



**Strategies to Tackle the Issue of
Impaired Driving for Road Safety in the
Asia-Pacific Region:
Implementation Framework**

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Strategies to Tackle the Issue of Impaired Driving for Road Safety in the Asia-Pacific Region: Implementation Framework

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Abbreviations

DUI – Driving Under the Influence

BAC – Blood Alcohol Concentration

ESCAP – Economic and Social Commission for Asia and the Pacific

RBT – Random Breath Testing

Sobriety checkpoints – randomly stopping a vehicle by enforcement officials for investigating alcohol or drug impairment

ESCAP member countries – Available at: <https://www.unescap.org/about/member-states>

Vulnerable road users (VRUs) – road users prone to frequent road crashes

SDGs – Sustainable Development Goals

WHO – World Health Organization

MLDA – Minimum Legal Drinking Age

ALR – Administrative License Revocation

GDL – Graduated Driver Licensing

DADSS – Driver Alcohol Detection System for Safety

SFST – Standardized Field Sobriety Test

DUID – Driving Under the Influence of Drugs

Executive Summary

Road Safety is a sustainable development challenge for the member countries of the Economic and Social Commission for Asia and the Pacific (ESCAP). In 2016, approximately 1.35 million people were killed in road crashes globally. The economic and social consequences of this are enormous. In recent years, road safety has been receiving greater attention from the international community, and in 2010, the General Assembly proclaimed the period from 2011 to 2020 as the Decade of Action for Road Safety. The global commitment to road safety was further strengthened by the General Assembly through the adoption of resolution 70/1 on 25 September 2015 of the 2030 Agenda for Sustainable Development, as reflected in targets 3.6 (by 2020 halve the number of global deaths by road accidents) and 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 persons) of the accompanying Sustainable Development Goals.

Road safety has been a major concern in Asia and the Pacific, as 60 per cent of global road deaths in 2016 occurred in the region. In line with the trend globally, road safety has received greater attention from high-level policymakers among ESCAP member countries. At the Ministerial Conference on Transport, at its third session, held in Moscow from 5 to 9 December 2016, the Asia-Pacific transport ministers renewed their commitments towards improving road safety by adopting the Ministerial Declaration on Sustainable Transport Connectivity in Asia and the Pacific, which was endorsed by the Commission in its resolution 73/4 of 19 May 2017. Under this resolution, members and associate members of ESCAP have been encouraged in meeting their commitments under the Decade of Action for Road Safety (2011-2020) and 2030 Agenda for Sustainable Development.

Notably, road traffic deaths in the ESCAP region declined from 777,016 in 2010 to 733,541 in 2013, and then increased to 812,172 in 2016. The South and South-West Asia subregion accounted for 48.13 per cent of the road deaths.

Challenges

Major challenge in many countries of the region is lack of awareness of the need for behavioural changes among road users. ESCAP member countries also lack an appropriate legal system and law enforcement resources related to road safety. The most effective and expedient strategy to reduce impaired driving is to build awareness about and increase enforcement. Frequent, visible and publicized enforcement requires sufficient resources in terms of manpower, equipment and leadership. If ESCAP member countries were to direct their limited resources to awareness-building towards human behavioural change and in improving law enforcement practices as their top priority, progress could be achieved in making roads safer in the region.

Limited availability of consistent and quality data related to road safety is another challenge faced by ESCAP member countries. Several member countries have not developed a suitable data management system, which could be used for policy analysis and evidence-based decision-making.

Another challenge is the substantial proportion of traffic deaths in ESCAP member countries that are pedestrians, bicyclists, and motorbike riders. The number of those deaths attributable to alcohol is not known. Countermeasures for alcohol-impaired drivers are evident but countermeasures for the at-risk populations have not been implemented and need to be sufficiently addressed.

Conclusions and recommendations including implementation of them

The findings from the study indicate that many ESCAP member countries could make progress in reducing drink-driving related deaths, but more work needs to be carried out to make a significant impact. A general deterrent effect (all drivers want to avoid being caught for drink-driving) gives the “biggest bang for the buck” in countermeasures and is cost effective. That strategy involves laws, enforcement, reasonable sanctions, publicity and institutional development. Another conclusion from the study is that ESCAP member countries need to implement a combination of strategies to reduce drink-driving-related crashes in the region.

The study provides the following recommendations for the ESCAP member countries. The recommendations are grouped into five categories:

- **Education and awareness**

Awareness-building through education for all road users to support behavioural changes among drivers, riders and pedestrians, starting with targeted groups, such as heavy-vehicle drivers and motorcycle drivers.

- **Legislation and enforcement**

Support frequent, publicized, and visible enforcement measures aimed at those driving under the influence. This could have an immediate and potentially large effect on behaviour change include the following:

Development and adoption of evidence-based national policies and strategies aimed at reducing drink-driving and accordingly related road crashes. This could entail reassessing and considering a suitable tax level on alcohol sales with the additional revenue to be used for education, awareness-building activities and effective enforcement of measures aimed at deterring drink-driving;

Consider establishing a suitable minimum legal drinking age for alcohol consumption;
Adopt a national law prohibiting drink-driving. The drink-driving law needs to be suitable for any country environment and acceptable to general population;

Set up random breath testing and sobriety checkpoints. Among possible sanctions for drink-driving offences are taking away driver’s licenses, appropriate fines, and alcohol monitoring;

Consider allowing alcohol ignition interlock vendors to operate in the country and adopting a law mandating alcohol ignition interlock for convicted drink-driving offenders.

- **Alcohol control policies**

Other alcohol policy strategies that have had modest effects on impaired driving are the following:

Responsible beverage service and enforcement of serving obviously intoxicated patrons;
Reducing or limiting the density of alcohol outlets in a community, state, province or country;
Limiting hours of sale of alcohol at outlets, bars and restaurants, such as no sales on certain days, no sales after 11 p.m. or no sales until noon;

Set minimum pricing of alcohol to make it more expensive than soft drinks.

- **Road safety data**

Adopt practices to collect blood alcohol concentration-related data on groups vulnerable to road deaths, namely motorbike riders and passengers, bicycle riders, pedestrians and other non-motor vehicle drivers or passengers;

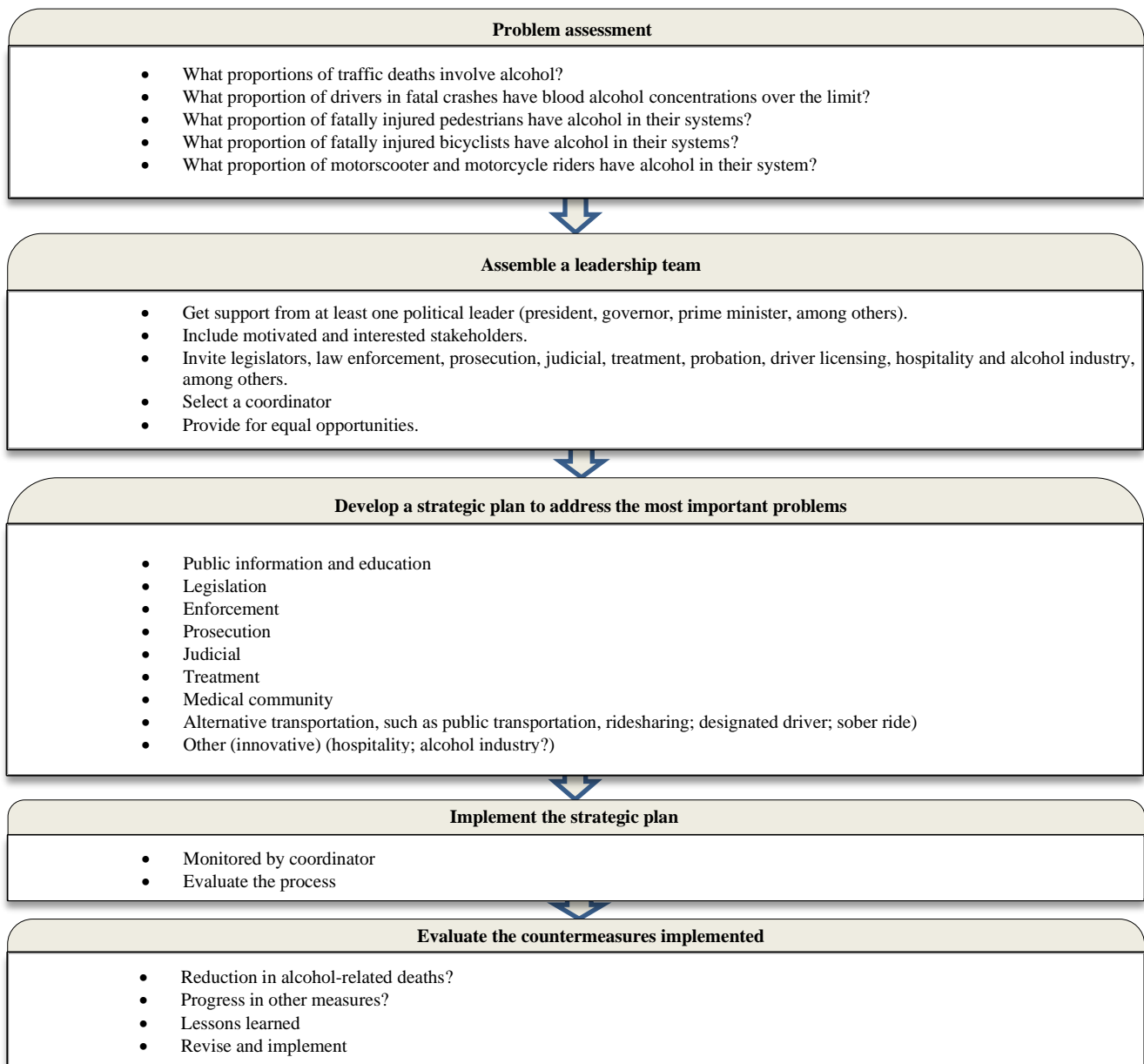
Develop a consistent and quality data system in order to track progress and trends in reducing impaired driving. Very few ESCAP member countries have comprehensive data systems.

- **Implementation**

The general framework for the implementation of these recommendations includes the following:

- Problem identification;
- Assemble a leadership team;
- Develop a strategic plan;
- Implement the plan;
- Evaluate the effectiveness of the countermeasure in the plan.

Stepwise illustration of the implementation framework



1. Introduction

1.1 Background

Globally, road traffic crashes kill approximately 1.35 million people each year. They result in substantial economic losses and have significant financial, social and emotional consequences on the victims and their families. Because of the growing number of deaths in road crashes, the issue of road safety has received greater attention from the international community in recent years and is an aspect of the global development agenda. In 2010, the General Assembly proclaimed the period from 2011 to 2020 as the Decade of Action for Road Safety. It was further strengthened through the 2030 Development Agenda as reflected in targets 3.6 and 11.2 of the Sustainable Development Goals. Target 3.6 aims to halve global deaths and injuries from road traffic crashes by 2020, while target 11.2 aims to, 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 persons.

In addition to the global mandates, the road safety issue has received a great deal of attention from high-level policymakers in the ESCAP region. At the Ministerial Conference on Transport, at its third session, held in Moscow from 5 to 9 December 2016, the Asia-Pacific transport ministers renewed their commitments towards improving road safety by adopting the Ministerial Declaration on Sustainable Transport Connectivity in Asia and the Pacific (2017–2021), which was endorsed by the Commission in its resolution 73/4 of 19 May 2017.

The road traffic death rate per 100,000 population was 17.17 in the ESCAP region in 2013, slightly lower than the global rate of 17.40. It, however, increased in 2016 to 18.38, slightly higher than the global rate of 18.20 in that year. In North and Central Asia, the death rate declined from 17.81 in 2013 to 16.48 in 2016, a significant achievement. In comparison, the death rate in the South and South-West Asia increased to 20.31 in 2016 from 16.44 in 2013 (See appendix A for a list of ESCAP countries by subregion). The data indicate that a significant improvement is necessary to meet related regional and global targets.

The United Nations Decade of Action (2011-2020) includes five pillars: pillar 1: road safety management; pillar 2: safer roads and mobility; pillar 3: safer vehicles; pillar 4: safer road users; and pillar 5: post-crash response. This topic of this study falls under pillar 4, reducing drink-driving and providing safer road users in ESCAP countries. The World Health Organization (WHO), in a report published in 2018 on the global status of road safety (WHO, 2018a), recommended four policies to reduce impaired driving: (a) adoption of a national drink-driving law; (b) setting alcohol concentration limits for adult drivers at .05 g/dL (grams per deciliter); (c) setting zero alcohol limits for young novice drivers; and (d) conducting random breath testing similar to that as originated in Australia, as the key enforcement strategy. Regarding the last recommendation, the indicator for achieving this goal is information from each ESCAP country on existing alcohol-level testing rules and types of tests and alcohol limits used and allowed for prosecution (ESCAP, 2016).

The United Nations Global Framework Plan of Action for Road Safety was adopted in November 2018 by the global community as the way to effectively and efficiently support national efforts related to road safety and guide international assistance underpinned by the United Nations Road Safety Trust Fund. The Global Framework Plan of Action for Road Safety is shown in figure I.

Figure I
New Global Framework Plan of Action for Road Safety (2018)

| Area Pillar | L egislation | E nforcement | E ducation | T echnology | I nternational R egulatory S upport |
|--|---|---|--|---|--|
| Road safety management | | | | | |
| Safe user | Traffic rules drivers cyclists pedestrians | Lawful behavior ensured by police and inspectors | Awareness raising, training and examination | Supportive technology and equipment, rules reminders | UN RS legal instruments and resolu- tions, WP.1, SC.1, WP.15 |
| Safe vehicle | Rules and standards for admission of vehicles to traffic | Certification and inspections by qualified inspectors | Awareness raising for users, training for inspectors | Supportive technology and equipment, compliance reminders | UN RS legal instruments and resolu- tions, WP.1, WP.29 |
| Safe road | Standards for design, construction, maintenance and signage | Audit, assessment and inspection by qualified teams | Awareness raising for road managers, users, and for inspectors | Forgiving and self-explaining road design, intelligent road systems | UN RS legal in- struments and resolutions, int. standards WP.1, SC.1 |
| Effective post-crash response | Standards for data collection post-crash response and investigation | Oversight of rescue services, investigators investigating crashes | First aid and rescue service training, investigators training | Supportive technology and equipment | Consolidated resolution, int. standards, WP.1, SC.1 |

Source: United Nations Road Safety Trust Fund (2018).

1.2 Drink-driving in member countries of the Economic and Social Commission for Asia and the Pacific

With a few exceptions, ESCAP member countries have a lower than average alcohol consumption rate per capita (WHO, 2018b). In some countries, alcohol is legally prohibited. Consequently, alcohol involvement in fatal crashes in low alcohol consumption countries is also low.

Drink-driving is one of the major causes of road deaths in the ESCAP region. In the Pacific, it is the major cause of road traffic deaths in Australia, the Marshall Islands, Palau, Papua New Guinea, and Tonga. In South-East Asia drink-driving accounts for approximately 33 per cent of total road traffic deaths in Viet Nam and approximately 25 per cent in Malaysia and Thailand, and it accounts for more than 20 per cent of road traffic deaths in Azerbaijan and Mongolia.

In the Russian Federation, where the alcohol consumption rate is high, a recent study indicates that a one liter increase in alcohol consumption would result in a 3.5 per cent increase in the male traffic crash death rate and a 2.1 per cent increase in the female death rate (Razvodovsky, 2016). In the study, it is noted that

the results of an analysis suggest that 38.3 per cent of male traffic deaths and 25.2 per cent of female traffic deaths are attributed to alcohol.

Most ESCAP member countries have adopted blood alcohol concentration (BAC) limits for the general population of drivers (see appendix B: BAC Limits in Asia-Pacific Countries), however, most of them have not set such limits for young novice drivers. Lowering the blood alcohol limit for the general population of drivers to .05 g/dL or lower has proven effective in the developed countries. Japan lowered the blood alcohol limit to .03 and increased the penalties for drink-driving in 2002 and alcohol-related traffic deaths per billion kilometers decreased by 38 per cent in the post-law period (Nagata and others, 2008). Several studies from Australia have also demonstrated the effectiveness of lowering the blood alcohol concentration limit to .05 g/dL (Homel, 1994; Henstridge, Homel and P. Mackay 1997; Smith, 1986). The results of a recent meta-analysis in the United States of America showed that lowering the blood alcohol concentration limit from .08 g/dL to .05 g/dL would result in a reduction of 11 per cent in alcohol impaired driving deaths (Fell and Scherer, 2017).

Setting a minimum legal drinking age is also an important factor in reducing young driver impaired driving crash deaths; this is especially the case when the minimum legal drinking age is 21 years, (Shults and others, 2001; Wagenaar and Toomey, 2002; Fell and Scherer, 2017). According to WHO, seven ESCAP member countries have not established a minimum legal drinking age, Armenia, Cambodia, China, Islamic Republic of Iran, Kazakhstan, Kyrgyzstan and Nepal (WHO, 2004). In most ESCAP member countries, the minimum legal drinking age is 18 years. Exceptions to this are the Federated States of Micronesia, Indonesia and Palau, where the age is 21 years.

As per the Global Status Report on Road Safety 2018 (WHO, 2018), 26 per cent of the traffic deaths in 2018 in Thailand were alcohol-related, while in Viet Nam, the rate was 34 per cent. Meanwhile, in the Islamic Republic of Iran, alcohol is banned and only 2 per cent of the traffic deaths, on average, are alcohol related. In an effort to reduce the harm caused by alcohol, Thailand has adopted the following policies since 2000: added a 2 per cent surcharge on alcohol in 2001; banned direct alcohol advertising and promotions and established the minimum legal drinking age at 18 in 2008; prohibited alcohol sales and drinking in public parks in 2013; placed a limit on the hours of alcohol sales in 2015, and increased the alcohol excise tax and set a lower blood alcohol concentration limit for young drivers at .02 per cent in 2017 (WHO, 2018).

Most ESCAP member countries conduct random breath testing or set up sobriety checkpoints as their main drink-driving enforcement strategy. Australia leads the world in random breath testing frequency and in demonstrations of their effectiveness (Homel, 1990; 1993; Henstridge, Homel, and, Mackay 1997; Watson and others, 2010). Notably, some low- and middle-income countries lack the resources to conduct such tests (Ngoc and others, 2012). In Hong Kong, China, a study of the competing effects of increased alcohol consumption resulting from decreases in alcohol taxes and stricter drink-driving legislation coupled with increased random breath testing has indicated positive effects of the drink-driving countermeasures (Kim and others, 2013). A survey conducted in Hong Kong, China showed that drivers' awareness of random breath tests (93 per cent) and the potential legal consequences of a drink-driving conviction (93–98 per cent) were the key drink-driving deterrents. However, despite stricter blood alcohol concentration limits and the establishment of harsher penalties for drink-driving in Viet Nam, 45 per cent of drivers reported that they still drink and drive (Tran and others, 2012).

Table 1 shows progress made among ESCAP member countries between 2010 and 2016 in adopting a national drink-driving law (columns 2, 3, 4) and basing their law on a BAC/BrAC level (columns 5, 6, 7).

Table 1
**Progress made in adopting drink-driving laws
for 2010, 2013 and 2016**

| Country | National drink-driving law | | | Based on blood alcohol content/breath alcohol content | | |
|----------------------------------|----------------------------|-------------|------|---|------|------|
| | 2010 | 2013 | 2016 | 2010* | 2013 | 2016 |
| Afghanistan | No | Yes | Yes | -- | No | No |
| Armenia | Yes | Yes | Yes | -- | Yes | Yes |
| Australia | Yes | Yes | Yes | -- | Yes | Yes |
| Azerbaijan | Yes | Yes | Yes | -- | No | No |
| Bangladesh | Yes | Yes | Yes | -- | No | No |
| Bhutan | Yes | Yes | Yes | -- | Yes | Yes |
| Cambodia | Yes | Yes | Yes | -- | Yes | Yes |
| China | Yes | Yes | Yes | -- | Yes | Yes |
| Cook Islands | Yes | Yes | Yes | -- | Yes | Yes |
| Fiji | Yes | Yes | Yes | -- | Yes | Yes |
| France | Yes | Yes | Yes | -- | Yes | Yes |
| Georgia | -- | Yes | Yes | -- | Yes | Yes |
| India | Yes | Yes | Yes | -- | Yes | Yes |
| Indonesia | Yes | Yes | Yes | -- | No | No |
| Iran (Islamic Republic of) | Yes | Yes | Yes | -- | No | No |
| Japan | Yes | Yes | Yes | -- | Yes | Yes |
| Kazakhstan | Yes | Yes | Yes | -- | No | Yes |
| Kiribati | Yes | Yes | Yes | -- | Yes | Yes |
| Kyrgyzstan | Yes | Yes | Yes | -- | No | No |
| Lao People's Democratic Republic | Yes | Yes | Yes | -- | Yes | Yes |
| Malaysia | Yes | - | Yes | -- | - | Yes |
| Maldives | Yes | Subnational | No | -- | - | No |
| Micronesia (Federated States of) | No | Yes | Yes | -- | Yes | No |
| Mongolia | -- | Yes | Yes | -- | Yes | Yes |
| Myanmar | -- | Yes | Yes | -- | No | No |
| Nepal | Yes | Yes | Yes | -- | Yes | No |
| New Zealand | Yes | Yes | Yes | -- | No | Yes |
| Pakistan | Yes | Yes | Yes | -- | No | No |
| Papua New Guinea | Yes | Yes | Yes | -- | Yes | No |
| Philippines | Yes | Yes | Yes | -- | Yes | Yes |
| Republic of Korea | | Yes | Yes | -- | Yes | Yes |
| Russian Federation | Yes | Yes | Yes | -- | Yes | Yes |
| Samoa | Yes | Yes | Yes | -- | Yes | Yes |

| Country | National drink-driving law | | | Based on blood alcohol content/breath alcohol content | | |
|-----------------|----------------------------|------|------|---|------|------|
| | 2010 | 2013 | 2016 | 2010* | 2013 | 2016 |
| Singapore | Yes | Yes | Yes | -- | No | Yes |
| Solomon Islands | -- | Yes | Yes | -- | Yes | Yes |
| Sri Lanka | Yes | Yes | Yes | -- | No | Yes |
| Tajikistan | -- | Yes | Yes | -- | Yes | No |
| Thailand | Yes | Yes | Yes | -- | Yes | Yes |
| Timor-Leste | Yes | Yes | Yes | -- | Yes | Yes |
| Tonga | Yes | Yes | Yes | -- | Yes | Yes |
| Turkey | Yes | Yes | Yes | -- | Yes | Yes |
| Turkmenistan | Yes | Yes | Yes | -- | Yes | Yes |
| United Kingdom | Yes | Yes | Yes | -- | Yes | Yes |
| United States | -- | Yes | Yes | -- | No | Yes |
| Uzbekistan | -- | Yes | Yes | -- | No | No |
| Vanuatu | Yes | Yes | Yes | -- | Yes | No |
| Viet Nam | Yes | Yes | Yes | -- | No | Yes |

2010 data were not available.

Table 2 shows the status of drink-driving laws and strategies to reduce drink-driving in ESCAP member countries in 2016.

Table 2
Status of drink-driving laws and enforcement in
ESCAP member countries in 2016

| Country | National maximum legal blood alcohol concentration levels (grams per deciliter) | | | | | |
|--------------|---|------------------------|-----------------------------------|-----------------------------------|--|--------------------------------|
| | General population | Young / novice drivers | Professional / commercial drivers | Random breath testing carried out | Testing carried out in case of fatal crash | Enforcement (0-9, low to high) |
| Afghanistan | — | — | — | Yes | All drivers tested | 6 |
| Armenia | 0.04 | 0.04 | 0.04 | Yes | All drivers tested | 6 |
| Australia | .05 | 0 | 0 | Yes | All drivers tested | 8 |
| Azerbaijan | — | — | — | Yes | All drivers tested | 9 |
| Bangladesh | — | — | — | Yes | Some drivers tested | 2 |
| Bhutan | 0.08 | 0 | 0 | Yes | Some drivers tested | 6 |
| Cambodia | 0.05 | 0.05 | 0.05 | Yes | No | 5 |
| China | 0.02 | 0.02 | 0.02 | Yes | All drivers tested | 9 |
| Cook Islands | 0.08 | 0.08 | 0.08 | Yes | All drivers tested | 6 |
| Fiji | 0.08 | 0 | 0 | Yes | Some drivers tested | 6 |
| France | 0.05 | 0.02 | 0.05 | Yes | All drivers tested | 7 |

| Country | National maximum legal blood alcohol concentration levels (grams per deciliter) | | | | | |
|----------------------------------|---|------------------------|-----------------------------------|-----------------------------------|--|--------------------------------|
| | General population | Young / novice drivers | Professional / commercial drivers | Random breath testing carried out | Testing carried out in case of fatal crash | Enforcement (0-9, low to high) |
| Georgia | 0.03 | 0.03 | 0.03 | Yes | All drivers tested | 7 |
| India | 0.03 | 0.03 | 0.03 | Yes | Some drivers tested | 4 |
| Indonesia | — | — | — | Yes | All drivers tested | 9 |
| Iran (Islamic Republic of) | — | — | — | Yes | Some drivers tested | 7 |
| Japan | 0.03 | 0.03 | 0.03 | Yes | Some drivers tested | 9 |
| Kazakhstan | 0.05 | 0.05 | 0.05 | No | All drivers tested | 7 |
| Kiribati | 0.05 | 0.00 | 0.00 | Yes | No | 4 |
| Kyrgyzstan | — | — | — | Yes | All drivers tested | 5 |
| Lao People's Democratic Republic | 0.05 | 0.05 | 0 | Yes | No | 3 |
| Malaysia | ≤0.08 | ≤0.08 | ≤0.08 | Yes | All drivers tested | 4 |
| Maldives | — | — | — | No | No | — |
| Micronesia (Federated States of) | — | — | — | No | No | 5 |
| Mongolia | 0.04 | 0.04 | 0.04 | Yes | All drivers tested | 8 |
| Myanmar | — | — | — | Yes | Some drivers tested | 6 |
| Nepal | — | — | — | Yes | Some drivers tested | 8 |
| New Zealand | 0.05 | 0 | 0.05 | Yes | Some drivers tested | 7 |
| Pakistan | — | — | — | No | No | 4 |
| Papua New Guinea | — | — | — | No | No | — |
| Philippines | 0.05 | 0.05 | 0 | Yes | Some drivers tested | 4 |
| Republic of Korea | 0.05 | 0.05 | 0.05 | Yes | Some drivers tested | 7 |
| Russian Federation | 0.03 | 0.03 | 0.03 | Yes | All drivers tested | 6 |
| Samoa | 0.08 | 0.08 | 0.08 | Yes | No | 8 |
| Singapore | 0.08 | 0.08 | 0.08 | Yes | All drivers tested | 8 |
| Solomon Islands | 0.05 | 0.05 | 0.05 | Yes | Some drivers tested | 7 |
| Sri Lanka | 0.08 | 0.08 | 0.08 | No | Some drivers tested | 9 |
| Tajikistan | — | — | — | Yes | All drivers tested | 9 |
| Thailand | 0.05 | 0.02 | 0 | Yes | Some drivers tested | 6 |
| Timor-Leste | 0.05 | 0.05 | 0.05 | No | Some drivers tested | 4 |
| Tonga | 0.03 | 0.03 | 0.03 | Yes | No | 5 |
| Turkey | 0.05 | 0.05 | 0.02 | Yes | All drivers tested | 9 |
| Turkmenistan | 0.05 | 0.05 | 0.05 | Yes | All drivers tested | 10 |
| United Kingdom | 0.08 | 0.08 | 0.08 | Yes | All drivers tested | 8 |
| United States of America | 0.08 | 0.02 - | 0.04 - | Yes | Some drivers tested | — |
| Uzbekistan | — | — | — | Yes | — | 10 |

| Country | National maximum legal blood alcohol concentration levels (grams per deciliter) | | | | | |
|----------|---|------------------------|-----------------------------------|-----------------------------------|--|--------------------------------|
| | General population | Young / novice drivers | Professional / commercial drivers | Random breath testing carried out | Testing carried out in case of fatal crash | Enforcement (0-9, low to high) |
| Vanuatu | — | — | — | No | No | 0 |
| Viet Nam | 0.00— 0.05 | 0.00 — 0.05 | 0.00 — 0.05 | Yes | Some drivers tested | 8 |

Between 2013 and 2018, 13 ESCAP member countries experienced a decrease in the attribution of road traffic deaths because of alcohol. Table 3 shows those attributions where data are available.

Table 3
Per cent traffic deaths alcohol-related 2013 versus 2016

| COUNTRY | Percent deaths alcohol-related in 2013 | Per cent deaths alcohol-related in 2018 | Percent decrease in alcohol-related deaths |
|--------------------|---|--|---|
| Armenia | 1.9% | 2.0% | - |
| Australia* | 30.0% | 17.0% | -10.0% |
| Azerbaijan* | 31.0% | 15.0% | -52.0% |
| Cambodia* | 15.0% | 13.0% | -13.0% |
| China* | 3.8% | <1.0% | -74% |
| Cook Islands | 25.0% | 39.0% | -- |
| Fiji* | 14.6% | 5.0% | -66% |
| Georgia | 5.3% | 9.0% | -- |
| India* | 4.7% | 4.0% | -15% |
| Iran | N/A | 2.0% | -- |
| Japan* | 6.2% | 6.0% | -3% |
| Kazakhstan | 0.5% | <1.0% | -- |
| Malaysia* | 23.3% | <1.0% | -96% |
| Micronesia | N/A | 100.0% | -- |
| Myanmar | N/A | 21.0% | -- |
| New Zealand* | 31.0% | 27.0% | -13% |
| Papua New Guinea | 56.0% | 56.0% | -- |
| Republic of Korea* | 14.3% | 11.0% | -23% |
| Russian Federation | 8.6% | 23.0% | -- |
| Singapore* | 10.6% | 6.0% | -43% |
| Tajikistan | 3.2% | 4.0% | - |
| Thailand* | 25.8% | 14.0% | -46% |
| Tonga | 25.0% | 77.0% | - |
| Turkey* | 3.3% | 3.0% | -9% |
| Uzbekistan | N/A | 4.0% | -- |
| Vanuatu | 22.0% | 67.0% | -- |
| Viet Nam | 34.0% | N/A | -- |

*Decrease in per cent alcohol-related

Sources: WHO (2015); ((2018a).

Passenger cars and light trucks are the transportation mode of choice for high-income countries, while, motorcycles, motor scooters, bicycles, and walking are the most common mode of transport in middle- and low income ESCAP member countries. In the Western Pacific Island countries, the road traffic death rate

is 18.5 deaths per 100,000 population, 36 per cent of which are motorcycle-related deaths and 25 per cent are pedestrian deaths (O'Connor and Ruiz, 2014). Alcohol impairment occurs in car drivers, motorbike riders and pedestrians, including commercial vehicle drivers. In ESCAP member countries where impaired driving laws are enforced and data on alcohol involvement in crashes are available, fewer traffic deaths involve alcohol.

Alcohol reduces inhibitions and can result in highly risky behaviour. Therefore, alcohol impaired driving and speeding commonly occur in combination. Typically, 30 to 50 per cent of impaired driving fatal crashes involve speeding and 20 and 40 per cent of speeding crashes involve alcohol. It is not known what per cent of speeding fatal crashes involve a drinking driver in ESCAP member countries, but in the United States, the figure is high, at 45 per cent (National Highway Traffic Safety Administration, 2017). It is also most likely high in many ESCAP member countries. In a study conducted in India, drink-driving and speeding are cited as the two major causes of traffic deaths in the country; one of the recommendations from the study is to ban advertisements glamorizing alcohol and encouraging excessive drinking (Bhullar, 2012).

Global Status Reports on Road Safety 2015 and 2018, published by the World Health Organization indicated Vulnerable road users (VRUs) are those who are more susceptible to road crashes resulting from impaired driving. Vulnerable road users (motorcycle and motor scooter riders, bicyclists and pedestrians) are dominant in the traffic death statistics in many ESCAP member countries. Vulnerable road user road deaths constituted 54.7 per cent of the deaths in 2016 in the Asia-Pacific region, as compared to the global average of 52.33 per cent. The vulnerable road user death rate in South-East Asia was 68.56 per cent in 2013, which increased to 75.17 per cent in 2016. A substantial per cent of the vulnerable road user population in ESCAP countries uses motorized two- and three-wheeler vehicles. Deaths in those vehicles accounted for 39.21 per cent of all road deaths in ESCAP countries in 2016, compared to the global portion of 28 per cent. Pedestrian road deaths are also high in ESCAP countries, led by Afghanistan, Bangladesh, Japan, Kazakhstan, Nepal, Papua New Guinea, Samoa and Tajikistan.

Alcohol impairment is an issue with these road users also. As examples, in developed countries, such as the United States of America, 34% of pedestrians killed in collisions had BACs that exceeded .08 g/dL while 48 per cent of pedestrian deaths in the United Kingdom involved drinking (Stewart, 2004). It is not known what proportion of the vulnerable road users involved in road crashes were drinking prior to their fatal crashes in ESCAP member countries.

The responses to a survey on drink-driving sent to ESCAP member countries in which 19 member countries participated is shown in table 4. See appendix C for questions in the survey.

Table 4

**Summary of the Economic and Social Commission for Asia and the Pacific
survey responses on drink-driving: 2019**

| Country | Responses to the Economic and Social Commission for Asia and the Pacific survey on drink-driving (countries that responded by 25 July 2019) | | | | | | Legal drink age | Driving under the influence enforcement | Fatal drivers tested for drugs | Per cent drivers tested positive for drugs |
|-------------|--|---|--|--|---|---|-----------------|--|--------------------------------|--|
| | Blood alcohol concentration limit for driving | Per cent fatal drivers tested for blood alcohol concentration | Per cent fatal drivers with blood alcohol concentration BACs>.05 | Number of drivers arrested for driving under the influence | Per cent of arrested driving under the influence drivers convicted of driving under the influence | Sanctions for driving under the influence conviction | | | | |
| Afghanistan | No | 3% | N/A | 5% | N/A | Suspension fine | No | Counter Narcotics Law | 5% | Opiates 5% |
| Australia | .05 | 53.7% | 38.8% | N/A | N/A | Suspension Fine Jail Interlock Education Treatment | 18 | Random breath testing, Random drug testing. Special driving under the Influence | N/A | N/A |
| Azerbaijan | .03 | N/A | N/A | N/A | N/A | Suspension Fine Jail | 18 | Sobriety checkpoints, Random breath testing | N/A | N/A |
| Bhutan | .08 | N/A | N/A | N/A | N/A | Suspension Fine Treatment | 18 | Random Breath Testing | N/A | N/A |
| Cambodia | .05 | N/A | N/A | N/A | N/A | Fine Jail Treatment | N/A | Sobriety checkpoints Random breath testing | N/A | N/A |
| India | .03 | N/A | N/A | N/A | N/A | Section 185 Motor Vehicle Act | 25 | Sobriety checkpoints Random breath testing, Special driving under the influence | 13.2% | N/A |
| Indonesia | No | N/A | N/A | N/A | N/A | Fine Jail | 17 | N/A | N/A | N/A |
| Kazakhstan | Ministry Of Internal | Ministry Of Internal | Ministry Of Internal Affairs | Ministry Of Internal | Ministry Of Internal Affairs | Ministry Of Internal | 21 | Ministry Of Internal | Ministry Of Internal | Ministry of Internal |

| Country | Responses to the Economic and Social Commission for Asia and the Pacific survey on drink-driving (countries that responded by 25 July 2019) | | | | | | Legal drink age | Driving under the influence enforcement | Fatal drivers tested for drugs | Per cent drivers tested positive for drugs |
|----------------------------------|--|---|--|--|---|--|-----------------|---|--------------------------------|--|
| | Blood alcohol concentration limit for driving | Per cent fatal drivers tested for blood alcohol concentration | Per cent fatal drivers with blood alcohol concentration BACs>.05 | Number of drivers arrested for driving under the influence | Per cent of arrested driving under the influence drivers convicted of driving under the influence | Sanctions for driving under the influence conviction | | | | |
| | Affairs | Affairs | | Affairs | | Affairs | | Affairs | Affairs | Affairs |
| Kyrgyzstan | Degree Of Alcohol Detection | 30% | N/A | Ministry Of Internal Affairs | Ministry Of Internal Affairs | Suspension Education Treatment | N/A | Sobriety checkpoints Random breath testing, special driving under the influence, | Ministry Of Internal Affairs | Ministry Of Internal Affairs |
| Lao People's Democratic Republic | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Nepal | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Philippines | .05 | N/A | N/A | 173 | 45% | Suspension Fine Jail Education | 18 | Sobriety checkpoints Random breath testing, special driving under the influence | N/A | |
| Russian Federation | .03 | 94.9 | 48.2 | 81171 | N/A | Suspension Fine Jail | 18 | Random breath testing, check points | N/A | N/A |
| Singapore | .08 | 7.4% | N/A | 2078 | N/A | Suspension Fine Jail | N/A | Sobriety checkpoints Random breath testing | N/A | N/A |
| Sri Lanka | .08 | 181 | N/A | 1949 | 5% | Fine Jail Education | No | Sobriety checkpoints, Random breath testing, Special driving under | N/A | N/A |
| Tajikistan | .07 | N/A | N/A | 10 | N/A | Suspension Fine Jail | 18 | Sobriety checkpoints, Random breath testing | N/A | N/A |

| Responses to the Economic and Social Commission for Asia and the Pacific survey on drink-driving (countries that responded by 25 July 2019) | | | | | | | | | | |
|--|---|---|--|--|---|---|-----------------|--|--------------------------------|--|
| Country | Blood alcohol concentration limit for driving | Per cent fatal drivers tested for blood alcohol concentration | Per cent fatal drivers with blood alcohol concentration BACs>.05 | Number of drivers arrested for driving under the influence | Per cent of arrested driving under the influence drivers convicted of driving under the influence | Sanctions for driving under the influence conviction | Legal drink age | Driving under the influence enforcement | Fatal drivers tested for drugs | Per cent drivers tested positive for drugs |
| Thailand | .05 | N/A | N/A | 13,215 | N/A | Suspension Fine Jail Education Treatment | 20 | Sobriety checkpoints, Random breath testing | N/A | N/A |
| United States | .08 .05 in one state | 61% | 29.7% | 990,000 in 2017 | N/A | Suspension Fine Jail Interlock Education Treatment Transdermal Alcohol Monitoring | 21 | Sobriety checkpoints, Special driving under the influence | N/A | N/A |
| Viet Nam | .05 | 3-5% | N/A | N/A | N/A | N/A | No | N/A | N/A | N/a |

As indicated in table 4, very few countries have reported on a number of important data fields, including the per cent of fatally injured drivers tested for a blood alcohol concentration, the per cent of fatally injured drivers with blood alcohol concentration $\geq .05$ g/dL, the number of drivers arrested for driving under the influence and the per cent of arrested driving under the influence offenders who were convicted. This is critical information if countries are going to be able to thoroughly understand their impaired driving problem. An even smaller number of countries (two) were able to report the per cent of fatally injured drivers tested for drugs other than alcohol.

1.3 The Challenges and Opportunities

The following Sections of the report describes the importance of the robust data system, the challenges and opportunism in improving road safety data systems and provide conclusions and recommendations for the overall improvement of road safety in the Asia-Pacific region.

2. Good practices for reducing alcohol-related crashes

This section includes descriptions of good practices for reducing alcohol-related crashes around the world, namely (a) proven effective impaired driving laws, including specific driving laws for young drivers (b) social marketing and public education, and community-based interventions for awareness-building, (c) increased impaired driving enforcement and (d) effective sanctions for impaired driving offenders:

2.1 Proven effective impaired driving laws

2.1.1. Setting reasonable blood alcohol concentration limits for driving

Setting the blood alcohol concentration limit at .05 g/dL is a proven effective strategy (Ferrara and others, 1994; Howat, Sleet and Smith, 1991; Moskowitz and others, 2000; Moskowitz and Fiorentino, 2000). In case-control experimental research, the risk of being in a crash begins to rise substantially at .05 blood alcohol concentration and higher when compared to drivers with zero blood alcohol concentration (Lacey and others, 2016; Voas and others, 2012; Zador and others, 2000). Lowering the BAC limit for driving to .05 has reduced alcohol-related traffic deaths in several countries, most notably, in Australia (Brooks and Zaal, 1993; Homel, 1994). A recent meta-analysis of international studies on lowering the blood alcohol concentration limit shows that when countries lower the blood alcohol concentration limit to .05 blood alcohol concentration or lower, there is an 11 per cent decline in fatal alcohol-related crashes associated with that countermeasure (Fell and Scherer, 2017).

According to WHO (2018a; 2018b), all states and territories in Australia have set a .05 blood alcohol concentration limit. Most countries in Europe including, among them, Austria, France, Italy, Germany and Spain, have established the limit at .05. The limit in China, Norway and Sweden is 0.2, while for Japan and the Russian Federation, it is .03. Commercial drivers need to have lower blood alcohol limits, such as .02 (taken out of service for 24 hours) and .04 (loss of commercial drivers' licence for one year) (see appendix B for more details).

Conditions required for implementation of the above measures include the existence of an appropriate environment and awareness of the set of laws to limit blood alcohol concentration and adequate resources to enforce the law.

2.1.2. Establishing reasonable sanctions for convicted driving-under-the- influence offenders

2.1.1.1. Administrative license revocation/administrative licence suspension is a proven effective sanction. Administrative licence revocation laws under which the licence of a driver with a blood alcohol concentration at or over the legal limit is subject to an immediate driver's license suspension by the state or country agency in charge of driver licensing and motor vehicles are the most widely applied examples of a traffic law in which the sanction rapidly follows the offense. The power of such laws has generally been attributed to how swiftly and how certain the sanction is applied. This licensing control measure also rapidly removes a high-risk driver from the public roadways. Several large national studies conducted in the United States have demonstrated that the presence of an administrative licence revocation law is associated with a reduction in alcohol-related crashes (Klein 1989; Shults and others, 2001; Voas, Tippetts and Fell, 2000; Wagenaar and others, 1995; Zador and others, 1988).

2.1.1.2. Appropriate fine levels and an increase in the price of alcohol have been shown to have a general deterrent effect when the fine amounts are raised. A study conducted in 2007 produced some evidence that fines affect alcohol-related crashes (Wagenaar and others, 2007). The researchers studied 26 states in the United States that implemented minimum fine policies between 1976 and 2002 and reported that in six of those states, there was a significant reduction in single-vehicle nighttime fatal crashes, which usually

involve alcohol. Moreover, studies show that a 10 per cent increase in the price of alcohol leads to a decrease of 5 per cent in alcohol consumption (Wagenaar and others, 2012) and that price increases affect alcohol impaired driving (Lavoie and others, 2017).

2.1.1.3. Mandating alcohol ignition interlocks for all convicted drivers under influence is a general deterrent and also a specific deterrent factor. Alcohol ignition interlocks require a negative breath test to start a vehicle's engine; some countries have mandated some form of interlock law for drivers convicted of driving while intoxicated. A study conducted in the United States by Teoh and others (2018) shows that in states that impose these all-offender laws, 16 per cent fewer drivers with 0.08+ blood alcohol concentration is involved in fatal crashes, as compared with states, with no interlock law. Repeat-offender interlock laws are associated with an insignificant (3 per cent) reduction in impaired drivers in fatal crashes compared to no law. Repeat and high-blood alcohol concentration interlock laws are associated with an 8 per cent reduction in impaired drivers in fatal crashes, compared to no law. Laws mandating alcohol ignition interlocks, especially those covering all offenders, are an effective impaired driving countermeasure which reduces the number of impaired drivers in fatal crashes. For example, in the United States, the approximate cost of installing an interlock device on an offender's vehicle is \$75-150 and the monthly cost for rental of the interlock device is \$75-125. The driving under the influence offenders pay these fees. Interlocks have been shown to reduce impaired driving recidivism by 67 per cent (Willis et others, 2004) and alcohol-impaired driving deaths by 16 per cent (Teoh and others, 2018). Alcohol ignition interlock programmes for convicted driving under the influence offenders actively applied in Australia, Austria, Belgium, Canada, Chile, Cost Rica, Cyprus, Denmark, New Zealand, Finland, France, Germany, Ireland, Lithuania, Mexico, Norway, Poland, Portugal, Spain, Sweden and the United Kingdom.

Conditions required for implementation of the above measures include an appropriate institutional arrangement and ample financial resources. ESCAP countries should consider implementing these measures. The following link provides a model guideline from the United States National Highway Traffic Safety Administration for implementing alcohol ignition interlock programmes.

https://mcs.nhtsa.gov/index.cfm?fuseaction=product.display&product_ID=1005

2.1.1.4 Screening and appropriate treatment for substance abuse issues is a model used by many countries around the world for impaired driving offenders. Treatment programmes determine the underlying problems that has led to the impaired driving behaviour so that the most effective remedies can be applied. Screening is the frontline triage system normally used in driving under the influence prosecutions by court presentence investigators to determine at the time of sentencing whether offenders need to be assigned to a brief educational programme or to a more intensive treatment programme. The specific treatment needs of each offender are then assessed at the treatment agency. Recent evaluation studies have found remedial interventions (treatment and educational programmes) to be more effective than traditional punitive sanctions, such as jail terms and fines, when combined with licence restriction for reducing driving under the influence recidivism and alcohol-related crashes (DeYoung, 1997; Green and others 1991; Jones and Lacey, 1998; Jones, Wiliszowski and Lacey, 1996; Kunitz and others, 2002; Martell, Stewart and Jamburajan, 1998; Nochajski and others, 1993; Tashima and Helander, 2000). Findings from a meta-analysis conducted in 1995 of 215 evaluations of drink-driving remediation (treatment) programmes indicated that the best designed studies can produce an additional reduction of between 7 and 9 per cent in drink-driving recidivism and alcohol-related crashes when compared with control groups that largely only faced licence restrictions (sometimes more severe than for the treatment groups) (Wells-Parker and others, 1995). Conditions required for implementation of the above measures include an appropriate institutional arrangement and availability of treatment resources of different kinds.

2.2 Impaired driving laws for young drivers

2.2.1 Minimum legal drinking age laws

Alcohol affects young teenaged drivers differently than adult drivers. A teenager may look like an adult physically and may even appear more physically fit, but the teenager's body is still developing. It actually takes less alcohol for a teenager to be intoxicated than it does for an adult in his or her twenties. A normal adult's liver can safely process an estimated 50 alcohol calories an hour (one ounce of 40 per cent alcohol), while for teenagers, studies show that their livers can only process half that amount. To ingest only 25 alcohol calories per hour, a teenager may drink no more than one fourth of a "light" beer (Zeigler and others, 2004). Ages of initiation differ among rights. In most countries, a person can vote and serve in the military at 18 years. Other rights that are regulated are the sale and use of tobacco and the age of legal consent for marriage. The minimum age for initiation is based on the specific behaviours involved and takes into account the dangers and benefits of that behaviour at a given age. The minimum age for initiation is also based on physical development, including brain function.

Many studies have confirmed associations between raising the minimum legal drinking age and reductions in underage alcohol consumption and traffic deaths involving youth. This is especially true when the minimum legal drinking age is raised to 21 years (Arnold, 1985; Dang, 2008; Decker, Graitcer and Schaffner, 1988; O'Malley and Wagenaar, 1991; Ponicki, Gruenewald and LaScala, 2007; Shults and others, 2001; Toomey, Rosenfeld, and Wagenaars, 1996; Voas, Tippet and Fell, 2003; Wagenaar and Toomey, 2002; Williams and others., 1983; Womble, 1989). Research has revealed a decrease in six types of fatal injuries, deaths related to car crashes, suicides, homicides, falls, drowning and alcohol poisoning for 15- to 24-year-olds following implementation of a law to set the minimum legal drinking age at 21 years in the United States (Birckmayer and Hemenway, 1999; Jones, Peiper and Robertson, 1992; Hedlund and others, 2001; O'Malley and Wagenaar, 1991). Wagenaar and Toomey (2002) found that raising the drinking age to 21 years in the United States had resulted in significant decreases in drinking driver fatal crashes for 18 to 20-year old persons.

A recent study on the impact of laws on reducing underage drinking crash deaths indicated that of the 20 expanded underage drinking laws that were studied, nine have been instrumental in saving more than 1,300 lives in the states in the United States that had adopted them, and that an additional 210 lives could be saved if they would be adopted in every state (Fell and others, 2016).

Conditions required for implementation of the above measure include a suitable environment to adopt the law, an educational effort to gain public support, and an effective institutional arrangement to enforce the law.

2.2.2 Zero- tolerance laws for young drivers

Based on the minimum legal drinking age law, the zero-tolerance law makes it an offense for a person younger than the minimum drinking age in that country to operate a motor vehicle with any measurable amount of alcohol in their bodies; generally specified as a blood alcohol concentration of at least .02. This law has been associated with significant reductions in the involvement of young drinking drivers in fatal traffic crashes (Blomberg, 1992; Fell and others, 2008; Fell and Voas, 2006; Hingson, Heeren and Winter, 1994; Hingson and others, 1992; Voas, Tippetts and Fell, 2003; Zwerling and Jones, 1999). These laws could be made more effective through media campaigns to publicize them. A meta-analysis conducted in 2001 of the studies of zero-tolerance laws indicated reductions of 9 to 24 per cent in fatal crashes (Shults and others, 2001).

Conditions required for implementation of the above measure include a suitable environment and awareness to adopt the zero-tolerance law in a country.

2.2.3 Graduated driver licensing laws for young drivers.

Research has shown that the first few months of licensure for young novice drivers entail the highest crash risk. To deal with this issue, many countries have adopted graduated driver licensing (GDL) laws that require a staged progression to full licence privileges. Graduated driver licensing is the opposite of historic licensing systems, which generally offer a quick and easy path to full driving privileges at a young age and result in extremely high crash rates for beginning drivers. Evaluations of graduated driver licensing programmes clearly show the benefits of adopting a graduating driver licensing law (Ulmer and others, 2000; Foss, Feaganes and Roggman, 2001; Foss and Goodwin, 2003; Shope and others, 2001; Shope and Molnar, 2004). These laws generally require three-staged licensing for novice drivers: (a) a learner’s permit period — practice driving with a licensed driver, (b) an intermediate or provisional stage — drive solo only under certain conditions (for example, restricts late-night driving and limits teen passengers); and (3) a full licence with no restrictions (minimum age of 18 in most countries). Young drivers need to meet certain requirements to “graduate” to each stage. Nighttime restrictions have been found to reduce novice driver involvements in fatal crashes in the nighttime by an estimated 10 per cent and young drinking drivers in fatal crashes in the nighttime by 13 per cent (Fell and others, 2011). Passenger restrictions have been found to reduce novice driver involvements in fatal crashes with teen passengers by an estimated 9 per cent. These results confirm the effectiveness of these provisions in graduated driver licensing systems (Fell and others, 2011).

Conditions required for implementation of the above measure include a suitable environment and awareness to adopt the graduated driver licensing law in a country.

2.3 Social marketing and public education

Road user education and awareness-building plays a critical role in road safety improvement in developing countries. Publicity related to road safety is used most successfully with other interventions, rather than just being the only initiative. It can be used to inform road users of information that they might not know and also help to reinforce the information they already know but do not remember at all times. Public education can also encourage safe behaviour and a motivation to undertake necessary steps while using the roads. Publicity also helps in effective enforcement of existing laws and promote the setting of new laws, which typically lead to a sustainable road safety programme. Public information and education have also been proven to be helpful in providing a basis for influencing public reaction and support for a law and its enforcement. Sometimes, an educational programme is implemented in a staged manner.

A mass media campaign is also known to be an effective tool to educate road users about the risk of drinking and driving or using the road as a pedestrian. In this regard, getting the campaign message to the target audience is important. It is also important to make the message relevant to the targeted road user type.

Conditions required for implementation of the above measure include an effective institutional arrangement and availability of different kinds of resources.

2.3.1 Community-based interventions

Drinking and driving interventions conducted by the local communities could be more effective for the purpose of educating and building awareness-among road users about the risks involved in drinking and driving and reducing alcohol-related crashes. These activities could be very diverse in nature and carried out by employers, schools, colleges, clubs, alcohol selling outlets or similar entities or institutions. In the developed world, a designated driver programme is a good example. A designated driver is an individual within a group of people drinking alcohol who promise to remain risk-free and sober in order to drive others home safely. Promoting the use of ridesharing is another example. Conditions required for implementation of the above measure include suitable initiatives at the appropriate level.

2.4 Frequent, visible and publicized impaired driving enforcement

2.4.1 Random breath testing

The highly successful random breath-test enforcement procedure used in Australia, Sweden, and other countries allows police officers to stop any vehicle on the road at random and to take a breath test from the driver. Operators with a blood alcohol concentration higher than .05, the legal limit, are taken to the police station for an evidential test. A study conducted in 1997 found that random breath testing was twice as effective as “selective” checkpoints similar to those conducted in the United States (Henstridge, Homel and Mackay, 1997). An earlier study, conducted in 1990, found that in Queensland, Australia, random breath testing resulted in a 35 per cent reduction in fatal crashes, compared with 15 per cent for checkpoints (Sherman, 1990). The researchers estimated that every increase of 1,000 in the daily random breath testing rate corresponded to a decline of 6 per cent in all serious crashes and 19 per cent in single-vehicle nighttime crashes (again, where alcohol involvement is usually high). Moreover, analyses revealed a measurable continuing deterrent effect of random breath testing on the motorist population after the programme had been in place for 10 years. A study in 1988 showed that the deterrent influence of random blood testing also provided heavy drinkers with a legitimate excuse to drink less when drinking with friends (Homel, 1988). A review of the effectiveness of sobriety checkpoints in Thailand conducted in 2011 showed that barriers to successful enforcement needed to be overcome for the strategy to be effective (Ditsuwan and others, 2011). In a follow-up study on the cost-effectiveness of sobriety checkpoints in Thailand, Ditsuwan and others (2013) concluded that checkpoints needed to be conducted with greater intensity to complement the investment in publicity campaigns.

Conditions required for implementation of the above measure include enactment of laws, resources to enforce the law, and an appropriate institutional arrangement.

2.4.2 Sobriety checkpoints

In some countries, vehicles can only be stopped at random at specially designed “checkpoints,” and the drivers cannot be required to take a breath test. The police officer at the checkpoint needs to conduct an interview to determine whether the driver is impaired, and if there is evidence of impairment, the police officer requires the driver to perform a set of field sobriety tests to establish impairment before taking the offender to the police station. Studies of the sobriety checkpoint procedure found that they are associated with significant decreases in alcohol-related crashes (Lacey and others, 1986; Levy, Shea and Asch, 1989; Voas, Rhodenizer and Lynn, 1985; Voas, 2008; Wells, Preusser and Williams, 1992). Several reviews of checkpoint programmes have been published (Peek-Asa, 1999). Two related meta-analyses studies of 15 checkpoint programmes functioning between 1985 and 1999 found that the median reduction in crashes associated with checkpoints was 20 per cent (Shults and others, 2001; Elder and others, 2002). A cost-benefit study of sobriety checkpoints indicated that, for every \$1 invested in the checkpoint strategy, the community conducting the checkpoint saved \$6 (Miller, Galbraith and Lawrence, 1998).

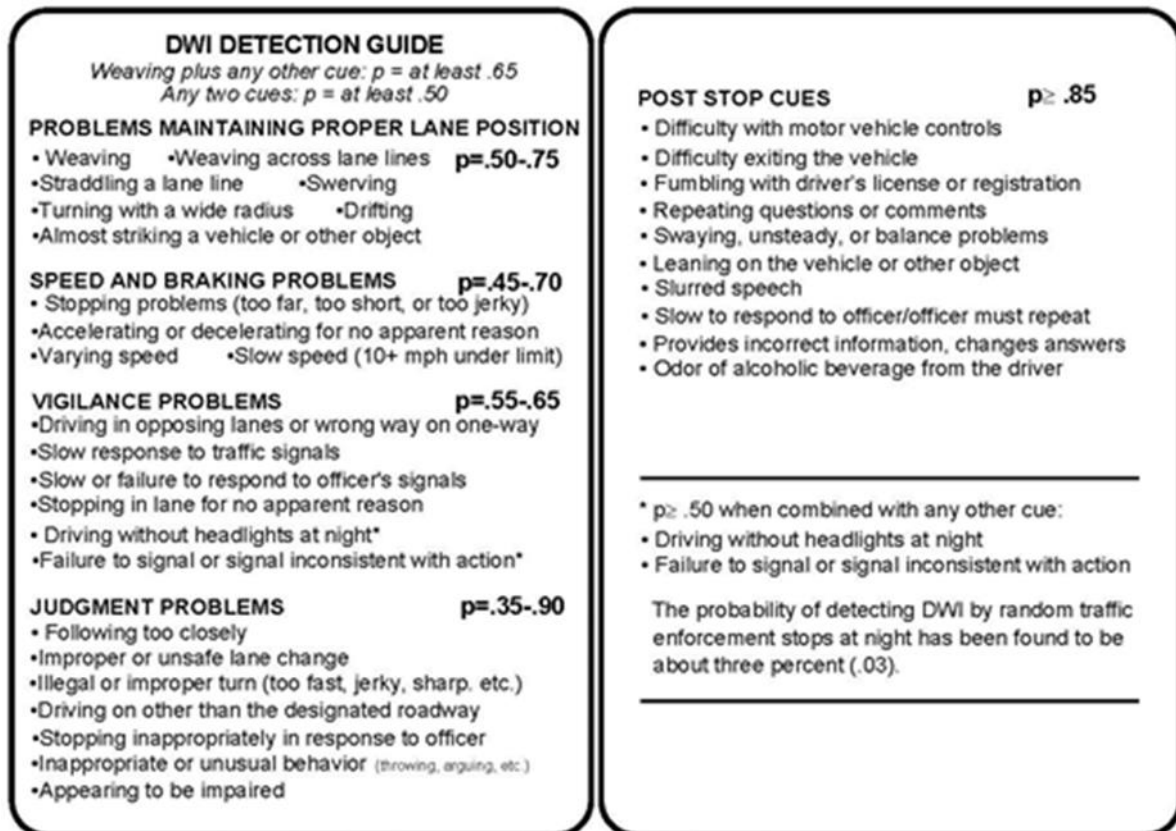
Conditions required for implementation of the above measures include an appropriate institutional arrangement and adequate resources for law enforcement. Many ESCAP member countries ban the sale of alcohol and consequently have low rates of impaired driving, but drivers from bordering countries where alcohol is legal sometimes drive into the countries with bans while impaired by alcohol. Countries should consider strengthening border control procedures by allowing officials to conduct breath tests on incoming out-of-country drivers.

2.4.3. Detection using impaired driving cues

Regarding detection of vehicles driven by impaired drivers, several studies of the vehicle maneuvers that suggest the driver is impaired have been conducted. These signs provide police officers with probable cause to stop the vehicle to determine whether the driver has been drinking. To determine these cues, research assistants rode with the police and recorded their observations of the signs that led to stopping a motorist. The blood alcohol concentrations for all motorists stopped were obtained: they were either arrested for driving under the influence or volunteered after being dismissed by the officer. Based on these data, a manual containing a cue list for police use was assembled and field tested (figure II).

Figure II

Driving under the Influence Detection Guide Used by Police in the United States



Source: Harris and others (1980).

Conditions required for implementation of the above measures include an appropriate institutional arrangement and training of the law enforcement staff.

2.4.4. Visibility

Saturation patrols are dedicated patrols that generally involve larger than normal numbers of police and are frequently carried out by more than one jurisdiction. They provide a high-visibility alternative to checkpoints and are, in particular suitable for countries with constitutional limitations on the use of random breath testing (RBT) and sobriety checkpoints. The large number of police vehicles is intended to attract public and media attention to the enhanced enforcement effort. Saturation patrols appear to be effective in reducing impaired driving if they are highly publicized (Stuster and Blowers, 1995).

2.4.5. Publicity

Because deterrence depends on the perceived rather than the actual probability of being arrested, it is generally accepted that enforcement programmes need to be well publicized to be effective. Publicity about general safety without a related enforcement programme is usually ineffective in reducing crashes, however, crash reductions resulting from publicity in advance of the application of a programme such as a new law (.05 blood alcohol concentration limit) or enforcement effort have been documented. Sometimes, an enforcement programme by itself produces enough public visibility and media attention to make the public aware of the programme without a special media programme. Aside from free media provided by the press because of an ongoing enforcement effort, three types of information campaigns help educate the public on impaired-driving laws and enforcement : (a) public service announcements; paid media campaigns we strongly encourage you to work with the relevant government agencies and the relevant UN inter-agency team to refine the proposal further and get it ready for the next call for proposal in 2020.

Conditions required for implementation of the above measure include an appropriate institutional arrangement and to have a communication department that can publicize the new law or enforcement strategy.

2.5. Effective sanctions for impaired driving offenders

2.5.1. Separate drinking from driving

The two primary objectives of the sanctions for impaired-driving offenders are (a) to restrict their driving to protect the public and (b) to ensure they have assistance in overcoming their demonstrated inability to control their drinking. Restriction of the offender's driving is achieved through incapacitation for some specified period by creating a barrier to impaired driving. Three possibilities are available: (a) prevent drinking, (b) prevent driving, or (c) prevent drinking followed by driving. For the prevention of drinking, electronic monitoring of blood alcohol tests with home confinement systems has been widely used to ensure abstinence. New technological advances in continuous monitoring of the blood alcohol content from the surface of the skin show (transdermal alcohol monitoring) show promise for monitoring abstinence.

Traditionally, prevention of driving by driving under the influence offenders has been achieved through suspension of the driver's licence. Of late, interest has increased in the separation of offenders from their vehicles through vehicle impoundment, immobilization or forfeiture.

A technology for separating offender drinking from their driving through vehicle alcohol ignition interlocks has evolved so that it now prevents an offender from driving while impaired by requiring a breath test when starting the vehicle.

Conditions required for implementation of the above measures include legislation to adopt the sanctions and efficient law enforcement staff to enforce the sanctions.

2.5.2. Use vehicle sanctions

Because of the large number of suspended driving under the influence, offenders driving illegally and the limited enforcement resources available to deal with the problem, many countries have enacted legislation to limit their illicit driving by seizing vehicles owned by the offenders. Such policies fall into two broad categories: (a) programmes that confiscate or impound the vehicle and (b) programmes that confiscate the vehicle plates and vehicle registration and/or require special plates on the vehicles of driving under the

influence offenders. Impounding the vehicle has been shown to reduce recidivism while the vehicle is being held. Vehicle sanctions have a specific deterrent effect in which the recidivism of driving under the influence offenders is reduced. Studies suggest that impoundment is an effective method of reducing the recidivism of driving under the influence and driving-while-suspended offenders. For vehicle impoundment to be effective, the vehicle needs to be impounded when the offender is arrested, and a procedure must be devised to deal with non-offender owners (Voas and others, 2004). In this regard, the combination of strong legislation and good enforcement has been shown to be very effective (Homel, 1994).

Conditions required for implementation of the above measure include legislation to adopt the policy, a police department to enforce and an appropriate agency to monitor compliance.

2.5.3. Appropriate treatment for alcohol and other drug abuses

Programmes with the objective to impose sanctions — to promote recovery — can be categorized into three broad classes. The first one is 10 to 12 hours of educational classes covering drinking and drink-driving facts with the development of an action plan to avoid future driving under the influence infractions. The second one is brief intervention programmes with criminal justice processing. The third one is treatment programmes involving one-on-one or group therapy, generally lasting three to six months, designed to deal with the underlying drinking problem and associated comorbidities. All these treatment programmes should be implemented in conjunction with other sanctions, such as alcohol ignition interlocks or vehicle impoundment.

Conditions required for implementation of the above measure include an appropriate arrangement for certified treatment facilities.

3. Critical data systems

An important parameter in road safety management is the collection and use of accurate data related to road crashes, severity levels and alcohol involvement. Data on road traffic crashes and alcohol involvement are not robust in many ESCAP member countries. The interpretation of the data is a prerequisite for accurate diagnostics of the problems. Data constraints and inaccurate data reporting systems prevent understanding of the real magnitude of the problem, especially in developing countries. For example, in China, police-reported data and death registration data showed different trends in road traffic death rates during the period 2002–2007 (Hu, Baker and Baker, 2011). ESCAP member countries lack a consistent and quality data system related to alcohol-related road crashes.

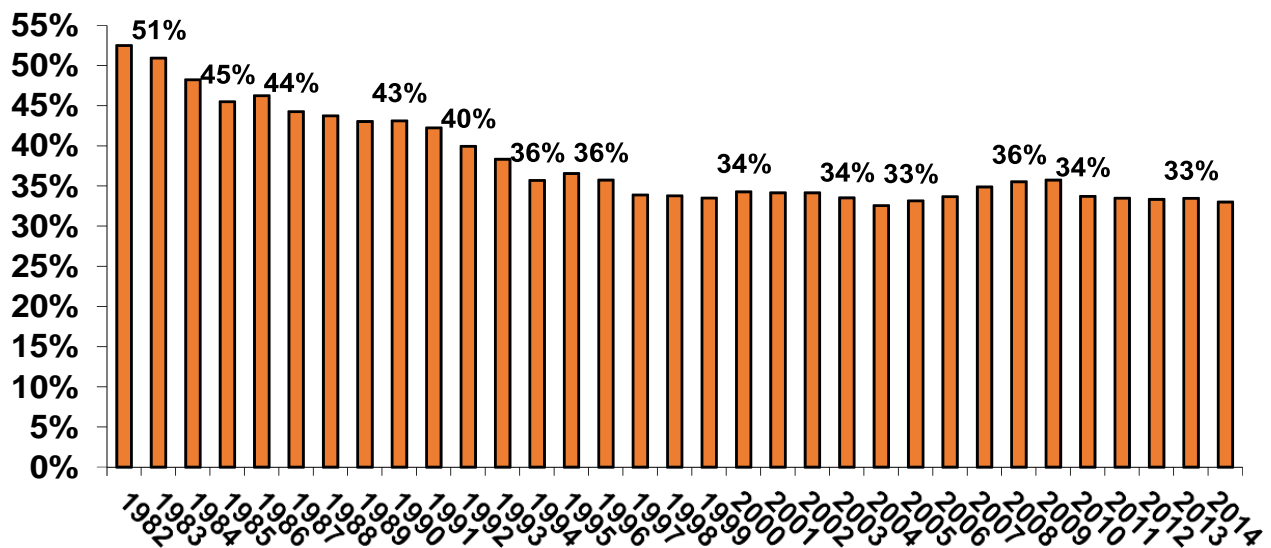
Nevertheless, good examples exist in the developed world which could be followed to improve data collection systems in ESCAP member countries. The following subsections include good practices in relation to data systems in Australia and the United States.

3.1. Alcohol and other drug testing on all drivers involved in fatal crashes (or fatally injured drivers)

To determine if impaired driving countermeasures are working, testing of fatally injured drivers for alcohol and other drugs is crucial. This should be feasible in most Asia-Pacific countries. The testing makes it possible for researchers studying various countermeasures to see if the percentages of these drivers under the influence of alcohol and/or other drugs is increasing, decreasing, or remaining stagnant. An example from the United States is shown in figure III.

Figure III

Proportion of all fatally injured drivers estimated to be impaired by alcohol in the United States: (blood alcohol concentration $\geq .05$), 1982–2014, [-35%]



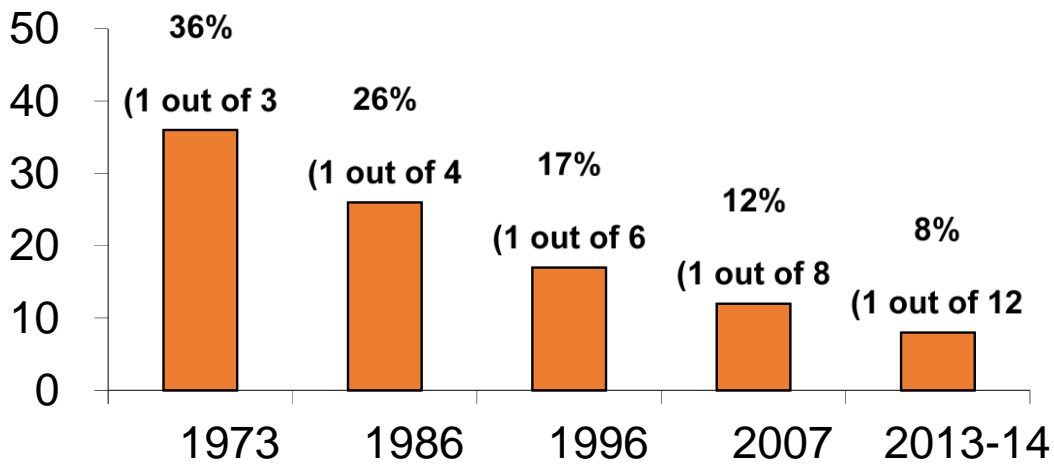
Source: Death Analysis Reporting System, National Highway Traffic Safety Administration, 1982–2014.

3.2. Periodic roadside surveys of drivers not in crashes

Since 1973, five national surveys of drivers on roads in the United States during weekend nights have been conducted to estimate the prevalence of drinking and driving and determine how this prevalence has changed over time (1973, 1986, 1996, 2007, 2013–2014). In the first three National Roadside Surveys (1973, 1986, 1996), only breath alcohol tests were given to drivers on the roads during weekend nights. For the surveys conducted in 2007 and in 2013–2014, the methodology was changed to estimate the prevalence of alcohol-, drug-, and alcohol-plus-drug-involved driving among daytime drivers on Friday and nighttime weekend drivers. These two surveys involved randomly stopping drivers at 300 locations across the continental United States. The locations were selected through a stratified random sampling procedure. Researchers collected the data during a two-hour Friday daytime session (either 9:30 a.m. to 11:30 a.m. or 1:30 p.m. to 3:30 p.m.) at 60 locations and for four two-hour nighttime periods (10 p.m. to midnight and 1 a.m. to 3 a.m. on Friday and Saturday nights) at 240 locations, for a total of 300 locations. Data included both self-reporting and biological measures. The goal was to obtain at least 7,500 oral fluid samples for analysis. Oral fluid and blood samples were subjected to laboratory screening and liquid chromatography-mass spectrometry (LC/MS/MS; the term MS/MS is the combination of two mass analyzers in one mass spec instrument) and gas chromatography-mass spectrometry (GC/MS) confirmation, respectively for alcohol and six classes of drugs, allowing researchers to estimate a national prevalence of alcohol and other drugs in drivers. The drivers' responses were completely voluntary and anonymous. The per cent of drivers who were drinking alcohol from these surveys in the USA are shown in figure IV. These roadside surveys help track whether drinking drivers on the roads are increasing, decreasing or remaining stagnant.

Figure IV

Per cent of drivers on United States roads with positive blood alcohol concentration levels (blood alcohol concentration \geq .01 g) (weekend evenings)



Source: National Roadside Surveys in the United States, National Highway Traffic Safety Administration.

3.3. Driving under the influence arrests, convictions and sanctions

It is important to keep track of the number of drivers arrested for driving under the influence on an annual basis. This provides a key measure of enforcement to prevent driving under the influence. Studies have shown that a 10 per cent increase in the driving under the influence arrest rate per 10,000 population is associated with a 1 per cent decrease in alcohol-related crashes (Fell and others, 2014). Driving under the

influence-related arrest rates also affect the per cent of drivers on the roads who have been drinking. In most countries, a small fraction of impaired drivers on the roads at any given time are detected and arrested for driving under the influence, so it is important to track these numbers.

Another goal is to increase conviction rates, so impaired drivers know their chances of a conviction is high. A good conviction rate is at least 80 per cent. To evaluate whether sanctions on driving under the influence offenders are effective, it is important to document the sanctions administered and the sanctions implemented.

3.4. Data-driven approaches

Data-Driven Approaches to Crime and Traffic Safety (DDACTS) is a law enforcement operational strategy that integrates location-based crime, such as stolen vehicles, robberies, and car-jackings, and traffic crash data (involving alcohol impaired driving and speeding) to establish effective and efficient methods for deploying law enforcement and other resources. Typically, geo-mapping is used to identify areas through temporal and spatial analyses that have high incidences of crime and crashes. The Data-Driven Approaches to Crime and Traffic Safety DDACTS then employs targeted traffic enforcement strategies by saturating certain locations where there are high crime and crash incidences with highly visible traffic enforcement. Data-Driven Approaches to Crime and Traffic Safety, therefore, plays a simultaneous dual role of fighting crime and reducing traffic crashes and traffic violations. Employing the deterrent value of highly visible traffic enforcement and the knowledge that crimes often involve the use of motor vehicles, the goal of Data-Driven Approaches to Crime and Traffic Safety DDACTS is to reduce the incidence of crime, crashes, and traffic violations (National Highway Traffic Safety Administration, 2009).

4. A case study in the United States

To reduce impaired driving, (a) strong laws combined with (b) visible and frequent enforcement, (c) appropriate sanctions for convicted offenders, (d) critical data systems and (e) public support for preventing impaired driving in any country are required. In addition, translating research to practice and convincing public safety officials to implement evidence-based countermeasures are also beneficial.

In 2018, the National Academy of Sciences, Engineering and Medicine released the most comprehensive report on accelerating progress to reduce alcohol-impaired driving deaths in the United States to date (National Academies of Sciences, Engineering and Medicine, 2018; Teutsch and Naimi, 2018). The report (written by a prestigious committee assembled to review the impaired driving problem) provides a blueprint for addressing the problem by identifying evidence-based and promising policies, programmes, strategies and system changes to increase national progress in reducing alcohol-impaired driving traffic deaths.

The following are some recommended strategies emanating from the study:

- (1) Local governments are recommended to raise the tax on alcohol. There is strong and consistent evidence that a hike in alcohol taxes reduces excessive drinking and related harms, including alcohol-impaired motor vehicle deaths (Elder and others, 2010; Wagenaar, Tobler and Komro, 2010).
- (2) Local governments are recommended to adopt and/or strengthen laws and dedicate enforcement resources to stop illegal alcohol sales, namely sales to already intoxicated adults and to underage persons).
- (3) Local law enforcement agencies are recommended to conduct sobriety checkpoints in conjunction with widespread publicity to promote awareness of these enforcement initiatives.
- (4) Municipalities are recommended to support policies and programmes that increase the availability, convenience, affordability and safety of transportation alternatives for drinkers who might drive otherwise. This includes permitting transportation network company ride sharing, enhancing public transportation options, especially during nighttime and weekend hours, and boosting or incentivizing transportation alternatives in rural areas.
- (5) Municipalities are recommended to implement driving while intoxicated courts and include accessible consultation or referral for evaluation by an addiction-trained clinician.
- (6) Local governments are recommended to enact all offender alcohol ignition interlock laws. To increase effectiveness, states are recommended to consider increased monitoring periods based on the offender's blood alcohol concentration at the time of arrest and past recidivism.
- (7) The Government of the United States is urged to enact per se laws for alcohol-impaired driving at 0.05 blood alcohol concentration and simultaneously conduct media campaigns and employ robust and visible enforcement efforts.

A comprehensive listing of many additional promising strategies in reducing impaired driving is described in Voas and Fell (2014).

5. Challenges

The most significant challenge in most of the ESCAP member countries is the lack of awareness among vulnerable road users about alcohol and drug-impaired driving. The problem is most acute among two- and three-wheeler motorbike riders, heavy vehicle drivers and young adults. The most effective and expedient strategy to reduce impaired driving is to address the root cause of the problem. An overall human behavioural change in society is essential. Adequate media coverage and awareness-building of the traffic death problem are lacking in many ESCAP member countries.

Another major challenge in many ESCAP member countries is the lack of law enforcement resources. The most effective strategy in reducing impaired driving is increased and effective enforcement. Frequent, visible, publicized enforcement requires sufficient resources in terms of manpower, equipment and leadership. If ESCAP member countries were to use their limited resources to build awareness and for law enforcement and make those strategies their top priority, progress could be achieved.

Another challenge is the substantial proportion of traffic deaths in ESCAP member countries that are pedestrians, bicyclists, and motorbike riders. Lack of reliable data related to the causes of crashes is a major hindrance to policy analysis and taking appropriate measures. Countermeasures for alcohol-impaired drivers are evidence-based, but countermeasures for these vulnerable road users at-risk populations are lacking and receive inadequate attention by the policymakers. These aspects are especially challenging for ESCAP developing countries.

At a regional ESCAP meeting, held in New Delhi on 24 and 25 April 2019, country representatives had a number of questions during the presentation sessions and panel discussions. Some of the more important issues and discussions were centered on the following:

5.1 Sanctions

Should driving under the influence offenders go to jail?

A night spent in jail after being arrested for driving under the influence is such a traumatic experience that two thirds of them never repeat the offense, but a long jail term (unless it is for a vehicular homicide) is not appropriate nor effective. Most driving under the influence offenders need to be rehabilitated or have their alcohol consumption monitored, or both. Supervised probation with frequent alcohol and drug testing combined with education or therapy works effectively for most offenders. Offenders who spend days, weeks or months in jail do not change their behaviour when released and repeat the offense more often than not. Requiring alcohol ignition interlock devices on offenders' vehicles is a better option.

5.2 Blood alcohol concentration and field testing

What evidence is necessary to prove driving under the influence?

In most countries, a breath alcohol test with a result indicating that the legal limit for driving has been exceeded is sufficient and most important. The more the driver's blood alcohol concentration is over the limit, the easier it is to get a conviction, however, it should be noted that the offender's behaviour is just as important. In some countries, including the United States, a standardized field sobriety test that entails walk and turn, the one leg stand and the horizontal gaze nystagmus test (involuntary twitching of the eye when looking left and right) is given and if the offender fails one or two or all three segments of the test, there is convincing evidence of impairment. Other behaviour, such as slurring of speech and staggering, help convince judges and juries that the offender was intoxicated.

5.3 Drugs other than alcohol

How does law enforcement detect other drugs?

Most countries are using oral fluid or saliva screening kits that detect seven kinds of drugs in saliva in about five minutes (Davey and others, 2017). This initial detection gives law enforcement probable cause to order a blood test, which is evidential in many countries. Detection of illegal drugs, such as heroin, result in a drug charge and detection of an impairing drug, such as a prescription opiate, can result in a driving under the influence of drugs (DUID) charge. Behaviour and performance in field tests also help with a conviction.

6. Opportunities

The cost of deaths and injuries resulting from the high rate of road deaths in developing countries in Asia and the Pacific is draining their economies. It would be cost-effective for them to use their limited resources to reduce drink-driving crashes. In this regard, ESCAP member countries have many options to consider:

- The commitments of the ESCAP member countries to reduce road deaths are reflected through placing road safety as a pillar of the adopted Regional Action Programme for Sustainable Transport Connectivity in Asia and the Pacific, phase 1 (2017–2021). This indicates a strong commitment at the ministerial level of Governments of the ESCAP member countries.
- The Global Framework Plan of Action for Road Safety under the newly established United Nations Road Safety Trust Fund offers a great opportunity for member countries to address the problem with a “systems approach” and secure funding and take appropriate measures to reduce impaired driving and road use by all types of road users.
- There is a need to re-address drink driving at the national policy level and make drink-driving illegal in every country of the world based on the driver’s blood alcohol concentration. Setting the blood alcohol concentration limit for the general population at .05 g/dL or lower could be a good start.
- In most ESCAP member countries, there is a great potential to have necessary behavioural changes in road users by educating the targeted groups about it and building awareness. Identifying the most important drink-driving issues in the country is critical.
- An underutilized opportunity is to conduct random breath testing or sobriety checkpoints, which could be included as an enforcement strategy. This has been proven to be effective in many countries. If it is conducted frequently, visible and publicized, it would be effective. This is feasible for countries regardless of their economic and social conditions.
- Another opportunity worth exploring, especially in high-income and upper middle-income countries, is technology-enabled law enforcement. For the high-income countries of the region, doubling down on what works and taking advantage of new technologies should be considered as the norm. Technologies that passively detect the blood alcohol concentration of motor vehicle operators have great potential to reduce impaired driving. Ride-sharing shows promise in providing alternative transportation. Advanced technology, including a driver alcohol detection system for safety (DADSS) and autonomous vehicles hold substantial promise to reduce most drink-driving in the future. These technologies, however, will not be fully utilized for the next 20 to 30 years. Moreover, evidence-based strategies which are suitable for the economic and social condition of a country need to be considered.
- Some ESCAP countries employ the 6Es approach in the strategy to improve road safety in their country. Those are: a) Education, b) Enforcement, c) Engineering, d) Environment, e) Emergency medical services, and f) Evaluation. Developed countries, for example, the Republic of Korea and Singapore have adopted holistic approaches.

7. Conclusions

While several ESCAP member countries have made progress in reducing drink-driving, much more work needs to be accomplished to make a significant impact. Drink-driving laws and serious enforcement have been effective in most countries and have had an immediate effect. A general deterrent effect, namely all drivers want to avoid drink-driving, gives the “biggest bang for the buck” in countermeasures and is cost effective. That involves laws, enforcement, reasonable sanctions, publicity and institutional development. Specific deterrence (only drivers arrested for drink-driving and sanctioned have the desire to not repeat the behaviour) works to some extent, but it is not as effective, as a general deterrent strategy.

It will most likely take a combination of strategies for drink-driving to be reduced in ESCAP member countries. For this to happen, key country officials must give some priority to deterring drink-driving. Data collection and analysis is key for applying any strategy. Attaining data on the blood alcohol concentrations of drivers involved in fatal crashes and of drivers seriously injured on the roads would be extremely informative. Data on arrests and convictions for drink-driving would also provide important information. Most ESCAP countries lack consistent and quality data that can be used to assess progress in reducing drink-driving. See table 4 for those key items.

It is recommended that ESCAP member countries need to implement a combination of strategies for reducing drink-driving related crashes. The recommendations are grouped into three major categories:

Education and Awareness

Awareness-building through education for all road users towards behavioural changes among drivers, riders and pedestrians, starting with the targeted groups, such as heavy-vehicle drivers, and motorcycle drivers. The public at large and especially high risk and vulnerable road users need to be aware of the consequences of risky behaviour and what they can do to avoid impaired driving.

One way to educate the public and increase awareness about impaired driving is through victim advocacy. Putting “faces on the numbers” makes the impaired driving problem personal. In the United States, Mothers Against Drunk Driving did this and drunk driving became socially unacceptable to 90 to 95 per cent of the public. Citizen activist groups, such as Mothers Against Drunk Driving can help immensely in getting the message to the public.

Legislation and enforcement

- (a) Development of and adoption of evidence-based national policies and strategies towards the reduction of drink-driving and accordingly related road crashes. One main recommendation is that member countries reassess and consider a suitable tax level on alcohol sales with the additional revenue to be used for educational and awareness-building activities, and effective drink-driving enforcement. Countries should consider establishing a suitable minimum legal drinking age for alcohol consumption.
- (b) Countries need to adopt a national law prohibiting drink-driving. The drink-driving law must be suitable for any country. This study shows that based on international practice, the blood alcohol concentration limit for driving should be no higher than 0.05 g/dL. ESCAP member countries however, are recommended to take into account their own situation when setting the limit.

- (c) Random breath testing and/or sobriety checkpoints need to be established as key enforcement strategies. Sanctions for drink-driving offences to consider are revoking drivers licences, appropriate fines and alcohol monitoring.
- (d) Countries that do not have alcohol ignition interlocks as a drink-driving sanction are recommended to consider adopting a law mandating them for convicted drink-driving offenders and make it possible for alcohol ignition interlock vendors to operate in the country.

To get legislation related to driving under the influence to be considered, it is suggested that a “champion” with authority be recruited to help write and persuade the legislature to adopt the law. A law enforcement “champion” can help with increasing driving under the influence enforcement and a publicity “champion” can help transmit messages through the media.

Road safety data

- Countries are recommended to adopt practices to collect blood alcohol concentration-related data on all vulnerable road user deaths, motorbike riders and passengers, bicycle riders, pedestrians and other non-motor vehicle drivers or passengers. This would enable traffic safety officials to determine the magnitude of the alcohol-impaired driving problem, examine trends and ascertain the effectiveness of certain countermeasures.
- Countries develop a consistent and quality data system in order to track progress and trends in reducing impaired driving, including impaired driving arrests, convictions and sanctions. Very few ESCAP member countries have good data management systems in place, therefore, improvements in this area would be extremely beneficial. Support extended to stakeholders developing and operating the system is also important.

8. Recommended implementation framework

Implementation plan

One recommended way to implement a comprehensive and systematic impaired driving countermeasure programme is based on the following logic (see figure V):

Obtain data related to the impaired driving problem in the country. This helps to identify the impaired driving problem, determining where the most problems occur, examining trends, and tracking progress.

Assemble a leadership team with knowledge and authority that includes representative from the key stakeholders. The leader should have the authority to implement the countermeasures that are planned.

Develop a strategic plan to address the most important problems. Rank the impaired driving problem from the most severe to the least severe. Is it highest for two- and three- wheeler drivers or pedestrians or truck drivers? Choose target populations and tailor the countermeasures to them.

Implement the strategic plan. Use the leader's authority to obtain the resources and permission to implement some of the key recommendations. Include countermeasures suggested by key stakeholders, such as legislators, law enforcement authorities, treatment officials and providers of hospitality.

Evaluate the effectiveness of the countermeasures implemented. Ensure that data are collected before and after implementation. If a countermeasure is not working, examine the process and procedures used. Make revisions and evaluate again.

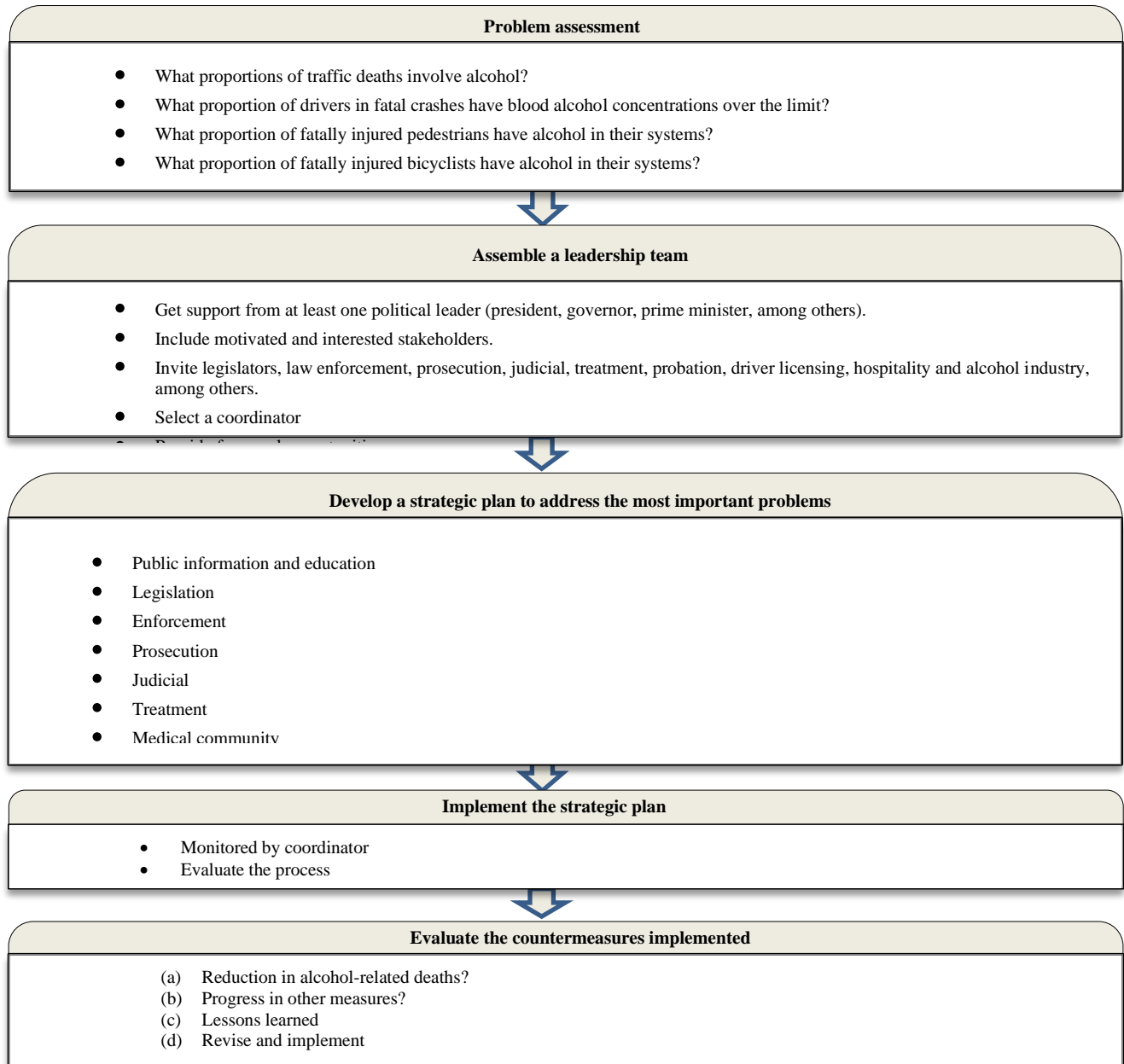
One method used to implement driving under the influence is to establish a driving under the influence task force comprised of officials or representatives from the following areas:

- Transportation or public safety department (to provide, for example, leadership, knowledge and funding);
- Legislation (a legislator, or if not possible, a staffer and/or a lobbyist);
- Enforcement (traffic law enforcement officials, alcohol beverage control officials, and/or college campus police);
- Prosecution (driving under the influence or driving while intoxicated prosecutor)
- Adjudication (judges, if possible, otherwise, advisers or consultants to the task force or recently retired judges);
- Defense attorney (may provide some insight on proposed enforcement strategies or legislation);
- Probation (to provide insight on the monitoring of driving under the influence or driving while intoxicated offenders on probation);
- Treatment and rehabilitation (to ensure that offenders who need treatment receive it);
- Education (at least high school and college representatives);
- Communications (to provide advice on how best to publicize certain issues);
- Public relations (to provide expertise on how to deal with public opinion);
- Research (provide the Task Force with latest findings on the effectiveness of certain strategies)
- Data and records (to ensure that appropriate data are collected, processed, analysed and accessible);
- Insurance industry (to provide cost incentives for reducing impaired driving) ;
- Public health (to ensure coordination with other health issues);
- Automobile Industry (for advice and the latest information on available vehicle technology that could affect impaired driving);
- Alcohol industry (before inviting, consider the pros and cons);
- Hospitality industry (sometimes helps with sponsoring certain events);
- Alternative transportation industry (taxi companies, mass transit, ride-sharing);

- Citizen activists (such as Mothers Against Drunk Driving) (to lobby for legislation and stimulate media coverage of certain issues);
- Others (as deemed appropriate by task force leaders).

Stepwise illustration is shown in Figure V. Guidelines for establishing a Task Force is provided in Appendix D.

Figure V.
Stepwise illustration of the implementation framework



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Appendix A. ESCAP Member Countries in the Subregions

East and North-East Asia

China
Democratic People's Republic of Korea
Japan
Mongolia
Republic of Korea

North and Central Asia

Armenia
Azerbaijan
Georgia
Kazakhstan
Kyrgyzstan
Russian Federation
Tajikistan
Turkmenistan
Uzbekistan

Pacific

Australia
Fiji
Kiribati
Marshall Islands
Micronesia (Federated States of)
Nauru
New Zealand
Palau
Papua New Guinea
Samoa
Solomon Islands
Tonga
Tuvalu
Vanuatu

South-East Asia

Brunei Darussalam
Cambodia
Indonesia
Lao People's Democratic Republic
Malaysia
Myanmar
Philippines
Singapore
Thailand
Timor-Leste
Viet Nam

South and South-West Asia

Afghanistan

Bangladesh

Bhutan

India

Iran (Islamic Republic of)

Maldives

Nepal

Pakistan

Sri Lanka

Turkey

Appendix B. Blood Alcohol Concentration limits

No limit

- Afghanistan
- Azerbaijan
- Bangladesh
- Indonesia
- Iran
- Maldives
- Nepal
- Pakistan
- Kyrgyzstan
- Marshall Islands
- Micronesia
(Federated States of)
- Myanmar
- Papua New Guinea
- Uzbekistan
- Tajikistan
- Vanuatu

Blood alcohol concentration >.00 g/dL

- Viet Nam

Blood alcohol concentration \geq .02 g/dL

- China

Blood alcohol concentration \geq .03 g/dL

- Georgia
- India
- Japan
- Russian Federation
- Tonga

Blood alcohol concentration \geq .04 g/dL

- Armenia

- Mongolia

Blood alcohol concentration \geq .05 g/dL

- Cambodia
- France
- Kazakhstan
- Netherlands
- New Zealand
- Turkey
- Timor-Leste
- Kiribati
- Lao People's Democratic Republic
- Republic of Korea
- Turkmenistan
- Australia
- Thailand
- Philippines
- Solomon Islands

Blood alcohol concentration \geq .08 g/dL

- United Kingdom
- United States
- Singapore
- Fiji
- Malaysia
- Bhutan
- Samoa
- Sri Lanka
- Cook Islands

Blood alcohol concentration \geq .10 g/dL

- Palau

Appendix C.

Survey questionnaire

QUESTIONS ON DRINK-DRIVING ISSUES

Submitted by James C. Fell, United Nations Consultant

1. Please estimate the percent of drivers of motor vehicles killed in crashes who were tested for a blood alcohol concentration (BAC) in 2017 or in the latest year where data are available. __
2. Of the drivers killed in crashes who were tested for a BAC in 2017, what percent of those drivers:
 - a. had BACs = 0.00 g/dL? _____
 - b. had BACs \geq 0.05g/dL? _____
 - c. had BACs \geq 0.08 g/dL? _____
3. Please estimate the number of drivers arrested for driving-under-the-influence (DUI) or driving-while-intoxicated (DWI) in 2017 or in the latest year where data are available _____
4. Please estimate the percent of drivers arrested for DUI or DWI in 2017 (or the latest year) who were convicted of DUI or DWI _____
5. Please list the sanctions administered to drivers convicted of DUI or DWI. Please check the following sanctions if they are administered in your country: Check all that apply:
 - a. Drivers' license suspension or revocation _____
 - b. Fine _____
 - c. Jail _____
 - d. Alcohol ignition interlock installed on car _____
 - e. Alcohol traffic safety education classes _____
 - f. Alcohol and/or drug treatment _____
 - g. Other (describe) _____
6. What is the minimum legal drinking age (MLDA) in your country? _____
7. List the drink-driving enforcement strategies used in your country (check all that apply):
 - a. Sobriety Checkpoints _____
 - b. Random Breath Testing (RBT) _____
 - c. Special DUI/DWI Patrols _____
 - d. Other (describe) _____
8. Please estimate the percent of drivers of motor vehicles killed in crashes who were tested for drugs other than alcohol in 2017 or in the latest year where data are available.

9. Of the drivers killed in crashes who were tested for drugs other than alcohol, what percent of those drivers had the following:
 - a. Cannabis (THC) (marijuana): _____ %
 - b. Opiates _____ %
 - c. Other most frequently found drug in your country _____ %

Appendix D

Guidelines for Establishing a Task Force

The following guidelines were brought out during interviews with the chairs and key members of Task Forces and from attending Task Force meetings:

- Clearly define the **Objectives** of the Task Force.
- Establish procedures for **Selecting a Chair** (or co-chairs).
- Develop a **Charter** and have it approved by all members.
- Define a selection process for the **Membership**.
- Establish and approve the rules on **Voting** (e.g., unanimous, consensus, or majority).
- Appoint someone to take **Minutes** of the meetings.
- Establish **Funding** and reimbursement procedures (e.g., apply for small grant from the Transportation Department for travel and other expenses).
- Establish the **Timeframe** for operation of the Task Force (e.g., short term or ongoing/advisory).
- Clarify the rules for dealing with the **Media** (establish guidelines about who can talk to the media and when).
- Ensure that decisions are **Data Driven** (i.e., recommendations can be backed up with data).
- Establish **Consensus Building** as one of the main objectives of the Task Force.
- Appoint someone to be responsible for **Tracking Recommendations** (e.g., How many have been adopted? In what timeframe?). This was not the case in most Task Forces that were studied but was highly recommended.
- Establish the **Focus** of the Task Force (narrowly focused on impaired driving, for example, or widely focused on problems associated with alcohol).

Steps for Starting a Task Force

- State clearly the purpose of the Task Force (e.g., identify the problems in impaired driving in the country; focus on a specific problem; review, correct and introduce better laws).
- Invite all the key stakeholders (see who accepts).
- Ensure that there is membership diversity.
- Be aware that citizen advocates are very important.
- Obtain assurance from the appropriate authority or authorities that the Task Force will have some clout/influence/authority.
- Apply for a grant for a small amount of funding.
- Select a chair or co-chairs.
- Consider holding a press event.
- Consider using a recent high-visibility impaired-driving crash to convince the public that a Task Force is needed. This will also increase public attention to the issue.