

Road Safety Data Availability in Asia

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I. INTRODUCTION

1. More than 1.2 million people die and as many as 50 million people are injured on the world's roads every year. In 2004, road traffic injuries were the ninth leading cause of death of the entire world population. According to a recent World Health Organization (WHO) report¹, by 2030 road traffic injuries will rise to become the fifth leading cause of death, beating the rank of HIV/AIDS and Tuberculosis and resulting in an estimated 2.4 million fatalities per year. The WHO report also shows that over 90% of these deaths occur in low-income and middle-income countries where 48% of the world motor vehicles are registered.
2. Since 2003, the United Nations General Assembly has adopted five resolutions² that call on member countries, WHO and regional commissions to address the global road safety crisis. The General Assembly called for increased attention and resources to be directed towards road safety efforts, and stressed the need for better international cooperation. The most recent of the five resolutions, resolution 62/244 on improving global road safety invited member countries to participate in projects of the regional commissions to assist low- and middle-income countries in setting national and regional road traffic casualty reduction targets.
3. In the ESCAP region, it is estimated from the figures in the WHO report that about 700,000 people were killed by road accidents in 2007-57 per cent of the world road fatalities for that year, even though the region accounts for only 43 per cent of the world's registered road vehicles.
4. ESCAP members and associate members have recognized the need to improve road safety. Parties to the Intergovernmental Agreement on the Asian Highway Network³ have made a formal commitment to improving road safety by "giving full consideration to issues of road safety while developing the Asian Highway network". Ministerial Declaration on Improving Road Safety in Asia and the Pacific, which was adopted at the Ministerial Conference on Transport (Busan, Republic of Korea, November 2006) includes the goal "to save 600,000 lives and to prevent a commensurate number of serious injuries on the roads of Asia and the Pacific over the period 2007 to 2015". The Declaration also requested the ESCAP secretariat to develop, in consultation with the ESCAP members and associate members, "a set of road safety goals, targets and indicators, to be achieved by 2015, in order to assess and evaluate road safety progress".

¹ WHO, Global Status Report on Road Safety: Time for Action, 2009.

² They are: resolutions 57/309 and 58/9 on the global road safety crisis and 58/289, 60/5 and 62/244 on improving global road safety.

³ The Asian Highway project was initiated in 1959. Today, it comprises more than 141,000 km of trunk roads passing through 32 ESCAP member States. The Intergovernmental Agreement on the Asian Highway Network entered into force on 4 July 2005.

5. While a set of road safety goals, targets and indicators has been developed through a series of expert group meetings, the monitoring and evaluation of the progress in achieving the goals and targets will rely on the availability of quality data for the indicators.
6. This paper provides a brief overview of the status of road safety in the ESCAP region and the ESCAP set of road safety goals, targets and indicators. It also reviews current status of data availability in general and for ESCAP's road safety indicators in particular.

II. STATUS OF ROAD SAFETY IN THE ESCAP REGION

7. The nature of road safety issues in developing countries in Asia differs significantly from that in developed countries. In Asia, most of those killed or injured in road accidents are vulnerable road users, such as pedestrians, cyclists and those using motorized two- or three-wheelers. South-East Asia, in particular, has the highest reported proportion of vulnerable users of the total road fatalities. In Thailand, for instance, vulnerable road users account for over 80% of those killed on the road.⁴
8. Motorization rates range widely in the ESCAP region (the number of private cars per person ranges from 11 to 684).⁵ Two- and three-wheelers constitute more than two thirds of all motorized vehicles in Cambodia, Bangladesh, Nepal, Sri Lanka, Indonesia, Lao People's Democratic Republic, Myanmar, Thailand and Viet Nam. However, the comparatively larger impact of road accidents on vulnerable groups in ESCAP developing countries is not merely due to a different vehicle mix, but is a systemic issue in which accidents disproportionately impact on lower-income groups and younger people. It is estimated from the figures in the WHO report that 98% of road accident deaths in the ESCAP region occurs in low- and middle-income countries.
9. The economic cost of road crashes is in the range of 1 to 3 per cent compared to the GDP of each ESCAP member country, indicating the potential for substantial returns on investments in road safety interventions⁶. The ESCAP secretariat estimates the economic costs at US\$ 106 billion (including indirect costs), equivalent to 2.3 per cent of the GDP of the developing and transition economies in the ESCAP region.
10. Specifically on the Asian Highway, the Ministerial Declaration on Improving Road Safety in Asia and the Pacific invites, inter alia, ESCAP members to "develop the Asian Highway as a model of road safety".
11. According to the latest data available from the Asian Highway Database (2006),⁷ an estimated 19,000 fatalities and 125,000 road crashes occurred on the more than 140,000 km of the Asian Highway in 2006.⁸ This implies an average rate of 37 fatalities per billion vehicle-km, as well as a rate of 14 fatalities per 100 km.
12. Figure 1 summarizes the average number of fatalities per billion vehicle-km for each of the Asian Highway classes.⁹ Roads of class I, II and III with rapidly increasing mixed traffic and with high motorcycle shares show the worst safety record. In fact, the lower average fatality rate for class II is due to a selection bias, as for most countries where class II segments of the Asian Highway exist and safety data is available, roads of class II tend to show a worse safety record than roads of other classes in the country.

⁴ WHO, Global Status Report on Road Safety: Time for Action, 2009, p.16.

⁵ For the 22 Asian Highway countries for which data were reported to the ESCAP secretariat for the Expert Group Meeting on the Development of the Asian Highway Network, held from 8 to 10 May 2006. See http://www.unescap.org/ttdw/common/tis/ah/egm_may06.asp.

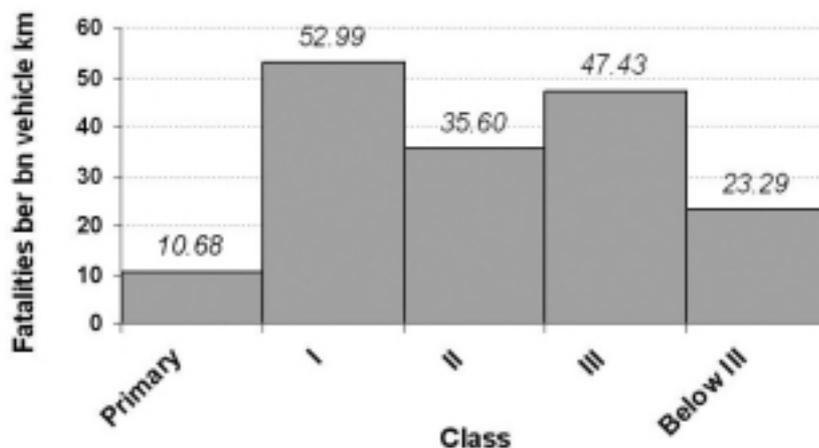
⁶ Economic costs of road accidents when expressed as a percentage of GDP roughly appear to follow the following relationship: Losses [% of GDP] = 0.0297 * EXP(-8*10⁻⁵) * (GDP per capita). In other words, losses are roughly 3 per cent in poorer developing countries and become less than 1 per cent for developed economies.

⁷ In the Asian Highway Database (2006), road safety data are available only for 31 per cent of the length of the Asian Highway, including 521 road sections (or 39 per cent of all sections) covering 43,432 km in 20 countries.

⁸ Estimated based on the segments for which road safety data available.

⁹ Asian Highways are classified into 4 classes. 'Primary' class refers to access-controlled highways. 'Class I' refers to 4 or more lanes roads with asphalt or cement concrete pavement. Class II roads are 2 lanes roads paved with asphalt or cement. Class III roads are also 2 lanes roads but with double bituminous treatment. Class III is regarded as the minimum desirable standard, but upgrading of pavement to asphalt concrete or cement concrete is encouraged.

Figure 1: Average fatality rates for each Asian Highway class



Source: Asian Highway Database (2006)

13. However, the upgrading of roads has also been linked to improved Asian Highway safety in many countries, particularly when the upgrades involved: (a) the construction of barriers to separate opposing directions of traffic and different types of vehicles; and/or (b) the improvement of road shoulders. Upgrading Asian Highway sections to class I and particularly to access-controlled primary class has significant benefits.

III. ESCAP ROAD SAFETY GOALS, TARGETS AND INDICATORS

14. Ministerial Declaration on Improving Road Safety in Asia and the Pacific invited ESCAP members and associate members to address road safety in the following areas (eight ESCAP "goals"):
- Making road safety a policy priority
 - Making roads safer for vulnerable road users, including children, senior citizens, pedestrians, non-motorized vehicle users, motorcyclists, and persons with disabilities
 - Making roads safer and reducing the severity of accidents (building "forgiving roads")
 - Making vehicles safer and encourage responsible vehicle advertising
 - Improving national and regional road safety systems, management and enforcement
 - Improving cooperation and fostering partnerships
 - Developing the Asian Highway as a model of road safety
 - Providing effective education on road safety awareness to the public, young people and drivers
15. For each of the eight goals, targets to achieve the goal and indicators to monitor the progress towards the targets have been developed and proposed for discussion at a series of expert group meetings: Expert Group Meeting on the Development of the Asian Highway Network: Regional Experiences and Lessons in Financing Highway Infrastructure and Improving Road Safety (May 2006), Expert Group Meeting on Improving Road Safety on the Asian Highway (June 2007), Expert Group Meeting on Improving Road Safety on the Asian Highway - Targets and Engineering (October 2008) and Expert Group Meeting on Improving Road Safety (September 2009). The ESCAP road safety goals, targets and indicators, as contained in the table A1 as an annex, will be further considered by the Forum of Asian Ministers of Transport, at its first session, to be held on 14-18 December 2009 in Bangkok, for its formalization.
16. The set of goals, targets and indicators is consistent with and supported by the existing national and subregional road safety goals and targets that have recently emerged. It includes the recommendations of the 2004 WHO report,¹⁰ and key elements of the ASEAN road safety framework, including the goals for 2005-2010 as agreed upon in the 2004 Phnom Penh Ministerial Declaration on ASEAN Road Safety. Table 1 below shows the summary of road safety goals and recent actions of ESCAP member States.

¹⁰ WHO, World report on road traffic injury prevention, 2004.

Table 1: Overall road safety goals and recent actions in ESCAP member States

ESCAP member States	Overall goals and recent actions
Armenia	To reduce number of road fatalities by 10% over the next 5 year (from 2008)
Australia	2001 - 2010: "The target of the strategy is to reduce the annual number of road fatalities per 100,000 populations by 40%, from 9.3 in 1999 to no more than 5.6 in 2010."
Bangladesh	Under 5th National Action Plan 2008-2010, the goal is to reduce number of road fatalities by 10-12% by 2010
Bhutan	In 2007, a road safety action plan were prepared with technical assistance from ADB, however, government requires resources to implement the proposed road safety action plan.
Brunei Darussalam	Save more than 56 lives in 5 year period of action plan (for 2008) [Reduction of 45 lives and 2028 injuries (2005-2010)].
Cambodia	Eliminate number of road fatality by educating peoples through illustrating posters, TV, spots and radio broadcasting on road safety program": ADB-ASEAN target of saving 1,800 lives and prevent 36,000 injuries during 2005-2010. And number of fatalities per 10,000 vehicles to be achieved in 2010 and 2020 are 7 and 2, respectively
Georgia	The goal is to reduce road deaths by 50% from year 2000 to 2012. Road safety action plan for 2009-2013 are to be adopted by the government by the end of September
India	Various targets of State Governments.
Indonesia	For 2005-2010: saving 20,411 lives, 3.4% deaths per 10,000 vehicles, increase seat-belt and helmet wearing to 90%; ADB-ASEAN target of saving 12,000 lives and preventing 996,000 injuries during 2005-2010 Indonesia Road Safety Plan for 2008-2012 were also developed with 8 strategies addressing 47 Action plans
Islamic Republic of Iran	Agreement signed with World Bank for \$104 millions to fund road's safety projects. In 2008, Iran Road Maintenance and Transportation Organization allocated about \$25 million and allocation of World Bank is in progress
Japan	2006-2010: a) "Safest roads in the world" (<5500 deaths); b) Less than 1 million injuries and deaths. Measurements have been taken and proved successful reduction in the accident rate e.g. implementation of hazardous spot projects.
Kazakhstan	Reduce the number and severity of accidents.
Lao People's Democratic	Saving 917 lives and 21,000 injuries by the year 2010 by halving the anticipated increase in deaths and injuries; increase helmet wearing to 90%.
Malaysia	By 2010, reduce the fatality rate to 2 per 10,000 vehicles, 10 per 100,000 people and 10 per billion vehicle-km; ADB-ASEAN target of saving 3,000 lives and preventing 21,900 injuries during 2005-2010. The 9th Malaysian Plan allocated MYR 200 million to improve hazardous locations along state and municipal roads
Mongolia	Adopted annual action plan for road traffic safety improvement Road safety audit were taken in 2008 for part of the road network in the country
Myanmar	ADB-ASEAN target of saving 940 lives and preventing 32,900 injuries during 2005-2010. National targeted safety index reported in 2008 aim to save more than 1000 lives over the (5)year period by halving the anticipated increase in deaths per year(to halve the present annual increase in deaths of 6.4% per year to 3.2% per year over the next 5 years.
Nepal	There is no long-term strategy for road safety outlined for Nepal to date
New Zealand	To reduce the road toll to no more than 300 deaths and fewer than 4,500 hospitalizations per year by 2010 (from 404 fatalities in 6,670 hospitalizations in 2002).
Pakistan	Road safety is ensured through modern traffic policing activities. In 2008 reported reduction in accident and increase in awareness and discipline.
Philippines	ADB-ASEAN target of saving 3,000 lives and prevent 258,000 injuries during 2005-2010. Many road safety initiatives have been taken place including the launch of Road Safety Design Manual by Department of Public Works and Highways.
Republic of Korea	National Transport Safety Master Plan (2008-2012) aims at 50% reduction of number of fatalities (2008 to 2012)
Russian Federation	Local target in Krasnoyarsk region "to decrease the accident rate by 10-15% and the number of victims of road accidents by 10-12% every year".
Singapore	ADB-ASEAN target of saving 100 lives and prevent 4,300 injuries during 2005-2010.
Thailand	ADB-ASEAN target of saving 13,000 lives and prevent 1,508,000 injuries during 2005-2010
Turkey	Reduce accident rate on highways by 40% within 5 years.(from 2006)
Viet Nam	ADB-ASEAN target of saving 7,000 lives and prevent 16,100 injuries during 2005-2010. National safety target aims at reducing accidents by 5-7% per year, 4.5 deaths/10,000 vehicle, and 12.6-12.8 deaths/100,000 populations.

IV. ROAD SAFETY DATA AVAILABILITY IN ASIA

Road Safety Data Collection System and Availability in Asia and the Pacific

17. Currently there seem to be no one single time-series dataset available in the region that would be used for comprehensive evaluation of road safety status and its improvement. While many countries in the ESCAP region have national road safety strategies which include targets, only a few countries have established effective systems to collect data for monitoring and evaluation of the progress towards the targets. Table 2 summarizes information on road safety data collection and analysis systems, taken from country reports and other materials presented to various expert group meetings.

Table 2: Data collection and analysis systems of ESCAP countries

Country	Data Collection and Analysis System
Armenia	Accident data collected from traffic police, Ministry of Health and traffic research group (ARD)
Bangladesh	First Investigation Report by Police Micro-Computer Accident Analysis Package (MAAP)
Bhutan	Vehicle and driver database are available but there is no on-line accident-location database Accident database is still a major problem in the country
Cambodia	Road Crash and Victim Information System (RCVIS) developed with technical support from Handicap International Belgium
India	Data collected and compiled by the Police However, there are some inconsistencies of data and challenges on data analysis.
Indonesia	Accident Data System conducted by the Police
Japan	Integrated database by ITARDA (Institute for Traffic Accident Research and Data Analysis)
Lao PDR	Development of comprehensive road accident data system is part of the national action plan
Malaysia	Computerized Accident Recording Systems (CARS) MIROS Road Accident Analysis and Database System (M-ROADS)
Myanmar	Development of comprehensive road accident data system is part of the national action plan
Nepal	Nation-wide Accident Data Collection by the police
Pakistan	Road Safety Wing (RSW) was established to collect accident data and analyze it on scientific method
Philippines	Accident data system (Traffic Recording and Analysis System - TARAS) was established
Republic of Korea	Development of Transportation Safety Information Management System is included in the new transport safety plan (2008-2012)
Singapore	Traffic Accident Analysis Module (TAAM) National database TPRTA
Sri Lanka	All data is computerised and is in the process of developing a common database pertaining to the road sector.
Turkey	Computerized database
Viet Nam	Development of comprehensive road accident data system is part of the national action plan

18. Some countries are relatively more advanced in their data collection and analysis. For example, in Japan, an integrated road safety database developed by the Institute for Traffic Accident Research and Data Analysis enables the analysis on the implications of interactions between people and accident, road and accident, and vehicle and accident. Outputs from the analysis allow the government to implement effective countermeasures with priority. Some other countries in the region, on the other hand, still face fundamental challenges in data collection and/or data analysis. For example, the nation-wide accident database in Nepal does not cover data and information enough to conduct accident analysis. India also faces similar problem that data collected and compiled by the police are not consistent and therefore can not be used for accident analysis. Some countries including Lao PRD, Myanmar and Viet Nam have included the development of comprehensive road accident data system as part of their national plans.

19. Being aware of the importance of road safety data availability, the Expert Group Meeting on Improving Road Safety on the Asian Highway - Targets and Engineering, held in Bangkok in 2008, in its major conclusion and recommendation of meeting, has called on ESCAP members to consider improving their data collection and reporting systems.

Asia-Pacific Road Accident Database (APRAD)

20. Asia-Pacific Road Accident Database (APRAD)¹¹ developed by the ESCAP secretariat includes data for 4 categories: (1) background statistics such as length of road network, vehicle-kilometres, number of motorized road vehicles, population, GDP per capita and GDP growth rate; (2) economic significance including annual economic losses from road accidents in dollar terms as well as in percentage of GDP; (3) personal injuries and deaths on the road including the number of fatalities by and the number of road traffic injuries; (4) the number of road accidents involving death and/or injury.
21. APRAD has a detailed data structure, which provides road safety data at different levels from total to detailed sub-category. Data on the number of casualty accidents and the number of road fatalities are provided by type of casualty (injuries, fatalities and both), accident location, time of accident, road type and road surface condition. The number of road fatalities is also grouped by type of road users/type of vehicles and further categorized by age group and gender. However, data at the sub-category levels are currently available only for a limited number of countries, leaving most of data fields of the database empty. Due to the limited availability of road safety data in the region, APRAD has not been updated regularly.

Road safety data in Asian Highway Database

22. The Asian Highway Databas¹² includes comprehensive and detailed data and information on the Asian Highway routes in member States. The ESCAP secretariat is updating the database every other year, to monitor improvement of the network in member States. The Asian Highway Database is currently being updated using the 2008 data and information received from member States. As of 15 August 2009, updates have been received from 20 member countries.
23. The Asian Highway Database includes road safety data, i.e., number of accident and number of fatalities. An advantage of using the Asian Highway Database for accident analysis is that road accidents and fatalities can be linked to various infrastructure characteristics such as number of lanes, surface type, surface condition, terrain, etc.
24. In the 2006 version of the Asian Highway Database, the road safety data are available only for 31 per cent of the length of the Asian Highway, including 521 road sections (or 39 per cent of all sections) covering 43,432 km in 20 countries. The incompleteness of the database may cause bias to the analysis. For example, as discussed in the previous section, the lower average fatality rate for class II is considered due to a selection bias, because in most countries where class II segments of the Asian Highway exist and safety data are available, roads of class II tend to show a worse safety record than roads of other classes.

Data availability for monitoring progress towards ESCAP goals and targets

25. The set of ESCAP road safety goals and targets include indicators through which the progress can be monitored. Consistent and reliable data and information on the indicators are prerequisite to the monitoring and assessment of achievement of goals and targets, evaluation of effectiveness and efficiency of policies implemented as well as the comparison of performance at the international level.
26. Collecting data on the set of ESCAP road safety indicators is a challenging task. The ESCAP secretariat is currently updating the data on the indicators for the base year 2007,¹³ using information contained in country reports presented by member countries at expert group meetings organized during 2006 to 2009 and other secondary sources including the 2009 WHO report.

¹¹ APRAD is accessible at <http://www.unescap.org/ttdw/data/aprad.aspx>

¹² The information from the Asian Highway Database is available to member countries and developing partners through the UNESCAP website (<http://www.unescap.org/ttdw/common/tis/ah/member%20countries.asp>)

¹³ Spreadsheets for individual countries with updated data and information on the indicators are available from <http://www.unescap.org/ttdw/roadsafety/countrydata.html2005>.

27. Data availability is at different levels for different indicators and in different countries. For example, the number of road fatalities (ESCAP road safety indicator #1) in 2007 is available for almost all countries in the region including 49 ESCAP members that are included in the WHO report. However, from the WHO report, fatality data by road user category (ESCAP indicators #8, #10 and #12) are available only for 35 countries. Data availability for other indicators is even lower. Data on helmet wearing rate for motorcyclists (ESCAP indicator #22) are available only for 19 countries and data on seat-belt wearing rate (ESCAP indicator #23) for 21 countries.
28. The low quality and reliability of road safety data is a common problem in most countries. Underreporting is an acknowledged problem which makes transnational comparison of road safety data difficult and magnitude of road safety problem underestimated. From the 2009 WHO report, it is estimated that the reported data on fatalities in the ESCAP region represents only 52 per cent of the data adjusted for underreporting. More than half of the countries in the region reported road fatality data based on police records only, which show in general higher level of underreporting compared to health sector data.
29. Another common problem is a wide range of definitions for road fatality in relation to time period between a road crash and deaths from "died at the crash scene", through 7-day period, 30-day period and 1-year period, to any death regardless of the time that has elapsed. Only one third¹⁴ of 49 countries included in the 2009 WHO report use the 30-day definition, which has been recommended for harmonization across data sources.

V. CONCLUSION

30. Accurate and reliable data on road accident and casualty provide essential information to governments in formulating national strategies and action plans, in targeting their policy interventions and in monitoring the progress and evaluating the effectiveness of their national road safety programmes.
31. In the ESCAP region, while some countries have established effective systems for road safety data collection and analysis, many developing countries still face fundamental challenges to improve their data collection and reporting systems. There is an urgent need for collaboration among different sectors in collecting and reporting road safety data and in harmonizing definitions of road fatalities and injuries.
32. At the regional level, the ESCAP secretariat will continue its efforts to provide assistance to member countries in collecting road safety data, particularly in relation to the ESCAP road safety goals, targets and indicators. ESCAP countries could also benefit from the experiences that International Transport Forum has gained in developing and maintaining IRTAD database.

¹⁴ This is compared to 45 per cent of global average.

ANNEX

Table A1: ESCAP road safety goals, targets and indicators

Goals and targets	Indicators for monitoring achievements
Overall objective: Saving 600,000 lives and preventing a commensurate number of serious injuries on the roads of Asia and the Pacific over the period 2007 to 2015.	
a) Reduce fatality rates by 20 per cent from 2007 to 2015 (or reduce it to less than 10 per 10,000 motor vehicles by 2015).	1) Number of road fatalities (and fatality rates per 10,000 motor vehicles, per motor vehicles-km and per passenger-km). 2) Number of road crashes.
b) Reduce rates of serious road injuries by 20 per cent from 2007 to 2015.	3) Number of serious road injuries (and injury rate per 10,000 motor vehicles, and per motor vehicle-km).
Goal 1: Making road safety a policy priority	
a) Create a road safety policy/strategy, designate a lead agency and implement a plan of action by 2010.	4) Information on existing national road safety policy, strategy, and plan of action. 5) Name of designated lead agency. Description of responsibilities of local, regional and national government organizations. 6) National road safety reports or impact evaluation reports of government programmes.
b) Allocate sufficient financial and human resources to improving road safety.	7) Amount of funding allocated to road safety programmes (public, private and donors).
Goal 2: Making roads safer for vulnerable road users, including children, senior citizens, pedestrians, non-motorized vehicle users, motorcyclists, and persons with disabilities	
a) Reduce by one third the pedestrian death rate in road crashes (or reduce it to less than 1 per 10,000 motor vehicles).	8) Number of pedestrian deaths or pedestrian deaths per 10,000 motor vehicles.
b) Increase the number of safe crossings for pedestrians (e.g., with subway or overhead crossings, or traffic signals).	9) Information on programmes for construction of new safe crossings or improvement of crossings.
c) Make the wearing of helmets the norm and ensure minimum helmet quality, in order to reduce the motorcyclist death rate by one third (or reduce it to below the average motorcyclist death rate of the ESCAP region).	10) Number of motorcyclist deaths and motorcyclist death per 10,000 motorcycles. 11) Existing law or administrative rule for mandatory use of helmets and specifying minimum helmet quality standards. Information on helmet use (percentage).
d) Ensure minimum child safety measures, in order to reduce the child death rate by one third (or reduce it to less than 0.01 per 10,000 motor vehicles).	12) Number of child fatality in road crashes. 13) Existing law or administrative rule on measures for child safety in cars (child restraints) and on motorcycle (child helmets). 14) Information on use of child seat restraints and child helmets.
e) Equip all school children with basic road safety knowledge.	15) Existing or planned education programmes on road safety in school, starting class and its coverage.
Goal 3: Making roads safer and reducing the severity of road crashes (building "forgiving roads")	
a) Integrate a road safety audit at all stages of road development starting at the design stage, carry out necessary improvement works, and improve hazardous locations.	16) Extent to which road safety audits are carried out for new road construction and major improvements. 17) Number of improvement programmes carried out to make roads "forgiving" (e.g., blackspot, removing or cushioning roadside obstacles).
b) Increase separate/secure road space for pedestrians and cyclists in urban and suburban areas (where space permits)	18) Existing length of pedestrian and bicycle tracks in kilometers per 100,000 people or per 10,000 km of roads (along highways and city roads). Programme to construct pedestrian and bicycle tracks.

Goals and targets	Indicators for monitoring achievements
Goal 4: Making vehicles safer and encourage responsible vehicle advertising	
a) Make regular inspections of road vehicles mandatory and ensure enforcement of inspection (starting in urban areas).	19) Existing law or administrative rule on vehicle inspection, frequency of inspection (annual), number of vehicle inspection facilities and organizations.
b) Ensure safety requirements for new vehicles are in line with international standards.	20) Existing law and regulation specifying vehicle safety standards and implementation.
Goal 5: Improving national and regional road safety systems, management and enforcement	
a) Implement a national (computerized) database that provides information on the location of road crashes.	21) Information on existing road safety database and responsible organizations.
b) Significantly increase "compliance", e.g., with mandatory helmet, seat-belt use, drinking and driving, use of mobile phone and speed limits.	22) Information on "compliance" on helmet wearing (percentage). 23) Information on rules and "compliance" on seat-belt use, use of mobile phone (percentage use). 24) Information on rules and "compliance" related to "drinking and driving" and speed limits.
c) Allow alcohol tests for prosecution (either breathalyzer and/or behavioural tests).	25) Existing alcohol level testing rules, types of tests and alcohol limits used and allowed for prosecution.
d) Make it the norm to keep motorcycle front-lights on at all times.	26) Information on existing law or administrative rule on keeping motorcycle headlight on while driving.
e) Increase coverage of emergency assistance systems for road victims, to cover at least all urban areas and trunk roads.	27) Kilometres of road (by type) on which emergency services are provided. 28) Average emergency response time. 29) Number of emergency service centres per length of highways (except city roads).
Goal 6: Improving cooperation and fostering partnerships	
a) Encourage and recognize private-sector sponsored initiatives.	30) Number of major partnerships in the area of road safety, funding (private sector, public-private initiatives).
b) Create new and deepen existing partnerships with non-governmental organizations.	31) Number of major partnerships with NGO, scope, and funding.
Goal 7: Developing the Asian Highway as a model of road safety	
a) Reduce the total number of fatalities and road crashes on the Asian Highway.	32) Total number road fatalities and road crashes on the Asian Highway in each country per year.
b) Reduce the number of fatalities on all Asian Highway segments to below 100 per billion vehicle-km.	33) Number of fatalities per billion vehicle-km for each Asian Highway segment per year.
c) Increase resource allocation for road safety-related measures along the Asian Highway.	34) Amount of resources allocated to safety-related works for the Asian Highway segments from governments and donors.
d) Improve Asian Highway road segments to be forgiving to road users if a crash occurs. Demonstrate best practice.	35) Information on road safety assessment and rating programme for the Asian Highway.
Goal 8: Providing effective education on road safety awareness to the public, young people and drivers	
a) Carry out targeted awareness campaigns and training programmes.	36) Information on number of awareness campaigns and training programmes carried out.