

- documenting the existing vehicle fleet and the availability of seat belts, particularly in 4-wheeled vehicles;
- the many countries still not requiring safety performance standards regarding seat belts in vehicles entering the fleet and standards for child restraints sold in the region;
- inexistent or insufficient legislation to mandate use of seat belts and child restraints;
- limitations and improper seat belt and child restraint usage; and
- inefficient tracking and detection system and lack of proper enforcement

The following sections focus on additional challenges that are not unique to seat belts or child restraints and that affect many other road safety interventions.

6.1 Social acceptability of seat belts and child restraints

The low seat belt and child restraint use may be a cause or a consequence of a remarkable high social tolerance to failing to use these devices. Survey data reveal that almost 14% of subjects in Asia and Oceania perceived it is socially acceptable to not use a seat belt while driving. This is twice as high as the "tolerance" levels shared, for example, by USA citizens. Regarding child restraint systems, 13% of subjects in Asia Pacific perceived it as socially acceptable not to use them as compared with a 3% of North American interviewees or a 4% of Western Europe subjects (Nakamura (2020)).

A significant challenge in many countries, specifically countries in the ESCAP region, is the lack of awareness of the risks while travelling, as well as common myths and arguments about the use of seat belts (or child restraints). The following are commonly cited reasons given by vehicle occupants for not using seat belts:

- they forgot to use it

- they did not have time to buckle up as they were in a hurry
- belt use was not necessary as they were travelling a short distance (i.e., as if seat belts were only necessary when travelling a long distance)
- belts were not necessary as they were not speeding
- seat belts are a hassle and uncomfortable
- belts would prevent them from escaping the vehicle in case of fire or fall in a body of water

All these "reasons" point to a lack of basic understanding of the physics involved in a crash by users and the individuals´ belief that they have the capacity to predict when a collision may occur. That is, there is no recognition of the benefits of always using a seat belt. This is further validated with another commonly used explanation for not using the belt – the absence of police roadblocks enforcing seat belt use. People generally comply with the rules on wearing seat belts, not because they think it is safe, but because they believe they might be caught by the police or get fined if they fail to meet the rule. The fear of being caught and penalised is, in fact, a much stronger motivator than the fear of a crash, injury or death. In other words, belts seem to be used if there is a fear of being caught in an infraction, but not because citizens see their intrinsic safety value.

There is also a lack of public awareness of the use and benefits of child restraints. Although in recent years increasing attention has been paid to children's safety, awareness remains low, even among parents. Many parents have only heard of child restraints, but have little effective knowledge of related safety issues, or some even never heard of them. Current public campaigns are inadequate, and there is not enough recognition of the importance of child safety seats.

Interestingly, this situation may be reversed. As road safety increases, so does the societal demand for it. The demonstration that road deaths are not as "accidental" as initially believed, helps promote more safety measures. Analysis of safety attitudes in several countries over time, included that various ESCAP member countries, illustrates this point. Safer behaviours stimulate the adoption of other safer behaviours. For example, the drivers' attitudes towards child restraint systems use are related to their attitude towards their own seat belt use: drivers with a high level of acceptability for transporting children without securing them were less inclined to always use a seat belt while driving (Nakamura et al (2020).

6.2 Political will to address the situation

After decades of road carnage and despite some 20 years of evidence on its human and economic toll on society, road safety is only timidly raising as a political priority in several countries in the world, but not in all. The Global Commitments all UN member countries adopted back in 2004 through a General Assembly resolution on improving global road safety (A/RES/58/289) have been subsequently ratified in numerous other UN General Assembly resolutions, the latest one in August 2020 (A/RES/74/299) proclaiming 2021-2030 as the second Decade of Action for road safety. In 2020, ESCAP member countries committed to collaborating on road safety. Yet,

interventions at the country, provincial or municipal level are slow to occur. This is not different when it comes to specific measures related to vehicle equipment and/or restraint use, as described in this report.

The majority of ESCAP countries have not adhered to UN regulation on vehicle agreements, first issued in 1958. Full adhesion requires a review of the existing legislation to adapt it to requirements, and a revision of regulations in place in the country (if any) too; particularly, regulations 14, 16 and 129. This is mostly a technical work to be done by ministerial technical employees, and ESCAP and UNECE can collaborate. But it needs to be seconded by political will to embrace this UN agreement.

Even in countries that have adhered to the regulations, the percentage of 4-wheeled vehicles in the country that probably pre-date the entry date of these norms is likely to be high. Policies to renew the vehicle fleet should be evaluated, and current recommendations to transform the mobility paradigm may provide a unique opportunity to do so.

Almost 50 years since the first mandatory seat belt law was implemented in Australia, seven ESCAP countries still do not have seat belt use laws in place, and in eleven ESCAP countries the seat belt use law does not apply to rear seats. Thirty-six ESCAP countries do not have child restraint use laws enacted. This situation requires political will to revert it.

Interestingly, in some countries, ESCAP member countries like the USA included, favouring child restraint systems was politically easier to manage and these laws were enacted first. Laws on the mandatory use of child restraints paved the way for laws mandating seat belt use in some instances.

6.3 Barriers regarding the access to child restraints

Previous research indicates that the prohibitive cost of child restraints in many countries is also an important factor that affects usage.

Costs of seat belts and child restraints have been demonstrated to pale in comparison with the cost savings associated to death and serious injuries averted. Seat belts have been subjected to multiple economic evaluations in the past decades. All studies concur in demonstrating that the benefits of using seat belts far outweigh the costs of having seat belts available in all seating positions and the time buckling up for all trips. The benefit cost ratios are in the range of 3 to 8, (i.e., for each one US$ invested, there are 3 to 8 US$ saved) (Elvik. (2004)).

The difficulty does not reside on the cost of the devices (the cost should be considered an investment). Seat belts are paid for by the vehicle manufacturer who passes that cost to the vehicle buyer. Child restraints are paid by the child´s parents or tutor.

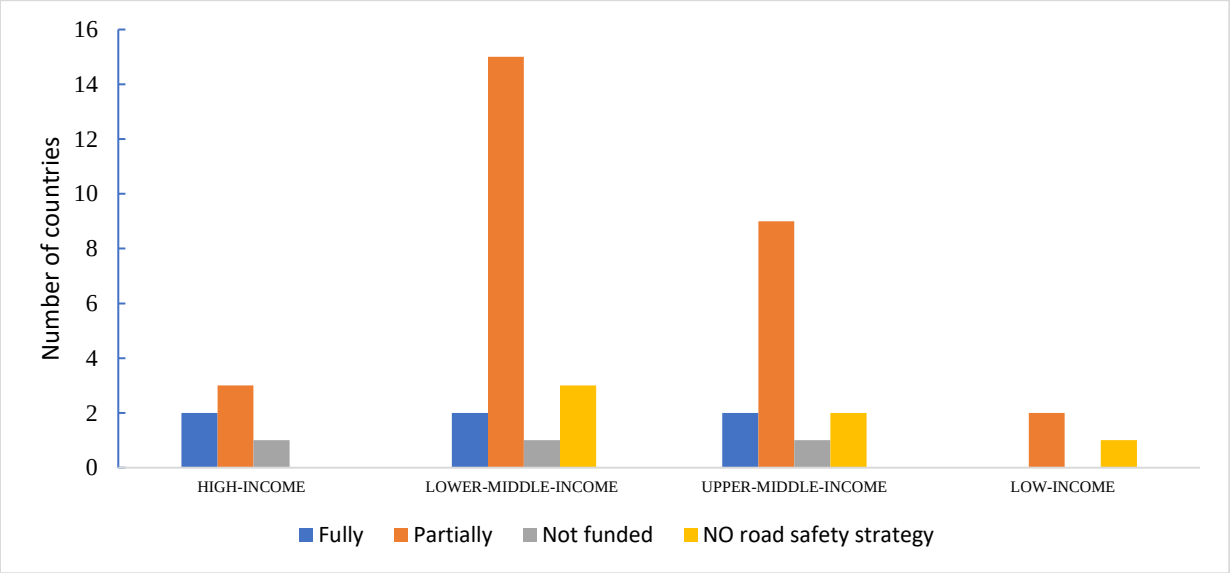
It is less clear that who pays for the costs of crash-related injuries, as health care and insurance systems vary among countries. However, an essential dilemma of economic externalities occurs, where the person or institutions who incurs in expense may not be the one reaping the benefits

of the investment, or where the social network covering the costs of the injuries has not considered to cover the cost of the preventive measure.

6.4 Resources to implement road safety interventions

Resource constraints are not unique to restraint systems but also affect other road safety programs. The constraints include limited funding and personnel, as well as the lack of coordination between individuals and across organizations. Back in 2016, many countries reported to WHO to not have the financial capacity to fund road safety programs, as illustrated below.

Figure 15. Funding to implement road safety strategy by country income level, 2016



Source: Derived from the Global Status Report on Road Safety 2018 by the World Health Organization.

Yet, the case of seat belt and child restraint laws requires of modest amounts of resources other than the time of agencies modifying regulations, and the enforcement effort. Communication and educational campaigns are likely to be the priciest of all required actions.

However small or large resources are to be used, reaching 100% seat and child restraint use requires a collaborative effort among policy, management, and operation teams implementing and running interventions. Once strategy plans and targets have been set, it is essential to elaborate plans, as well as manage and evaluate all activities related to then plan, which will require substantial improvements in data systems in most of the low- and middle-income ESCAP countries. If seat belt and child restraint use laws are enforced, the sanctions generated could be used to offset the costs of implementing the program, including communication and educational campaigns explaining the importance of using restraint systems. The funds could also be used to strengthen the information systems needed to improve efficiency in measuring progress towards 100% restraint use.

7. Conclusion

There are multiple risk factors that can affect road safety, such as infrastructure, vehicle type, user visibility, helmet use, speeding, and impaired driving, to name a few. This report focuses on two key risk factors that play a significant role in road safety: seat belt and child restraint use. Even with somewhat imprecise figures on the baseline situation, a conservative estimate of the benefit of full use of these safety systems in ESCAP member countries yields a 25% fatality reduction. Seat belt and child restraint use can significantly improve road safety, which will also improve economies as road traffic crashes are costly.

ESCAP member countries, particularly low- and middle-income members, sustain high road fatality rates. On average, close to 40% of these fatal victims are occupants of 4-wheeled vehicles, and this percentage is likely to increase as more such vehicles are introduced in the fleet --a figure that is likely to remain high even in the current scenario of modal shift recommendations (Swedish Transport Administration (2020)).The effectiveness of safety belts meeting international standards is unquestionably demonstrated by a multitude of studies, as is the effectiveness of standardized child seats targeting occupants whose size does not fit with the geometry with which safety belts were designed. The information on the usage of safety belts is not known for 37 ESCAP countries, but among those for which some information exists, usage rarely raises above 60%, apart from the high-income countries. Even worse, information on the child restraint use is not known for 49 countries, and among those for which there is some information, usage rarely raises above 50%, with the exception, again, of the high-income countries.

Forty-one countries do not apply international standards, even when they have mandatory safety belt laws. This situation is aggravated when one restricts this evaluation to low- and middle-income ESCAP member countries. Worse yet, most of ESCAP member countries (46), particularly in the lower income levels, do not have child restraint laws.

Even among those countries with some legislation in place, usage rates are modest. Enforcement data are rarely available, and when they are, they show low enforcement rates and a low perception of being caught by the authorities. Even worse, some data point out to a generalized acceptability towards unsafe behaviours of not using these devices.

This situation, which has not improved much over the first Decade of Action for Road Safety, can be easily addressed, and reversed, since the fundamental concepts related to the protection of 4-wheeled vehicles have been tried and tested in many countries, including several ESCAP member countries. What remains to be addressed is how to expedite implementation of these measures in lower-income ESCAP member countries.

It is urgent to implement actions to address this in time so that they have an impact during the recently declared second Decade of Action. The following section includes some recommendations on how to tackle this.

8. Recommendations and Implementation Framework

Based on the analysis of road safety and seat belt and child restraint use in ESCAP member countries, the implementation of a comprehensive and systematic seat belt and child restraint program is recommended.

Opportunities that can help address seat belt and child restraint use in ESCAP member countries, particularly in low- and middle-income ESCAP member countries in the Asia-Pacific region, include: (1) raising social demand for safety and political appetite to address it; (2) legislation and enforcement; (3) vehicle and product renewal incentives; (4) education and awareness campaigns; and (5) data collection.

The most effective and expedient strategy to increase the rate of seat belt use is to build awareness among lay citizens and politicians and increase enforcement of existing laws. In parallel, but with a longer-term impact, improvements in the legal requirements for the fitting and standard criteria of child restraints and seat belts are needed in most countries.

There exists a manual, created by the WHO, to help guide on seat belt and child restraint use increases (WHO (2009)). This manual is aimed at policy makers and road safety advocates and draw on experiences from countries that have succeeded in achieving and sustaining high levels of restraint use. It includes recommendations for developing and implementing technical standards and legislation, advice on how to monitor and evaluate progress, and suggestions regarding other associated measures. The manual focuses on the design and implementation of a program to increase seat belt and child restraint use through legislation, enforcement, and public awareness (IRSA (2016)). Tools such as these manuals can help provide a base of information that countries can use to help generate solutions and develop advocacy tools and legislation to increase seat belt and child restraint use (IRSA (2016)).

The previous sections have covered extensively issues related to legislation and enforcement. The sections below include only additional recommendations to be considered:

8.1 Raising social demand

The recently launched Global Plan 2021-2030 calls to make safety a core value. More concretely, the plan states that "*placing safety at the core of our road safety efforts will automatically make safe mobility a human right. It will push it up the global agenda and create a new impetus for increased commitment from governments, corporations and international organizations to implement measures that can significantly reduce road trauma*" (WHO et al (2021)).

All citizens bear responsibility on their behaviour while the travel around, in whichever means of road transport. However, citizens should demand that the transport system be built as safe as possible and within a Vision Zero framework. Complementarily, politicians could see road safety as an opportunity to efficiently invest towards many SDGs besides SDG3.6. Any of these two

movements, whether in sequential or parallel order, will shift current “accidental” and “fate” believes that undervalue safety interventions. More importantly, they will second the shift from a “blame the victim” attitude into a Safe Systems paradigm.

8.2 Enforcement

This recommendation focuses on methods to be used when applying effective tracking and detection systems on seat belts and child restraint mandatory use. However, enforcement of vehicle and product standard adherence is also to be considered.

Occupants are responsible for their own seat belt use when inside a 4-wheeled vehicle. In the case of children, the recommendation is that the driver be made responsible for the appropriate restraining of all children within the private or public service vehicles. Having efficient tracking and detection systems in place can help to significantly increase wearing rates and improve road safety.

Manual enforcement methods are less efficient than automatic enforcement methods to detect seat belt usage in front-seat occupants. However, enforcement of rear seat belt and child restraint use must be done, preferably, in person. Even though front seat belt use can be assessed in normal traffic conditions, assessment of child restraint and rear seat use requires of a different method, that is, cars need to be directed to a safe place where to fully stop the vehicle and have access to its interior for inspection. Thus, rear seat restraint use is much more complex to enforce, and this difficulty raises the positive value of educational campaigns and increased social favourability towards these safer practices.

8.3 Education and awareness campaigns

A driver’s understanding of the benefits of seat belt and child restraint use is the strongest predictor of its eventual use. Laws mandating seat belt use should be backed up by public education campaigns. Such campaigns may focus on young people and can be used both to increase awareness and to help make wearing seat belts a social norm.

Increased level of education leads to higher rate of seat belt usage and, hence, a smaller rate of crashes and crash severity. Early education is very important to help change society´s perception in the future. Educating children whilst they are still studying in schools on the importance of restraint use is recommended. Continued learning will benefit these future road users in the long run, and it should begin from an early age. Certain countries have had success with the use of educational material, including posters encouraging the use of seat belts. Community-based projects can employ parents and peers to encourage young people to wear seat belts and design the proper educational materials to highlight the use of seat belts.

ESCAP member countries should include educational programs that focus on learning about road safety and local legislations. These educational programs should also include specific skill training and education on the proper use of seat belts and child restraints. Member countries should also

implement awareness campaigns that promote road safety and the use of seat belts and child restraints. These campaigns can be adjusted to suit different targeted audiences, such as younger demographics. The Child Restraint Save Lives project, the child restraint evaluation program, and the seat belt reminder system are examples of effective programs and systems in place that ESCAP member countries should follow. Programs that lay the foundation and enforce compulsory seat belt and child restraint laws, amalgamated with public awareness and education campaigns, are shown to be effective at increasing wearing rates and thus reducing injuries and fatalities

8.4 Road Safety Data Collection

Data constraints and inaccurate data reporting systems prevent understanding of the real magnitude of the road safety problem, which has become a challenge for the ESCAP member countries. Therefore, the last recommendation relates to data. A major challenge for many ESCAP is the availability and quality of road safety data. In most of these countries, data on road safety is often underreported and results in a lower priority being given to tackling road safety, compared with other public health issues. Having accurate and reliable data can help enable governments and road safety officials to determine seat belt and child restraint wearing rates, examine trends and progress, and implement proper solutions to reach 100% restraint use faster.

A key element to the improvement of road safety is the availability of reliable and comprehensive data. Without data on road traffic crashes, deaths, and injuries, countries are unable to monitor progress and implement appropriate interventions. There is a lack of road-safety data and many countries do not have proper programs that develop data systems. This in part can be due to the lack of interest or tradition in analysing data, but also to the fact that data may sit on formats which difficult their compilation and analyses (e.g., hand-completed paper forms).

Improvements in the data system include not only restraint usage information, but also the strengthening of the vehicle registration to see the evolution of standardized seat belts in the vehicle fleet; the strengthening of driver registries to assist in better enforcement methods; and, to train police officers in collecting data on crashes to better evaluate the age of victims and their seat belt and child restraint use.

Since 2020, ESCAP has supported the establishment of the regional Asia Pacific Road Safety Observatory (APRSO), and 21 ESCAP member countries have already agreed to participate in it (Australia, Afghanistan, Armenia, Azerbaijan, Bangladesh, Cambodia, Cook Islands, Fiji, Kazakhstan, Kyrgyz Republic, Lao PDR, Maldives, Marshall Islands, Mongolia, Nepal, New Zealand, Pakistan, Philippines, Solomon Islands, Sri Lanka, Turkmenistan, and Myanmar[3]). The goal of APRSO is, precisely, to accelerate country-level improvements in data collection and analysis for better policy decision-making. Even though APRSO is still at an earlier stage of development, a recommendation is made for the remaining ESCAP countries, especially lower-income ESCAP countries, to join the observatory to benefit from collective capacity building and strategic

[3] Myanmar participates as observer.

decision-making, which can ease data collection. For more information, please visit www.aprso.org.

8.5 Implementation Framework

The following framework developed and proposed under this study is a guideline for the implementation of a comprehensive and systematic seat belt and child restraint program. This framework is flexible to suit the specific needs, resources, and conditions of each country. It does not need to be completed sequentially. In fact, it is urged not to implement it sequentially since, for example, a proper assessment of the problem will require some time, but the existing evidence does not suffice to justify action. Another example is that evaluation is normally cited last, but it needs to be included in the design of the strategic action plan so that appropriate indicators are collected at baseline.

Table 7. Proposed stepwise implementation framework.

1. PROBLEM ASSESMENT
How to assess the extent of the problem of non-use of seat belts and child restraints
Assessing the extent of the vehicle occupant injury problem
What are the seat belt and child restraint wearing rates in the area being considered?
Why do not people wear seat belts and use child restraints?
How to assess what is already in place
Who oversees road safety, and what funds are there for it?
Who are the stakeholders?
Is there a seat belt use law in place?
Is there a seat belt and child restraint standard in place?
Have any seat belt and child restraint programs been attempted so far?
Using the situational assessment to prioritize actions
2. ASSEMBLE A LEADERSHIP TEAM
Who to involve?
Assigning roles to working group members, including experts on vehicles, consumer products, legislation, and social behaviour
3. DEVELOP A STRATEGIC PLAN OF ACTION TO ADDRESS KEY CHALLENGES
Setting the program's objectives
Setting targets
Choosing performance indicators
Deciding on activities
Setting a time frame and phasing the program
Estimating resource needs

Setting up a monitoring mechanism
Ensuring sustainability of the program
4. IMPLEMENT THE STRATEGIC PLAN OF ACTION
Standards and equipment
Legislation and penalties
Enforcement
Publicity campaigns
Voluntary approaches
Post-crash response
5. EVALUATION OF COUNTERMEASURES IMPLEMENTED
Planning the evaluation (at the project onset)
Choosing evaluation methods
Dissemination and feedback

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Appendix A. ESCAP Member Countries

Table 8 (A1). ESCAP member countries and associate members by income level, 2016.

Low income	Afghanistan, Democratic People's Republic of Korea, Nepal
Lower-middle income	Armenia, Bangladesh, Bhutan, Cambodia, Georgia, India, Indonesia, Kiribati, Kyrgyzstan, Lao People's Democratic Republic, Micronesia (Federated States of), Mongolia, Myanmar, Pakistan, Papua New Guinea, Philippines (the), Solomon Islands, Sri Lanka, Tajikistan, Timor-Leste, Uzbekistan, Vanuatu, Viet Nam
Upper-middle income	Azerbaijan, China, Fiji, Iran (Islamic Republic), Kazakhstan, Malaysia, Maldives, Marshall Islands (the), Nauru, Russian Federation, Samoa, Thailand, Tonga, Turkey, Turkmenistan, Tuvalu. American Samoa*
High income	Australia, Brunei Darussalam, France, Japan, Netherlands, New Zealand, Palau, Republic of Korea, Singapore, United Kingdom of Great Britain and Northern Ireland, United States of America. French Polynesia*, Guam*, Hong Kong China*, Macao China*, New Caledonia*, Northern Mariana Islands*

Source: https://datahelpdesk.worldbank.org/knowledgebase/articles/378834-how-does-the-world-bank-classify-countries accessed on November 21, 2021.

Note: The WB 2016 Fiscal Year was used to match the Global Status Report on Road Safety 2018 by the World Health Organization data collection. (Cook Islands and Niue are not classified under these method) Since then, Nepal has been categorized as Low middle; Armenia, Georgia, and Indonesia as upper-middle; Nauru as high; and Tajikistan is now low income. All others remain in same category.
*Associate ESCAP member countries

Appendix B. Road Safety Sustainable Development Goals

SDG 3.6 By 2020 halve the number of global deaths and injuries from road traffic accidents

SDG 11.2 By 2030 provide access to safe, affordable, accessible, and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older person

Source: United Nations (2015) Resolution adopted by the General Assembly on 25 September 2015, Transforming our world: the 2030 Agenda for Sustainable Development (A/RES/70/1 Archived 28 November 2020)

Appendix C. 12 Global Voluntary Performance Targets for Road Safety Risk Factors and Service Delivery Mechanisms

Target 1	By 2020, all countries establish a comprehensive multi sectoral national road safety action plan with time-bound targets.
Target 2	By 2030, all countries accede to one or more of the core road safety-related UN legal instruments.
Target 3	By 2030, all new roads achieve technical standards for all road users that consider road safety or meet a three-star rating or better.
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
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.
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.
Target 7	By 2030, increase the proportion of motorcycle riders correctly using standard helmets to close to 100%.
Target 8	By 2030, increase the proportion of motor vehicle occupants using seat belts or standard child restraint systems to close to 100%
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.
Target 10	By 2030, all countries have national laws to restrict or prohibit the use of mobile phones while driving.
Target 11	By 2030, all countries to enact regulation for driving time and rest periods for professional drivers, and/or accede to international/regional regulation in this area.
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.

Source: WHO GRS (2018) , WHO et al (2021)

Appendix D. Seat Belt and Child restraint laws, wearing, and enforcement rates in ESCAP member countries[4]

Source: WHO GRS (2018)

Table 9 (D1) Seat belt laws and seat belt wearing rates, ESCAP member countries.

Country	Seat Belt								
	National seat belt law			Law applies to all occupants			National seat belt wearing rate		
	2013	2015	2018	2013	2015	2018	2013	2015	2018
Afghanistan	No	No	No	—	—	—	—	—	—
Armenia	Yes	Yes	Yes	Yes	Yes	Yes	—	—	—
Australia	Subnational	Yes	Subnational	Yes	Yes	Yes	97% front seats, 92% rear seats	97% front seats, 96% rear seats	97% front seats, 92% rear seats
Azerbaijan	Yes	Yes	Yes	Yes	Yes	Yes	—	—	—
Bangladesh	Yes	No	No	No	—	—	—	—	—
Bhutan	Yes	Yes	Yes	Yes	Yes	Yes	—	—	—
Cambodia	Yes	Yes	Yes	No	No	No	—	—	0%
China	Yes	Yes	Yes	Yes	Yes	Yes	—	36.7% drivers	50%b
Cook Islands	No	No	No	—	—	—	—	—	—
Fiji	Yes	No	Yes	Yes	—	Yes	—	—	95% front seats, 70% rear seats
France	Yes	Yes	Yes	Yes	Yes	Yes	96%-99% all seats	99% drivers, 99% front seats, 87% rear seats,	98% front seats, 83% rear seats
Georgia	Yes	Yes	Yes	No	No	Yes	95% drivers, 89% front seats	80% front seats, 80% rear seats	—
India	Yes	Yes	Yes	Yes	Yes	Yes	27% drivers	26% front seats, 26% rear seats	—
Indonesia	Yes	Yes	Yes	No	No	No	—	—	85%

[4] Compiled based on data from the World Health Organization Global Road Safety Report (2013, 2015, 2018)

Country	Seat Belt								
	National seat belt law			Law applies to all occupants			National seat belt wearing rate		
	2013	2015	2018	2013	2015	2018	2013	2015	2018
Iran (Islamic Republic of)	Yes	Yes	Yes	Yes	Yes	Yes	90% drivers, 80% front seats	92% drivers, 85% front seats,10% rear seats, 50% all seats	—
Japan	Yes	Yes	Yes	Yes	Yes	Yes	99.2% drivers, 97% front seats, 63.7% rear seats, 87.9% all seats	99.4% drivers, 97.9% front seats, 68.2% rear seats, 94.2% all seats	91%–96% front seats, 9%–14% rear seats
Kazakhstan	Yes	Yes	Yes	Yes	Yes	Yes	—	—	—
Kiribati	Yes	Yes	Yes	Yes	Yes	Yes	—	—	—
Kyrgyzstan	Yes	Yes	Yes	Yes	Yes	No	—	—	—
Lao People's Democratic Republic	Yes	Yes	Yes	No	No	Yes	—	—	—
Malaysia	Yes	Yes	Yes	Yes	No	No	87.2% drivers, 76.7% front seats, 12.5% rear seats	85.7% drivers, 76.8% front seats, 11% rear seats	70%
Maldives	Yes	Yes	No	Yes	No	—	—	—	—
Micronesia (Federated States of)	No	Subnational	No	—	—	—	—	—	100% front seats, 0% rear seats
Mongolia	Yes	Yes	Yes	Yes	Yes	Yes	—	42.1% drivers	70%–80% drivers
Myanmar	No	No	—	—	—	—	—	—	—
Nepal	Yes	Yes	Yes	Yes	No	No	—		—
Netherlands	Yes	Yes	Yes	Yes	Yes	Yes	97% front seat,	94% front seats, 84% rear seats	97% front seats, 82% rear seats

Country	Seat Belt								
	National seat belt law			Law applies to all occupants			National seat belt wearing rate		
	2013	2015	2018	2013	2015	2018	2013	2015	2018
							82% rear seat		
New Zealand	Yes	Yes	Yes	Yes	Yes	Yes	96% drivers, 96% front seats, 88% rear seats	95%-97% drivers, 96% front seats,96% rear seats, 96% all seats	95% front seats, 87% rear seats
Pakistan	Yes	Yes	Yes	No	No	No	4% drivers	—	—
Papua New Guinea	Yes	Yes	Yes	Yes	Yes	Yes	—	—	—
Philippines	Yes	Yes	Yes	Yes	Yes	Yes	79.7% drivers	79.8% drivers	52% drivers only
Republic of Korea	Yes	Yes	Yes	Yes	Yes	Yes	88.5% drivers, 78.2% front seats, 6.3% rear seats	86.7% drivers, 84.4% front seats,19.4% rear seats, 69.9% all seats	77% front seats
Russian Federation	Yes	Yes	Yes	Yes	Yes	Yes	77.0% drivers, 97% front seats, 7.5% rear seats	74.0% drivers, 70% front seats, 24% rear seats	33% front seats
Samoa	Yes	Yes	Yes	No	No	No	—	—	—
Singapore	Yes	Yes	Yes	Yes	Yes	Yes	—		50%
Solomon Islands	No	No	No	—	—	—	—		—
Sri Lanka	Yes	Yes	No	No	No	—	79% drivers, 46% front seats		—
Tajikistan	Yes	Yes	Yes	Yes	Yes	Yes	—		—

Country	Seat Belt								
	National seat belt law			Law applies to all occupants			National seat belt wearing rate		
	2013	2015	2018	2013	2015	2018	2013	2015	2018
Thailand	Yes	Yes	Yes	No	No	No	61% drivers, 42% front seats	58% drivers, 54% front seats	56% front seats, 3% rear seats
Timor-Leste	Yes	Yes	Yes	Yes	Yes	Yes	—	—	5%–10% front seats, ≤1% rear seats
Tonga	No	No	No	—	—	—	—	—	—
Turkey	Yes	Yes	Yes	Yes	Yes	Yes	50% drivers, 50% front seats	43.6% drivers, 35.9% front seats	70%
Turkmenistan	—	Yes	Yes	—	Yes	No	—	—	—
United Kingdom	Yes	Yes	Yes	Yes	Yes	Yes	96.5% drivers, 96% front seats, 90.5% rear seats	90% (Great Britain)/ 98% (Northern Ireland) drivers, 95% (Great Britain)/ 98% (Northern Ireland) front seats,88% (Great Britain)/ 95% (Northern Ireland) rear seats,98% for Northern Ireland all seats	91% front seats, 84%–90% rear seats
United States of America	Subnational	Yes	Subnational	—	No	—	86% drivers, 84% front seats, 70%	87% drivers, 84% front seats, 70% rear seats,	82% front seats, 76% rear seats

Country	Seat Belt								
	National seat belt law			Law applies to all occupants			National seat belt wearing rate		
	2013	2015	2018	2013	2015	2018	2013	2015	2018
							rear seats, 85% all seats	86% all seats	
Uzbekistan	Yes	Yes	Yes	Yes	Yes	Yes	—	—	—
Vanuatu	—	No	Yes	Yes	—	No	—		No
Viet Nam	Yes	Yes	Yes	No	No	No	—	—	—

Table 10 (D2). Seat belt enforcement rates, ESCAP member countries.

Country	Seat Belt					
	Enforcement applied to the following occupants			Effectiveness of law enforcement (respondent consensus) (scale 0-10)		
	2013	2015	2018	2013	2015	2018
Afghanistan	—	—	—	—	—	—
Armenia	—	—	All occupants	7	6	3
Australia	—	—	All occupants	7	7	—
Azerbaijan	—	—	All occupants	5	7	9
Bangladesh	—	—	—	3	—	—
Bhutan	—	—	All occupants	5	3	4
Cambodia	—	—	—	5	5	1
China	—	—	All occupants	2	8	No consensus
Cook Islands	—	—	—	—	—	—
Fiji	—	—	All occupants	3	—	9
France	—	—	All occupants	9	9	8
Georgia	—	—	Front seat occupants only	9	8	8
India	—	—	Front seat occupants only	2	4	2
Indonesia	—	—	Front seat occupants only	8	8	7
Iran (Islamic Republic of)	—	—	Not yet enforced	5	7	—
Japan	—	—	All occupants	7	8	No consensus
Kazakhstan	—	—	Driver only	6	10	7
Kiribati	—	—	Driver only	1	1	1
Kyrgyzstan	—	—	Front seat occupants only	8	7	5
Lao People's Democratic Republic	—	—	Not yet enforced	2	2	—
Malaysia	—	—	Front seat occupants only	4	4	6
Maldives	—	—	—	7	4	—
Micronesia (Federated States of)	—	—	—	—	—	—
Mongolia	—	—	Front seat occupants only	6	3	7
Myanmar	—	—	—	—	—	—
Nepal	—	—	Front seat occupants only	1	5	4
Netherlands		--	All occupants	7	7	6

Country	Seat Belt					
	Enforcement applied to the following occupants			Effectiveness of law enforcement (respondent consensus) (scale 0-10)		
	2013	2015	2018	2013	2015	2018
New Zealand	—	—	All occupants	9	9	9
Pakistan	—	—	Driver only	3	4	3
Papua New Guinea	—	—	All occupants	3	4	6
Philippines	—	—	All occupants	8	5	3
Republic of Korea	—	—	Front seat occupants only	8	7	8
Russian Federation	—	—	All occupants	6	7	7
Samoa	—	—	Front seat occupants only	10	6	3
Singapore	—	—	All occupants	8	8	8
Solomon Islands	—	—	—	—	—	—
Sri Lanka	—	—	—	—	8	—
Tajikistan	—	—	All occupants	4	3	3
Thailand	—	—	Front seat occupants only	6	6	5
Timor-Leste	—	—	All occupants	2	2	0
Tonga	—	—	—	—	—	—
Turkey	—	—	All occupants	8	2	8
Turkmenistan	—	—	Front seat occupants only	—	10	7
United Kingdom	—	—	All occupants	—	—	No consensus
United States of America	—	—	—	—	—	—
Uzbekistan	—	—	All occupants	10	9	10
Vanuatu	—		—	1	—	1
Viet Nam	—	—	Front seat occupants only	7	6	3

Table 11 (D3). Child restraint laws and enforcement rates, ESCAP member countries.

Country	Child Restraints					
	National Child Restraint Law			Effectiveness of Law Enforcement		
	2013	2015	2018	2013	2015	2018
Afghanistan	No	No	No	—	—	—
Armenia	No	No	Yes	—	—	5
Australia	Subnational	Yes	Subnational	6	6	—
Azerbaijan	No	Yes	Yes	—	5	9
Bangladesh	No	No	No	—	—	—
Bhutan	No	No	No	—	—	—
Cambodia	Yes	Yes	Yes	—	0	0
China	No	No	No	—	—	—
Cook Islands	No	No	No	—	—	—
Fiji	Yes	No	Yes	2	—	5
France	Yes	Yes	Yes	8	8	5
Georgia	Yes	No	Yes	5	—	7
India	No	No	No	—	—	—
Indonesia	No	No	No	—	—	—
Iran (Islamic Republic of)	No	No	No	—	—	—
Japan	Yes	Yes	Yes	7	8	No consensus
Kazakhstan	Yes	Yes	Yes	6	7	7
Kiribati	Yes	Yes	Yes	0	0	0
Kyrgyzstan	Yes	No	No	4	—	—
Lao People's Democratic Republic	—	Yes'	No	—	1	—
Malaysia	No	No	No	—	—	—
Maldives	No	No	No	—	—	—
Micronesia (Federated States of)	No	Subnational	No	—	—	—
Mongolia	Yes	No	Yes	0	—	2
Myanmar	No	No	—	—	—	—
Nepal	No		No	—		—
New Zealand	Yes	Yes	Yes	8	9	8
Netherlands	Yes	Yes	Yes	7	--	--
Pakistan	No	No	No	—	—	—
Papua New Guinea	No	No	No	—	—	—
Philippines	No	No	No	—	—	—

Country	Child Restraints					
	National Child Restraint Law			Effectiveness of Law Enforcement		
	2013	2015	2018	2013	2015	2018
Republic of Korea	Yes	No	Yes	3	—	2
Russian Federation	Yes	Yes	Yes	3	6	8
Samoa	Yes	No	Yes	10	—	1
Singapore	Yes	Yes	Yes	7	8	7
Solomon Islands	No	No	No	—	—	—
Sri Lanka	No	No	No	—	—	—
Tajikistan	Yes	No	Yes	1	—	1
Thailand	No	No	No	—	—	—
Timor-Leste	Yes	Yes	Yes	—	2	0
Tonga	No	No	No	—	—	—
Turkey	Yes	Yes	Yes	5	3	7
Turkmenistan	—	Yes	No	—	—	—
United Kingdom	Yes	Yes	Yes	—	—	No consensus
United States of America	Subnational	Yes	Subnational	—	—	—
Uzbekistan	No	No	—	—	—	—
Vanuatu	No	No	No	—	—	—
Viet Nam	No	No	No	—	—	—